CHAPTER 10.4.

INFECTION WITH INFECTIOUS SALMON ANAEMIA VIRUS

Article 10.4.1.

For the purposes of the *Aquatic Code*, infection with infectious salmon anaemia virus means *infection* with the *pathogenic agent* highly polymorphic region (HPR)-deleted infectious salmon anaemia virus (ISAV), or the non-pathogenic HPR0 (non-deleted highly polymorphic region) ISAV, of the Genus *Isavirus* and Family *Orthomyxoviridae*. Both genotypes should be notified in accordance with Chapter 1.1.

There is a link between non-pathogenic HPR0 ISAV and pathogenic HPR-deleted ISAV, with some *outbreaks* potentially occurring as a result of the emergence of HPR-deleted from HPR0.

The provisions in this chapter are provided in recognition of three possible levels of disease status with respect to ISAV:

1) HPR0 ISAV and HPR-deleted ISAV free;
2) HPR0 ISAV endemic (but HPR-deleted ISAV free);
3) HPR0 ISAV and HPR-deleted ISAV endemic.

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

Article 10.4.2.

Scope

The recommendations in this chapter apply to the following species that meet the criteria for listing as susceptible in accordance with Chapter 1.5.: Atlantic salmon *(Salmo salar)*, brown trout *(Salmo trutta)* and rainbow trout *(Onchorynchus mykiss)*.

Article 10.4.3.

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

In this article, all statements referring to ISAV include HPR deleted ISAV and HPR0 ISAV.

1) *Competent Authorities* should not require any conditions related to ISAV, regardless of the infection with ISAV 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 10.4.2. that are intended for any purpose and comply with Article 5.4.1.:
   a) heat sterilised hermetically sealed fish 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 ISAV);
   b) pasteurised fish products that have been subjected to a heat treatment at 90°C for at least ten minutes (or any time/temperature equivalent that has been demonstrated to inactivate ISAV);
   c) mechanically dried eviscerated fish (i.e. a heat treatment at 100°C for 30 minutes or any time/temperature equivalent that has been demonstrated to inactivate ISAV);
   d) fish oil;
   e) fish *meal*;
   f) fish skin leather.
2) When authorising the importation or transit of *aquatic animal products* derived from a species referred to in Article 10.4.2., other than those referred to in point 1 of Article 10.4.3., *Competent Authorities* should require the conditions prescribed in Articles 10.4.10. to 10.4.17. relevant to the infection with ISAV 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 10.4.2. but which could reasonably be expected to pose a *risk* of transmission of ISAV, 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 10.4.4.

Country free from infection with ISAV

In this article, all statements referring to a country free from infection with ISAV are for any detectable ISAV, including HPR0 ISAV.

If a country shares a *zone* with one or more other countries, it can only make a *self-declaration of freedom* from infection with ISAV if all the areas covered by the shared water bodies are declared countries or *zones* free from infection with ISAV (see Article 10.4.6.).

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

1) none of the *susceptible species* referred to in Article 10.4.2. are present and *basic biosecurity conditions* have been continuously met for at least the last two years;

OR

2) the infection with ISAV 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 ISAV;

OR

3) it previously made a *self-declaration of freedom* from infection with ISAV and subsequently lost its free status due to the detection of ISAV but the following conditions have been met:

   a) on detection of ISAV, 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 ISAV, 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 ISAV; and

   d) *targeted surveillance*, as described in Chapter 1.4., has been in place for at least the last two years without detection of ISAV.

   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 10.4.6.

   The pathway for *self-declaration of freedom* from infection with ISAV HPR0 based on absence of clinical expression of infection with ISAV (referred to as historical freedom in Article 1.4.6.) cannot be achieved because infection with ISAV HPR0 is unlikely to cause any clinical signs.

Article 10.4.5.

Country free from infection with HPR-deleted ISAV

In this article, all statements refer to a country free from infection with HPR-deleted ISAV but not necessarily free from infection with HPR0 ISAV.

If a country shares a *zone* with one or more other countries, it can only make a *self-declaration of freedom* from infection with HPR-deleted ISAV if all the areas covered by the shared water bodies are declared countries or *zones* free from infection with HPR-deleted ISAV (see Article 10.4.7.).

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

1) any of the *susceptible species* referred to in Article 10.4.2. are present and the following conditions have been met:

   a) there has been no occurrence of infection with HPR-deleted ISAV 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 ten years;

OR

2) the infection with HPR-deleted ISAV 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 HPR-deleted ISAV;

OR

3) it previously made a *self-declaration of freedom* from infection with HPR-deleted ISAV and subsequently lost its free status due to the detection of HPR-deleted ISAV but the following conditions have been met:

   a) on detection of HPR-deleted ISAV, 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 HPR-deleted ISAV, 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 HPR-deleted ISAV; and

   d) *targeted surveillance*, as described in Chapter 1.4., has been in place for at least the last two years without detection of HPR-deleted ISAV.

   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 10.4.7.

Article 10.4.6.

Zone or compartment free from infection with ISAV

In this article, all statements referring to a *zone* or *compartment* free from infection with ISAV are for any detectable ISAV, including HPR0 ISAV.

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

1) none of the *susceptible species* referred to in Article 10.4.2. are present in the *zone* or *compartment* and *basic biosecurity conditions* have been continuously met for at least the last two years;

OR

2) the infection with ISAV 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 ISAV;

OR

3) it previously made a *self-declaration of freedom* for a *zone* from infection with ISAV and subsequently lost its free status due to the detection of ISAV in the *zone* but the following conditions have been met:

   a) on detection of ISAV, 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 the ISAV, 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 ISAV; and

   d) *targeted surveillance*, as described in Chapter 1.4., has been in place for at least the last two years without detection of ISAV.

Article 10.4.7.

Zone or compartment free from infection with HPR-deleted ISAV

In this article, all statements refer to a *zone* or *compartment* free from infection with HPR-deleted ISAV but not necessarily free from infection with HPR0 ISAV.

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

1) any of the *susceptible species* referred to in Article 10.4.2. are present in the *zone* or *compartment* and the following conditions have been met:

   a) there has been no occurrence of infection with HPR-deleted ISAV 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 ten years;

OR

2) the infection with HPR-deleted ISAV 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 HPR-deleted ISAV;

OR

3) it previously made a *self-declaration of freedom* for a *zone* from infection with HPR-deleted ISAV and subsequently lost its free status due to the detection of HPR-deleted ISAV in the *zone* but the following conditions have been met:

   a) on detection of HPR-deleted ISAV, 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 the HPR-deleted ISAV, 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 HPR-deleted ISAV; and

   d) *targeted surveillance*, as described in Chapter 1.4., has been in place for at least two years without detection of HPR-deleted ISAV.

Article 10.4.8.

Maintenance of free status for infection with ISAV

In this article, all statements referring to a country, *zone* or *compartment* free from infection with ISAV are for any detectable ISAV, including HPR0 ISAV.

A country, *zone* or *compartment* that is declared free from infection with ISAV following the provisions of point 1 of Articles 10.4.4. or 10.4.6. (as relevant) may maintain its status as free from infection with ISAV provided that *basic biosecurity conditions* are continuously maintained.

A country, *zone* or *compartment* that is declared free from infection with ISAV following the provisions of point 2 of Articles 10.4.4. or 10.4.6. (as relevant) may maintain its status as free from infection with ISAV provided that *targeted surveillance* is continued at a level determined by the *Aquatic Animal Health Service* on the basis of the likelihood of *infection*, and *basic biosecurity conditions* are continuously maintained.

Article 10.4.9.

Maintenance of free status for infection with HPR-deleted ISAV

In this article, all statements refer to a country, *zone* or *compartment* free from infection with HPR-deleted ISAV, but not necessarily free from infection with HPR0 ISAV.

A country, *zone* or *compartment* that is declared free from infection with HPR-deleted ISAV following the provisions of points 1 or 2 of Articles 10.4.5. or 10.4.7. (as relevant) may maintain its status as free from infection with HPR-deleted ISAV provided that *basic biosecurity conditions* are continuously maintained.

A country, *zone* or *compartment* that is declared free from infection with HPR-deleted ISAV following the provisions of point 3 of Articles 10.4.5. or 10.4.7. (as relevant) may discontinue *targeted surveillance* and maintain its free status provided that conditions that are conducive to clinical expression of infection with HPR-deleted ISAV, 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 an infected country and in all cases where conditions are not conducive to clinical expression of infection with HPR-deleted ISAV, *targeted surveillance* should be continued at a level determined by the *Aquatic Animal Health Service* on the basis of the likelihood of *infection*.

Article 10.4.10.

Importation of aquatic animals or aquatic animal products from a country, zone or compartment declared free from infection with ISAV

In this article, all statements referring to a country, *zone* or *compartment* free from infection with ISAV include HPR-deleted ISAV and HPR0 ISAV.

When importing *aquatic animals* of a species referred to in Article 10.4.2., or *aquatic animal products* derived thereof, from a country, *zone* or *compartment* declared free from infection with ISAV, 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 10.4.4. or 10.4.6. (as applicable) and 10.4.8., the place of production of the *aquatic animals* or *aquatic animal products* is a country, *zone* or *compartment* declared free from infection with ISAV.

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 10.4.3.

Article 10.4.11.

Importation of aquatic animals or aquatic animal products from a country, zone or compartment declared free from infection with HPR-deleted ISAV

In this article, all statements refer to a country, *zone* or *compartment* free from infection with HPR-deleted ISAV, but not necessarily free from infection with HPR0 ISAV.

When importing *aquatic animals* of a species referred to in Article 10.4.2., or *aquatic animal products* derived thereof, from a country, *zone* or *compartment* declared free from infection with HPR-deleted ISAV, 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 10.4.5. or 10.4.7. (as applicable) and 10.4.9., the place of production of the *aquatic animals* or *aquatic animal products* is a country, *zone* or *compartment* declared free from infection with HPR-deleted ISAV.

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 10.4.3.

Article 10.4.12.

Importation of aquatic animals for aquaculture from a country, zone or compartment not declared free from infection with ISAV

In this article, all statements referring to infection with ISAV are for any detectable ISAV, including HPR0 ISAV.

When importing, for *aquaculture*, *aquatic animals* of a species referred to in Article 10.4.2. from a country, *zone* or *compartment* not declared free from infection with ISAV, 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 10.4.3. or other products authorised by the *Competent Authority*; and
   c) the treatment of all transport water, equipment, effluent and waste materials to inactive ISAV in accordance with Chapters 4.3., 4.7. and 5.5.

OR

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 ISAV.
   b) In the *importing country*:
      i) import the F-0 population into a *quarantine* facility;
      ii) test the F-0 population for ISAV 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 ISAV, and sample and test for ISAV in accordance with Chapter 1.4. of the *Aquatic Code* and Chapter 2.3.5. of the *Aquatic Manual*;
      v) if ISAV is not detected in the F-1 population, it may be defined as free from infection with ISAV and may be released from *quarantine*;
      vi) if ISAV 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 10.4.13.

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 ISAV

In this article, all statements referring to infection with ISAV are for any detectable ISAV, including HPR0 ISAV.

When importing, for processing for human consumption, *aquatic animals* of a species referred to in Article 10.4.2., or *aquatic animal products* derived thereof, from a country, *zone* or *compartment* not declared free from infection with ISAV, 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 10.4.3. or in point 1 of Article 10.4.16., 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 ISAV 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 ISAV 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 10.4.14.

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 ISAV

In this article, all statements referring to infection with ISAV are for any detectable ISAV, including HPR0 ISAV.

When importing *aquatic animals* of a species referred to in Article 10.4.2., 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 ISAV, 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 10.4.3. or other products authorised by the *Competent Authority*; and
2) all water (including ice), equipment, *containers* and packaging material used are treated to ensure inactivation of ISAV 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 ISAV or disposed of in a biosecure manner in accordance with Chapters 4.3. and 4.7.

Article 10.4.15.

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

In this article, all statements referring to infection with ISAV includes HPR deleted ISAV and HPR0 ISAV.

When importing, for use in laboratories or zoos, *aquatic animals* of species referred to in Article 10.4.2. from a country, *zone* or *compartment* not declared free from infection with ISAV, 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 ISAV 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 ISAV 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 10.4.16.

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

In this article, all statements referring to infection with ISAV includes HPR deleted ISAV and HPR0 ISAV.

1) *Competent Authorities* should not require any conditions related to infection with ISAV, regardless of the infection with ISAV status of the *exporting country*, *zone* or *compartment*, when authorising the importation (or transit) of fish fillets or steaks (frozen or chilled) that have been prepared and packaged for retail trade and 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 *aquatic animal products* Member Countries may wish to consider introducing internal measures to address the *risks* associated with the *aquatic animal product* being used for any purpose other than for human consumption.

2) When importing *aquatic animal products*, other than those referred to in point 1 above, derived from a species referred to in Article 10.4.2. from a country, *zone* or *compartment* not declared free from infection with ISAV, the *Competent Authority* of the *importing country* should assess the *risk* and apply appropriate *risk* mitigation measures.

Article 10.4.17.

Importation of disinfected eggs for aquaculture from a country, zone or compartment not declared free from infection with ISAV

In this article, all statements referring to infection with ISAV are for any detectable ISAV, including HPR0 ISAV.

1) When importing disinfected eggs of the species referred to in Article 10.4.2. for *aquaculture*, from a country, *zone* or *compartment* not declared free from infection with ISAV, the *Competent Authority* of the *importing country* should assess the *risk* associated with at least:

   a) the infection with ISAV status of the water to be used during the *disinfection* of the eggs;

   b) the prevalence of infection with ISAV in broodstock; and

   c) the temperature and pH of the water to be used for *disinfection*.

2) If the *Competent Authority* of the *importing country* concludes that the importation is acceptable, it should apply the following *risk* mitigation measures including:

   a) the eggs should be disinfected prior to importing, in accordance with recommendations in Chapter 4.4. or those specified by the *Competent Authority* of the *importing country*; and

   b) between *disinfection* and the import, eggs should not come into contact with anything which may affect their health status.

   The *Competent Authority* may wish to consider internal measures, such as renewed *disinfection* of the eggs upon arrival in the *importing country*.

3) When importing disinfected eggs of the species referred to in Article 10.4.2. for *aquaculture*, from a country, *zone* or *compartment* not declared free from infection with ISAV, 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* certifying that the procedures described in point 2 of this article have been fulfilled.

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