The OIE Aquatic Animal Health Standards Commission (hereafter referred to as the Aquatic Animals Commission) met at the OIE Headquarters from 13 to 17 March 2006. The meeting was chaired by Dr Eva-Maria Bernoth, President of the Commission, and Dr Ricardo Enriquez, Secretary General, acted as Rapporteur. Participants are listed at Appendix I. The Agenda adopted is given at Appendix II.

Dr David Wilson, Deputy Director General of the OIE, welcomed the members and informed the Aquatic Animals Commission that, based on the standard development biannual cycle, both the August 2005 and this March 2006 reports would be distributed to OIE Delegates during the 74th General Session. He clarified that the list of diseases present in Chapter 1.1.3. of the OIE Aquatic Animal Health Code (hereafter referred to as the Aquatic Code) related to the reporting obligations of Member Countries and that the disease chapters served to assist Member Countries to develop their import regulations. The Aquatic Animals Commission agreed that there may be chapters in the OIE Codes and Manuals for diseases that are no longer listed but which would provide useful advice to Member Countries.

The Aquatic Animals Commission recognised the contribution of the following Member Countries in providing comments: Australia, Canada, Chile, Colombia, El Salvador, the European Community (EC), Japan, New Zealand, Norway, Panama, Paraguay, Thailand and the United States of America (USA).

The Aquatic Animals Commission examined various Aquatic Code texts from its August 2005 report in the light of Member Countries’ comments. The outcome of the Aquatic Animals Commission’s work is presented as appendices to the August 2005 report and to this report. Additions made during the August 2005 meeting are shown as double underlined text, with deleted text in strikeout, and those made at this meeting (March 2006) in a similar fashion but with a coloured background to distinguish the two groups of proposals.

The following texts in the table are proposed for adoption. The texts are included in the August 2005 report of the Aquatic Animals Commission; texts modified at the March 2006 meeting are presented in appendices in Part A of this report. Both reports will be in the Delegates’ folders for the 74th General Session.
The following texts are presented in **Part B** of this report for Member Countries’ comment:

- White spot disease (Chapter 4.1.2.) at Appendix XXII;
- Taura syndrome (Chapter 4.1.1.) at Appendix XXIII;
- Yellowhead disease (Chapter 4.1.3.) at Appendix XXIV;
- Tetrahedral baculovirosis (Chapter 4.1.4.) at Appendix XXV;
- Spherical baculovirosis (Chapter 4.1.5.) at Appendix XXVI;
- Infectious hypodermal and haematopoietic necrosis (Chapter 4.1.6.) at Appendix XXVII;
- Crayfish plague (Chapter 4.1.7.) at Appendix XXVIII;
- Infectious myonecrosis (Chapter 4.1.9.) at Appendix XXIX;
- Necrotising hepatopancreatitis (Chapter 4.1.10.) at Appendix XXX;
Animal Welfare Definitions (to be added to Chapter 1.1.1.) at Appendix XXXI;

Introduction to OIE guidelines for the welfare of aquatic animals at Appendix XXXII;

Guidelines for the transport of fish by boat at Appendix XXXIII;

Guidelines for the land transport of fish at Appendix XXXIV;

Guidelines for the slaughter of farmed fish for human consumption at Appendix XXXV;

Guidelines for the humane killing of fish for disease control purposes at Appendix XXXVI.

Member Countries are invited to submit their comments to the OIE on Part B of this report prior to 10th September 2006. The comments should be sent preferably by electronic mail to the following address: trade.dept@oie.int.

The following documents are presented in Part C of this report for Member Countries’ information:

- Report of the meeting of the teams comprising the OIE ad hoc Group on the List of Aquatic Animal Diseases at Appendix XXXVII;

- Report of the meeting of the OIE ad hoc Group on the Chapters for Crustacean Diseases for the OIE Aquatic Animal Health Code at Appendix XXXVIII;

- Report of the meeting of the OIE ad hoc Group on Aquatic Animal Transport at Appendix XXXIX;

- Report of the meeting of the OIE ad hoc Group on the Slaughter and Killing of Aquatic Animals at Appendix XL;

Aquatic Animals Commission’s work plan at Appendix XLI.

**PART A:**

1. **Proposed chapters for the Aquatic Animal Health Code**

1.1. **General comments**

Member Countries’ comments addressed under this agenda item were those of a generic nature, the more specific ones being deferred to the relevant agenda items.

In response to a comment from Canada, the Aquatic Animals Commission agreed on the need to update the model health certificates through the involvement of experts familiar with their usage. Acknowledging the parallel work underway on the revision of the terrestrial certificates, the Aquatic Animals Commission decided to postpone any specific aquatic initiative until it examines the revised terrestrial certificates (see also item 3.2. below).

The EC suggested that the OIE provide guidance to Member Countries wishing to ask for animal health guarantees for diseases not listed by the OIE. The Aquatic Animals Commission considered this concept worthwhile exploring and invited the EC to provide further details on its proposal.

The EC expressed concern that new susceptible species were added to the OIE list of susceptible species without consulting the OIE Reference Laboratories. The Aquatic Animals Commission advised that it is OIE policy to submit these reports to OIE Reference Laboratories at the same time as the distribution to OIE Delegates. Furthermore, these reports are made publicly available on the OIE website.
The EC queried whether the standards in the *Aquatic Code* applied to ornamental aquatic animals, which were seen, in the EC’s view, to pose a lower risk compared to farmed aquatic animals. The Aquatic Animals Commission advised that the beginning of each *Aquatic Code* chapter clearly stated that chapter’s scope which – depending on the disease – may include ornamental species. If an ornamental aquatic animal was listed as a susceptible species, then it was covered by the *Aquatic Code*. The Aquatic Animals Commission recognised that, in many regions of the world, ornamental aquatic animals were farmed and traded internationally in the same way as other live aquatic animals.

1.2. Definitions (chapter 1.1.1.)

The Aquatic Animals Commission appreciated the comments from Chile on the need for definitions on “case” and “epidemiological unit” and for providing constructive proposals for these. The Aquatic Animals Commission will consider these proposals at its next meeting.

Chile, the EC and the US commented on the proposed definitions for: Competent Authority, Veterinary Administration and Veterinary statutory body. The Aquatic Animals Commission advised that these proposed definitions were introduced as a step towards further harmonisation of the Terrestrial and Aquatic Codes. While the Terrestrial Animal Health Code (hereafter referred to as the Terrestrial Code) definitions were being reassessed, the proposed definitions for the *Aquatic Code* will be proposed to the OIE International Committee to advance further harmonisation.

The definitions proposed to the OIE International Committee for adoption at the 74th General Session in May 2006 are attached in Part A of this report, as Appendix III.

1.3. Disease listing and notification criteria (chapter 1.1.2.)

The Disease listing and notification criteria were revised by the Aquatic Animals Commission addressing Member Countries’ comments. The “notification criteria” were removed from this chapter because they are already contained in Chapter 1.2.1. The revised Chapter is submitted to the OIE International Committee for adoption at the May 2006 General Session (part A of this report, Appendix IV).

1.4. Revision of the list of diseases (chapter 1.1.3.)

Some Member Countries expressed concerns about the proposed deletion of BKD, IPN and infection with *Mikrocytos mackini*. These concerns appeared to be based on trade rather than reporting issues. The Aquatic Animals Commission would like to draw Member Countries’ attention to the fact that while the list of diseases related to the reporting obligations of Member Countries, the disease-specific chapters in the *Aquatic Code* serve to assist Member Countries to develop their import regulations.

The Aquatic Animals Commission maintained its previous decision to propose the deletion of BKD, IPN and infection with *Mikrocytos mackini* from the OIE list of diseases.

The Aquatic Animals Commission was concerned that some Member Countries appeared to have misunderstood the use of the listing criteria for an emerging aquatic animal disease (e.g. abalone viral mortality). The Aquatic Animals Commission clarified that there is only one list of diseases (Chapter 1.1.3.), but two pathways for a disease to become listed: to meet the main criteria in Article 1.1.2.1., or to meet criteria for listing an emerging aquatic animal disease in Article 1.1.2.2. The Aquatic Animals Commission recognised the need to review the status of diseases listed using the criteria for listing an emerging aquatic animal disease after an appropriate time period. This was added to its work plan.

The Aquatic Animals Commission maintained its previous decision to propose the addition of abalone viral mortality to the OIE list of diseases. The Aquatic Animals Commission wished to thank Chile for its constructive comments on the infections described in abalone and referred these to the ad hoc Group on the List of Aquatic Animal Diseases with the request to update the disease information card for abalone viral mortality. If the OIE International Committee adopts the addition of abalone viral mortality to the OIE list of diseases, the disease card will be published on the OIE website to assist Member Countries with reporting.
The Aquatic Animals Commission addressed the comments received from the US, Canada and Panama on *Martelloides chungmuensis*. The Aquatic Animals Commission maintained its position that this parasite does not meet the listing criteria, especially because of a lack of quantitative data on disease impact as opposed to mere prevalence of the pathogen. This was consistent with the recommendations presented in Appendix B of the report of the *ad hoc* Group on the List of Aquatic Animal Diseases (Paris, 20-22 July 2005). However, the Aquatic Animals Commission invited Member Countries to provide new and detailed epidemiological information on this disease.

In considering the comment from Australia, the Aquatic Animals Commission stressed that the assessment for infection with *Perkinsus olseni* took into account the broad range of hosts and not only abalone.

Prof. Hill, the Chair of the finfish team of the *ad hoc* Group on the OIE List of Aquatic Animal Diseases for the OIE *Aquatic Code*, reported on the electronic discussion of the team. He recalled that, in its second report, the finfish team of the *ad hoc* Group on the OIE List of Aquatic Animal Diseases had concluded that most of the listing criteria were met for koi herpes virus disease (KHVD), but that an open scientific forum would be useful to clarify issues on those criteria that appeared to be less clearly met. He explained that at its meeting in August 2005, the Aquatic Animals Commission agreed with this approach and asked the finfish team to re-assess KHVD against the disease listing criteria taking into account information and opinion presented and debated at suitable international scientific fora. Prof. Hill reported how these issues were subsequently debated at two international conferences and the outcome of the reassessment was presented to the Aquatic Animals Commission in the final report of the finfish team. The report of the *ad hoc* Group is appended for Member Countries information, in Part C of this report, at Appendix XXXVII.

The Aquatic Animals Commission accepted the conclusion and recommendation of the finfish team and maintained its previous view that KHVD should be listed by the OIE.

The Aquatic Animals Commission noted the US comment that *Oncorhynchus masou* virus disease (OMVD) should not have been delisted. The Aquatic Animals Commission recalled that the OIE International Committee in May 2005 adopted the recommendation to delist this disease. The Aquatic Animals Commission considered that the information provided by the US was insufficient to warrant re-consideration but invited the US to provide a full assessment against the listing criteria (Chapter 1.1.2.) to support its case for listing.

Thailand suggested that tetrahedral baculovirosis and spherical baculovirosis be delisted because of the easy control of both diseases by washing eggs and larvae. The Aquatic Animals Commission agreed to refer these comments to the crustacean team of the *ad hoc* Group on the List of Aquatic Animal Diseases.

The list of diseases proposed to the OIE International Committee for adoption at the May 2006 General Session is attached in Part A of this report, at Appendix V.

### 1.5. Revised chapters for fish and mollusc diseases

The Aquatic Animals Commission clarified that the choice of a period of 25 years for the declaration of historical freedom was taken as the default based on the recommendations of the OIE *Terrestrial Code*; the same basis applied for the time period specified for targeted surveillance and the application of basic biosecurity conditions. The Aquatic Animals Commission reiterated that time periods for specific diseases would be modified in line with the information provided by the *ad hoc* Group on Surveillance. However, if Member Countries have relevant information, they are encouraged to submit it to the Aquatic Animals Commission. In the meantime, for mollusc disease chapters, the choice of 10 years to justify historical freedom is based on the relatively short lifecycle of the mollusc hosts and pathogens.

The EC queried the reason why the absence of susceptible species was not provided as an option for the declaration of freedom for VHS, as for the other fish diseases. The Aquatic Animals Commission recalled its previous decision (see August 2005 report):

> “the pathway for a self-declaration of freedom based on the absence of susceptible species should only apply to pathogens with a known narrow host range.”
The Aquatic Animals Commission specified that this would not apply to VHS.

New Zealand questioned the method used to select the susceptible species for each disease chapter. The Aquatic Animals Commission discussed this issue with the OIE Central Bureau and compared the approach to that used in the Terrestrial Code. As a further move towards harmonisation of the two Codes, the Aquatic Animals Commission decided to clarify in the Aquatic Code chapters which susceptible species are addressed by each chapter (e.g. those relevant for international trade). The Aquatic Animals Commission stressed that the full reference list of susceptible species for surveillance and notification purposes was present in each of the disease chapters of the Manual of Diagnostic Tests for Aquatic Animals (hereafter referred to as the Aquatic Manual).

Addressing a comment from Norway and the EC on the list of commodities that could be traded with negligible risk (Article 3 of disease chapters), the Aquatic Animals Commission clarified that the listing of commodities under Article 3 needed to be supported by scientific data (other than for the generally agreed inactivation procedures) because the absence of evidence of risk alone does not justify a listing of a commodity as “safe”.

The EC and Norway suggested to list eviscerated fish as a safe commodity even if not packaged for direct retail trade. The Aquatic Animals Commission was of the view that the listing of commodities under point 1b) of Article 3 also needed to be supported by scientific data. In this case, bulk consignments of eviscerated fish, not necessarily intended for direct consumption, would need to be demonstrated as safe even if they are intended for further processing.

Member Countries that have scientific evidence supporting the listing of commodities as safe are strongly encouraged to make that evidence available to the Aquatic Animals Commission. The identification of safe commodities in the disease chapters of the Aquatic Code is a new concept and at this stage only commodities that are safe without any doubt have been listed; for future editions of the Aquatic Code, the application of this concept will evolve and take into account scientific evidence demonstrating a negligible level of risk for other commodities.

Australia suggested that guidelines be developed for translocation of species known not to be susceptible to a given disease; these guidelines would facilitate trade in such species because they could replace the requirements for risk analysis. While the Aquatic Animals Commission recognised the usefulness of guidelines for safe translocation, it believed that the methods contained in such guidelines would need to be validated for a large variety of field situations.

Australia recommended that the scientific rationale for using different time periods in Articles 4 and 5 of all fish and mollusc disease chapters be provided to Member Countries. The Aquatic Animals Commission advised that these differences were justified by different host and pathogen lifecycles and disease seasonality. Details were provided by the Aquatic Animals Commission in its January 2005 report, in the relevant draft disease chapters.

The EC questioned the requirement of 2 years for targeted surveillance for new aquaculture establishments and for those wishing to restore their free status. The Aquatic Animals Commission recognised that the current text was better suited to zones and proposes that suggestions by the EC could be best addressed by a new text specific for compartments; the Aquatic Animals Commission placed this item on its work plan. Such a new text would also address Norway’s comments on regaining freedom for previously free compartments.

The EC, in Article 8, proposed that “not declared free” should not include “known to be infected” because this might mean that animals from infected areas could be moved into a declared disease free area. The Aquatic Animals Commission pointed out that as per the general approach in the Terrestrial Code, the Aquatic Code recognised only two status, i.e. “declared free” and “not declared free”. The Aquatic Animals Commission also draws Member Countries’ attention to the User’s guide of the Aquatic Code:

“The recommendations in the Aquatic Code make reference only to the aquatic animal health situation in the exporting country, and assume that either the disease is not present in the importing country or is the subject of a control or eradication programme. Therefore, when determining its import measures, an importing country should do so in a way that is consistent with the principle of national treatment and the other provisions of the WTO SPS Agreement.”
In the first paragraph of Article 9, the EC suggested to use the word “may” instead of the word “should”. The Aquatic Animals Commission disagreed because the recommendation is based on expert advice; Member Countries are free to apply more or less stringent measures than those prescribed in the Aquatic Code as long as they justify it with risk analysis.

Canada, the EC and the US questioned the list of susceptible species listed in Article 2.1.5.2. The Aquatic Animals Commission acknowledged the growing complexity concerning the host range for VHS virus and is awaiting the issue of strain differentiation for this virus to be resolved (see also item 6.4. below). The currently proposed list of susceptible species is taken from Article 2.1.5.1. of the Aquatic Code.

Canada, the EC, the US and Norway queried the list of susceptible species listed in Article 2.1.9.2. The Aquatic Animals Commission acknowledged their view and accordingly amended the scope of that Chapter.

The Aquatic Animals Commission acknowledged the comments received from Member Countries on the proposed chapter on Gyrodactylus salaris and decided to forward them to the ad hoc Group on Fish Disease Chapters of the OIE Aquatic Code for consideration and submission of a revised draft chapter for the October 2006 meeting of the Aquatic Animals Commission. Therefore, the Aquatic Animals Commission is not proposing an update of this chapter at the 2006 General Session.

Australia and Canada sought clarification on whether intermediate hosts for mollusc diseases had been considered, where applicable, as a means of transferring OIE listed diseases through international trade. The Aquatic Animals Commission (and the ad hoc Groups) had indeed given this some consideration but reached the conclusion that there was not enough scientific data to support such provisions at that time. In the case of infection with Marteilia refringens, although one species of copepod had been identified as an intermediate host, it was not known whether other species of copepod could be involved in the lifecycle of the parasite.

Australia also queried the discrepancies in the commodities listed under 1a) and 1b) of Article 3 and requested that the ad hoc Group provide the scientific basis for the decisions on these points. The Aquatic Animals Commission drew Member Countries’ attention to the July 2005 report of the ad hoc Group on the Chapters for Mollusc Diseases for the OIE Aquatic Code, which provided this justification. The report had been appended to the report of the August 2005 Aquatic Animals Commission’s report.

Australia queried whether the risks associated with any accompanying transport water had been considered when the inclusion of gametes, eggs and larvae in Article 3 had been proposed. The Aquatic Animals Commission will refer the question to the ad hoc groups for fish, molluscs and crustaceans for expert opinion.

Several Member Countries made a number of comments of a highly technical nature and sometime of diametrically opposed views on commodities. The Aquatic Animals Commission decided to refer these comments to the ad hoc Group on the Chapters for Mollusc Diseases for the OIE Aquatic Code which will provide a detailed response in their next report.

Canada queried whether pathogen-specific inactivation protocols or standards would be forthcoming in the Aquatic Code or Aquatic Manual. The Aquatic Animals Commission agreed on the necessity for such information. Such information will be provided as it becomes available.

The fish and mollusc disease chapters proposed to the OIE International Committee for adoption at the 74th General Session in May 2006 are in part A of this report, from Appendix VI to Appendix XXI.

1.6. Date of last update for Code Chapters

The Aquatic Animals Commission reviewed a table showing the date of the latest significant update for each disease chapter in the Aquatic Code. It agreed that it was useful for giving Member Countries an indication on the evolution of Aquatic Code chapters and requested the OIE Secretariat to introduce such a table in the Aquatic Code as soon as possible.

2.1. Revised chapters for crustacean diseases

Prof. Lightner, the Chair of the ad hoc Group on the Chapters for Crustacean Diseases for the OIE Aquatic Code, reported on the October 2005 meeting of the ad hoc Group. The updated chapters on currently listed diseases were drafted in the format of the approved chapter on white spot disease. Two new chapters on diseases proposed for listing at the 74th General Session of the OIE International Committee in May 2006 were also drafted. The report of the ad hoc Group is appended for Member Countries’ information, in Part C of this report, at Appendix XXXVIII.

The Aquatic Animals Commission revised the updated and new chapters in line with the modifications made to the fish and mollusc chapters.

These revised chapters are attached for Member Countries’ comments, in Part B of this report, from Appendix XXII to Appendix XXX.

2.2. Crustacean diseases recommended for listing

Prof. Lightner, the Chair of the crustacean team of the ad hoc Group on the OIE List of Aquatic Animal Diseases for the OIE Aquatic Code, reported on the October 2005 meeting of the team. Three significant crustacean diseases (white tail disease, infection with hepatopancreatic parvovirus and infection with Mourilyan virus) were assessed against the criteria in Articles 1.1.2.1. and 1.1.2.2. and were found to meet the latter i.e. the criteria for listing as an emerging aquatic animal disease. The ad hoc Group recommended their inclusion on the list of aquatic animal diseases.

The ad hoc Group updated its previous assessment of the two diseases currently listed as [under study] (necrotising hepatopancreatitis and infectious myonecrosis) in Chapter 1.1.3. of the Aquatic Code. The ad hoc Group concluded that these two diseases met the listing criteria and therefore recommended the removal of the footnote denoting [under study].

The report of the ad hoc Group is appended for Member Countries’ information, in Part C of this report, at Appendix XXXVII.

The Aquatic Animals Commission supported the ad hoc Group’s recommendations and requested Member Countries’ comments.

2.3. New draft chapter on handling and disposal of carcasses and wastes of aquatic animals

Prof. Håstein, who is a member of the Working Group on Animal Welfare, joined the meeting.

The Aquatic Animals Commission noted the proposed Appendix 3.6.5. entitled “General guidelines for the disposal of dead animals” for the Terrestrial Code and compared it with draft guidelines on handling and disposal of carcasses and wastes of aquatic animals which had been prepared by Prof. Håstein.

The Aquatic Animals Commission decided to await the adoption of the equivalent Appendix for the Terrestrial Code before submitting a revised draft for the Aquatic Code for Member Countries’ comments.

2.4. New draft chapters on aquatic animal welfare

Dr Pinto, Deputy Head of the International Trade Department, participated in this agenda item.

Prof. Håstein briefed the Aquatic Animals Commission on the outcomes of the meetings of the two ad hoc Groups on aquatic animal welfare, particularly on the principles for the welfare of aquatic animals and the proposed guidelines for the slaughter of farmed fish for human consumption, guidelines for the humane killing of fish for disease control purposes, guidelines for transport by land, and guidelines for transport by sea. The reports of the two ad hoc Groups are appended for Member Countries’ information, in Part C of this report, at Appendix XXXIX and Appendix XL.
As a result of recommendations made by the OIE Working Group on Animal Welfare during its meeting in September 2005, the principles for aquatic animal welfare were harmonised to the extent possible with the corresponding text contained in the *Terrestrial Code*.

The Aquatic Animals Commission acknowledged and supported the quality of the work of the *ad hoc* Groups chaired by Prof. Hæstein.

The Aquatic Animals Commission discussed the scope of the new draft chapters and clarified that, while the general principles apply to all aquatic animals, these specific guidelines for transport, killing and slaughter currently cover only fish. It is intended to develop guidelines on crustacean welfare at a later stage.

The Aquatic Animals Commission modified some of the text; the guidelines on principles and the four proposed chapters are attached for Member Countries’ comments, in Part B of this report, from Appendix XXXI to Appendix XXXVI.

### 2.5. New work on antimicrobial resistance in the field of aquatic animals

Dr Erlacher-Vindel, Deputy Head of the Scientific and Technical Department, informed the Aquatic Animals Commission on the forthcoming FAO/WHO/OIE expert consultation on Antimicrobial Usage in Aquaculture and Resistance which will take place in Seoul (Republic of Korea) from 13 to 17 June 2006.

Copies of the documents related to the call for experts and the request for information were provided to the Members of the Aquatic Animals Commission and can be found on the OIE website (calendar June 2006:Joint FAO/WHO/OIE Expert Consultation on Antimicrobial Use in Aquaculture and Antimicrobial Resistance: [http://www.oie.int/eng/manifestations/en_manifs.htm](http://www.oie.int/eng/manifestations/en_manifs.htm)).

Some scientists and other experts were already contacted by mail. The Members of the Aquatic Animals Commission were invited to provide names of additional relevant experts to Dr Erlacher-Vindel before 24th March 2006. The final selection of 20 to 25 experts will be made by FAO/WHO and OIE at the beginning of April 2006.

The Aquatic Animals Commission addressed the existing standards present in the *Terrestrial Code* and agreed to wait for the outcomes of the Expert Consultation before deciding on the need to include similar chapters in the *Aquatic Code*.

### 2.6. New work on aquatic animal feed

The Aquatic Animals Commission prepared terms of reference and suggested members for the OIE *ad hoc* Group on Aquatic Animal Feed and requested the Director General to convene a meeting of the *ad hoc* Group as soon as possible.

### 2.7. Including diseases of amphibians in the remit of the Commission

The Aquatic Animals Commission prepared terms of reference and suggested members for the OIE *ad hoc* Group on Amphibian Diseases and requested the Director General to convene a meeting of the *ad hoc* Group as soon as possible.

### 3. Joint meeting with the President of the Terrestrial Animal Health Standards Commission

#### 3.1. Continuing work on harmonisation of horizontal chapters in the *Aquatic and Terrestrial Codes* - Zoning and compartmentalisation (Chapter 1.4.4)

Dr Thiermann, the President of the Terrestrial Code Commission, joined the meeting. He illustrated the work conducted by the Terrestrial Code Commission on compartmentalisation by proposing an updated chapter to the 2006 OIE General Session. He also explained the work underway in OIE on the development of a document providing examples on the practical application of the concept of compartmentalisation to avian influenza.

The Aquatic Animals Commission agreed to wait for the outcomes of the 2006 OIE General Session before updating the chapter on zoning in the *Aquatic Code*. 
3.2. Revision of model health certificates

Dr Thiermann also briefed the Aquatic Animals Commission on the future work in the Terrestrial Code Commission for updating model certificates for the Terrestrial Code. The Aquatic Animals Commission agreed on the need to review the outcomes of this work prior taking the decision of revising its own model certificates.

4. Joint meeting with the Animal Health Information Department

Dr Ben Jebara, Head of the Animal Health Information Department, participated in this agenda item.

Dr Ben Jebara informed the Aquatic Animals Commission that the World Animal Health Information System (WAHIS) would be launched soon. The Delegates and national focal points will be provided with password-protected access. Immediate notification and six-monthly reports can now be entered on-line into WAHIS. The new system will increasingly search for discrepancies in information submitted by Member Countries. This will include comparison with the news media and the scientific literature.

Dr Ben Jebara noted that it has already proven useful to have a slightly different data entry form for aquatics compared to that for terrestrial animals but suggested that minor modifications could further improve the aquatic form.

The new data output system, World Animal Health Information Database (WAHID), will for a period of time run concurrently with the old HandiStatus system.

5. Joint meeting with the Publications Department

5.1. OIE Scientific and Technical Review: issue on aquatic animal health

The Aquatic Animals Commission was joined by Dr Raymond Dugas and Ms Annie Souyri, respectively Head and Deputy Head of the Publications Department. The Commission discussed and agreed the draft table of contents and proposed authors for the issue of the OIE Scientific and Technical Review on Changing Trends in Managing Aquatic Animal Disease Emergencies. This issue will now be published in April 2008.

6. The role and activities of the OIE in the field of aquatic animals health

For this agenda item, the meeting was joined by Dr Bruckner, Head of the OIE Scientific and Technical Department, and Ms Suarez.

6.1. Regional Commission Conferences

The Commission noted the schedule for the upcoming Regional Commission Conferences and agreed the following representation of the Commission to give follow-up presentations on developments in aquatic animal health:

Regional Commission for Europe (September 2006): Prof. Hill, Vice President of the Aquatic Animals Commission.

Regional Commission for the Americas (November 2006): Dr Ricardo Enriquez, Secretary General of the Aquatic Animals Commission.

6.2. Regional meeting: ad hoc Group for the Americas on Aquatic Animals

Dr Enriquez reported on the above-mentioned meeting in which he had presented the activities of the Aquatic Animals Commission. His presentation included explanations on the disease-listing criteria, the new definitions, the importance of national focal points for disease-reporting purposes, and the importance of safe commodities in the new disease chapters in the Aquatic Code. He also informed the participants on the OIE Global Conference on Aquatic Animal Health.
The Aquatic Animals Commission noted the report drafted by Dr Luis Barcos on that meeting and was impressed with the progress made to date and the ad hoc group’s activities, e.g. the creation of permanent secretariat and technical working groups. Funds had also been received to ensure translation of the Aquatic Manual into Spanish.

6.3. International Symposium on Veterinary Epidemiology and Economics, August 2006

On behalf of the Aquatic Animals Commission, Dr Enriquez had submitted a proposal on OIE definitions in aquatic animal epidemiology for the next ISVEE meeting. A response has not yet been received. Therefore, it remains unclear what, if any, activity the Aquatic Animals Commission will have at this Conference.

6.4. First International Conference of OIE Reference Laboratories and Collaborating Centres, December 2006

In considering the content of this Conference, the Aquatic Animals Commission agreed that it would be useful to hold a special workshop for the OIE Reference Laboratories for aquatic animal diseases at which the issue of pathogenic agent strain differentiation could be addressed. The Aquatic Animals Commission recognised that this is a crucial issue as illustrated by the many Member Country comments that were recently received on this topic. The Aquatic Animals Commission is working on a position paper to provide guidelines on listing and notification of diseases by strain/genotype, with multiple examples in finfish, mollusc and crustacean diseases where differences in virulence have been documented for different strains/genotypes of the pathogenic agents of listed diseases.

The Conference will provide the opportunity to strengthen relations between the Aquatic Animals Commission and the network of OIE Reference Laboratories.

6.5. Global Conference on Aquatic Animal Health, October 2006

A meeting of the Scientific Committee was held in parallel with the Aquatic Animals Commission’s meeting. The Scientific Committee finalised the draft programme for the Global Conference for the approval of the Steering Committee.

7. Manual of Diagnostic Tests for Aquatic Animals

7.1. Review of Member Countries’ and Reviewers’ comments on the introductory and disease chapters for the 5th edition of the Aquatic Manual

Comments had been received from reviewers and from the following Member Countries: Australia, Canada, the EC, Japan, New Zealand, South Africa, Switzerland and the US. The Commission addressed some of the technical comments but referred the highly specific ones to the OIE designated experts who update the chapters. The experts will be asked to address these comments before the Aquatic Manual is proposed for adoption during the OIE General Session in May 2006.

Some Member Countries pointed out non-technical issues, such as a lack of consistency in the contents of sections 4, 5 and 6 within and among the chapters. The Commission agreed with most of these concerns and will address them for the next update.

Several Member Countries referred to discrepancies between the susceptible species listed in the Aquatic Manual chapters and those listed in the Aquatic Code chapters. The reason for this is because the purpose of the Aquatic Code is to provide guidelines for species involved in international trade while the Aquatic Manual provides technical guidelines for diagnostic and surveillance purposes in a wider range of species.

A number of comments had been received on aquatic animal health surveillance (see item 7.2. below). These will be addressed by the ad hoc group on Surveillance.
The Aquatic Animals Commission expressed concern about the increasing volume of issues relating to the Aquatic Manual and agreed that such issues should in first instance be addressed by a special ad hoc group (of fish, mollusc and crustacean disease experts) with an editorial focus. The Aquatic Animals Commission agreed that greater coordination of the three chapters, General Information on Diseases of Fish, Molluscs and Crustaceans, respectively, is also needed, because these chapters lay the foundations for the subsequent disease-specific chapters; improved consistency between these chapters would aid readability and assist in minimising confusion for readers. The proposed ad hoc group could be asked to revise chapters 1.1, 1.2 and 1.3. accordingly.

7.2. Guidelines for aquatic animal health surveillance

The Aquatic Animals Commission prepared terms of reference and suggested members for the OIE ad hoc Group on Aquatic Animal Health Surveillance, and requested the Director General to convene a meeting of the ad hoc Group as soon as possible.

7.3. Shortcomings/obsolete OIE tests

The Commission has been made aware of a publication that argues that the OIE method described in one of the chapters in the Aquatic Manual gives false positive results and, in the opinion of the authors, is in need of urgent revision. On reading the paper, the Commission noted that the false positives reported were the result of an improperly run assay in the authors’ laboratory. This issue highlights the importance of following specific instructions for assays listed in the Aquatic Manual.

8. OIE Reference Laboratories

8.1. Updating the list of Reference Laboratories

The Commission reviewed the application by Reference Laboratory for Bonamia ostreae, B. exitiosa, Mikrocytos roughleyi, Marteilia sydneyi and M. refringens for new expert designation. The Commission reviewed the application and recommends the acceptance of Dr Arzul.

8.2. Review of annual reports

The Commission was pleased to note that all 27 laboratories had submitted their annual reports. There was a wide variation in the amount and detail of information provided. The Commission proposes to add a review of the purpose and content of the annual reports of OIE Reference Laboratories to the agenda of the First OIE Conference for Reference Laboratories and Collaborating Centres (see item 6.4. above).

9. Any other business

9.1. Update of the Commission’s web pages

The meeting was joined by Dr Chaisemartin who provided an update on the plan for the revision of the OIE website and invited suggestions from the Aquatic Animals Commission on what improvements can be made, including any on the Aquatic Animals Commission’s specific pages.

Prof. Hill drew the Aquatic Animals Commission’s attention to the fact that the International Database on Aquatic Animal Diseases now displays the current list of aquatic animal diseases consistent with how it is displayed in the 2005 edition of the Aquatic Code. Prof. Hill pointed out that information on diseases removed from the list in the Aquatic Code is now maintained under a separate category of “previously listed diseases”.


The Aquatic Animals Commission expressed their concern about the substantial increased work load, both in terms of volume as well as demand arising from several new initiatives, for example, the increasing complexity of Aquatic Manual text (see item 7.1. above). The Aquatic Animals Commission is of the opinion that this can be mitigated through the establishment of one or more groups to assist in reviewing and revising future editions of the Aquatic Manual. The Aquatic Animals Commission requests the Director General to consider this matter.
The Commission reviewed its work plan for 2006-2007. The work plan is appended in Part C of this report, at Appendix XLI for Member Countries’ information.

9.3. Date of the next meeting

The Aquatic Animals Commission proposed to meet on 2-6 October 2006.

.../Appendices
MEETING OF THE OIE
AQUATIC ANIMAL HEALTH STANDARDS COMMISSION
Paris, 13-17 March 2006

Adopted Agenda

1. Proposed chapters for the *Aquatic Animal Health Code*
   1.1 General comments
   1.2 Definitions (chapter 1.1.1.)
   1.3 Disease listing and notification criteria (chapter 1.1.2.)
   1.4 Revision of the list of diseases (chapter 1.1.3.)
   1.5 Revised chapters for fish and mollusc diseases
   1.6 Date of last update for Code Chapters

2. New standards for the *Aquatic Animal Health Code*
   2.1 Revised chapters for crustacean diseases
   2.2 Crustacean diseases recommended for listing
   2.3 New draft chapter on handling and disposal of carcasses and wastes of aquatic animals
   2.4 New draft chapters on aquatic animal welfare
   2.5 New work on antimicrobial resistance in the field of aquatic animals
   2.6 New work on aquatic animal feed
   2.7 Including diseases of amphibians in the remit of the Commission

3. Joint meeting with the President of the Terrestrial Animal Health Standards Commission
   3.1 Continuing work on harmonisation of horizontal chapters in the *Aquatic and Terrestrial Codes* - Zoning and compartmentalisation (Chapter 1.4.4)
   3.2 Revision of model health certificates

4. Joint meeting with the Animal Health Information Department

5. Joint meeting with the Publications Department
   5.1 *OIE Scientific and Technical Review*: issue on aquatic animal health
Appendix I (contd)

6. The role and activities of the OIE in the field of aquatic animal health

6.1 Regional Commission Conferences

6.2 Regional meeting: ad hoc Group for the Americas on Aquatic Animals

6.3 International Symposium on Veterinary Epidemiology and Economics, August 2006

6.4 First International Conference of OIE Reference Laboratories and Collaborating Centres, December 2006

6.5 Global Conference on Aquatic Animal Health, October 2006

7. Manual of Diagnostic Tests for Aquatic Animals

7.1 Review of Member Countries’ and Reviewers’ comments on the introductory and disease chapters for the 5th edition of the Aquatic Manual

7.2 Guidelines for aquatic animal health surveillance

7.3 Shortcomings/obsolete OIE tests

8. OIE Reference Laboratories

8.1 Updating the list of Reference Laboratories

8.2 Review of annual reports

9. Any other business

9.1 Update of the Commission’s web pages

9.2 Review of the Aquatic Animals Commission’s work plan for 2006-2007

9.3 Date of the next meeting
# List of participants

**MEMBERS OF THE COMMISSION**

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Organisation/Mail Address</th>
<th>Telephone</th>
<th>Fax</th>
<th>Email</th>
</tr>
</thead>
<tbody>
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</table>
Appendix II (contd)

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CHAPTER 1.1.1.
DEFINITIONS

Article 1.1.1.1.

**Buffer zone**
means a zone established to protect the health status of aquatic animals in a free country or free zone, from those in a country or zone of a different animal health status, using measures based on the epidemiology of the disease under consideration to prevent spread of the disease agent into a free country or free zone.

**Competent Authority**
means the Veterinary Services, or other Authority of a Member Country, having the responsibility and competence for ensuring or supervising the implementation of the aquatic animal health measures or other standards in the Aquatic Code and Aquatic Manual.

**Free compartment**
means a compartment that fulfils the requirements for self-declaration of freedom from disease with respect to the disease(s) freedom from the disease under consideration, according to the relevant chapter(s) in the Aquatic Code.

**Free country**
means a country that fulfils the requirements for self-declaration of freedom from disease with respect to the disease(s) freedom from the disease under consideration according to the relevant chapter(s) in the Aquatic Code.

**Free zone**
means a zone that fulfils the requirements for self-declaration of freedom from disease with respect to the disease(s) freedom from the disease under consideration according to the relevant chapter(s) in the Aquatic Code.

**Infection**
means the presence of a multiplying or otherwise developing or latent disease agent in or on a host.

**Susceptible species**
means a species of aquatic animal in which infection by a disease agent can multiply or otherwise develop has been demonstrated by natural cases or by experimental exposure to the disease agent that mimics the natural pathways for infection. Each disease chapter in the Aquatic Manual contains a list of currently known susceptible species.

**Veterinarian**
means a person registered or licensed by the relevant Veterinary statutory body of a country to practise veterinary medicine/science in that country.
Appendix III (contd)

**Veterinary Administration**

means the governmental *Veterinary Service* having authority in the whole country for implementing the animal health measures and international veterinary certification process which the OIE recommends, and supervising or auditing their application.

means the National Veterinary Service (or other official entity) in a country having the authority to implement and carry out aquatic animal health measures (i.e. stamping out, following, disinfection etc.), and certification as recommended in the *Aquatic Code*. (If an authority other than the Veterinary Administration acts as the Competent Authority for matters related to aquaculture and protection of the health of farmed and wild populations of fish, mollusces and crustaceans, the Veterinary Administration nonetheless remains the body that is responsible for liaison with the OIE in terms of Section 1.2 of the *Aquatic Code*).

**Veterinary Authority**

means a *Veterinary Service*, under the authority of the *Veterinary Administration*, which is directly responsible for the application of animal health measures in a specified area of the country. It may also have responsibility for the issuing or the supervision of the issuing of international veterinary certificates in that area.

**Veterinary Services**

means the *Veterinary Administration*, all the *Veterinary Authorities*, and all persons authorised, registered or licensed by the *Veterinary statutory body*.

**Veterinary statutory body**

means an autonomous authority regulating *veterinarians* and veterinary para-professionals.

**Zone**

means a portion of one or more countries comprising:

a) an entire *water catchment* from the source of a waterway to the estuary or lake, or

b) more than one *water catchment*, or

c) part of a *water catchment* from the source of a waterway to a barrier that prevents the introduction of specific *disease* or *diseases*, or

d) part of a coastal area with a precise geographical delimitation, or

e) an estuary with a precise geographical delimitation,

that consists of a contiguous hydrological system with a distinct health status with respect to a specific *disease* or *diseases*, for which required surveillance and control measures are applied and basic biosecurity conditions are met for the purpose of international trade. All areas of the zone must have the same health status. The zones must be clearly documented (e.g. by a map or other precise locators such as GPS co-ordinates) by the *Competent Authority*(ies).
CHAPTER 1.1.2.

DISEASE LISTING AND NOTIFICATION CRITERIA

Article 1.1.2.1.

Criteria for listing an aquatic animal disease

Diseases proposed for listing must meet all of the relevant parameters set for each of the criteria, namely A. Consequences, B. Spread and C. Diagnosis. Therefore, to be listed, a disease must have the following characteristics: 1 or 2 or 3; and 4 or 5; and 6; and 7; and 8. Such proposals should be accompanied by a case definition for the disease under consideration.

<table>
<thead>
<tr>
<th>No.</th>
<th>Criteria (A=C)</th>
<th>Parameters that support a listing</th>
<th>Explanatory notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Consequences</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td></td>
<td>The disease has been shown to cause significant production losses at a national or multinational (zonal or regional) level.</td>
<td>There is a general pattern that the disease will lead to losses in susceptible species, and that morbidity or mortality are related primarily to the agent and not management or environmental factors. (Morbidity includes, for example, loss of production due to spawning failure.) The direct economic impact of the disease is linked to its morbidity, mortality and effect on product quality.</td>
</tr>
<tr>
<td>2.</td>
<td>Or</td>
<td>The disease has been shown to or scientific evidence indicates that it is likely to negatively affect wild populations of aquatic animal that are an asset worth protecting for economic or ecological reasons.</td>
<td>Wild aquatic animal populations can be populations that are commercially harvested (wild fisheries) and hence are an economic asset. However, the asset could be ecological or environmental in nature, for example, if the population consists of an endangered species of aquatic animal or an aquatic animal potentially endangered by the disease.</td>
</tr>
<tr>
<td>3.</td>
<td>Or</td>
<td>The agent is of public health concern.</td>
<td>And</td>
</tr>
<tr>
<td>B. Spread</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td>Infectious aetiology of the disease is proven.</td>
<td>Infectious diseases of unknown aetiology can have equally high-risk implications as those diseases where the infectious aetiology is proven. Whilst disease occurrence data are gathered, research should be conducted to elucidate the aetiology of the disease and the results be made available within a reasonable period of time.</td>
</tr>
<tr>
<td>5.</td>
<td>Or</td>
<td>An infectious agent is strongly associated with the disease, but the aetiology is not yet known.</td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>And</td>
<td>Potential for international spread, including via live animals, their products or fomites.</td>
<td>International trade in aquatic animal species susceptible to the disease exists or is likely to develop and, under international trading practices, the entry and establishment of the disease is a likely risk.</td>
</tr>
</tbody>
</table>
Appendix IV (contd)

| 7. | And | Several countries or countries with zones may be declared free of the disease based on the general surveillance principles outlined in Chapter 1.1.4 of the Aquatic Manual. | Free countries/zones could still be protected. Listing of diseases that are ubiquitous or extremely widespread would render notification unfeasible, however, individual countries that run a control programme on such a disease can request its listing provided they have undertaken a scientific evaluation to support their request. Examples may be the protection of broadstock from widespread diseases, or the protection of the last remaining free zones from a widespread disease. |

8. | And | A repeatable, robust means of detection/diagnosis exists. | A diagnostic test should be widely available and preferably has undergone a formal standardisation and validation process using routine field samples (see OIE Manual of Diagnostic Tests for Aquatic Animals) or a robust case definition is available to clearly identify cases and allow them to be distinguished from other pathologies. |

C. Diagnosis

Article 1.1.2.2.

Criteria for listing an emerging aquatic animal disease

A newly recognised disease or a known disease behaving differently may be proposed for listing listed if it meets the following criteria (1 or 2, and 3 or 4). Such proposals should be accompanied by a case definition for the disease under consideration.

<table>
<thead>
<tr>
<th>No.</th>
<th>Parameters that support a listing</th>
<th>Explanatory notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Infectious aetiology of the disease is proven.</td>
<td></td>
</tr>
<tr>
<td>Or</td>
<td>2. An infectious agent is strongly associated with the disease, but the aetiology is not yet known.</td>
<td>Infectious diseases of unknown aetiology can have equally high-risk implications as those diseases where the infectious aetiology is proven. Whilst disease occurrence data are gathered, research should be conducted to elucidate the aetiology of the disease and the results be made available within a reasonable period of time.</td>
</tr>
<tr>
<td></td>
<td>and</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>The agent is of public health concern.</td>
<td></td>
</tr>
<tr>
<td>Or</td>
<td>4. Significant spread in naïve populations of wild or cultured aquatic animals.</td>
<td>The disease has exhibited significant morbidity, mortality or production losses at a zone, compartment or country level. “Naïve” means animals previously unexposed either to a new disease or a new form of a known disease.</td>
</tr>
</tbody>
</table>
### Article 1.1.2.3.

**Criteria for immediate notification of aquatic animal diseases**

<table>
<thead>
<tr>
<th></th>
<th>For listed diseases</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>First occurrence or re-occurrence of a disease in a country or zone of compartment of a country, if the country or zone of compartment of the country was previously considered to be free of that particular disease, or</td>
</tr>
<tr>
<td>2</td>
<td>Occurrence in a new host species, or</td>
</tr>
<tr>
<td>3</td>
<td>New pathogen strain or new disease manifestation, or</td>
</tr>
<tr>
<td>4</td>
<td>Newly recognised zoonotic potential, or</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>For non-listed diseases</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Emerging disease/pathogenic agent if there are findings that are of epidemiological significance to other countries, or</td>
</tr>
</tbody>
</table>

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*‘Susceptible’ is not restricted to ‘susceptible to clinical disease’ but includes ‘susceptible to covert infections’. 

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CHAPTER 1.1.3.

DISEASES LISTED BY THE OIE

Article 1.1.3.1.

The following diseases of fish are listed by the OIE:

- Epizootic haematopoietic necrosis
- Infectious haematopoietic necrosis
- Spring viraemia of carp
- Viral haemorrhagic septicaemia
- Infectious pancreatic necrosis+
- Infectious salmon anaemia
- Epizootic ulcerative syndrome
- Bacterial kidney disease (*Rahnella aquatilis*)¹
- Gyrodactylosis (*Gyrodactylus salaris*)
- Red sea bream iridoviral disease
- Koi herpesvirus disease†

Article 1.1.3.2.

The following diseases of molluscs are listed by the OIE:

- Infection with *Bonamia ostreae*
- Infection with *Bonamia exitiosa*
- Infection with *Marteilia refringens*
- Infection with *Morupoma malmii*¹
- Infection with *Perkinsus marinus*
- Infection with *Perkinsus olseni*†
- Infection with *Xenohaliotis californiensis*.
- Abalone viral mortality
Appendix V (contd)

Article 1.1.3.3.

The following diseases of crustaceans are listed by the OIE:

- Taura syndrome
- White spot disease
- Yellowhead disease
- Tetrahedral baculovirosis (*Baculovirus penaei*)
- Spherical baculovirosis (*Penaeus monodon*-type baculovirus)
- Infectious hypodermal and haematopoietic necrosis
- Crayfish plague (*Aphanomyces astaci*)
- Necrotising hepatopancreatitis\(^2\)
- Infectious myonecrosis\(^2\).

\(^2\) Listing of this disease is under study.

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CHAPTER 3.1.5.

INFECTION WITH MARTEILIA REFRINGENS

Article 3.1.5.1.

For the purposes of the Aquatic Code, infection with Marteilia refringens means infection only with Marteilia refringens.

Methods for surveillance, diagnosis and confirmatory identification are provided in the Aquatic Manual.

Article 3.1.5.2.

Susceptible species Scope

The recommendations in this Chapter apply to For the purposes of the Aquatic Code, susceptible species for infection with Marteilia refringens are: European flat oyster (Ostrea edulis), Australian mud oyster (O. angasi), Argentinean oyster (O. pugetiana) as well as Chilean flat oyster (O. chilensis), blue mussel (Mytilus edulis) and Mediterranean mussel (M. galloprovincialis). These recommendations also apply to any other susceptible species referred to in the Aquatic Manual when traded internationally.

To date, all species of the genera Ostrea and Mytilus exposed to Marteilia refringens have been shown to be susceptible species. Therefore, all species of these genera should be regarded as potentially susceptible species.

Suspected cases, as defined in the Aquatic Manual, of infection with Marteilia refringens in species other than those listed in this Article should be referred immediately to the appropriate OIE Reference Laboratory, whether or not clinical signs are associated with the findings.

Article 3.1.5.3.

Commodities

1. When authorising importation or transit of the following commodities (under study), Competent Authorities should not require any Marteilia refringens related conditions, regardless of the Marteilia refringens status of the exporting country, zone or compartment:

a) From the species referred to in Article 3.1.5.2, for any purpose:

i) commercially-sterile canned or other heat treated products;

ii) gametes, eggs and larvae.

b) The following commodities destined for human consumption from the species referred to in Article 3.1.5.2, which have been prepared in such a way as to minimise the likelihood of alternative uses:

i) chemically preserved products (e.g. smoked, salted, pickled, marinated, etc.);

ii) non commercially sterile heat treated products (e.g. ready prepared meals) that have been heat treated in a manner to ensure the inactivation of the parasite;

iii) off the shell (chilled or frozen) packaged for direct retail trade;

iv) half-shell (chilled).
Appendix VI (contd)

c) All commodities from *Crassostrea gigas*, including the live aquatic animal.

For the commodities referred to in point 1)b), Member Countries should consider introducing internal measures to prevent the commodity being used for any purpose other than for human consumption.

2. When authorising importation or transit of the following commodities of a species referred to in Article 3.1.5.2., other than commodities referred to in point 1) of Article 3.1.5.3., Competent Authorities should require the conditions prescribed in Articles 3.1.5.7. to 3.1.5.11. relevant to the *Marteilia refringens* status of the exporting country, zone or compartment.

a) aquatic animals;

b) aquatic animal products.

3. When considering the importation or transit of any other commodity from bivalve species not referred to in Article 3.1.5.2. (especially those of the genera *Ostrea* and *Mytilus*) not listed above nor in point 1)c) of Article 3.1.5.3. from an exporting country, zone or compartment not declared free of *Marteilia refringens*, Competent Authorities of the importing country should conduct an analysis of the risk of introduction, establishment and spread of *Marteilia refringens* and the potential consequences associated with importation of the commodity, prior to a decision. The outcome of this assessment should be made available to the exporting country. The exporting country should be informed of the outcome of this assessment.

Article 3.1.5.4.

*Marteilia refringens* free country

A country may make a self-declaration of freedom from *Marteilia refringens* if it meets the conditions in points 1), 2), 3) or 4) below.

If a country shares a water catchment or coastal zone or compartment with one or more other countries, it can only make a self-declaration of freedom from a *Marteilia refringens* free country if all the areas covered by the shared water are declared *Marteilia refringens* free zones (see Article 3.1.5.5).

1. A country where none of the *susceptible species* species of genera *Ostrea* and *Mytilus* listed in Article 3.1.5.2. is present may make a self-declaration of freedom from *Marteilia refringens* when basic biosecurity conditions have been met continuously in the country for at least the past 3 years.

OR

2. A country where any species referred to in Article 3.1.5.2. is present but there has never been any observed occurrence of the disease for at least the past 10 years despite conditions – in all areas where the species are present – that are conducive to its clinical expression, as described in Chapter 3.1.5. of the *Aquatic Manual*, may make a self-declaration of freedom from *Marteilia refringens* when basic biosecurity conditions have been met continuously in the country for at least the past 3 years and infection with *Marteilia refringens* is not known to be established in wild populations.

OR

3. A country where the last known clinical occurrence was within the past 10 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the *Aquatic Manual*, may make a self-declaration of freedom from *Marteilia refringens* when:
Appendix VI (contd)

a) basic biosecurity conditions have been met continuously for at least the past 3 years; and

b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place for at least the last 2 of the past 3 years without detection of *Martelia refringens*.

OR

4. A country that has made a self-declaration of freedom from *Martelia refringens* but in which the disease is detected may not make a self-declaration of freedom from *Martelia refringens* again until the following conditions have been met:

a) on detection of the disease, the affected area was declared an *infected zone* and a *buffer zone* was established; and

b) infected populations have been safely destroyed or removed from the *infected zone* by means that minimise the risk of further spread of the disease, and the appropriate *disinfection procedures* (see Aquatic Manual) have been completed; and

c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the last 2 of the past 3 years without detection of *Martelia refringens*.

In the meantime, one or more areas of the remaining territory may be declared free zones, part of the non-affected area may be declared a free zone provided that they meet the conditions in point 3) of Article 3.1.5.5.

**Article 3.1.5.5.**

*Martelia refringens* free zone or free compartment

A zone or compartment free from *Martelia refringens* may be established within the territory of one or more countries of infected or unknown status for infection with *Martelia refringens* and declared free by the Competent Authority(ies) of the country(ies) concerned, if the zone or compartment meets the conditions referred to in points 1), 2), 3) or 4) below.

If a zone or compartment extends over more than one country, it can only be declared a *Martelia refringens* free zone or compartment if the conditions outlined below apply to all areas of the zone or compartment.

1. In a country of unknown status for *Martelia refringens*, a zone or compartment where none of the *susceptible species* of genera *Ostrea* and *Mytilus* listed in Article 3.1.5.2. is present may be declared free from *Martelia refringens* when basic biosecurity conditions have been met continuously in the zone or compartment for at least the past 3 years.

OR

2. In a country of unknown status for *Martelia refringens*, a zone or compartment where the *any* species referred to in Article 3.1.5.2. is present but there has never been any observed occurrence of the disease for at least the past 10 years despite conditions – in all areas where the species are present – that are conducive to its clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may be declared free from *Martelia refringens* when basic biosecurity conditions have been met continuously in the zone or compartment for at least the past 3 years and infection with *Martelia refringens* is not known to be established in wild populations.
Appendix VI (contd)

OR

3. A zone or compartment where the last known clinical occurrence was within the past 10 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may be declared free from Marteilia refringens when:
   a) basic biosecurity conditions have been met continuously for at least the past 3 years; and
   b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place for at least the last 2 of the past 3 years4 without detection of Marteilia refringens.

OR

4. A zone previously declared free from Marteilia refringens but in which the disease is detected may not be declared free from Marteilia refringens again until the following conditions have been met:
   a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and
   b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see Aquatic Manual) have been completed; and
   c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the last 2 of the past 3 years without detection of Marteilia refringens.

Article 3.1.5.6.

Maintenance of free status

A country, zone or compartment that is declared free from Marteilia refringens following the provisions of points 1) or 2) of Articles 3.1.5.4. or 3.1.5.5., as relevant, may maintain its status as Marteilia refringens free provided that basic biosecurity conditions are continuously maintained.

A country, zone or compartment that is declared free from Marteilia refringens following the provisions of point 3) of Articles 3.1.5.4. or 3.1.5.5., as relevant, may discontinue targeted surveillance and maintain its status as Marteilia refringens free provided that conditions that are conducive to clinical expression of infection with Marteilia refringens, as described in Chapter X.X.X. 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 Marteilia refringens, targeted surveillance needs to be continued at a level determined by the Competent Authority on the basis of the likelihood of re-infection.

Article 3.1.5.7.

Importation of live animals from a country, zone or compartment declared free from Marteilia refringens

When importing live aquatic animals of the species referred to in Article 3.1.5.2. from a country, zone or compartment declared free from Marteilia refringens, the Competent Authority of the importing country should require an international aquatic animal health certificate issued by the Competent Authority of the exporting country or a certifying official approved by the importing country.
Appendix VI (contd)

This certificate must certify, on the basis of the procedures described in Articles 3.1.5.4. or 3.1.5.5. (as applicable), whether the place of production of the consignment is a country, zone or compartment declared free from *Marteilia refringens*.

The certificate shall be in accordance with the Model Certificate No. 3 in Appendix 6.3.1, given in Part 6 of the Aquatic Code.

This Article does not apply to commodities referred to in point 1) of Article 3.1.5.3.

**Article 3.1.5.8.**

**Importation of live animals for aquaculture from a country, zone or compartment not declared free from *Marteilia refringens***

When importing, for *aquaculture*, aquatic animals of the species referred to in Article 3.1.5.2. from a country, zone or compartment not declared free from *Marteilia refringens*, the Competent Authority of the importing country should assess the risk and apply risk mitigation measures such as:

1. the consignment is delivered directly into and held in quarantine facilities; and
2. the imported aquatic animals are continuously isolated from the local environment; and
3. all effluent and waste material from the processing are treated in a manner that ensures inactivation of *Marteilia refringens*.

This Article does not apply to commodities listed in point 1) of Article 3.1.5.3.

**Article 3.1.5.9.**

**Importation of live animals for processing and/or for human consumption from a country, zone or compartment not declared free from *Marteilia refringens***

When importing, for processing and/or for human consumption, aquatic animals of the species referred to in Article 3.1.5.2. from a country, zone or compartment not declared free from *Marteilia refringens*, the Competent Authority of the importing country should require that assess the risk and apply risk mitigation measures such as:

1. the consignment is delivered directly to and held in quarantine facilities for a short period before until processing and/or consumption; and
2. all effluent and waste material from the processing are treated in a manner that ensures inactivation of *Marteilia refringens*.

This Article does not apply to commodities referred to in point 1) of Article 3.1.5.3.

**Article 3.1.5.10.**

**Importation of products from a country, zone or compartment declared free from *Marteilia refringens***

When importing aquatic animal products of the species referred to in Article 3.1.5.2. from a country, zone or compartment free from *Marteilia refringens*, 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.
Appendix VI (contd)

This certificate must certify, on the basis of the procedures described in Articles 3.1.5.4. or 3.1.5.5. (as applicable), whether or not the place of production of the consignment is a country, zone or compartment declared free from Marteilia refringens.

The certificate shall be in accordance with the Model Certificate No. [X] in Appendix 6.3.2 given in Part 6. of the Aquatic Code.

This Article does not apply to commodities referred to in point 1) of Article 3.1.5.3.

Article 3.1.5.11.

Importation of products from a country, zone or compartment not declared free from Marteilia refringens

When importing aquatic animal products of the species referred to in Article 3.1.5.2. from a country, zone or compartment not declared free from Marteilia refringens, the Competent Authority of the importing country should assess the risk and apply appropriate risk mitigation measures.

1. Infection with Marteilia refringens is a seasonal disease that is usually clinically expressed in the 2nd year of infection. Therefore, 3 years of biosecurity measures is the optimal period to enable the detection of cases of infection with Marteilia refringens in molluscs.

2. Starting the targeted surveillance in the 2nd year of the biosecurity measures ensures that new cases of infection with Marteilia refringens are more likely to be detected.

This Article does not apply to commodities listed in point 1) of Article 3.1.5.3.
CHAPTER 3.1.2.

INFECTION WITH BONAMIA EXITIOSA

Article 3.1.2.1.

For the purposes of the Aquatic Code, infection with Bonamia exitiosa means infection only with Bonamia exitiosa.

Methods for surveillance, diagnosis and confirmatory identification are provided in the Aquatic Manual.

Article 3.1.2.2.

Susceptible species Scope

The recommendations in this Chapter apply to For the purposes of the Aquatic Code, susceptible species for infection with Bonamia exitiosa are: Australian mud oyster (Ostrea angasi) and Chilean flat oyster (O. chilensis). These recommendations also apply to any other susceptible species referred to in the Aquatic Manual when traded internationally.

To date, all species of the genus Ostrea exposed to Bonamia exitiosa have been shown to be susceptible species. Therefore, all species of these genera should be regarded as potentially susceptible species. Bonamia isolates closely related to Bonamia exitiosa have been reported from O. pueblana and Crassostrea ariakensis.

Suspected cases, as defined in the Aquatic Manual, of infection with Bonamia exitiosa in species other than those listed in this Article should be referred immediately to the appropriate OIE Reference Laboratory, whether or not clinical signs are associated with the findings.

Article 3.1.2.3.

Commodities

1. When authorising importation or transit of the following commodities, Competent Authorities should not require any Bonamia exitiosa related conditions, regardless of the Bonamia exitiosa status of the exporting country, zone or compartment:

   a) From the species referred to in Article 3.1.2.2., for any purpose:
      i) commercially-sterile canned or other heat treated products;
      ii) gametes, eggs and larvae.

   b) The following commodities destined for human consumption from the species referred to in Article 3.1.2.2. which have been prepared in such a way as to minimise the likelihood of alternative uses:
      i) chemically preserved products (e.g. smoked, salted, pickled, marinated, etc.);
      ii) non commercially sterile heat treated products (e.g. ready prepared meals) that have been heat treated in a manner to ensure the inactivation of the parasite;
      iii) off the shell (chilled or frozen) packaged for direct retail trade;
      iv) half-shell (chilled).

   c) All commodities from Crassostrea gigas, C. virginica and Sacostrea glomerata, including the live aquatic animal.
Appendix VII (contd)

For the commodities referred to in point 1) b), Member Countries should consider introducing internal measures to prevent the commodity being used for any purpose other than for human consumption.

2. When authorising importation or transit of the commodities of a species referred to in Article 3.1.2.2., other than commodities referred to in point 1) of Article 3.1.2.3., Competent Authorities should require the conditions prescribed in Articles 3.1.2.7. to 3.1.2.11. relevant to the Bonamia exitiosa status of the exporting country, zone or compartment.

3. When considering the importation or transit of any other commodity from bivalve species not referred to in Article 3.1.2.2. (especially those of the genus Ostrea) nor in point 1) c) of Article 3.1.2.3., from an exporting country, zone or compartment not declared free of Bonamia exitiosa, Competent Authorities of the importing country should conduct an analysis of the risk of introduction, establishment and spread of Bonamia exitiosa and the potential consequences associated with importation of the commodity, prior to a decision. The outcome of this assessment should be made available to the exporting country. The exporting country should be informed of the outcome of this assessment.

Article 3.1.2.4.

Bonamia exitiosa free country

A country may make a self-declaration of freedom from Bonamia exitiosa if it meets the conditions in points 1), 2), 3) or 4) below.

If a country shares a zone or compartment with one or more other countries, it can only make a self-declaration of freedom from Bonamia exitiosa if all the areas covered by the shared water are declared Bonamia exitiosa free zones (see Article 3.1.2.5.).

1. A country where none of the susceptible species of the genus Ostrea is present may make a self-declaration of freedom from Bonamia exitiosa when basic biosecurity conditions have been met continuously in the country for at least the past 2 years.

OR

2. A country where any species referred to in Article 3.1.2.2. are present but there has never been any observed occurrence of the disease for at least the past 10 years despite conditions – in all areas where the species are present – that are conducive to its clinical expression, as described in Chapter 3.1.2. of the Aquatic Manual, may make a self-declaration of freedom from Bonamia exitiosa when basic biosecurity conditions have been met continuously in the country for at least the past 2 years and infection with Bonamia exitiosa is not known to be established in wild populations.

OR

3. A country where the last known clinical occurrence was within the past 10 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may make a self-declaration of freedom from Bonamia exitiosa when:

   a) basic biosecurity conditions have been met continuously for at least the past 2 years; and

   b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place for at least the past 2 years without detection of Bonamia exitiosa.

OR

4. A country that has made a self-declaration of freedom from Bonamia exitiosa but in which the disease is detected may not make a self-declaration of freedom from Bonamia exitiosa again until the following conditions have been met:

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a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and

b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see Aquatic Manual) have been completed; and

c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the past 2 years without detection of Bonamia exitiosa.

In the meantime, one or more areas of the remaining territory may be declared free zones, part of the non-affected area may be declared a free zone, provided that they meet the conditions in point 3) of Article 3.1.2.5.

Article 3.1.2.5.

Bonamia exitiosa free zone or free compartment

A zone or compartment free from Bonamia exitiosa may be established within the territory of one or more countries of infected or unknown status for infection with Bonamia exitiosa and declared free by the Competent Authority(ies) of the country(ies) concerned, if the zone or compartment meets the conditions referred to in points 1), 2), 3) or 4) below.

If a zone or compartment extends over more than one country, it can only be declared a Bonamia exitiosa free zone or compartment if the conditions outlined below apply to all areas of the zone or compartment.

1. In a country of unknown status for Bonamia exitiosa, a zone or compartment where none of the susceptible species of the genus Ostrea is present may be declared free from Bonamia exitiosa when basic biosecurity conditions have been met continuously in the zone or compartment for at least the past 2 years.

OR

2. In a country of unknown status for Bonamia exitiosa, a zone or compartment where any species referred to in Article 3.1.2.2. are present but there has never been any observed occurrence of the disease for at least the past 10 years despite conditions – in all areas where the species are present – that are conducive to its clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may be declared free from Bonamia exitiosa when basic biosecurity conditions have been met continuously in the zone or compartment for at least the past 2 years and infection with Bonamia exitiosa is not known to be established in wild populations.

OR

3. A zone or compartment where the last known clinical occurrence was within the past 10 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may be declared free from Bonamia exitiosa when:

a) basic biosecurity conditions have been met continuously for at least the past 2 years; and

b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place for at least the past 2 years without detection of Bonamia exitiosa.
Appendix VII (contd)

OR

4. A zone previously declared free from *Bonamia exitiosa* but in which the disease is detected may not be declared free from *Bonamia exitiosa* again until the following conditions have been met:

   a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and

   b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see *Aquatic Manual*) have been completed; and

   c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the *Aquatic Manual*, has been in place for at least the past 2 years without detection of *Bonamia exitiosa*.

   Article 3.1.2.6.

**Maintenance of free status**

A country, zone or compartment that is declared free from *Bonamia exitiosa* following the provisions of points 1) or 2) of Articles 3.1.2.4. or 3.1.2.5., as relevant, may maintain its status as *Bonamia exitiosa* free provided that basic biosecurity conditions are continuously maintained.

A country, zone or compartment that is declared free from *Bonamia exitiosa* following the provisions of point 3) of Articles 3.1.2.4. or 3.1.2.5., as relevant, may discontinue targeted surveillance and maintain its status as *Bonamia exitiosa* free provided that conditions that are conducive to clinical expression of infection with *Bonamia exitiosa*, as described in Chapter X.X.X. 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 *Bonamia exitiosa*, targeted surveillance needs to be continued at a level determined by the Competent Authority on the basis of the likelihood of re-infection.

   Article 3.1.2.7.

**Importation of live animals from a country, zone or compartment declared free from *Bonamia exitiosa***

When importing live aquatic animals of the species referred to in Article 3.1.2.2. from a country, zone or compartment declared free from *Bonamia exitiosa*, the Competent Authority of the importing country should require an international aquatic animal health certificate issued by the Competent Authority of the exporting country or a certifying official approved by the importing country.

This certificate must certify, on the basis of the procedures described in Articles 3.1.2.4. or 3.1.2.5. (as applicable), whether the place of production of the consignment is a country, zone or compartment declared free from *Bonamia exitiosa*.

The certificate *shall* be in accordance with the Model Certificate in Appendix 6.3.1.

This Article does not apply to commodities referred to in point 1) of Article 3.1.2.3.
Article 3.1.2.8.

**Importation of live animals for aquaculture from a country, zone or compartment not declared free from *Bonamia exitiosa***

When importing, for *aquaculture*, *aquatic animals* of the species referred to in Article 3.1.2.2. from a country, zone or compartment not declared free from *Bonamia exitiosa*, the *Competent Authority* of the importing country should assess the risk and apply risk mitigation measures such as:

1. the consignment is delivered directly into and held in *quarantine* facilities; and
2. the imported *aquatic animals* are continuously isolated from the local environment; and
3. all effluent and waste material from the processing are treated in a manner that ensures inactivation of *Bonamia exitiosa*.

This Article does not apply to *commodities* referred to in point 1) of Article 3.1.2.3.

Article 3.1.2.9.

**Importation of live animals for processing for human consumption from a country, zone or compartment not declared free from *Bonamia exitiosa***

When importing, for processing for human consumption, *aquatic animals* of the species referred to in Article 3.1.2.2. from a country, zone or compartment not declared free from *Bonamia exitiosa*, the *Competent Authority* of the importing country should require that:

1. the consignment is delivered directly to and held in *quarantine* facilities until processing and/or consumption; and
2. all effluent and waste material from the processing are treated in a manner that ensures inactivation of *Bonamia exitiosa*.

This Article does not apply to *commodities* referred to in point 1) of Article 3.1.2.3.

Article 3.1.2.10.

**Importation of products from a country, zone or compartment declared free from *Bonamia exitiosa***

When importing *aquatic animal products* of the species referred to in Article 3.1.2.2. from a country, zone or compartment free from *Bonamia exitiosa*, 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.

This certificate must certify, on the basis of the procedures described in Articles 3.1.2.4. or 3.1.2.5. (as applicable), whether or not the place of production of the consignment is a country, zone or compartment declared free from *Bonamia exitiosa*.

The certificate shall be in accordance with the Model Certificate in Appendix 6.3.2.

This Article does not apply to *commodities* referred to in point 1) of Article 3.1.2.3.
Appendix VII (contd)

Article 3.1.2.11.

Importation of products from a country, zone or compartment not declared free from *Bonamia exitiosa*

When importing *aquatic animal products* of the species referred to in Article 3.1.2.2. from a country, zone or compartment not declared free from *Bonamia exitiosa*, the *Competent Authority* of the *importing country* should assess the risk and apply appropriate risk mitigation measures.

This Article does not apply to *commodities* referred to in point 1) of Article 3.1.2.3.

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Chapter 3.1.1. Infection with Bonamia Ostreae

Article 3.1.1.1.

For the purposes of the Aquatic Code, infection with Bonamia ostreae means infection only with Bonamia ostreae.

Methods for surveillance, diagnosis and confirmatory identification are provided in the Aquatic Manual.

Article 3.1.1.2.

**Susceptible species Scope**

The recommendations in this Chapter apply to For the purposes of the Aquatic Code, susceptible species for infection with Bonamia ostreae are: European flat oyster (Ostrea edulis), Australian mud oyster (O. angasi), Argentinean flat oyster (O. puelchana), Chilean flat oyster (O. chilensis), Asiatitic oyster (O. denselamellata) and Suminoc oyster (Crassostrea ariakensis). These recommendations also apply to any other susceptible species referred to in the Aquatic Manual when traded internationally.

To date, all species of the genus Ostrea (except O. conchilega) exposed to Bonamia ostreae have been shown to be susceptible species. Therefore, all species of these genera should be regarded as potentially susceptible species.

Suspected cases, as defined in the Aquatic Manual, of infection with Bonamia ostreae in species other than those listed in this Article should be referred immediately to the appropriate OIE Reference Laboratory, whether or not clinical signs are associated with the findings.

Article 3.1.1.3.

**Commodities**

1. When authorising importation or transit of the following commodities, Competent Authorities should not require any Bonamia ostreae related conditions, regardless of the Bonamia ostreae status of the exporting country, zone or compartment:

   a) From the species referred to in Article 3.1.1.2., for any purpose:
   
      i) commercially-sterile canned or other heat treated products;
   
      ii) gametes, eggs and larvae.

   b) The following commodities destined for human consumption from the species referred to in Article 3.1.1.2. which have been prepared in such a way as to minimise the likelihood of alternative uses:

      i) chemically preserved products (e.g. smoked, salted, pickled, marinated, etc.);

      ii) non commercially sterile heat treated products (e.g. ready prepared meals) that have been heat treated in a manner to ensure the inactivation of the parasite;

      iii) off the shell (chilled or frozen) packaged for direct retail trade;

      iv) half-shell (chilled).

   c) All commodities from Crassostrea gigas, C. virginica, Rudistes decussatus, R. philippinarum, Mytilus galloprovincialis and M. edulis, including the live aquatic animal.
Appendix VIII (contd)

For the commodities referred to in point 1) b), Member Countries should consider introducing internal measures to prevent the commodity being used for any purpose other than for human consumption.

2. When authorising importation or transit of the commodities of a species referred to in Article 3.1.1.2, other than commodities referred to in point 1) of Article 3.1.1.3., Competent Authorities should require the conditions prescribed in Articles 3.1.1.7. to 3.1.1.11. relevant to the Bonamia ostreae status of the exporting country, zone or compartment.

3. When considering the importation or transit of any other commodity from bivalve species not referred to in Article 3.1.1.2. (especially those of the genus Ostrea) nor in point 1)c) of Article 3.1.1.3, from an exporting country, zone or compartment not declared free of Bonamia ostreae, Competent Authorities of the importing country should conduct an analysis of the risk of introduction, establishment and spread of Bonamia ostreae and the potential consequences associated with importation of the commodity, prior to a decision. The outcome of this assessment should be made available to the exporting country. The exporting country should be informed of the outcome of this assessment.

Article 3.1.1.4.

Bonamia ostreae free country

A country may make a self-declaration of freedom from Bonamia ostreae if it meets the conditions in points 1), 2), 3) or 4) below.

If a country shares a zone or compartment with one or more other countries, it can only make a self-declaration of freedom from Bonamia ostreae if all the areas covered by the shared water are declared Bonamia ostreae free zones (see Article 3.1.1.5.).

1. A country where none of the susceptible species of the genus Ostrea is present may make a self-declaration of freedom from Bonamia ostreae when basic biosecurity conditions have been met continuously in the country for at least the past 2 years.

OR

2. A country where any species referred to in Article 3.1.1.2. are present but there has never been any observed occurrence of the disease for at least the past 10 years despite conditions – in all areas where the species are present – that are conducive to its clinical expression, as described in Chapter 3.1.1. of the Aquatic Manual, may make a self-declaration of freedom from Bonamia ostreae when basic biosecurity conditions have been met continuously in the country for at least the past 2 years and infection with Bonamia ostreae is not known to be established in wild populations.

OR

3. A country where the last known clinical occurrence was within the past 10 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may make a self-declaration of freedom from Bonamia ostreae when:

a) basic biosecurity conditions have been met continuously for at least the past 2 years; and

b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place for at least the past 2 years without detection of Bonamia ostreae.
OR

4. A country that has made a self-declaration of freedom from Bonamia ostreae but in which the disease is detected may not make a self-declaration of freedom from Bonamia ostreae again until the following conditions have been met:

   a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and

   b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see Aquatic Manual) have been completed; and

   c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the past 2 years without detection of Bonamia ostreae.

In the meantime, one or more areas of the remaining territory may be declared free zones. Part of the non-affected area may be declared a free zone provided that they meet the conditions in point 3) of Article 3.1.1.5.

Article 3.1.1.5.

Bonamia ostreae free zone or free compartment

A zone or compartment free from Bonamia ostreae may be established within the territory of one or more countries of infected or unknown status for infection with Bonamia ostreae and declared free by the Competent Authority(ies) of the country(ies) concerned, if the zone or compartment meets the conditions referred to in points 1), 2), 3) or 4) below.

If a zone or compartment extends over more than one country, it can only be declared a Bonamia ostreae free zone or compartment if the conditions outlined below apply to all areas of the zone or compartment.

1. In a country of unknown status for Bonamia ostreae, a zone or compartment where none of the susceptible species of the genus Ostrea is present may be declared free from Bonamia ostreae when basic biosecurity conditions have been met continuously in the zone or compartment for at least the past 2 years.

OR

2. In a country of unknown status for Bonamia ostreae, a zone or compartment where any species referred to in Article 3.1.1.2. are present but there has never been any observed occurrence of the disease for at least the past 10 years despite conditions – in all areas where the species are present – that are conducive to its clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may be declared free from Bonamia ostreae when basic biosecurity conditions have been met continuously in the zone or compartment for at least the past 2 years and infection with Bonamia ostreae is not known to be established in wild populations.

OR

3. A zone or compartment where the last known clinical occurrence was within the past 10 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may be declared free from Bonamia ostreae when:
Appendix VIII (contd)

a) basic biosecurity conditions have been met continuously for at least the past 2 years; and

b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place for at least the past 2 years without detection of Bonamia ostreae.

OR

4. A zone previously declared free from Bonamia ostreae but in which the disease is detected may not be declared free from Bonamia ostreae again until the following conditions have been met:

a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and

b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see Aquatic Manual) have been completed; and

c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the past 2 years without detection of Bonamia ostreae.

Article 3.1.1.6.

Maintenance of free status

A country, zone or compartment that is declared free from Bonamia ostreae following the provisions of points 1) or 2) of Articles 3.1.1.4. or 3.1.1.5., as relevant, may maintain its status as Bonamia ostreae free provided that basic biosecurity conditions are continuously maintained.

A country, zone or compartment that is declared free from Bonamia ostreae following the provisions of point 3) of Articles 3.1.1.4. or 3.1.1.5., as relevant, may discontinue targeted surveillance and maintain its status as Bonamia ostreae free provided that conditions that are conducive to clinical expression of infection with Bonamia ostreae, as described in Chapter X.X.X. 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 Bonamia ostreae, targeted surveillance needs to be continued at a level determined by the Competent Authority on the basis of the likelihood of reinfection.

Article 3.1.1.7.

Importation of live animals from a country, zone or compartment declared free from Bonamia ostreae

When importing live aquatic animals of the species referred to in Article 3.1.1.2. from a country, zone or compartment declared free from Bonamia ostreae, the Competent Authority of the importing country should require an international aquatic animal health certificate issued by the Competent Authority of the exporting country or a certifying official approved by the importing country.

This certificate must certify, on the basis of the procedures described in Articles 3.1.1.4. or 3.1.1.5. (as applicable), whether the place of production of the consignment is a country, zone or compartment declared free from Bonamia ostreae.

The certificate shall be in accordance with the Model Certificate in Appendix 6.3.1.
This Article does not apply to **commodities** referred to in point 1) of Article 3.1.1.3.

**Article 3.1.1.8.**

**Importation of live animals for aquaculture from a country, zone or compartment not declared free from *Bonamia ostreae***

When importing, for **aquaculture**, **aquatic animals** of the species referred to in Article 3.1.1.2. from a country, **zone or compartment** not declared free from *Bonamia ostreae*, the **Competent Authority** of the importing country should assess the risk and apply risk mitigation measures such as:

1. the consignment is delivered directly into and held in **quarantine** facilities; and
2. the imported **aquatic animals** are continuously isolated from the local environment; and
3. all effluent and waste material **from the processing** are treated in a manner that ensures inactivation of *Bonamia ostreae*.

This Article does not apply to **commodities** referred to in point 1) of Article 3.1.1.3.

**Article 3.1.1.9.**

**Importation of live animals for processing for human consumption from a country, zone or compartment not declared free from *Bonamia ostreae***

When importing, for **processing for human consumption**, **aquatic animals** of the species referred to in Article 3.1.1.2. from a country, **zone or compartment** not declared free from *Bonamia ostreae*, the **Competent Authority** of the importing country should require that:

1. the consignment is delivered directly to and held in **quarantine** facilities until processing and/or consumption; and
2. all effluent and waste material **from the processing** are treated in a manner that ensures inactivation of *Bonamia ostreae*.

This Article does not apply to **commodities** referred to in point 1) of Article 3.1.1.3.

**Article 3.1.1.10.**

**Importation of products from a country, zone or compartment declared free from *Bonamia ostreae***

When importing **aquatic animal products** of the species referred to in Article 3.1.1.2. from a country, **zone or compartment** free from *Bonamia ostreae*, 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.

This certificate must certify, on the basis of the procedures described in Articles 3.1.1.4. or 3.1.1.5. (as applicable), whether or not the place of production of the consignment is a country, **zone or compartment** declared free from *Bonamia ostreae*.

The certificate **shall** be in accordance with the Model Certificate in Appendix 6.3.2.

This Article does not apply to **commodities** listed in point 1) of Article 3.1.1.3.
Appendix VIII (contd)

Article 3.1.1.11.

Importation of products from a country, zone or compartment not declared free from *Bonamia ostreae*

When importing *aquatic animal products* of the species referred to in Article 3.1.1.2. from a country, zone or compartment not declared free from *Bonamia ostreae*, the Competent Authority of the importing country should assess the risk and apply appropriate risk mitigation measures.

This Article does not apply to commodities referred to in point 1) of Article 3.1.1.3.

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CHAPTER 3.1.4.

INFECTION WITH HAPLOSPORIDIUM NELSONI

Article 3.1.4.1.

For the purposes of the Aquatic Code, infection with Haplosporidium nelsoni means infection only with Haplosporidium nelsoni.

Methods for surveillance, diagnosis and confirmatory identification are provided in the Aquatic Manual [under study].

Article 3.1.4.2.

Susceptible species Scope

The recommendations in this Chapter apply to For the purposes of the Aquatic Code, susceptible species for infection with Haplosporidium nelsoni are: Pacific oyster (Crassostrea gigas) and Eastern oyster (C. virginica). These recommendations also apply to any other susceptible species referred to in the Aquatic Manual when traded internationally.

Clinical manifestations and disease are mainly observed in C. virginica.

Suspected cases, as defined in the Aquatic Manual, of infection with Haplosporidium nelsoni in species other than those listed in this Article, should be referred immediately to the appropriate OIE Reference Laboratory, whether or not clinical signs are associated with the findings.

Commodities

1. When authorising importation or transit of the following commodities, Competent Authorities should not require any Haplosporidium nelsoni related conditions, regardless of the Haplosporidium nelsoni status of the exporting country, zone or compartment:

   a) From the species referred to in Article 3.1.4.2., for any purpose:
      i) commercially-sterile canned or cooked products;
      ii) gametes, eggs and larvae.

   b) The following commodities destined for human consumption from the species referred to in Article 3.1.4.2. which have been prepared in such a way as to minimise the likelihood of alternative uses:
      i) chemically preserved products (e.g. smoked, salted, pickled, marinated, etc.);
      ii) Heat-treated products (e.g. ready prepared meals) that have been heat treated in a manner to ensure the inactivation of the parasite;
      iii) off the shell (chilled or frozen) packaged for direct retail trade;
      iv) half-shell (chilled).

   c) All commodities from Crassostrea ariakensis, including the live aquatic animal.

For the commodities referred to in point 1)b), Member Countries should consider introducing internal measures to prevent the commodity being used for any purpose other than for human consumption.
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2. When authorising importation or transit of the commodities of a species referred to in Article 3.1.4.2., other than commodities referred to in point 1) of Article 3.1.4.3., Competent Authorities should require the conditions prescribed in Articles 3.1.4.7. to 3.1.4.11. relevant to the *Haplosporidium nelsoni* status of the exporting country, zone or compartment.

3. When considering the importation or transit of any other commodity from bivalve species not referred to in Article 3.1.4.2. nor in point 1c) of Article 3.1.4.3., from an exporting country, zone or compartment not declared free of *Haplosporidium nelsoni*, Competent Authorities of the importing country should conduct an analysis of the risk of introduction, establishment and spread of *Haplosporidium nelsoni* and the potential consequences associated with importation of the commodity, prior to a decision. The outcome of this assessment should be made available to the exporting country. The exporting country should be informed of the outcome of this assessment.

*Haplosporidium nelsoni* free country

A country may make a self-declaration of freedom from *Haplosporidium nelsoni* if it meets the conditions in points 1), 2), 3) or 4) below.

If a country shares a zone or compartment with one or more other countries, it can only make a self-declaration of freedom from *Haplosporidium nelsoni* if all the areas covered by the shared water are declared *Haplosporidium nelsoni* free zones (see Article 3.1.4.5.).

1. A country where none of the susceptible species listed in Article 3.1.4.2. are present may make a self-declaration of freedom from *Haplosporidium nelsoni* when basic biosecurity conditions have been met continuously in the country for at least the past 2 years.

OR

2. A country where any species referred to in Article 3.1.4.2. are present but there has never been any observed occurrence of the disease for at least the past 10 years despite conditions – in all areas where the species are present – that are conducive to its clinical expression, as described in Chapter 3.1.4. of the Aquatic Manual, may make a self-declaration of freedom from *Haplosporidium nelsoni* when basic biosecurity conditions have been met continuously in the country for at least the past 2 years and infection with *Haplosporidium nelsoni* is not known to be established in wild populations.

OR

3. A country where the last known clinical occurrence was within the past 10 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may make a self-declaration of freedom from *Haplosporidium nelsoni* when:

a) basic biosecurity conditions have been met continuously for at least the past 2 years; and

b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place for at least the past 2 years without detection of *Haplosporidium nelsoni*.

OR

4. A country that has made a self-declaration of freedom from *Haplosporidium nelsoni* but in which the disease is detected may not make a self-declaration of freedom from *Haplosporidium nelsoni* again until the following conditions have been met:

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a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and

b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see Aquatic Manual) have been completed; and

c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the past 2 years without detection of Haplosporidium nelsoni.

In the meantime, one or more areas of the remaining territory may be declared free zone, part of the non-affected area may be declared a free zone provided that they meet the conditions in point 3) of Article 3.1.4.5.

Article 3.1.4.5.

Haplosporidium nelsoni free zone or free compartment

A zone or compartment free from Haplosporidium nelsoni may be established within the territory of one or more countries of infected or unknown status for infection with Haplosporidium nelsoni and declared free by the Competent Authority(ies) of the country(ies) concerned, if the zone or compartment meets the conditions referred to in points 1), 2), 3) or 4) below.

If a zone or compartment extends over more than one country, it can only be declared a Haplosporidium nelsoni free zone or compartment if the conditions outlined below apply to all areas of the zone or compartment.

1. In a country of unknown status for Haplosporidium nelsoni, a zone or compartment where none of the susceptible species species listed in Article 3.1.4.2. is present may be declared free from Haplosporidium nelsoni when basic biosecurity conditions have been met continuously in the zone or compartment for at least the past 2 years.

OR

2. In a country of unknown status for Haplosporidium nelsoni, a zone or compartment where any species referred to in Article 3.1.4.2. are present but there has never been any observed occurrence of the disease for at least the past 10 years despite conditions – in all areas where the species are present – that are conducive to its clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may be declared free from Haplosporidium nelsoni when basic biosecurity conditions have been met continuously in the zone or compartment for at least the past 2 years and infection with Haplosporidium nelsoni is not known to be established in wild populations.

OR

3. A zone or compartment where the last known clinical occurrence was within the past 10 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may be declared free from Haplosporidium nelsoni when:

a) basic biosecurity conditions have been met continuously for at least the past 2 years; and

b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place for at least the past 2 years without detection of Haplosporidium nelsoni.
Appendix IX (contd)

OR

4. A zone previously declared free from *Haplosporidium nelsoni* but in which the disease is detected may not be declared free from *Haplosporidium nelsoni* again until the following conditions have been met:

a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and

b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see *Aquatic Manual*) have been completed; and

c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the *Aquatic Manual*, has been in place for at least the past 2 years without detection of *Haplosporidium nelsoni*.

**Article 3.1.4.6.**

**Maintenance of free status**

A country, zone or compartment that is declared free from *Haplosporidium nelsoni* following the provisions of points 1) or 2) of Articles 3.1.4.4. or 3.1.4.5., as relevant, may maintain its status as *Haplosporidium nelsoni* free provided that basic biosecurity conditions are continuously maintained.

A country, zone or compartment that is declared free from *Haplosporidium nelsoni* following the provisions of point 3) of Articles 3.1.4.4. or 3.1.4.5., as relevant, may discontinue targeted surveillance and maintain its status as *Haplosporidium nelsoni* free provided that conditions that are conducive to clinical expression of infection with *Haplosporidium nelsoni*, as described in Chapter X.X.X. 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 *Haplosporidium nelsoni*, targeted surveillance needs to be continued at a level determined by the Competent Authority on the basis of the likelihood of infection.

**Article 3.1.4.7.**

**Importation of live animals from a country, zone or compartment declared free from *Haplosporidium nelsoni***

When importing live aquatic animals of the species referred to in Article 3.1.4.2. from a country, zone or compartment declared free from *Haplosporidium nelsoni*, the Competent Authority of the importing country should require an international aquatic animal health certificate issued by the Competent Authority of the exporting country or a certifying officially approved by the importing country.

This certificate must certify, on the basis of the procedures described in Articles 3.1.4.4. or 3.1.4.5. (as applicable), whether the place of production of the consignment is a country, zone or compartment declared free from *Haplosporidium nelsoni*.

The certificate should be in accordance with the Model Certificate in Appendix 6.3.1.

This Article does not apply to commodities referred to in point 1) of Article 3.1.4.3.
Appendix IX (contd)

Article 3.1.4.8.

Importation of live animals for aquaculture from a country, zone or compartment not declared free from *Haplosporidium nelsoni*

When importing, for aquaculture, aquatic animals of the species referred to in Article 3.1.4.2. from a country, zone or compartment not declared free from *Haplosporidium nelsoni*, the Competent Authority of the importing country should assess the risk and apply risk mitigation measures such as:

1. the consignment is delivered directly into and held in quarantine facilities; and
2. the imported aquatic animals are continuously isolated from the local environment; and
3. all effluent and waste material from the processing are treated in a manner that ensures inactivation of *Haplosporidium nelsoni*.

This Article does not apply to commodities referred to in point 1) of Article 3.1.4.3.

Article 3.1.4.9.

Importation of live animals for processing for human consumption from a country, zone or compartment not declared free from *Haplosporidium nelsoni*

When importing, for processing for human consumption, aquatic animals of the species referred to in Article 3.1.4.2. from a country, zone or compartment not declared free from *Haplosporidium nelsoni*, the Competent Authority of the importing country should require that:

1. the consignment is delivered directly to and held in quarantine facilities until processing and/or consumption; and
2. all effluent and waste material from the processing are treated in a manner that ensures inactivation of *Haplosporidium nelsoni*.

This Article does not apply to commodities referred to in point 1) of Article 3.1.4.3.

Article 3.1.4.10.

Importation of products from a country, zone or compartment declared free from *Haplosporidium nelsoni*

When importing aquatic animal products of the species referred to in Article 3.1.4.2. from a country, zone or compartment free from *Haplosporidium nelsoni*, 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.

This certificate must certify, on the basis of the procedures described in Articles 3.1.4.4. or 3.1.4.5. (as applicable), whether or not the place of production of the consignment is a country, zone or compartment declared free from *Haplosporidium nelsoni*.

The certificate shall be in accordance with the Model Certificate in Appendix 6.3.2.

This Article does not apply to commodities listed in point 1) of Article 3.1.4.3.
Appendix IX (contd)

Article 3.1.4.11.

Importation of products from a country, zone or compartment not declared free from *Haplosporidium nelsoni*

When importing aquatic animal products of the species referred to in Article 3.1.4.2. from a country, zone or compartment not declared free from *Haplosporidium nelsoni*, the Competent Authority of the importing country should assess the risk and apply appropriate risk mitigation measures.

This Article does not apply to commodities referred to in point 1) of Article 3.1.4.3.

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CHAPTER 3.1.7.
INFECTION WITH MIKROCYTOS MACKINI

Article 3.1.7.1.

For the purposes of the Aquatic Code, infection with Mikrocytos mackini means infection only with Mikrocytos mackini.

Methods for surveillance, diagnosis and confirmatory identification are provided in the Aquatic Manual [under study].

Article 3.1.7.2.

Susceptible species Scope

The recommendations in this Chapter apply to for the purposes of the Aquatic Code, susceptible species for infection with Mikrocytos mackini are: European flat oyster (Ostrea edulis), Olympia oyster (O. conchaphila), Pacific oyster (Crassostrea gigas) and Eastern oyster (C. virginica). These recommendations also apply to any other susceptible species referred to in the Aquatic Manual when traded internationally.

Suspected cases, as defined in the Aquatic Manual, of infection with Mikrocytos mackini in species other than those listed in this Article should be referred immediately to the appropriate OIE Reference Laboratory, whether or not clinical signs are associated with the findings.

Article 3.1.7.3.

Commodities

1. When authorising importation or transit of the following commodities, Competent Authorities should not require any Mikrocytos mackini related conditions, regardless of the Mikrocytos mackini status of the exporting country, zone or compartment:
   
a) From the species referred to in Article 3.1.7.2., for any purpose:
   
i) commercially-sterile canned or other heat treated products;
   
ii) gametes, eggs and larvae.
   
b) The following commodities destined for human consumption from the species referred to in Article 3.1.7.2. which have been prepared in such a way as to minimise the likelihood of alternative uses:
   
i) chemically preserved products (e.g. smoked, salted, pickled, marinated, etc.);
   
ii) non commercially sterile heat treated products (e.g. ready prepared meals) that have been heat treated in a manner to ensure the inactivation of the parasite;
   
iii) off the shell (chilled or frozen) packaged for direct retail trade.

   For the commodities referred to in point 1) b), Member Countries should consider introducing internal measures to prevent the commodity being used for any purpose other than for human consumption.

2. When authorising importation or transit of the commodities of a species referred to in Article 3.1.7.2., other than commodities referred to in point 1) of Article 3.1.7.3., Competent Authorities should require the conditions prescribed in Articles 3.1.7.7. to 3.1.7.11. relevant to the Mikrocytos mackini status of the exporting country, zone or compartment.
Appendix X (contd)

3. When considering the importation or transit of any other commodity from bivalve species not referred to in Article 3.1.7.2. from an exporting country, zone or compartment not declared free of *Mikrocytos mackini*, Competent Authorities of the importing country should conduct an analysis of the risk of introduction, establishment and spread of *Mikrocytos mackini* and the potential consequences associated with importation of the commodity, prior to a decision. The outcome of this assessment should be made available to the exporting country. The exporting country should be informed of the outcome of this assessment.

**Article 3.1.7.4.**

*Mikrocytos mackini* free country

A country may make a self-declaration of freedom from *Mikrocytos mackini* if it meets the conditions in points 1), 2), 3) or 4) below.

If a country shares a zone or compartment with one or more other countries, it can only make a self-declaration of freedom from *Mikrocytos mackini* if all the areas covered by the shared water are declared *Mikrocytos mackini* free zones (see Article 3.1.7.5).

1. A country where none of the susceptible species listed in Article 3.1.7.2. are present may make a self-declaration of freedom from *Mikrocytos mackini* when basic biosecurity conditions have been met continuously in the country for at least the past 2 years.

OR

2. A country where any species referred to in Article 3.1.7.2. are present but there has never been any observed occurrence of the disease for at least the past 10 years despite conditions – in all areas where the species are present – that are conducive to its clinical expression, as described in Chapter 3.1.7. of the Aquatic Manual, may make a self-declaration of freedom from *Mikrocytos mackini* when basic biosecurity conditions have been met continuously in the country for at least the past 2 years and infection with *Mikrocytos mackini* is not known to be established in wild populations.

OR

3. A country where the last known clinical occurrence was within the past 10 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may make a self-declaration of freedom from *Mikrocytos mackini* when:

   a) basic biosecurity conditions have been met continuously for at least the past 2 years; and
   
   b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place for at least the past 2 years without detection of *Mikrocytos mackini*.

OR

4. A country that has made a self-declaration of freedom from *Mikrocytos mackini* but in which the disease is detected may not make a self-declaration of freedom from *Mikrocytos mackini* again until the following conditions have been met:

   a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and
   
   b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see Aquatic Manual) have been completed; and
c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the past 2 years without detection of Mikrocytos mackini.

In the meantime, one or more areas of the remaining territory may be declared free zones, part of the non-affected area may be declared a free zone provided that they meet the conditions in point 3) of Article 3.1.7.5.

Article 3.1.7.5.

Mikrocytos mackini free zone or free compartment

A zone or compartment free from Mikrocytos mackini may be established within the territory of one or more countries of infected or unknown status for infection with Mikrocytos mackini and declared free by the Competent Authority(ies) of the country(ies) concerned, if the zone or compartment meets the conditions referred to in points 1), 2), 3) or 4) below.

If a zone or compartment extends over more than one country, it can only be declared a Mikrocytos mackini free zone or compartment if the conditions outlined below apply to all areas of the zone or compartment.

1. In a country of unknown status for Mikrocytos mackini, a zone or compartment where none of the susceptible species listed in Article 3.1.7.2 is present may be declared free from Mikrocytos mackini when basic biosecurity conditions have been met continuously in the zone or compartment for at least the past 2 years.

OR

2. In a country of unknown status for Mikrocytos mackini, a zone or compartment where any species referred to in Article 3.1.7.2. are present but there has never been any observed occurrence of the disease for at least the past 10 years despite conditions – in all areas where the species are present – that are conducive to its clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may be declared free from Mikrocytos mackini when basic biosecurity conditions have been met continuously in the zone or compartment for at least the past 2 years and infection with Mikrocytos mackini is not known to be established in wild populations.

OR

3. A zone or compartment where the last known clinical occurrence was within the past 10 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may be declared free from Mikrocytos mackini when:

   a) basic biosecurity conditions have been met continuously for at least the past 2 years; and

   b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place for at least the past 2 years without detection of Mikrocytos mackini.

OR

4. A zone previously declared free from Mikrocytos mackini but in which the disease is detected may not be declared free from Mikrocytos mackini again until the following conditions have been met:

   a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and
Appendix X (contd)

b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see Aquatic Manual) have been completed; and

c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the past 2 years without detection of Mikrocytos mackini.

Article 3.1.7.6.

Maintenance of free status

A country, zone or compartment that is declared free from Mikrocytos mackini following the provisions of points 1) or 2) of Articles 3.1.7.4. or 3.1.7.5., as relevant, may maintain its status as Mikrocytos mackini free provided that basic biosecurity conditions are continuously maintained.

A country, zone or compartment that is declared free from Mikrocytos mackini following the provisions of point 3) of Articles 3.1.7.4. or 3.1.7.5., as relevant, may discontinue targeted surveillance and maintain its status as Mikrocytos mackini free provided that conditions that are conducive to clinical expression of infection with Mikrocytos mackini, as described in Chapter X.X.X. 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 Mikrocytos mackini, targeted surveillance needs to be continued at a level determined by the Competent Authority on the basis of the likelihood of infection.

Article 3.1.7.7.

Importation of live animals from a country, zone or compartment declared free from Mikrocytos mackini

When importing live aquatic animals of the species referred to in Article 3.1.7.2. from a country, zone or compartment declared free from Mikrocytos mackini, the Competent Authority of the importing country should require an international aquatic animal health certificate issued by the Competent Authority of the exporting country or a certifying official approved by the importing country.

This certificate must certify, on the basis of the procedures described in Articles 3.1.7.4. or 3.1.7.5. (as applicable), whether the place of production of the consignment is a country, zone or compartment declared free from Mikrocytos mackini.

The certificate shall be in accordance with the Model Certificate in Appendix 6.3.1.

This Article does not apply to commodities referred to in point 1) of Article 3.1.7.3.

Article 3.1.7.8.

Importation of live animals for aquaculture from a country, zone or compartment not declared free from Mikrocytos mackini

When importing, for aquaculture, aquatic animals of the species referred to in Article 3.1.7.2. from a country, zone or compartment not declared free from Mikrocytos mackini, the Competent Authority of the importing country should assess the risk and apply risk mitigation measures such as:

1. the consignment is delivered directly into and held in quarantine facilities; and
2. the imported aquatic animals are continuously isolated from the local environment; and
Appendix X (contd)

3. all effluent and waste material from the processing are treated in a manner that ensures inactivation of Mikrocytos mackini.

This Article does not apply to commodities referred to in point 1) of Article 3.1.7.3.

Article 3.1.7.9.

Importation of live animals for processing for human consumption from a country, zone or compartment not declared free from Mikrocytos mackini

When importing, for processing for human consumption, aquatic animals of the species referred to in Article 3.1.7.2. from a country, zone or compartment not declared free from Mikrocytos mackini, the Competent Authority of the importing country should require that:

1. the consignment is delivered directly to and held in quarantine facilities until processing and/or consumption; and
2. all effluent and waste material from the processing are treated in a manner that ensures inactivation of Mikrocytos mackini.

This Article does not apply to commodities referred to in point 1) of Article 3.1.7.3.

Article 3.1.7.10.

Importation of products from a country, zone or compartment declared free from Mikrocytos mackini

When importing aquatic animal products of the species referred to in Article 3.1.7.2. from a country, zone or compartment free from Mikrocytos mackini, 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.

This certificate must certify, on the basis of the procedures described in Articles 3.1.7.4. or 3.1.7.5. (as applicable), whether or not the place of production of the consignment is a country, zone or compartment declared free from Mikrocytos mackini.

The certificate shall be in accordance with the Model Certificate in Appendix 6.3.2.

This Article does not apply to commodities referred to in point 1) of Article 3.1.7.3.

Article 3.1.7.11.

Importation of products from a country, zone or compartment not declared free from Mikrocytos mackini

When importing aquatic animal products of the species referred to in Article 3.1.7.2. from a country, zone or compartment not declared free from Mikrocytos mackini, the Competent Authority of the importing country should assess the risk and apply appropriate risk mitigation measures.

This Article does not apply to commodities referred to in point 1) of Article 3.1.7.3.

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CHAPTER 3.1.9.

INFECTION WITH PERKINSUS OLSENI

Article 3.1.9.1.

For the purposes of the Aquatic Code, infection with Perkinsus olseni means infection only with Perkinsus olseni.

Methods for surveillance, diagnosis and confirmatory identification are provided in the Aquatic Manual.

Article 3.1.9.2.

Susceptible species Scope

The recommendations in this Chapter apply only for the purposes of the Aquatic Code. Susceptible species for infection with Perkinsus olseni are: primarily venerid clams (Austrovenus stutchburyi, Venerupis philippinarum, V. amea, Ruditapes decussatus and R. philippinarum), abalone (Haliotis rubra, H. laevigata, H. Cyclolutes and H. scalaris) and other species (Anadara trapezia, Barbatula novaezelandiae, Macomona liliana, Paphies australis, Crassostrea gigas and C. ariakensis). These recommendations also apply to any other susceptible species referred to in the Aquatic Manual when traded internationally.

To date, all species of bivalves and gastropods exposed to Perkinsus olseni have been shown to be susceptible species. Therefore, all these mollusc species should be regarded as potentially susceptible species. Clinical manifestations and disease are mainly observed in the families Veneridae, Haliotidae and Arctidae.

Suspected cases, as defined in the Aquatic Manual, of infection with Perkinsus olseni in species other than those listed in this Article should be referred immediately to the appropriate OIE Reference Laboratory, whether or not clinical signs are associated with the findings.

Article 3.1.9.3.

Commodities

1. When authorising importation or transit of the following commodities, Competent Authorities should not require any Perkinsus olseni related conditions, regardless of the Perkinsus olseni status of the exporting country, zone or compartment:

   a) From the species referred to in Article 3.1.9.2., for any purpose:

      i) commercially-sterile canned or other heat treated products.

   b) The following commodities destined for human consumption from the species referred to in Article 3.1.9.2. which have been prepared in such a way as to minimise the likelihood of alternative uses:

      i) chemically preserved products (e.g. smoked, salted, pickled, marinated, etc.);

      ii) non commercially sterile heat treated products (e.g. ready prepared meals) that have been heat treated in a manner to ensure the inactivation of the parasite.

For the commodities referred to in point 1)b), Member Countries should consider introducing internal measures to prevent the commodity being used for any purpose other than for human consumption.
Appendix XI (contd)

2. When authorising importation or transit of the commodities of a species referred to in Article 3.1.9.2, other than commodities referred to in point 1) of Article 3.1.9.3., Competent Authorities should require the conditions prescribed in Articles 3.1.9.7. to 3.1.9.11. relevant to the Perkinsus olseni status of the exporting country, zone or compartment.

3. When considering the importation or transit of any other commodity from bivalve and gastropod species not referred to in Article 3.1.9.2. from an exporting country, zone or compartment not declared free of Perkinsus olseni, Competent Authorities of the importing country should conduct an analysis of the risk of introduction, establishment and spread of Perkinsus olseni and the potential consequences associated with importation of the commodity, prior to a decision. The outcome of this assessment should be made available to the exporting country. The exporting country should be informed of the outcome of this assessment.

Article 3.1.9.4.

Perkinsus olseni free country

A country may make a self-declaration of freedom from Perkinsus olseni if it meets the conditions in points 1), 2) or 3) below.

If a country shares a zone as compartment with one or more other countries, it can only make a self-declaration of freedom from Perkinsus olseni if all the areas covered by the shared water are declared Perkinsus olseni free zones (see Article 3.1.9.5).

1. A country where the susceptible species listed in Article 3.1.9.2 are present but there has never been any observed occurrence of the disease for at least the past 10 years despite conditions – in all areas where the species are present – that are conducive to its clinical expression, as described in Chapter 3.1.9. of the Aquatic Manual, may make a self-declaration of freedom from Perkinsus olseni when basic biosecurity conditions have been met continuously in the country for at least the past 3 years and infection with Perkinsus olseni is not known to be established in wild populations.

OR

2. A country where the last known clinical occurrence was within the past 10 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may make a self-declaration of freedom from Perkinsus olseni when:

   a) basic biosecurity conditions have been met continuously for at least the past 3 years; and

   b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place for at least the past 3 years without detection of Perkinsus olseni.

OR

3. A country that has made a self-declaration of freedom from Perkinsus olseni but in which the disease is detected may not make a self-declaration of freedom from Perkinsus olseni again until the following conditions have been met:

   a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and
Appendix XI (contd)

b) infected populations have been safely destroyed or removed from the infected zone by means that minimize the risk of further spread of the disease, and the appropriate disinfection procedures (see Aquatic Manual) have been completed; and

c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the past 3 years without detection of Perkinsus olseni.

In the meantime, one or more areas of the remaining territory may be declared free zones, part of the non-affected area may be declared a free zone provided that they meet the conditions in point 2) of Article 3.1.9.5.

Article 3.1.9.5.

Perkinsus olseni free zone or free compartment

A zone or compartment free from Perkinsus olseni may be established within the territory of one or more countries of infected or unknown status for infection with Perkinsus olseni and declared free by the Competent Authority(ies) of the country(ies) concerned, if the zone or compartment meets the conditions referred to in points 1), 2) or 3) below.

If a zone or compartment extends over more than one country, it can only be declared a Perkinsus olseni free zone or compartment if the conditions outlined below apply to all areas of the zone or compartment.

1. In a country of unknown status for Perkinsus olseni, a zone or compartment where the susceptible species listed in Article 3.1.9.2. are present but there has never been any observed occurrence of the disease for at least the past 10 years despite conditions – in all areas where the species are present – that are conducive to its clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may be declared free from Perkinsus olseni when basic biosecurity conditions have been met continuously in the zone or compartment for at least the past 3 years and infection with Perkinsus olseni is not known to be established in wild populations.

OR

2. A zone or compartment where the last known clinical occurrence was within the past 10 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may be declared free from Perkinsus olseni when:

   a) basic biosecurity conditions have been met continuously for at least the past 3 years; and
   b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place for at least the past 3 years without detection of Perkinsus olseni.

OR

3. A zone previously declared free from Perkinsus olseni but in which the disease is detected may not be declared free from Perkinsus olseni again until the following conditions have been met:

   a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and
   b) infected populations have been safely destroyed or removed from the infected zone by means that minimize the risk of further spread of the disease, and the appropriate disinfection procedures (see Aquatic Manual) have been completed; and
Appendix XI (contd)

c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the past 3 years without detection of Perkinsus olseni.

Article 3.1.9.6.

Maintenance of free status

A country, zone or compartment that is declared free from Perkinsus olseni following the provisions of point 1) of Articles 3.1.9.4. or 3.1.9.5., as relevant, may maintain its status as Perkinsus olseni free provided that basic biosecurity conditions are continuously maintained.

A country, zone or compartment that is declared free from Perkinsus olseni following the provisions of point 2) of Articles 3.1.9.4. or 3.1.9.5., as relevant, may discontinue targeted surveillance and maintain its status as Perkinsus olseni free provided that conditions that are conducive to clinical expression of infection with Perkinsus olseni, as described in Chapter X.X.X. 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 Perkinsus olseni, targeted surveillance needs to be continued at a level determined by the Competent Authority on the basis of the likelihood of re-infection.

Article 3.1.9.7.

Importation of live animals from a country, zone or compartment declared free from Perkinsus olseni

When importing live aquatic animals of the species referred to in Article 3.1.9.2. from a country, zone or compartment declared free from Perkinsus olseni, the Competent Authority of the importing country should require an international aquatic animal health certificate issued by the Competent Authority of the exporting country or a certifying official approved by the importing country.

This certificate must certify, on the basis of the procedures described in Articles 3.1.9.4. or 3.1.9.5. (as applicable), whether the place of production of the consignment is a country, zone or compartment declared free from Perkinsus olseni.

The certificate shall be in accordance with the Model Certificate in Appendix 6.3.1.

This Article does not apply to commodities referred to in point 1) of Article 3.1.9.3.

Article 3.1.9.8.

Importation of live animals for aquaculture from a country, zone or compartment not declared free from Perkinsus olseni

When importing, for aquaculture, aquatic animals of the species referred to in Article 3.1.9.2. from a country, zone or compartment not declared free from Perkinsus olseni, the Competent Authority of the importing country should assess the risk and apply risk mitigation measures such as:

1. the consignment is delivered directly into and held in quarantine facilities; and
2. the imported aquatic animals are continuously isolated from the local environment; and
3. all effluent and waste materials from the processing are treated in a manner that ensures inactivation of Perkinsus olseni.
This Article does not apply to commodities referred to in point 1) of Article 3.1.9.3.

Article 3.1.9.9.

**Importation of live animals for processing for human consumption from a country, zone or compartment not declared free from *Perkinsus olseni***

When importing, for processing for human consumption, aquatic animals of the species referred to in Article 3.1.9.2. from a country, zone or compartment not declared free from *Perkinsus olseni*, the Competent Authority of the importing country should require that:

1. the consignment is delivered directly to and held in quarantine facilities until processing and/or consumption; and
2. all effluent and waste material from the processing are treated in a manner that ensures inactivation of *Perkinsus olseni*.

This Article does not apply to commodities referred to in point 1) of Article 3.1.9.3.

Article 3.1.9.10.

**Importation of products from a country, zone or compartment declared free from *Perkinsus olseni***

When importing aquatic animal products of the species referred to in Article 3.1.9.2. from a country, zone or compartment free from *Perkinsus olseni*, 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.

This certificate must certify, on the basis of the procedures described in Articles 3.1.9.4. or 3.1.9.5. (as applicable), whether or not the place of production of the consignment is a country, zone or compartment declared free from *Perkinsus olseni*.

The certificate shall be in accordance with the Model Certificate in Appendix 6.3.2.

This Article does not apply to commodities referred to in point 1) of Article 3.1.9.3.

Article 3.1.9.11.

**Importation of products from a country, zone or compartment not declared free from *Perkinsus olseni***

When importing aquatic animal products of the species referred to in Article 3.1.9.2. from a country, zone or compartment not declared free from *Perkinsus olseni*, the Competent Authority of the importing country should assess the risk and apply appropriate risk mitigation measures such as:

1) the consignment is delivered directly to and held in biosecure/quarantine facilities for processing to one of the products referred to in point 1) of Article 3.1.9.3. or other products authorised by the Competent Authority; and
2) all effluent and waste material from the processing are treated in a manner that ensures inactivation of *Perkinsus olseni*.

This Article does not apply to commodities referred to in point 1) of Article 3.1.9.3.
**CHAPTER 3.1.8.**

**INFECTION WITH PERKINSUS MARINUS**

Article 3.1.8.1.

For the purposes of the *Aquatic Code*, infection with *Perkinsus marinus* means infection only with *Perkinsus marinus*.

Methods for surveillance, diagnosis and confirmatory identification are provided in the *Aquatic Manual*.

Article 3.1.8.2.

**Susceptible species Scope**

The recommendations in this Chapter apply to *Perkinsus marinus* for Eastern oyster (*Crassostrea virginica*), Pacific oyster (*C. gigas*), Sunimoce oyster (*C. ariakensis*), soft shell clam (*Mya arenaria*), Baltic clam (*Maona balhica*) and hard shell clam (*Mercenaria mercenaria*). These recommendations also apply to any other susceptible species referred to in the *Aquatic Manual* when traded internationally.

Clinical manifestations and disease are mainly observed in *C. virginica*.

Suspected cases, as defined in the *Aquatic Manual*, of infection with *Perkinsus marinus* in species other than those listed in this Article should be referred immediately to the appropriate OIE Reference Laboratory, whether or not clinical signs are associated with the findings.

Article 3.1.8.3.

**Commodities**

1. When authorising importation or transit of the following **commodities**, *Competent Authorities* should not require any *Perkinsus marinus* related conditions, regardless of the *Perkinsus marinus* status of the exporting country, zone or compartment:

   a) From the species referred to in Article 3.1.8.2., for any purpose:

      i) commercially-sterile canned or other heat treated products.

   b) The following **commodities** destined for human consumption from the species referred to in Article 3.1.8.2. which have been prepared in such a way as to minimise the likelihood of alternative uses:

      i) chemically preserved products (e.g. smoked, salted, pickled, marinated, etc.);

      ii) non commercially sterile heat treated products (e.g. ready prepared meals) that have been heat treated in a manner to ensure the inactivation of the parasite.

   For the **commodities** referred to in point 1)b), Member Countries should consider introducing internal measures to prevent the **commodity** being used for any purpose other than for human consumption.

2. When authorising importation or transit of the **commodities** of a species referred to in Article 3.1.8.2., other than commodities referred to in point 1) of Article 3.1.8.3., *Competent Authorities* should require the conditions prescribed in Articles 3.1.8.7. to 3.1.8.11. relevant to the *Perkinsus marinus* status of the exporting country, zone or compartment.
Appendix XII (contd)

3. When considering the importation or transit of any other commodity from bivalve species not referred to in Article 3.1.8.2, from an exporting country, zone or compartment not declared free of Perkinsus marinus, Competent Authorities of the importing country should conduct an analysis of the risk of introduction, establishment and spread of Perkinsus marinus and the potential consequences associated with importation of the commodity, prior to a decision. The outcome of this assessment should be made available to the exporting country. The exporting country should be informed of the outcome of this assessment.

Article 3.1.8.4.

Perkinsus marinus free country

A country may make a self-declaration of freedom from Perkinsus marinus if it meets the conditions in points 1), 2), 3) or 4) below.

If a country shares a zone or compartment with one or more other countries, it can only make a self-declaration of freedom from Perkinsus marinus if all the areas covered by the shared water are declared Perkinsus marinus free zones (see Article 3.1.8.5).

1. A country where none of the susceptible species is species listed in Article 3.1.8.2, are present may make a self-declaration of freedom from Perkinsus marinus when basic biosecurity conditions have been met continuously in the country for at least the past 3 years.

OR

2. A country where any species referred to in Article 3.1.8.2, are present but there has never been any observed occurrence of the disease for at least the past 10 years despite conditions – in all areas where the species are present – that are conducive to its clinical expression, as described in Chapter 3.1.8. of the Aquatic Manual, may make a self-declaration of freedom from Perkinsus marinus when basic biosecurity conditions have been met continuously in the country for at least the past 3 years and infection with Perkinsus marinus is not known to be established in wild populations.

OR

3. A country where the last known clinical occurrence was within the past 10 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may make a self-declaration of freedom from Perkinsus marinus when:

   a) basic biosecurity conditions have been met continuously for at least the past 3 years; and
   b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place for at least the past 3 years without detection of Perkinsus marinus.

OR

4. A country that has made a self-declaration of freedom from Perkinsus marinus but in which the disease is detected may not make a self-declaration of freedom from Perkinsus marinus again until the following conditions have been met:

   a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and
   b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see Aquatic Manual) have been completed; and
Appendix XII (contd)

c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the past 3 years without detection of Perkinus marinus.

In the meantime, one or more areas of the remaining territory may be declared free zones, part of the non-affected area may be declared a free zone, provided that they meet the conditions in point 3) of Article 3.1.8.5.

Article 3.1.8.5.

**Perkinus marinus** free zone or free compartment

A zone or compartment free from *Perkinus marinus* may be established within the territory of one or more countries of infected or unknown status for infection with *Perkinus marinus* and declared free by the Competent Authority(ies) of the country(ies) concerned, if the zone or compartment meets the conditions referred to in points 1), 2), 3) or 4) below.

If a zone or compartment extends over more than one country, it can only be declared a *Perkinus marinus* free zone or compartment if the conditions outlined below apply to all areas of the zone or compartment.

1. In a country of unknown status for *Perkinus marinus*, a zone or compartment where none of the susceptible species species listed in Article 3.1.8.2. are present may be declared free from *Perkinus marinus* when basic biosecurity conditions have been met continuously in the zone or compartment for at least the past 3 years.

OR

2. In a country of unknown status for *Perkinus marinus*, a zone or compartment where any species referred to in Article 3.1.8.2. are present but there has never been any observed occurrence of the disease for at least the past 10 years despite conditions – in all areas where the species are present – that are conducive to its clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may be declared free from *Perkinus marinus* when basic biosecurity conditions have been met continuously in the zone or compartment for at least the past 3 years and infection with *Perkinus marinus* is not known to be established in wild populations.

OR

3. A zone or compartment where the last known clinical occurrence was within the past 10 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may be declared free from *Perkinus marinus* when:

   a) basic biosecurity conditions have been met continuously for at least the past 3 years; and

   b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place for at least the past 3 years without detection of *Perkinus marinus*.

OR

4. A zone previously declared free from *Perkinus marinus* but in which the disease is detected may not be declared free from *Perkinus marinus* again until the following conditions have been met:

   a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and
Appendix XII (contd)

b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see Aquatic Manual) have been completed; and

c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the past 3 years without detection of Perkinsus marinus.

Article 3.1.8.6.

Maintenance of free status

A country, zone or compartment that is declared free from Perkinsus marinus following the provisions of points 1) or 2) of Articles 3.1.8.4. or 3.1.8.5., as relevant, may maintain its status as Perkinsus marinus free provided that basic biosecurity conditions are continuously maintained.

A country, zone or compartment that is declared free from Perkinsus marinus following the provisions of point 3) of Articles 3.1.8.4. or 3.1.8.5., as relevant, may discontinue targeted surveillance and maintain its status as Perkinsus marinus free provided that conditions that are conducive to clinical expression of infection with Perkinsus marinus, as described in Chapter X.X.X. 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 Perkinsus marinus, targeted surveillance needs to be continued at a level determined by the Competent Authority on the basis of the likelihood of reinfection.

Article 3.1.8.7.

Importation of live animals from a country, zone or compartment declared free from Perkinsus marinus

When importing live aquatic animals of the species referred to in Article 3.1.8.2. from a country, zone or compartment declared free from Perkinsus marinus, the Competent Authority of the importing country should require an international aquatic animal health certificate issued by the Competent Authority of the exporting country or a certifying official approved by the importing country.

This certificate must certify, on the basis of the procedures described in Articles 3.1.8.4. or 3.1.8.5. (as applicable), whether the place of production of the consignment is a country, zone or compartment declared free from Perkinsus marinus.

The certificate shall be in accordance with the Model Certificate in Appendix 6.3.1.

This Article does not apply to commodities referred to in point 1) of Article 3.1.8.3.

Article 3.1.8.8.

Importation of live animals for aquaculture from a country, zone or compartment not declared free from Perkinsus marinus

When importing for aquaculture, aquatic animals of the species referred to in Article 3.1.8.2. from a country, zone or compartment not declared free from Perkinsus marinus, the Competent Authority of the importing country should assess the risk and apply risk mitigation measures such as:

1. the consignment is delivered directly into and held in quarantine facilities; and
2. the imported aquatic animals are continuously isolated from the local environment; and
Article 3.1.8.9.

Importation of live animals for processing for human consumption from a country, zone or compartment not declared free from *Perkinsus marinus*

When importing, for processing for human consumption, *aquatic animals* of the species referred to in Article 3.1.8.2. from a country, *zone or compartment* not declared free from *Perkinsus marinus*, the *Competent Authority* of the importing country should require that:

1. the consignment is delivered directly to and held in *quarantine* facilities until processing and/or consumption; and

2. all effluent and waste material *from the processing* are treated in a manner that ensures inactivation of *Perkinsus marinus*.

This Article does not apply to *commodities* referred to in point 1) of Article 3.1.8.3.

Article 3.1.8.10.

Importation of products from a country, zone or compartment free from *Perkinsus marinus*

When importing *aquatic animal products* of the species referred to in Article 3.1.8.2. from a country, *zone or compartment* free from *Perkinsus marinus*, 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.

This certificate must certify, on the basis of the procedures described in Articles 3.1.8.4. or 3.1.8.5. (as applicable), whether or not the place of production of the consignment is a country, *zone or compartment* declared free from *Perkinsus marinus*.

The certificate *shall* be in accordance with the Model Certificate in Appendix 6.3.2.

This Article does not apply to *commodities* referred to in point 1) of Article 3.1.8.3.

Article 3.1.8.11.

Importation of products from a country, zone or compartment not declared free from *Perkinsus marinus*

When importing *aquatic animal products* of the species referred to in Article 3.1.8.2. from a country, *zone or compartment* not declared free from *Perkinsus marinus*, the *Competent Authority* of the importing country should assess the risk and apply appropriate risk mitigation measures such as:

1) the consignment is delivered directly to and held in biosecure/quarantine facilities for processing to one of the products referred to in point 1) of Article 3.1.8.3. or other products authorised by the *Competent Authority*; and
Appendix XII (contd)

2) all effluent and waste material from the processing are treated in a manner that ensures inactivation of Perkinsus marinus.

This Article does not apply to commodities referred to in point 1) of Article 3.1.8.3.
CHAPTER 3.1.11.

INFECTION WITH XENOHALIOTIS CALIFORNIENSIS

Article 3.1.11.1.

For the purposes of the Aquatic Code, infection with Xenohaliotis californiensis means infection only with Xenohaliotis californiensis.

Methods for surveillance, diagnosis and confirmatory identification are provided in the Aquatic Manual.

Article 3.1.11.2.

Susceptible species Scope

The recommendations in this Chapter apply to infection with Xenohaliotis californiensis in black abalone (Haliotis cracherodi), white abalone (H. sorensteni), red abalone (H. rufescens), pink abalone (H. corrugata), green abalone (H. fulgens), flat abalone (H. wallaena) and Japanese abalone (H. discus-hannah). These recommendations also apply to any other susceptible species referred to in the Aquatic Manual when traded internationally.

To date, all species of the genus Haliotis exposed to Xenohaliotis californiensis have been shown to be susceptible species. Therefore, all species of these genera should be regarded as potentially susceptible species.

Suspected cases, as defined in the Aquatic Manual, of infection with Xenohaliotis californiensis in species other than those listed in this Article should be referred immediately to the appropriate OIE Reference Laboratory, whether or not clinical signs are associated with the findings.

Article 3.1.11.3.

Commodities

1. When authorising importation or transit of the following commodities, Competent Authorities should not require any Xenohaliotis californiensis related conditions, regardless of the Xenohaliotis californiensis status of the exporting country, zone or compartment:

   a) From the species referred to in Article 3.1.11.2., for any purpose:

      i) commercially-sterile canned or other heat treated products;
      ii) gametes;
      iii) shells.

   b) The following commodities destined for human consumption from the species referred to in Article 3.1.11.2. which have been prepared in such a way as to minimise the likelihood of alternative uses:

      i) chemically preserved products (e.g. smoked, salted, pickled, marinated, etc.);
      ii) non commercially sterile heat treated products (e.g. ready prepared meals) that have been heat treated in a manner to ensure the inactivation of the parasite;
      iii) off the shell, eviscerated abalone (chilled or frozen) packaged for direct retail trade.
Appendix XIII (contd)

For the commodities referred to in point 1)b), Member Countries should consider introducing internal measures to prevent the commodity being used for any purpose other than for human consumption.

2. When authorising importation or transit of the commodities of a species referred to in Article 3.1.11.2., other than commodities referred to in point 1) of Article 3.1.11.3., Competent Authorities should require the conditions prescribed in Articles 3.1.11.7. to 3.1.11.11. relevant to the Xenohaliotis californiensis status of the exporting country, zone or compartment.

3. When considering the importation or transit of any other commodity from bivalve mollusc species not referred to in Article 3.1.11.2. (especially those of the genus Haliotis) from an exporting country, zone or compartment not declared free of Xenohaliotis californiensis, Competent Authorities of the importing country should conduct an analysis of the risk of introduction, establishment and spread of Xenohaliotis californiensis and the potential consequences associated with importation of the commodity, prior to a decision. The outcome of this assessment should be made available to the exporting country. The exporting country should be informed of the outcome of this assessment.

Article 3.1.11.4.

Xenohaliotis californiensis free country

A country may make a self-declaration of freedom from Xenohaliotis californiensis if it meets the conditions in points 1), 2), 3) or 4) below.

If a country shares a zone or compartment with one or more other countries, it can only make a self-declaration of freedom from Xenohaliotis californiensis if all the areas covered by the shared water are declared Xenohaliotis californiensis free zones (see Article 3.1.11.5).

1. A country where none of the susceptible species is species of the genus Haliotis is present may make a self-declaration of freedom from Xenohaliotis californiensis when basic biosecurity conditions have been met continuously in the country for at least the past 2 years.

OR

2. A country where any species referred to in Article 3.1.11.2. are present but there has never been any observed occurrence of the disease for at least the past 10 years despite conditions – in all areas where the species are present – that are conducive to its clinical expression, as described in Chapter 3.1.11. of the Aquatic Manual, may make a self-declaration of freedom from Xenohaliotis californiensis when basic biosecurity conditions have been met continuously in the country for at least the past 2 years and infection with Xenohaliotis californiensis is not known to be established in wild populations.

OR

3. A country where the last known clinical occurrence was within the past 10 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may make a self-declaration of freedom from Xenohaliotis californiensis when:

   a) basic biosecurity conditions have been met continuously for at least the past 2 years; and

   b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place for at least the past 2 years without detection of Xenohaliotis californiensis.
Appendix XIII (contd)

OR

4. A country that has made a self-declaration of freedom from *Xenohaliotis californiensis* but in which the disease is detected may not make a self-declaration of freedom from *Xenohaliotis californiensis* again until the following conditions have been met:

a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and

b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see *Aquatic Manual*) have been completed; and

c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the *Aquatic Manual*, has been in place for at least the past 2 years without detection of *Xenohaliotis californiensis*.

In the meantime, one or more areas of the remaining territory may be declared free zones, part of the non-affected area may be declared a free zone provided that they meet the conditions in point 3) of Article 3.1.11.5.

**Article 3.1.11.5.**

*Xenohaliotis californiensis* free zone or free compartment

A zone or compartment free from *Xenohaliotis californiensis* may be established within the territory of one or more countries of infected or unknown status for infection with *Xenohaliotis californiensis* and declared free by the Competent Authority(ies) of the country(ies) concerned, if the zone or compartment meets the conditions referred to in points 1), 2), 3) or 4) below.

If a zone or compartment extends over more than one country, it can only be declared a *Xenohaliotis californiensis* free zone or compartment if the conditions outlined below apply to all areas of the zone or compartment.

1. In a country of unknown status for *Xenohaliotis californiensis*, a zone or compartment where none of the susceptible species is present may be declared free from *Xenohaliotis californiensis* when basic biosecurity conditions have been met continuously in the zone or compartment for at least the past 2 years.

OR

2. In a country of unknown status for *Xenohaliotis californiensis*, a zone or compartment where any species referred to in Article 3.1.11.2. are present but there has never been any observed occurrence of the disease for at least the past 10 years despite conditions – in all areas where the species are present – that are conducive to its clinical expression, as described in Chapter X.X.X. of the *Aquatic Manual*, may be declared free from *Xenohaliotis californiensis* when basic biosecurity conditions have been met continuously in the zone or compartment for at least the past 2 years and infection with *Xenohaliotis californiensis* is not known to be established in wild populations.

OR

3. A zone or compartment where the last known clinical occurrence was within the past 10 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the *Aquatic Manual*, may be declared free from *Xenohaliotis californiensis* when:

a) basic biosecurity conditions have been met continuously for at least the past 2 years; and

b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the *Aquatic Manual* has been in place for at least the past 2 years without detection of *Xenohaliotis californiensis*.  

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OR

4. A zone previously declared free from *Xenobalistis californiensis* but in which the disease is detected may not be declared free from *Xenobalistis californiensis* again until the following conditions have been met:

   a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and

   b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see Aquatic Manual) have been completed; and

   c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the past 2 years without detection of *Xenobalistis californiensis*.

   Article 3.1.11.6.

Maintenance of free status

A country, zone or compartment that is declared free from *Xenobalistis californiensis* following the provisions of points 1) or 2) of Articles 3.1.11.4. or 3.1.11.5., as relevant, may maintain its status as *Xenobalistis californiensis* free provided that basic biosecurity conditions are continuously maintained.

A country, zone or compartment that is declared free from *Xenobalistis californiensis* following the provisions of point 3) of Articles 3.1.11.4. or 3.1.11.5., as relevant, may discontinue targeted surveillance and maintain its status as *Xenobalistis californiensis* free provided that conditions that are conducive to clinical expression of infection with *Xenobalistis californiensis*, as described in Chapter X.X.X. 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 *Xenobalistis californiensis*, targeted surveillance needs to be continued at a level determined by the Competent Authority on the basis of the likelihood of reinfection.

   Article 3.1.11.7.

Importation of live animals from a country, zone or compartment declared free from *Xenobalistis californiensis*

When importing live aquatic animals of the species referred to in Article 3.1.11.2. from a country, zone or compartment declared free from *Xenobalistis californiensis*, the Competent Authority of the importing country should require an international aquatic animal health certificate issued by the Competent Authority of the exporting country or a certifying official approved by the importing country.

This certificate must certify, on the basis of the procedures described in Articles 3.1.11.4. or 3.1.11.5. (as applicable), whether the place of production of the consignment is a country, zone or compartment declared free from *Xenobalistis californiensis*.

The certificate shall be in accordance with the Model Certificate in Appendix 6.3.1.

This Article does not apply to commodities referred to in point 1) of Article 3.1.11.3.
Article 3.1.11.8.

Importation of live animals for aquaculture from a country, zone or compartment not declared free from *Xenohaliotis californiensis*

When importing, for aquaculture, aquatic animals of the species referred to in Article 3.1.11.2. from a country, zone or compartment not declared free from *Xenohaliotis californiensis*, the Competent Authority of the importing country should assess the risk and apply risk mitigation measures such as:

1. the consignment is delivered directly into and held in quarantine facilities; and
2. the imported aquatic animals are continuously isolated from the local environment; and
3. all effluent and waste material from the processing are treated in a manner that ensures inactivation of *Xenohaliotis californiensis*.

This Article does not apply to commodities referred to in point 1) of Article 3.1.11.3.

Article 3.1.11.9.

Importation of live animals for processing for human consumption from a country, zone or compartment not declared free from *Xenohaliotis californiensis*

When importing, for processing for human consumption, aquatic animals of the species referred to in Article 3.1.11.2. from a country, zone or compartment not declared free from *Xenohaliotis californiensis*, the Competent Authority of the importing country should require that:

1. the consignment is delivered directly to and held in quarantine facilities until processing and/or consumption; and
2. all effluent and waste material from the processing are treated in a manner that ensures inactivation of *Xenohaliotis californiensis*.

This Article does not apply to commodities referred to in point 1) of Article 3.1.11.3.

Article 3.1.11.10.

Importation of products from a country, zone or compartment declared free from *Xenohaliotis californiensis*

When importing aquatic animal products of the species referred to in Article 3.1.11.2. from a country, zone or compartment free from *Xenohaliotis californiensis*, 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.

This certificate must certify, on the basis of the procedures described in Articles 3.1.11.4. or 3.1.11.5. (as applicable), whether or not the place of production of the consignment is a country, zone or compartment declared free from *Xenohaliotis californiensis*.

The certificate shall be in accordance with the Model Certificate in Appendix 6.3.2.

This Article does not apply to commodities listed in point 1) of Article 3.1.11.3.
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Article 3.1.11.11.

Importation of products from a country, zone or compartment not declared free from *Xenohaliotis californiensis*

When importing aquatic animal products of the species referred to in Article 3.1.11.2. from a country, zone or compartment not declared free from *Xenohaliotis californiensis*, the Competent Authority of the importing country should assess the risk and apply appropriate risk mitigation measures.

This Article does not apply to commodities referred to in point 1) of Article 3.1.11.3.

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CHAPTER 2.1.1.

EPIZOOTIC HAEMATOPOIETIC NECROSIS

Article 2.1.1.1.

For the purposes of the Aquatic Code, epizootic haematopoietic necrosis (EHN) means infection with the viral species EHN virus (EHNV) in of the genus Ranavirus of the family Iridoviridae.

Methods for surveillance and diagnosis are provided in the Aquatic Manual.

Article 2.1.1.2.

Susceptible species Scope

The recommendations in this Chapter apply to For the purposes of the Aquatic Code, susceptible species for EHN are: redfin perch (Perca fluviatilis) and rainbow trout (Oncorhynchus mykiss). These recommendations apply to any other susceptible species referred to in the Aquatic Manual when traded internationally.

Suspected cases of natural infection with EHNV in species other than those listed in this Article should be referred immediately to the appropriate OIE Reference Laboratory, whether or not clinical signs are associated with the findings.

Article 2.1.1.3.

Commodities

1) When authorising importation or transit of the following commodities (under study), Competent Authorities should not require any EHN related conditions, regardless of the EHN status of the exporting country, zone or compartment:

a) From the species in Article 2.1.1.2., for any purpose:
   i) commercially-sterile canned fish;
   ii) leather made from fish skin.

b) The following commodities destined for human consumption from the species referred to in Article 2.1.1.2., which have been prepared in such a way as to minimise the likelihood of alternative uses:
   i) chemically preserved products (e.g. smoked, salted, pickled, marinated, etc.);
   ii) heat treated products (e.g. ready prepared meals, fish oil) that have been heat treated in a manner to ensure the inactivation of the pathogen;
   iii) eviscerated fish (chilled or frozen) packaged for direct retail trade;
   iv) fillets or cutlets (chilled or frozen);
   v) dried eviscerated fish (including air dried, flame dried and sun dried).

c) For species other than those in Article 2.1.1.2., all aquatic animal products.
Appendix XIV (contd)

For the commodities referred to in point 1b), Member Countries should consider introducing internal measures to prevent the commodity being used for any purpose other than for human consumption.

2) When authorising importation or transit of the following commodities of a species referred to in Article 2.1.1.2., other than those listed in point 1) of Article 2.1.1.3., Competent Authorities should require the conditions prescribed in Articles 2.1.1.7. to 2.1.1.11. relevant to the EHN status of the exporting country, zone or compartment.

a) aquatic animals;

b) aquatic animal products.

3) When considering the importation or transit of any live commodity of a species not referred to in Article 2.1.1.2. not listed above from an exporting country, zone or compartment not declared free of EHN, Competent Authorities of the importing country should conduct an analysis of the risk of introduction, establishment and spread of EHNV and the potential consequences associated with importation of the commodity, prior to a decision. The outcome of this assessment should be made available to the exporting country. The exporting country should be informed of the outcome of this assessment.

Article 2.1.1.4.

EHN free country

A country may make a self-declaration of freedom from EHN if it meets the conditions in points 1), 2), 3) or 4) below.

If a country shares a zone or compartment water contact with one or more other countries, it can only make a self-declaration of freedom from EHN if all the areas covered by the shared water are declared EHN free countries or zones (see Article 2.1.1.5.).

1) A country where none of the susceptible species species listed in Article 2.1.1.2. is present may make a self-declaration of freedom from EHN when basic biosecurity conditions have been met continuously in the country for at least the past 2 years.

OR

2) A country where the species referred to in Article 2.1.1.2. are present but there has never been any observed occurrence of the disease for at least the past 25 years despite conditions that are conducive to its clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may make a self-declaration of freedom from EHN when basic biosecurity conditions have been met continuously in the country for at least the past 10 years.

OR

3) A country where the last observed occurrence of the disease was within the past 25 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may make a self-declaration of freedom from EHN when:

a) basic biosecurity conditions have been met continuously for at least the past 2 years; and

b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place for at least the last 2 years without detection of EHNV.
Appendix XIV (contd)

OR

4) A country that has made a self-declaration of freedom from EHN but in which the disease is subsequently detected may not make a self-declaration of freedom from EHN again until the following conditions have been met:

a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and

b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see Aquatic Manual) have been completed; and

c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the last 2 years without detection of EHNV.

In the meantime, one or more areas of the remaining territory may be declared free zones, part of the non-affected area may be declared a free zone provided that they meet the conditions in point 3) of Article 2.1.1.5.

Article 2.1.1.5.

EHN free zone or free compartment

A zone or compartment within the territory of one or more countries not declared free from EHN may be declared free by the Competent Authority(ies) of the country(ies) concerned, if the zone or compartment meets the conditions referred to in points 1), 2), 3) or 4) below.

If a zone or compartment extends over more than one country, it can only be declared an EHN free zone or compartment if all the Competent Authorities confirm that the conditions have been met.

1) A zone or compartment where none of the susceptible species species listed in Article 2.1.1.2. is present may be declared free from EHN when basic biosecurity conditions have been met continuously in the zone or compartment for at least the past 2 years.

OR

2) A zone or compartment where the species referred to in Article 2.1.1.2. are present but there has never been any observed occurrence of the disease for at least the past 25 years despite conditions that are conducive to its clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may be declared free from EHN when basic biosecurity conditions have been met continuously in the zone or compartment for at least the past 10 years.

OR

3) A zone or compartment where the last observed occurrence of the disease was within the past 25 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may be declared free from EHN when:

a) basic biosecurity conditions have been met continuously for at least the past 2 years; and

b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place for at least the last 2 years without detection of EHNV.
4) A zone previously declared free from EHN but in which the disease is detected may not be declared free from EHN again until the following conditions have been met:

a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and

b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see Aquatic Manual) have been completed; and

c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the last 2 years without detection of EHNV.

Article 2.1.1.6.

Maintenance of free status

A country, zone or compartment that is declared free from EHN following the provisions of points 1) or 2) of Articles 2.1.1.4. or 2.1.1.5., as relevant, may maintain its status as EHN free provided that basic biosecurity conditions are continuously maintained.

A country, zone or compartment that is declared free from EHN following the provisions of point 3) of Articles 2.1.1.4. or 2.1.1.5., as relevant, may discontinue targeted surveillance and maintain its status as EHN free provided that conditions that are conducive to clinical expression of EHN, as described in Chapter X.X.X. 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 EHN, targeted surveillance needs to be continued at a level determined by the Competent Authority on the basis of the likelihood of re-infection.

Article 2.1.1.7.

Importation of live animals from a country, zone or compartment declared free from EHN

When importing live aquatic animals of the species referred to in Article 2.1.1.2. from a country, zone or compartment declared free from EHN, the Competent Authority of the importing country should require 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 2.1.1.4. or 2.1.1.5. (as applicable), the place of production of the consignment is a country, zone or compartment declared free from EHN.

The certificate shall be in accordance with the Model Certificate in Appendix 6.1.1. No. 1 given in Part 6 of this Aquatic Code.

This Article does not apply to commodities referred to in point 1) of Article 2.1.1.3.
Appendix XIV (contd)

Article 2.1.1.8.

Importation of live animals for aquaculture from a country, zone or compartment not declared free from EHN

When importing, for aquaculture, aquatic animals of the species referred to in Article 2.1.1.2. from a country, zone or compartment not declared free from EHN, the Competent Authority of the importing country should assess the risk and apply risk mitigation measures such as:

1) the consignment is delivered directly into and held in quarantine facilities; and
2) the imported aquatic animals and their first generation progeny are continuously isolated from the local environment; and
3) all effluent and waste material are treated in a manner that ensures inactivation of EHNV.

This Article does not apply to commodities referred to in point 1) of Article 2.1.1.3.

Article 2.1.1.9.

Importation of live animals for processing and/or for human consumption from a country, zone or compartment not declared free from EHN

When importing, for processing and/or for human consumption, aquatic animals of the species referred to in Article 2.1.1.2. from a country, zone or compartment not declared free from EHN, the Competent Authority of the importing country should require that assess the risk and apply risk mitigation measures such as:

1) the consignment is delivered directly to and held in quarantine facilities for a short period before slaughter and processing to one of the products referred to in point 1) of Article 2.1.1.3, or other products authorised by the Competent Authority; and
2) all effluent and waste material from the processing are treated in a manner that ensures inactivation of EHNV.

This Article does not apply to commodities listed in point 1) of Article 2.1.1.3.

Article 2.1.1.9.bis

Importation of live animals intended for use in animal feed, or for agricultural, industrial or pharmaceutical use from a country, zone or compartment not declared free from EHN

When importing, for use in animal feed, or for agricultural, industrial or pharmaceutical use, aquatic animals of the species referred to in Article 2.1.1.2. from a country, zone or compartment not declared free from EHN, the Competent Authority of the importing country should require:

1) the consignment is delivered directly to and held in quarantine facilities for slaughter and processing to products authorised by the Competent Authority; and
2) all effluent and waste material from the processing are treated in a manner that ensures inactivation of EHNV.

This Article does not apply to commodities referred to in point 1) of Article 2.1.1.3.
Appendix XIV (contd)

Article 2.1.1.10.

Importation of products from a country, zone or compartment declared free from EHN

When importing aquatic animal products of the species referred to in Article 2.1.1.2. from a country, zone or compartment free from EHN, the Competent Authority of the importing country should require 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 2.1.1.4. or 2.1.1.5. (as applicable), the place of production of the consignment is a country, zone or compartment declared free from EHN.

The certificate shall be in accordance with the Model Certificate in Appendix 6.2.1. No. 2 given in Part 6. of this Aquatic Code.

This Article does not apply to commodities referred to in point 1) of Article 2.1.1.3.

Article 2.1.1.11.

Importation of products from a country, zone or compartment not declared free from EHN

When importing aquatic animal products of the species referred to in Article 2.1.1.2. from a country, zone or compartment not declared free from EHN, the Competent Authority of the importing country should assess the risk and apply appropriate risk mitigation measures.

In the case of dead fish, whether eviscerated or unevviscerated, such risk mitigation measures may include:

1) the consignment is delivered directly to and held in facilities for processing to one of the products referred to in point 1) of Article 2.1.1.3. or other products authorised by the Competent Authority; and

2) all effluent and waste material are treated in a manner that ensures inactivation of EHNV.

This Article does not apply to commodities referred to in point 1) of Article 2.1.1.3.
CHAPTER 2.1.2.
INFECTIONOUS HAEMATOPOIETIC NECROSIS

Article 2.1.2.1.

For the purposes of the Aquatic Code, infectious haematopoietic necrosis (IHN) means infection with IHN virus (IHNV) of the genus Nobirhabdovirus of the family Rhabdoviridae.

Methods for surveillance and diagnosis are provided in the Aquatic Manual.

Article 2.1.2.2.

Susceptible species Scope

The recommendations in this Chapter apply to For the purposes of the Aquatic Code, susceptible species for IHN are: rainbow trout or steelhead (Oncorhynchus mykiss), the Pacific salmon species (chinook [O. tshawytscha], sockeye [O. nerka], chum [O. keta], masou [O. masou], pink [O. rhodurus] and coho [O. kisutch]), and Atlantic salmon (Salmo salar). These recommendations also apply to any other susceptible species referred to in the Aquatic Manual when traded internationally.

Suspected cases of natural infection with IHNV in species other than those listed in this Article should be referred immediately to the appropriate OIE Reference Laboratory, whether or not clinical signs are associated with the findings.

Article 2.1.2.3.

Commodities

1) When authorising importation or transit of the following commodities, Competent Authorities should not require any IHN related conditions, regardless of the IHN status of the exporting country, zone or compartment:

a) From the species in Article 2.1.2.2., for any purpose:

i) commercially-sterile canned fish;

ii) leather made from fish skin.

b) The following commodities destined for human consumption from the species referred to in Article 2.1.2.2. which have been prepared in such a way as to minimise the likelihood of alternative uses:

i) chemically preserved products (e.g. smoked, salted, pickled, marinated, etc.);

ii) Heat treated products (e.g. ready prepared meals, fish oil) that have been heat treated in a manner to ensure the inactivation of the pathogen;

iii) eviscerated fish (chilled or frozen) packaged for direct retail trade;

iv) fillets or cutlets (chilled or frozen);

v) dried eviscerated fish (including air dried, flame dried and sun dried).

c) For species other than those in Article 2.1.2.2., all aquatic animal products.
Appendix XV (contd)

For the commodities referred to in point 1)b), Member Countries should consider introducing internal measures to prevent the commodity being used for any purpose other than for human consumption.

2) When authorising importation or transit of the commodities of a species referred to in Article 2.1.2.2., other than those listed in point 1) of Article 2.1.2.3., Competent Authorities should require the conditions prescribed in Articles 2.1.2.7. to 2.1.2.11. relevant to the IHN status of the exporting country, zone or compartment.

3) When considering the importation or transit of any live commodity of a species not referred to in Article 2.1.2.2. from an exporting country, zone or compartment not declared free of IHN, Competent Authorities of the importing country should conduct an analysis of the risk of introduction, establishment and spread of IHNV and the potential consequences associated with importation of the commodity, prior to a decision. The outcome of this assessment should be made available to the exporting country. The exporting country should be informed of the outcome of this assessment.

Article 2.1.2.4.

IHN free country

A country may make a self-declaration of freedom from IHN if it meets the conditions in points 1), 2), 3) or 4) below.

If a country shares a zone or compartment with one or more other countries, it can only make a self-declaration of freedom from IHN if all the areas covered by the shared water are declared IHN free countries or zones (see Article 2.1.2.5.).

1) A country where none of the susceptible species listed in Article 2.1.2.2. is present may make a self-declaration of freedom from IHN when basic biosecurity conditions have been met continuously in the country for at least the past 2 years.

OR

2) A country where the species referred to in Article 2.1.2.2. are present but there has never been any observed occurrence of the disease for at least the past 25 years despite conditions that are conducive to its clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may make a self-declaration of freedom from IHN when basic biosecurity conditions have been met continuously in the country for at least the past 10 years.

OR

3) A country where the last observed occurrence of the disease was within the past 25 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may make a self-declaration of freedom from IHN when:

a) basic biosecurity conditions have been met continuously for at least the past 2 years; and

b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place for at least the last 2 years without detection of IHNV.
Appendix XV (contd)

OR

4) A country that has made a self-declaration of freedom from IHN but in which the disease is subsequently detected may not make a self-declaration of freedom from IHN again until the following conditions have been met:

a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and

b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see Aquatic Manual) have been completed; and

c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the last 2 years without detection of IHNV.

In the meantime, one or more areas of the remaining territory may be declared free zones, part of the non-affected area may be declared a free zone, provided that they meet the conditions in point 3) of Article 2.1.2.5.

Article 2.1.2.5.

IHN free zone or free compartment

A zone or compartment within the territory of one or more countries not declared free from IHN may be declared free by the Competent Authority(ies) of the country(ies) concerned, if the zone or compartment meets the conditions referred to in points 1), 2), 3) or 4) below.

If a zone or compartment extends over more than one country, it can only be declared an IHN free zone or compartment if all the Competent Authorities confirm that the conditions have been met.

1) A zone or compartment where none of the unacceptable species species listed in Article 2.1.2.2. is present may be declared free from IHN when basic biosecurity conditions have been met continuously in the zone or compartment for at least the past 2 years.

OR

2) A zone or compartment where the species referred to in Article 2.1.2.2. are present but there has never been any observed occurrence of the disease for at least the past 25 years despite conditions that are conducive to its clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may be declared free from IHN when basic biosecurity conditions have been met continuously in the zone or compartment for at least the past 10 years.

OR

3) A zone or compartment where the last observed occurrence of the disease was within the past 25 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may be declared free from IHN when:

a) basic biosecurity conditions have been met continuously for at least the past 2 years; and

b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place for at least the last 2 years without detection of IHNV.
Appendix XV (contd)

OR

4) A zone previously declared free from IHN but in which the disease is detected may not be declared free from IHN again until the following conditions have been met:

a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and

b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see Aquatic Manual) have been completed; and

c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the last 2 years without detection of IHNV.

Article 2.1.2.6.

Maintenance of free status

A country, zone or compartment that is declared free from IHN following the provisions of points 1) or 2) of Articles 2.1.2.4. or 2.1.2.5., as relevant, may maintain its status as IHN free provided that basic biosecurity conditions are continuously maintained.

A country, zone or compartment that is declared free from IHN following the provisions of point 3) of Articles 2.1.2.4. or 2.1.2.5., as relevant, may discontinue targeted surveillance and maintain its status as IHN free provided that conditions that are conducive to clinical expression of IHN, as described in Chapter X.X.X. 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 IHN, targeted surveillance needs to be continued at a level determined by the Competent Authority on the basis of the likelihood of re-infection.

Article 2.1.2.7.

Importation of live animals from a country, zone or compartment declared free from IHN

When importing live aquatic animals of the species referred to in Article 2.1.2.2. from a country, zone or compartment declared free from IHN, the Competent Authority of the importing country should require 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 2.1.2.4. or 2.1.2.5. (as applicable), the place of production of the consignment is a country, zone or compartment declared free from IHN.

The certificate shall be in accordance with the Model Certificate in Appendix 6.1.1.

This Article does not apply to commodities referred to in point 1) of Article 2.1.2.3.
Appendix XV (contd)

Article 2.1.2.8.

Importation of live animals for aquaculture from a country, zone or compartment not declared free from IHNV

When importing, for aquaculture, aquatic animals of the species referred to in Article 2.1.2.2. from a country, zone or compartment not declared free from IHNV, the Competent Authority of the importing country should assess the risk and apply risk mitigation measures such as:

1) the consignment is delivered directly into and held in quarantine facilities; and

2) the imported aquatic animals and their first generation progeny are continuously isolated from the local environment;

3) all effluent and waste material are treated in a manner that ensures inactivation of IHNV.

This Article does not apply to commodities referred to in point 1) of Article 2.1.2.3.

Article 2.1.2.9.

Importation of live animals for processing for human consumption from a country, zone or compartment not declared free from IHNV

When importing, for processing for human consumption, aquatic animals of the species referred to in Article 2.1.2.2. from a country, zone or compartment not declared free from IHNV, 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 to one of the products referred to in point 1) of Article 2.1.2.3. or other products authorised by the Competent Authority; and

2) all effluent and waste material from the processing are treated in a manner that ensures inactivation of IHNV.

This Article does not apply to commodities listed in point 1) of Article 2.1.2.3.

Article 2.1.2.9.bis

Importation of live animals intended for use in animal feed, or for agricultural, industrial or pharmaceutical use from a country, zone or compartment not declared free from IHNV

When importing, for use in animal feed, or for agricultural, industrial or pharmaceutical use, aquatic animals of the species referred to in Article 2.1.2.2. from a country, zone or compartment not declared free from IHNV, the Competent Authority of the importing country should require:

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

2) all effluent and waste material from the processing are treated in a manner that ensures inactivation of IHNV.

This Article does not apply to commodities referred to in point 1) of Article 2.1.2.3.
Appendix XV (contd)

Article 2.1.2.10.

Importation of products from a country, zone or compartment declared free from IHN

When importing aquatic animal products of the species referred to in Article 2.1.2.2. from a country, zone or compartment free from IHN, the Competent Authority of the importing country should require 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 2.1.2.4. or 2.1.2.5. (as applicable), the place of production of the consignment is a country, zone or compartment declared free from IHN.

The certificate should be in accordance with the Model Certificate in Appendix 6.2.1.

This Article does not apply to commodities referred to in point 1) of Article 2.1.2.3.

Article 2.1.2.11.

Importation of products from a country, zone or compartment not declared free from IHN

When importing aquatic animal products of the species referred to in Article 2.1.2.2. from a country, zone or compartment not declared free from IHN, the Competent Authority of the importing country should assess the risk and apply appropriate risk mitigation measures.

In the case of dead fish, whether eviscerated or uneviscerated, such risk mitigation measures may include:

1) the consignment is delivered directly to and held in biosecure/quarantine facilities for processing to one of the products referred to in point 1) of Article 2.1.2.3. or other products authorised by the Competent Authority; and

2) all effluent and waste material are treated in a manner that ensures inactivation of IHNV.

This Article does not apply to commodities listed in point 1) of Article 2.1.2.3.

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CHAPTER 2.1.4.
SPRING VIRAEMIA OF CARP

Article 2.1.4.1.

For the purposes of the Aquatic Code, spring viraemia of carp (SVC) means infection with the viral species SVC virus (SVCV) tentatively placed in the genus *Vesiculovirus* of the family Rhabdoviridae.

Methods for surveillance and diagnosis are provided in the Aquatic Manual.

Article 2.1.4.2.

**Susceptible species Scope**

The recommendations in this Chapter apply to For the purposes of the Aquatic Code, susceptible species for SVC are: common carp (*Cyprinus carpio carpio*) and koi carp (*Cyprinus carpio koi*), crucian carp (*Carassius carassius*), sheatfish (also known as European catfish or wels) (*Silurus glanis*), silver carp (*Hypophthalmichthys molitrix*), bighhead carp (*Aristichthys nobilis*), grass carp (white amur) (*Ctenopharyngodon idella*), goldfish (*Carassius auratus*), orfe (*Leuciscus idus*) and tench (*Tinca tinca*). These recommendations also apply to any other susceptible species referred to in the Aquatic Manual when traded internationally.

Suspected cases of natural infection with SVCV in species other than those listed in this Article should be referred immediately to the appropriate OIE Reference Laboratory, whether or not clinical signs are associated with the findings.

Article 2.1.4.3.

**Commodities**

1) When authorising importation or transit of the following commodities, Competent Authorities should not require any SVC related conditions, regardless of the SVC status of the exporting country, zone or compartment:
   a) From the species in Article 2.1.4.2., for any purpose:
      i) commercially-sterile canned fish;
      ii) leather made from fish skin.
   b) The following commodities destined for human consumption from the species referred to in Article 2.1.4.2. which have been prepared in such a way as to minimise the likelihood of alternative uses:
      i) chemically preserved products (e.g. smoked, salted, pickled, marinated, etc.);
      ii) *Heat-treated* products (e.g. ready prepared meals, fish oil) that have been heat treated in a manner to ensure the inactivation of the pathogen;
      iii) eviscerated fish (chilled or frozen) packaged for direct retail trade;
      iv) fillets or cutlets (chilled or frozen);
      v) dried eviscerated fish (including air dried, flame dried and sun dried).
Appendix XVI (contd)

e) For species other than those in Article 2.1.4.2., all aquatic animal products.

For the commodities referred to in point 1)b), Member Countries should consider introducing internal measures to prevent the commodity being used for any purpose other than for human consumption.

2) When authorising importation or transit of the commodities of a species referred to in Article 2.1.4.2., other than those listed in point 1) of Article 2.1.4.3., Competent Authorities should require the conditions prescribed in Articles 2.1.4.7. to 2.1.4.11. relevant to the SVC status of the exporting country, zone or compartment.

3) When considering the importation or transit of any live commodity of a species not referred to in Article 2.1.4.2. from an exporting country, zone or compartment not declared free of SVC, Competent Authorities of the importing country should conduct an analysis of the risk of introduction, establishment and spread of SVCV and the potential consequences associated with importation of the commodity, prior to a decision. The outcome of this assessment should be made available to the exporting country. The exporting country should be informed of the outcome of this assessment.

Article 2.1.4.4.

SVC free country

A country may make a self-declaration of freedom from SVC if it meets the conditions in points 1), 2), 3) or 4) below.

If a country shares a zone or compartment with one or more other countries, it can only make a self-declaration of freedom from SVC if all the areas covered by the shared water are declared SVC free countries or zones (see Article 2.1.4.5.).

1) A country where the susceptible species listed in Article 2.1.4.2. are present but there has never been any observed occurrence of the disease for at least the past 25 years despite conditions that are conducive to its clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may make a self-declaration of freedom from SVC when basic biosecurity conditions have been met continuously in the country for at least the past 10 years.

OR

2) A country where none of the species referred to in Article 2.1.4.2. is present may make a self-declaration of freedom from SVC when basic biosecurity conditions have been met continuously in the country for at least the past 2 years.

OR

3) A country where the last observed occurrence of the disease was within the past 25 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may make a self-declaration of freedom from SVC when:

a) basic biosecurity conditions have been met continuously for at least the past 2 years; and

b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place for at least the last 2 years without detection of SVCV.
OR

4) A country that has made a self-declaration of freedom from SVC but in which the disease is subsequently detected may not make a self-declaration of freedom from SVC again until the following conditions have been met:

a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and

b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see Aquatic Manual) have been completed; and

c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the last 2 years without detection of SVCV.

In the meantime, one or more areas of the remaining territory may be declared free zones, part of the non-affected area may be declared a free zone provided that they meet the conditions in point 3) of Article 2.1.4.5.

Article 2.1.4.5.

SVC free zone or free compartment

A zone or compartment within the territory of one or more countries not declared free from SVC may be declared free by the Competent Authority(ies) of the country(ies) concerned, if the zone or compartment meets the conditions referred to in points 1), 2), 3) or 4) below.

If a zone or compartment extends over more than one country, it can only be declared an SVC free zone or compartment if all the Competent Authorities confirm that the conditions have been met.

1) A zone or compartment where none of the susceptible species species listed in Article 2.1.4.2. is present may be declared free from SVC when basic biosecurity conditions have been met continuously in the zone or compartment for at least the past 2 years.

OR

2) A zone or compartment where the species referred to in Article 2.1.4.2. are present but there has never been any observed occurrence of the disease for at least the past 25 years despite conditions that are conducive to its clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may be declared free from SVC when basic biosecurity conditions have been met continuously in the zone or compartment for at least the past 10 years.

OR

3) A zone or compartment where the last observed occurrence of the disease was within the past 25 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may be declared free from SVC when:

a) basic biosecurity conditions have been met continuously for at least the past 2 years; and

b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place for at least the last 2 years without detection of SVCV.
Appendix XVI (contd)

OR

4) A zone previously declared free from SVC but in which the disease is detected may not be declared free from SVC again until the following conditions have been met:

a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and

b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see Aquatic Manual) have been completed; and

c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the last 2 years without detection of SVCV.

Article 2.1.4.6.

Maintenance of free status

A country, zone or compartment that is declared free from SVC following the provisions of points 1) or 2) of Articles 2.1.4.4. or 2.1.4.5., as relevant, may maintain its status as SVC free provided that basic biosecurity conditions are continuously maintained.

A country, zone or compartment that is declared free from SVC following the provisions of point 3) of Articles 2.1.4.4. or 2.1.4.5., as relevant, may discontinue targeted surveillance and maintain its status as SVC free provided that conditions that are conducive to clinical expression of SVC, as described in Chapter X.X.X. 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 SVC, targeted surveillance needs to be continued at a level determined by the Competent Authority on the basis of the likelihood of re-infection.

Article 2.1.4.7.

Importation of live animals from a country, zone or compartment declared free from SVC

When importing live aquatic animals of the species referred to in Article 2.1.4.2. from a country, zone or compartment declared free from SVC, the Competent Authority of the importing country should require 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 2.1.4.4. or 2.1.4.5. (as applicable), the place of production of the consignment is a country, zone or compartment declared free from SVC.

The certificate shall be in accordance with the Model Certificate in Appendix 6.1.1.

This Article does not apply to commodities listed in point 1) of Article 2.1.4.3.

Article 2.1.4.8.

Importation of live animals for aquaculture from a country, zone or compartment not declared free from SVC

When importing, for aquaculture, aquatic animals of the species referred to in Article 2.1.4.2. from a country, zone or compartment not declared free from SVC, the Competent Authority of the importing country should assess the risk and apply risk mitigation measures such as:
1) the consignment is delivered directly into and held in quarantine facilities; and

2) the imported aquatic animals and their first generation progeny are continuously isolated from the local environment; and

3) all effluent and waste material are treated in a manner that ensures inactivation of SVCV.

This Article does not apply to commodities listed in point 1) of Article 2.1.4.3.

Article 2.1.4.9.

Importation of live animals for processing for human consumption from a country, zone or compartment not declared free from SVC

When importing, for processing for human consumption, aquatic animals of the species referred to in Article 2.1.4.2. from a country, zone or compartment not declared free from SVC, 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 to one of the products listed in point 1) of Article 2.1.4.3. or other products authorised by the Competent Authority; and

2) all effluent and waste material from the processing are treated in a manner that ensures inactivation of SVCV.

This Article does not apply to commodities listed in point 1) of Article 2.1.4.3.

Article 2.1.4.9.bis

Importation of live animals intended for use in animal feed, or for agricultural, industrial or pharmaceutical use from a country, zone or compartment not declared free from SVC

When importing, for use in animal feed, or for agricultural, industrial or pharmaceutical use, aquatic animals of the species referred to in Article 2.1.4.2. from a country, zone or compartment not declared free from SVC, the Competent Authority of the importing country should require:

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

2) all effluent and waste material from the processing are treated in a manner that ensures inactivation of SVCV.

This Article does not apply to commodities listed in point 1) of Article 2.1.4.3.

Article 2.1.4.10.

Importation of products from a country, zone or compartment declared free from SVC

When importing aquatic animal products of the species referred to in Article 2.1.4.2. from a country, zone or compartment free from SVC, the Competent Authority of the importing country should require 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 2.1.4.4. or 2.1.4.5. (as applicable), the place of production of the consignment is a country, zone or compartment declared free from SVC.
Appendix XVI (contd)

The certificate shall be in accordance with the Model Certificate in Appendix 6.2.1.

This Article does not apply to commodities listed in point 1) of Article 2.1.4.3.

Article 2.1.4.11.

Importation of products from a country, zone or compartment not declared free from SVC

When importing aquatic animal products of the species referred to in Article 2.1.4.2. from a country, zone or compartment not declared free from SVC, the Competent Authority of the importing country should assess the risk and apply appropriate risk mitigation measures.

In the case of dead fish, whether eviscerated or un eviscerated, such risk mitigation measures may include:

1) the consignment is delivered directly to and held in biosecure/quarantine facilities for processing to one of the products listed in point 1) of Article 2.1.4.3. or other products authorised by the Competent Authority; and

2) all effluent and waste material are treated in a manner that ensures inactivation of SVCV.

This Article does not apply to commodities listed in point 1) of Article 2.1.4.3.

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CHAPTER 2.1.5.

VIRAL HAEMORRHAGIC SEPTICAEMIA

Article 2.1.5.1.

For the purposes of the Aquatic Code, viral haemorrhagic septicaemia (VHS) means infection with VHS virus (VHSV, synonym: Eegrved virus) of the genus *Novirhabdovirus* of the family Rhabdoviridae.

Methods for surveillance and diagnosis are provided in the Aquatic Manual.

Article 2.1.5.2.

**Susceptible species Scope**

The recommendations in this Chapter apply to For the purposes of the Aquatic Code, susceptible species for VHS are: rainbow trout (*Oncorhynchus mykiss*), brown trout (*Salmo trutta*), grayling (*Thymallus thymallus*), white fish (*Coregonus* spp.), pike (*Esox lucius*), turbot (*Scophthalmus maximus*), herring and sprat (*Clupea* spp.), Pacific salmon (*Oncorhynchus* spp.), Atlantic cod (*Gadus morhua*), Pacific cod (*G. macrocephalus*), haddock (*G. aeglefinus*) and rockling (*Onos masubula*). These recommendations also apply to any other susceptible species referred to in the Aquatic Manual when traded internationally.


Suspected cases of natural infection with VHSV in species other than those listed in this Article should be referred immediately to the appropriate OIE Reference Laboratory, whether or not clinical signs are associated with the findings.

Article 2.1.5.3.

**Commodities**

1) When authorising importation or transit of the following commodities, Competent Authorities should not require any VHS related conditions, regardless of the VHS status of the exporting country, zone or compartment:

   a) From the species in Article 2.1.5.2., for any purpose:

      i) commercially-sterile canned fish;

      ii) leather made from fish skin.
Appendix XVII (contd)

b) The following commodities destined for human consumption from the species referred to in Article 2.1.5.2. which have been prepared in such a way as to minimise the likelihood of alternative uses:

i) chemically preserved products (e.g. smoked, salted, pickled, marinated, etc.);

ii) heat-treated products (e.g. ready prepared meals, fish oil) that have been heat treated in a manner to ensure the inactivation of the pathogen;

iii) eviscerated fish (chilled or frozen) packaged for direct retail trade;

iv) fillets or cutlets (chilled or frozen);

v) dried eviscerated fish (including air dried, flame dried and sun dried).

c) For species other than those in Article 2.1.5.2., all aquatic animal product.

For the commodities listed in point 1) b), Member Countries should consider introducing internal measures to prevent the commodity being used for any purpose other than for human consumption.

2) When authorising importation or transit of the commodities of a species referred to in Article 2.1.5.2., other than those listed in point 1) of Article 2.1.5.3., Competent Authorities should require the conditions prescribed in Articles 2.1.5.7. to 2.1.5.11. relevant to the VHS status of the exporting country, zone or compartment.

3) When considering the importation or transit of any live commodity of a species not referred to in Article 2.1.5.2. from an exporting country, zone or compartment not declared free of VHS, Competent Authorities of the importing country should conduct an analysis of the risk of introduction, establishment and spread of VHSV and the potential consequences associated with importation of the commodity, prior to a decision. The outcome of this assessment should be made available to the exporting country. The exporting country should be informed of the outcome of this assessment.

Article 2.1.5.4.

VHS free country

A country may make a self-declaration of freedom from VHS if it meets the conditions in points 1), 2) or 3) below.

If a country shares a zone or compartment with one or more other countries, it can only make a self-declaration of freedom from VHS if all the areas covered by the shared water are declared VHS free countries or zones (see Article 2.1.5.5.).

1) A country where the susceptible species species listed in Article 2.1.5.2. are present but there has never been any observed occurrence of the disease for at least the past 25 years despite conditions that are conducive to its clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may make a self-declaration of freedom from VHS when basic biosecurity conditions have been met continuously in the country for at least the past 10 years.
Appendix XVII (contd)

OR

2) A country where the last observed occurrence of the disease was within the past 25 years or where
the infection status prior to targeted surveillance was unknown, for example because of the absence of
conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual,
may make a self-declaration of freedom from VHS when:

a) basic biosecurity conditions have been met continuously for at least the past 2 years; and

b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in
place for at least the last 2 years without detection of VHSV.

OR

3) A country that has made a self-declaration of freedom from VHS but in which the disease is subsequently
detected may not make a self-declaration of freedom from VHS again until the following conditions have
been met:

a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was
established; and

b) infected populations have been safely destroyed or removed from the infected zone by means that
minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see
Aquatic Manual) have been completed; and

c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in
place for at least the last 2 years without detection of VHSV.

In the meantime, one or more areas of the remaining territory may be declared free zones, part of the
non-affected area may be declared a free zone, provided that they meet the conditions in point 2) of
Article 2.1.5.5.

Article 2.1.5.5.

VHS free zone or free compartment

A zone or compartment within the territory of one or more countries not declared free from VHS may be
declared free by the Competent Authority(ies) of the country(ies) concerned, if the zone or compartment meets
the conditions referred to in points 1), 2) or 3) below.

If a zone or compartment extends over more than one country, it can only be declared an VHS free zone or
compartment if all the Competent Authorities confirm that the conditions have been met.

1) A zone or compartment where the susceptible species species listed in Article 2.1.5.2, are present but there
has never been any observed occurrence of the disease for at least the past 25 years despite
conditions that are conducive to its clinical expression, as described in Chapter X.X.X. of the Aquatic
Manual, may be declared free from VHS when basic biosecurity conditions have been met continuously in
the zone or compartment for at least the past 10 years.

OR

2) A zone or compartment where the last observed occurrence of the disease was within the past 25 years
or where the infection status prior to targeted surveillance was unknown, for example because of the
absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic
Manual, may be declared free from VHS when:
Appendix XVII (contd)

a) basic biosecurity conditions have been met continuously for at least the past 2 years; and

b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place for at least the last 2 years without detection of VHSV.

OR

3) A zone previously declared free from VHS but in which the disease is detected may not be declared free from VHS again until the following conditions have been met:

a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and

b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see Aquatic Manual) have been completed; and

c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the last 2 years without detection of VHSV.

Article 2.1.5.6.

Maintenance of free status

A country, zone or compartment that is declared free from VHS following the provisions of point 1) of Articles 2.1.5.4. or 2.1.5.5., as relevant, may maintain its status as VHS free provided that basic biosecurity conditions are continuously maintained.

A country, zone or compartment that is declared free from VHS following the provisions of point 2) of Articles 2.1.5.4. or 2.1.5.5., as relevant, may discontinue targeted surveillance and maintain its status as VHS free provided that conditions that are conducive to clinical expression of VHS, as described in Chapter X.X.X. 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 VHS, targeted surveillance needs to be continued at a level determined by the Competent Authority on the basis of the likelihood of re-infection.

Article 2.1.5.7.

Importation of live animals from a country, zone or compartment declared free from VHS

When importing live aquatic animals of the species referred to in Article 2.1.5.2. from a country, zone or compartment declared free from VHS, the Competent Authority of the importing country should require 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 2.1.5.4. or 2.1.5.5. (as applicable), the place of production of the consignment is a country, zone or compartment declared free from VHS.

The certificate shall be in accordance with the Model Certificate in Appendix 6.1.1.

This Article does not apply to commodities listed in point 1) of Article 2.1.5.3.
Article 2.1.5.8.

Importation of live animals for aquaculture from a country, zone or compartment not declared free from VHS

When importing, for aquaculture, aquatic animals of the species referred to in Article 2.1.5.2. from a country, zone or compartment not declared free from VHS, the Competent Authority of the importing country should assess the risk and apply risk mitigation measures such as:

1) the consignment is delivered directly into and held in quarantine facilities; and

2) the imported aquatic animals and their first generation progeny are continuously isolated from the local environment; and

3) all effluent and waste material are treated in a manner that ensures inactivation of VHSV.

This Article does not apply to commodities listed in point 1) of Article 2.1.5.3.

Article 2.1.5.9.

Importation of live animals for processing for human consumption from a country, zone or compartment not declared free from VHS

When importing, for processing for human consumption, aquatic animals of the species referred to in Article 2.1.5.2. from a country, zone or compartment not declared free from VHS, 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 to one of the products listed in point 1) of Article 2.1.5.3. or other products authorised by the competent authority; and

2) all effluent and waste material from the processing are treated in a manner that ensures inactivation of VHSV.

This Article does not apply to commodities listed in point 1) of Article 2.1.5.3.

Article 2.1.5.9.bis

Importation of live animals intended for use in animal feed, or for agricultural, industrial or pharmaceutical use from a country, zone or compartment not declared free from VHS

When importing, for use in animal feed, or for agricultural, industrial or pharmaceutical use, aquatic animals of the species referred to in Article 2.1.5.2. from a country, zone or compartment not declared free from VHS, the Competent Authority of the importing country should require:

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

2) all effluent and waste material from the processing are treated in a manner that ensures inactivation of VHSV.

This Article does not apply to commodities listed in point 1) of Article 2.1.5.3.
Appendix XVII (contd)

Article 2.1.5.10.

Importation of products from a country, zone or compartment declared free from VHS

When importing aquatic animal products of the species referred to in Article 2.1.5.2. from a country, zone or compartment free from VHS, the Competent Authority of the importing country should require 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 2.1.5.4. or 2.1.5.5. (as applicable), the place of production of the consignment is a country, zone or compartment declared free from VHS.

The certificate shall be in accordance with the Model Certificate in Appendix 6.2.1.

This Article does not apply to commodities listed in point 1) of Article 2.1.5.3.

Article 2.1.5.11.

Importation of products from a country, zone or compartment not declared free from VHS

When importing aquatic animal products of the species referred to in Article 2.1.5.2. from a country, zone or compartment not declared free from VHS, the Competent Authority of the importing country should assess the risk and apply appropriate risk mitigation measures.

In the case of dead fish, whether eviscerated or uneviscerated, such risk mitigation measures may include:

1) the consignment is delivered directly to and held in biosecure/quarantine facilities for processing to one of the products listed in point 1) of Article 2.1.5.3. or other products authorised by the Competent Authority; and

2) all effluent and waste material are treated in a manner that ensures inactivation of VHSV.

This Article does not apply to commodities listed in point 1) of Article 2.1.5.3.

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CHAPTER 2.1.9.
INFECTIOUS SALMON ANAEMIA

For the purposes of the Aquatic Code, infectious salmon anaemia (ISA) means infection with ISA virus (ISAV) of the genus Isavirus of the family Orthomyxoviridae.

Methods for surveillance and diagnosis are provided in the Aquatic Manual.

Susceptible species Scope

The recommendations in this Chapter apply to For the purposes of the Aquatic Code, susceptible species for ISA are: Atlantic salmon (Salmo salar), brown and sea trout (S. trutta), pollock (Pollachius virens), and rainbow trout (Oncorhynchus mykiss) and (Oncorhynchus kisutch). These recommendations also apply to any other susceptible species referred to in the Aquatic Manual when traded internationally.

Suspected cases of natural infection with ISAV in species other than those listed in this Article should be referred immediately to the appropriate OIE Reference Laboratory, whether or not clinical signs are associated with the findings.

Commodities

1) When authorising importation or transit of the following commodities, Competent Authorities should not require any ISA related conditions, regardless of the ISA status of the exporting country, zone or compartment:

a) From the species in Article 2.1.9.2., for any purpose:
   i) commercially-sterile canned fish;
   ii) leather made from fish skin.

b) The following commodities destined for human consumption from the species referred to in Article 2.1.9.2. which have been prepared in such a way as to minimise the likelihood of alternative uses:
   i) chemically preserved products (e.g. smoked, salted, pickled, marinated, etc.);
   ii) Heat treated products (e.g. ready prepared meals, fish oil) that have been heat treated in a manner to ensure the inactivation of the pathogen;
   iii) eviscerated fish (chilled or frozen) packaged for direct retail trade;
   iv) fillets or cutlets (chilled or frozen);
   v) dried eviscerated fish (including air dried, flame dried and sun dried);

   e) For species other than those in Article 2.1.9.2., all aquatic animal products.
Appendix XVIII (contd)

For the commodities listed in point 1)b), Member Countries should consider introducing internal measures to prevent the commodity being used for any purpose other than for human consumption.

2) When authorising importation or transit of the commodities of a species referred to in Article 2.1.9.2., other than those listed in point 1) of Article 2.1.9.3., Competent Authorities should require the conditions prescribed in Articles 2.1.9.7. to 2.1.9.11. relevant to the ISA status of the exporting country, zone or compartment.

3) When considering the importation or transit of any live commodity of a species not referred to in Article 2.1.9.2. from an exporting country, zone or compartment not declared free of ISA, Competent Authorities of the importing country should conduct an analysis of the risk of introduction, establishment and spread of ISAV and the potential consequences associated with importation of the commodity, prior to a decision. The outcome of this assessment should be made available to the exporting country. The exporting country should be informed of the outcome of this assessment.

Article 2.1.9.4.

ISA free country

A country may make a self-declaration of freedom from ISA if it meets the conditions in points 1), 2), 3) or 4) below.

If a country shares a zone or compartment with one or more other countries, it can only make a self-declaration of freedom from ISA if all the areas covered by the shared water are declared ISA free countries or zones (see Article 2.1.9.5.).

1) A country where none of the susceptible species listed in Article 2.1.9.2. is present may make a self-declaration of freedom from ISA when basic biosecurity conditions have been met continuously in the country for at least the past 2 years.

OR

2) A country where the species referred to in Article 2.1.9.2. are present but there has never been any observed occurrence of the disease for at least the past 25 years despite conditions that are conducive to its clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may make a self-declaration of freedom from ISA when basic biosecurity conditions have been met continuously in the country for at least the past 10 years.

OR

3) A country where the last observed occurrence of the disease was within the past 25 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may make a self-declaration of freedom from ISA when:

   a) basic biosecurity conditions have been met continuously for at least the past 2 years; and

   b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place for at least the last 2 years without detection of ISAV.
OR

4) A country that has made a *self-declaration of freedom* from ISA but in which the disease is subsequently detected may not make a *self-declaration of freedom* from ISA again until the following conditions have been met:

   a) on detection of the disease, the affected area was declared an *infected zone* and a *buffer zone* was established; and

   b) infected populations have been safely destroyed or removed from the *infected zone* by means that minimise the risk of further spread of the disease, and the appropriate *disinfection* procedures (see *Aquatic Manual*) have been completed; and

   c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the *Aquatic Manual*, has been in place for at least the last 2 years without detection of ISAV.

In the meantime, one or more areas of the remaining territory may be declared free zones, part of the non-affected area may be declared a free zone provided that they meet the conditions in point 3) of Article 2.1.9.5.

**Article 2.1.9.5.**

**ISA free zone or free compartment**

A *zone or compartment* within the territory of one or more countries not declared free from ISA may be declared free by the *Competent Authority(ies)* of the country(ies) concerned, if the *zone or compartment* meets the conditions referred to in points 1), 2), 3) or 4) below.

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

1) A *zone or compartment* where none of the *susceptible species* species listed in Article 2.1.9.2. is present may be declared free from ISA when basic biosecurity conditions have been met continuously in the *zone or compartment* for at least the past 2 years.

OR

2) A *zone or compartment* where the species referred to in Article 2.1.9.2. are present but there has never been any observed occurrence of the disease for at least the past 25 years despite conditions that are conducive to its clinical expression, as described in Chapter X.X.X. of the *Aquatic Manual*, may be declared free from ISA when basic biosecurity conditions have been met continuously in the *zone or compartment* for at least the past 10 years.

OR

3) A *zone or compartment* where the last observed occurrence of the disease was within the past 25 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the *Aquatic Manual*, may be declared free from ISA when:

   a) basic biosecurity conditions have been met continuously for at least the past 2 years; and

   b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the *Aquatic Manual* has been in place for at least the last 2 years without detection of ISAV.
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OR

4) A zone previously declared free from ISA but in which the disease is detected may not be declared free from ISA again until the following conditions have been met:

a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and

b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see Aquatic Manual) have been completed; and

c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the last 2 years without detection of ISAV.

Article 2.1.9.6.

Maintenance of free status

A country, zone or compartment that is declared free from ISA following the provisions of points 1) or 2) of Articles 2.1.9.4. or 2.1.9.5., as relevant, may maintain its status as ISA free provided that basic biosecurity conditions are continuously maintained.

A country, zone or compartment that is declared free from ISA following the provisions of point 3) of Articles 2.1.9.4. or 2.1.9.5., as relevant, may discontinue targeted surveillance and maintain its status as ISA free provided that conditions that are conducive to clinical expression of ISA, as described in Chapter X.X.X. 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 ISA, targeted surveillance needs to be continued at a level determined by the Competent Authority on the basis of the likelihood of re-infection.

Article 2.1.9.7.

Importation of live animals from a country, zone or compartment declared free from ISA

When importing live aquatic animals of the species referred to in Article 2.1.9.2. from a country, zone or compartment declared free from ISA, the Competent Authority of the importing country should require 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 2.1.9.4. or 2.1.9.5. (as applicable), the place of production of the consignment is a country, zone or compartment declared free from ISA.

The certificate shall be in accordance with the Model Certificate in Appendix 6.1.1.

This Article does not apply to commodities listed in point 1) of Article 2.1.9.5.
Article 2.1.9.8.

Importation of live animals for aquaculture from a country, zone or compartment not declared free from ISA

When importing, for aquaculture, aquatic animals of the species referred to in Article 2.1.9.2. from a country, zone or compartment not declared free from ISA, the Competent Authority of the importing country should assess the risk and apply risk mitigation measures such as:

1) the consignment is delivered directly into and held in quarantine facilities; and

2) the imported aquatic animals and their first generation progeny are continuously isolated from the local environment; and

3) all effluent and waste material are treated in a manner that ensures inactivation of ISAV.

This Article does not apply to commodities listed in point 1) of Article 2.1.9.3.

Article 2.1.9.9.

Importation of live animals for processing for human consumption from a country, zone or compartment not declared free from ISA

When importing, for processing for human consumption, aquatic animals of the species referred to in Article 2.1.9.2. from a country, zone or compartment not declared free from ISA, 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 to one of the products listed in point 1) of Article 2.1.9.3. or other products authorised by the Competent Authority; and

2) all effluent and waste material from the processing are treated in a manner that ensures inactivation of ISAV.

This Article does not apply to commodities listed in point 1) of Article 2.1.9.3.

Article 2.1.9.9.bis

Importation of live animals intended for use in animal feed, or for agricultural, industrial or pharmaceutical use from a country, zone or compartment not declared free from ISA

When importing, for use in animal feed, or for agricultural, industrial or pharmaceutical use, aquatic animals of the species referred to in Article 2.1.9.2. from a country, zone or compartment not declared free from ISA, the Competent Authority of the importing country should require:

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

2) all effluent and waste material from the processing are treated in a manner that ensures inactivation of ISAV.

This Article does not apply to commodities listed in point 1) of Article 2.1.9.3.
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Article 2.1.9.10.

Importation of products from a country, zone or compartment declared free from ISA

When importing aquatic animal products of the species referred to listed in Article 2.1.9.2. from a country, zone or compartment free from ISA, the Competent Authority of the importing country should require 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 2.1.9.4. or 2.1.9.5. (as applicable), the place of production of the consignment is a country, zone or compartment declared free from ISA.

The certificate shall be in accordance with the Model Certificate in Appendix 6.2.1.

This Article does not apply to commodities listed in point 1) of Article 2.1.9.3.

Article 2.1.9.11.

Importation of products from a country, zone or compartment not declared free from ISA

When importing aquatic animal products of the species referred to in Article 2.1.9.2. from a country, zone or compartment not declared free from ISA, the Competent Authority of the importing country should assess the risk and apply appropriate risk mitigation measures. In the case of dead fish, whether eviscerated or uneviscerated, such risk mitigation measures may include:

1) the consignment is delivered directly to and held in biosecure/quarantine facilities for processing to one of the products listed in point 1) of Article 2.1.9.3. or other products authorised by the Competent Authority; and

2) all effluent and waste material are treated in a manner that ensures inactivation of ISAV.

This Article does not apply to commodities listed in point 1) of Article 2.1.9.3.

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CHAPTER 2.1.10.
EPIZOOTIC ULCERATIVE SYNDROME

Article 2.1.10.1.

For the purposes of the Aquatic Code, epizootic ulcerative syndrome (EUS) means infection with the Oomycete fungus *Aphanomyces invadans*.

Methods for surveillance and diagnosis are provided in the *Aquatic Manual*.

Article 2.1.10.2.

**Susceptible species Scope**


Suspected cases of natural infection with *A. invadans* in species other than those listed in this Article should be referred immediately to the appropriate OIE Reference Laboratory, whether or not clinical signs are associated with the findings.

Article 2.1.10.3.

**Commodities**

1) When authorising importation or transit of the following *commodities*, Competent Authorities should not require any EUS related conditions, regardless of the EUS status of the *exporting country, zone or compartment*:

a) From the species in Article 2.1.10.2., for any purpose:

i) commercially-sterile canned fish;

ii) leather made from fish skin.

b) The following *commodities* destined for human consumption from the species referred to in Article 2.1.10.2. which have been prepared in such a way as to minimise the likelihood of alternative uses:

i) chemically preserved products (e.g. smoked, salted, pickled, marinated, etc.);
ii) Heat treated products (e.g. ready prepared meals, fish oil) that have been heat treated in a manner to ensure the inactivation of the pathogen;

iii) eviscerated fish (chilled or frozen) packaged for direct retail trade;

iv) fillets or cutlets (chilled or frozen);

v) dried eviscerated fish (including air dried, flame dried and sun dried).

e) For species other than those in Article 2.1.10.2, all aquatic animal products

For the commodities listed in point 1)b), Member Countries should consider introducing internal measures to prevent the commodity being used for any purpose other than for human consumption.

2) When authorising importation or transit of the commodities of a species referred to in Article 2.1.10.2, other than those listed in point 1) of Article 2.1.10.3, Competent Authorities should require the conditions prescribed in Articles 2.1.10.7. to 2.1.10.11. relevant to the EUS status of the exporting country, zone or compartment.

3) When considering the importation or transit of any live commodity of a species not referred to in Article 2.1.10.2. from an exporting country, zone or compartment not declared free of EUS, Competent Authorities of the importing country should conduct an analysis of the risk of introduction, establishment and spread of A. invadans and the potential consequences associated with importation of the commodity, prior to a decision. The outcome of this assessment should be made available to the exporting country. The exporting country should be informed of the outcome of this assessment.

Article 2.1.10.4.

EUS free country

A country may make a self-declaration of freedom from EUS if it meets the conditions in points 1), 2) or 3) below.

If a country shares a zone or compartment with one or more other countries, it can only make a self-declaration of freedom from EUS if all the areas covered by the shared water are declared EUS free countries or zones (see Article 2.1.10.5).

1) A country where the susceptible species species listed in Article 2.1.10.2. are present but there has never been any observed occurrence of the disease for at least the past 25 years despite conditions that are conducive to its clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may make a self-declaration of freedom from EUS when basic biosecurity conditions have been met continuously in the country for at least the past 10 years.

OR

2) A country where the last observed occurrence of the disease was within the past 25 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may make a self-declaration of freedom from EUS when:

a) basic biosecurity conditions have been met continuously for at least the past 2 years; and

b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place for at least the last 2 years without detection of A. invadans.
Appendix XIX (contd)

OR

3) A country that has made a self-declaration of freedom from EUS but in which the disease is subsequently detected may not make a self-declaration of freedom from EUS again until the following conditions have been met:

a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and

b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see Aquatic Manual) have been completed; and

c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the last 2 years without detection of A. invadans.

In the meantime, one or more areas of the remaining territory may be declared free zones, part of the non-affected area may be declared a free zone, provided that they meet the conditions in point 2) of Article 2.1.10.5.

Article 2.1.10.5.

EUS free zone or free compartment

A zone or compartment within the territory of one or more countries not declared free from EUS may be declared free by the Competent Authority(ies) of the country(ies) concerned, if the zone or compartment meets the conditions referred to in points 1), 2) or 3) below.

If a zone or compartment extends over more than one country, it can only be declared an EUS free zone or compartment if all the Competent Authorities confirm that the conditions have been met.

1) A zone or compartment where the susceptible species species listed in Article 2.1.10.2 are present but there has never been any observed occurrence of the disease for at least the past 25 years despite conditions that are conducive to its clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may be declared free from EUS when basic biosecurity conditions have been met continuously in the zone or compartment for at least the past 10 years.

OR

2) A zone or compartment where the last observed occurrence of the disease was within the past 25 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may be declared free from EUS when:

a) basic biosecurity conditions have been met continuously for at least the past 2 years; and

b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place for at least the last 2 years without detection of A. invadans.

OR

3) A zone previously declared free from EUS but in which the disease is detected may not be declared free from EUS again until the following conditions have been met:

a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and
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b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see *Aquatic Manual*) have been completed; and

c) **targeted surveillance**, as described in Chapters 1.1.4. and X.X.X. of the *Aquatic Manual*, has been in place for at least the last 2 years without detection of *A. invadans*.

**Article 2.1.10.6.**

**Maintenance of free status**

A country, *zone or compartment* that is declared free from EUS following the provisions of point 1) of Articles 2.1.10.4. or 2.1.10.5., as relevant, may maintain its status as EUS free provided that *basic biosecurity conditions* are continuously maintained.

A country, *zone or compartment* that is declared free from EUS following the provisions of point 2) of Articles 2.1.10.4. or 2.1.10.5., as relevant, may discontinue *targeted surveillance* and maintain its status as EUS free provided that conditions that are conducive to clinical expression of EUS, as described in Chapter X.X.X. 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 EUS, *targeted surveillance* needs to be continued at a level determined by the Competent Authority on the basis of the likelihood of reinfection.

**Article 2.1.10.7.**

**Importation of live animals from a country, zone or compartment declared free from EUS**

When importing live aquatic animals of the species referred to in Article 2.1.10.2. from a country, *zone or compartment* declared free from EUS, the Competent Authority of the importing country should require 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 2.1.10.4. or 2.1.10.5. (as applicable), the place of production of the consignment is a country, *zone or compartment* declared free from EUS.

The certificate *shall* be in accordance with the Model Certificate in Appendix 6.1.1.

This Article does not apply to commodities listed in point 1) of Article 2.1.10.3.

**Article 2.1.10.8.**

**Importation of live animals for aquaculture from a country, zone or compartment not declared free from EUS**

When importing, for aquaculture, aquatic animals of the species referred to in Article 2.1.10.2. from a country, *zone or compartment* not declared free from EUS, the Competent Authority of the importing country should assess the risk and apply risk mitigation measures such as:

1) the consignment is delivered directly into and held in quarantine facilities; and
Appendix XIX (contd)

2) the imported aquatic animals and their first generation progeny are continuously isolated from the local environment; and

3) all effluent and waste material are treated in a manner that ensures inactivation of A. invadans.

This Article does not apply to commodities listed in point 1) of Article 2.1.10.3.

Article 2.1.10.9.

Importation of live animals for processing for human consumption from a country, zone or compartment not declared free from EUS

When importing, for processing for human consumption, aquatic animals of the species referred to in Article 2.1.10.2. from a country, zone or compartment not declared free from EUS, 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 to one of the products listed in point 1) of Article 2.1.10.3. or other products authorised by the Competent Authority; and

2) all effluent and waste material from the processing are treated in a manner that ensures inactivation of A. invadans.

This Article does not apply to commodities listed in point 1) of Article 2.1.9.3.

Article 2.1.10.9.bis

Importation of live animals intended for use in animal feed, or for agricultural, industrial or pharmaceutical use from a country, zone or compartment not declared free from EUS

When importing, for use in animal feed, or for agricultural, industrial or pharmaceutical use, aquatic animals of the species referred to in Article 2.1.10.2. from a country, zone or compartment not declared free from EUS, the Competent Authority of the importing country should require:

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

2) all effluent and waste material from the processing are treated in a manner that ensures inactivation of A. invadans.

This Article does not apply to commodities listed in point 1) of Article 2.1.10.3.

Article 2.1.10.10.

Importation of products from a country, zone or compartment declared free from EUS

When importing aquatic animal products of the species referred to in Article 2.1.10.2. from a country, zone or compartment free from EUS, the Competent Authority of the importing country should require 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 2.1.10.4. or 2.1.10.5. (as applicable), the place of production of the consignment is a country, zone or compartment declared free from EUS.

The certificate shall be in accordance with the Model Certificate in Appendix 6.2.1.

This Article does not apply to commodities listed in point 1) of Article 2.1.10.3.
Appendix XIX (contd)

Article 2.1.10.11.

Importation of products from a country, zone or compartment not declared free from EUS

When importing aquatic animal products of the species referred to in Article 2.1.10.2. from a country, zone or compartment not declared free from EUS, the Competent Authority of the importing country should assess the risk and apply appropriate risk mitigation measures.

In the case of dead fish, whether eviscerated or uneviscerated, such risk mitigation measures may include:

1) the consignment is delivered directly to and held in biosecure/quarantine facilities for processing to one of the products listed in point 1) of Article 2.1.10.3. or other products authorised by the Competent Authority; and

2) all effluent and waste material are treated in a manner that ensures inactivation of A. invadans.

This Article does not apply to commodities listed in point 1) of Article 2.1.10.3.

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Appendix XX

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CHAPTER 2.1.15.
RED SEA BREAM IRIDOVIRAL DISEASE

Article 2.1.15.1.

For the purposes of the Aquatic Code, red sea bream iridoviral disease (RSIVD) means infection with red sea bream iridovirus (RSIV) of the family Iridoviridae.

Methods for surveillance and diagnosis are provided in the Aquatic Manual.

Article 2.1.15.2.

Susceptible species Scope

The recommendations in this Chapter apply to For the purposes of the Aquatic Code, susceptible species for RSIVD are: red sea bream (Pagrus major), yellowtail (Seriola quinqueradiata), amberjack (Seriola dumerili), sea bass (Lateolabrax sp. and Lates calcarifer), Albacore (Thunnus thynnus), Japanese parrotfish (Oplegnathus fasciatus), striped jack (Caranx lectoralis), mandarin fish (Siniperca chuatsi), red drum (Sciaenops ocellatus), mullet (Mugil cephalus) and groupers (Epinephelus spp.). These recommendations also apply to any other susceptible species referred to in the Aquatic Manual when traded internationally.

Suspected cases of natural infection with RSIV in species other than those listed in this Article should be referred immediately to the appropriate OIE Reference Laboratory, whether or not clinical signs are associated with the findings.

Article 2.1.15.3.

Commodities

1) When authorising importation or transit of the following commodities, Competent Authorities should not require any RSIVD related conditions, regardless of the RSIVD status of the exporting country, zone or compartment:

   a) From the species in Article 2.1.15.2., for any purpose:
      i) commercially-sterile canned fish;
      ii) leather made from fish skin.

   b) The following commodities destined for human consumption from the species referred to in Article 2.1.15.2. which have been prepared in such a way as to minimise the likelihood of alternative uses:
      i) chemically preserved products (e.g. smoked, salted, pickled, marinated, etc.);
      ii) Heat treated products (e.g. ready prepared meals, fish oil) that have been heat treated in a manner to ensure the inactivation of the pathogen;
      iii) eviscerated fish (chilled or frozen) packaged for direct retail trade;
      iv) fillets or cutlets (chilled or frozen);
      v) dried eviscerated fish (including air dried, flame dried and sun dried).

   c) For species other than those in Article 2.1.2.2., all aquatic animal products.
For the commodities listed in point 1)b), Member Countries should consider introducing internal measures to prevent the commodity being used for any purpose other than for human consumption.

2) When authorising importation or transit of the commodities of a species referred to in Article 2.1.15.2., other than those listed in point 1) of Article 2.1.15.3., Competent Authorities should require the conditions prescribed in Articles 2.1.15.7. to 2.1.15.11. relevant to the RIVSD status of the exporting country, zone or compartment.

3) When considering the importation or transit of any live commodity of a species not referred to in Article 2.1.15.2. from an exporting country, zone or compartment not declared free of RSIVD, Competent Authorities of the importing country should conduct an analysis of the risk of introduction, establishment and spread of RSIV and the potential consequences associated with importation of the commodity, prior to a decision. The outcome of this assessment should be made available to the exporting country. The exporting country should be informed of the outcome of this assessment.

Article 2.1.15.4.

RSIVD free country

A country may make a self-declaration of freedom from RSIVD if it meets the conditions in points 1), 2), 3) or 4) below.

If a country shares a zone or compartment with one or more other countries, it can only make a self-declaration of freedom from RSIVD if all the areas covered by the shared water are declared RSIVD free countries or zones (see Article 2.1.15.5.).

1) A country where none of the susceptible species listed in Article 2.1.15.2. is present may make a self-declaration of freedom from RSIVD when basic biosecurity conditions have been met continuously in the country for at least the past 2 years.

OR

2) A country where the species referred to in Article 2.1.15.2. are present but there has never been any observed occurrence of the disease for at least the past 25 years despite conditions that are conducive to its clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may make a self-declaration of freedom from RSIVD when basic biosecurity conditions have been met continuously in the country for at least the past 10 years.

OR

3) A country where the last observed occurrence of the disease was within the past 25 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may make a self-declaration of freedom from RSIVD when:

a) basic biosecurity conditions have been met continuously for at least the past 2 years; and

b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place for at least the last 2 years without detection of RSIV.

OR

4) A country that has made a self-declaration of freedom from RSIVD but in which the disease is subsequently detected may not make a self-declaration of freedom from RSIVD again until the following conditions have been met:
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a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and

b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see Aquatic Manual) have been completed; and

c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the last 2 years without detection of RSIV.

In the meantime, one or more areas of the remaining territory may be declared free zones, part of the non-affected area may be declared a free zone provided that they meet the conditions in point 3) of Article 2.1.15.5.

Article 2.1.15.5.

RSIVD free zone or free compartment

A zone or compartment within the territory of one or more countries not declared free from RSIVD may be declared free by the Competent Authority(ies) of the country(ies) concerned, if the zone or compartment meets the conditions referred to in points 1), 2), 3) or 4) below.

If a zone or compartment extends over more than one country, it can only be declared an RSIVD free zone or compartment if all the Competent Authorities confirm that the conditions have been met.

1) A zone or compartment where none of the susceptible species listed in Article 2.1.15.2. is present may be declared free from RSIVD when basic biosecurity conditions have been met continuously in the zone or compartment for at least the past 2 years.

OR

2) A zone or compartment where the species referred to in Article 2.1.15.2. are present but there has never been any observed occurrence of the disease for at least the past 25 years despite conditions that are conducive to its clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may be declared free from RSIVD when basic biosecurity conditions have been met continuously in the zone or compartment for at least the past 10 years.

OR

3) A zone or compartment where the last observed occurrence of the disease was within the past 25 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may be declared free from RSIVD when:

a) basic biosecurity conditions have been met continuously for at least the past 2 years; and

b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place for at least the last 2 years without detection of RSIV.

OR

4) A zone previously declared free from RSIVD but in which the disease is detected may not be declared free from RSIVD again until the following conditions have been met:
Appendix XXI (contd)

a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and

b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see Aquatic Manual) have been completed; and

c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the last 2 years without detection of RSIV.

Article 2.1.15.6.

Maintenance of free status

A country, zone or compartment that is declared free from RSIVD following the provisions of points 1) or 2) of Articles 2.1.15.4. or 2.1.15.5., as relevant, may maintain its status as RSIVD free provided that basic biosecurity conditions are continuously maintained.

A country, zone or compartment that is declared free from RSIVD following the provisions of point 3) of Articles 2.1.15.4. or 2.1.15.5., as relevant, may discontinue targeted surveillance and maintain its status as RSIVD free provided that conditions that are conducive to clinical expression of RSIVD, as described in Chapter X.X.X. 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 RSIVD, targeted surveillance needs to be continued at a level determined by the Competent Authority on the basis of the likelihood of re-infection.

Article 2.1.15.7.

Importation of live animals from a country, zone or compartment declared free from RSIVD

When importing live aquatic animals of the species referred to in Article 2.1.15.2. from a country, zone or compartment declared free from RSIVD, the Competent Authority of the importing country should require 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 2.1.15.4. or 2.1.15.5. (as applicable), the place of production of the consignment is a country, zone or compartment declared free from RSIVD.

The certificate shall be in accordance with the Model Certificate in Appendix 6.1.1.

This Article does not apply to commodities listed in point 1) of Article 2.1.15.3.

Article 2.1.15.8.

Importation of live animals for aquaculture from a country, zone or compartment not declared free from RSIVD

When importing, for aquaculture, aquatic animals of the species referred to in Article 2.1.15.2. from a country, zone or compartment not declared free from RSIVD, the Competent Authority of the importing country should assess the risk and apply risk mitigation measures such as:

1) the consignment is delivered directly into and held in quarantine facilities; and

2) the imported aquatic animals and their first generation progeny are continuously isolated from the local environment; and
Appendix XXI (contd)

3) all effluent and waste material are treated in a manner that ensures inactivation of RSIV.

This Article does not apply to commodities listed in point 1) of Article 2.1.15.3.

Article 2.1.15.9.

Importation of live animals for processing for human consumption from a country, zone or compartment not declared free from RSIVD

When importing, for processing for human consumption, aquatic animals of the species referred to in Article 2.1.15.2. from a country, zone or compartment not declared free from RSIVD, 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 to one of the products listed in point 1) of Article 2.1.15.3. or other products authorised by the Competent Authority; and

2) all effluent and waste material from the processing are treated in a manner that ensures inactivation of RSIV.

This Article does not apply to commodities listed in point 1) of Article 2.1.15.3.

Article 2.1.15.9.bis

Importation of live animals intended for use in animal feed, or for agricultural, industrial or pharmaceutical use from a country, zone or compartment not declared free from RSIVD

When importing, for use in animal feed, or for agricultural, industrial or pharmaceutical use, aquatic animals of the species referred to in Article 2.1.15.2. from a country, zone or compartment not declared free from RSIVD, the Competent Authority of the importing country should require:

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

2) all effluent and waste material from the processing are treated in a manner that ensures inactivation of RSIV.

This Article does not apply to commodities listed in point 1) of Article 2.1.15.3.

Article 2.1.15.10.

Importation of products from a country, zone or compartment declared free from RSIVD

When importing aquatic animal products of the species referred to in Article 2.1.15.2. from a country, zone or compartment free from RSIVD, the Competent Authority of the importing country should require 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 2.1.15.4. or 2.1.15.5. (as applicable), the place of production of the consignment is a country, zone or compartment declared free from RSIVD.

The certificate shall be in accordance with the Model Certificate in Appendix 6.2.1.

This Article does not apply to commodities listed in point 1) of Article 2.1.15.3.
Appendix XXI (contd)

Article 2.1.15.11.

Importation of products from a country, zone or compartment not declared free from RSIVD

When importing aquatic animal products of the species referred to in Article 2.1.15.2. from a country, zone or compartment not declared free from RSIVD, the Competent Authority of the importing country should assess the risk and apply appropriate risk mitigation measures.

In the case of dead fish, whether eviscerated or uneviscerated, such risk mitigation measures may include:

1) the consignment is delivered directly to and held in biosecure/quarantine facilities for processing to one of the products listed in point 1) of Article 2.1.15.3. or other products authorised by the Competent Authority; and

2) all effluent and waste material are treated in a manner that ensures inactivation of RSIV.

This Article does not apply to commodities listed in point 1) of Article 2.1.15.3.

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CHAPTER 4.1.2.

WHITE SPOT DISEASE

Article 4.1.2.1.

For the purposes of the Aquatic Code, white spot disease (WSD) means infection with white spot syndrome virus (WSSV), the viral species *White spot syndrome virus* is classified as a species in the genus *Wisia* of the family *Nimaviridae*. Common synonyms are listed in Chapter 4.1.2. of the Aquatic Manual.

Methods for surveillance and diagnosis are provided in the Aquatic Manual.

Article 4.1.2.2.

**Susceptible species Scope**

The recommendations in this Chapter apply to: For the purposes of this Aquatic Code, susceptible species for WSD are: all decapod (order Decapoda) crustaceans from marine, and brackish and freshwater sources. These recommendations also apply to any other susceptible species referred to in the Aquatic Manual when traded internationally.

Suspected cases of natural infection with WSSV in species other than those listed in this Article should be referred immediately to the appropriate OIE Reference Laboratory, whether or not clinical signs are associated with the findings.

Article 4.1.2.3.

**Commodities**

1. When authorising importation or transit of the following commodities (under study), Competent Authorities of the importing country should not require any WSD related conditions, regardless of the WSD status of the exporting country, zone or compartment.

   a) For the species in Article 4.1.2.2, for any purpose:
      i) commercially-sterile canned products;
      ii) boiled products (e.g. boiled whole shrimp or tails, lobsters, crabs);
      iii) chemically extracted chitin;
      iv) crustacean meals or by-products made non-infectious by heating or drying (e.g. flame dried or sun dried);
      v) crustacean products made non-infectious through processing as dry feeds (e.g. pelleted or extruded feeds);
      vi) biological samples preserved for diagnostic applications in such a manner as to inactivate WSSV (e.g. formalin or alcohol preserved samples);

   b) The following products destined for human consumption from species in Article 4.1.2.2 which have been prepared in such a way as to minimise the risk of diversion for alternative uses:
      i) chemically preserved products (e.g. salted, pickled, marinated, pastes, etc.).
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ii) products that have been heat treated cooked or dried products (e.g. ready prepared meals) in a manner to ensure the inactivation of the pathogen.

For species other than those listed in Article 4.1.2.2., all aquatic animal products.

For the commodities listed in point 1)ibli, Member Countries should consider introducing internal measures to prevent the commodity being used for any purpose other than for human consumption.

2. When authorising importation or transit of the following commodities of a species referred to in Article 4.1.2.2., other than those listed in point 1 of Article 4.1.2.3., Competent Authorities of the importing country should require the conditions prescribed in Articles 4.1.2.7. to 4.1.11., relevant to the WSD status of the exporting country, zone or compartment:

a) aquatic animals.

b) aquatic animal products.

3. When considering the importation or transit of any other commodity of a species not referred to in Article 4.1.2.2., not listed above but which could be reasonably expected to be a potential WSSV carrier from an exporting country, zone or compartment not declared free of WSSV, Competent Authorities of the importing country should conduct an analysis of the risk of introduction, establishment and spread of WSSV and the potential consequences associated with importation of the commodity, prior to a decision. The outcome of this assessment should be made available to the exporting country. The exporting country should be informed of the outcome of this assessment.

Article 4.1.2.4.

White spot disease free country

A country may make a self-declaration of freedom from WSD if it meets the conditions in points 1), 2), 3) or 4) below.

If a country shares a water catchment or coastal zone with one or more other countries, it can only make a self-declaration of freedom from WSD if all the areas covered by the shared water are declared WSD free countries or zones (see Article 4.1.2.5.).

1. A country where none of the susceptible species listed in Article 4.1.2.2. is present may make a self-declaration of freedom from WSD when basic biosecurity conditions have been met continuously in the country for at least the past 2 years.

OR

2. A country where the species referred to in Article 4.1.2.2. are present but there has never been any observed occurrence of the disease for at least the past 10 years despite conditions that are conducive to its clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may make a self-declaration of freedom from WSD when basic biosecurity conditions have been met continuously in the country for at least the past 2 years.

OR

3. A country where the last observed occurrence of the disease was within the past 10 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may make a self-declaration of freedom from WSD when:

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* The typical life cycle for susceptible species is 2 years or less. Under conditions conducive to disease expression, this period is required because it would cover the time period in which the most susceptible life stage (i.e. juvenile) is present.
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a) basic biosecurity conditions have been met continuously for at least the past 2 years; and

b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place for at least the last 2 years without detection of WSSV.

OR

4. A country that has previously made a self-declaration of freedom from WSD but in which the disease is subsequently detected may not make a self-declaration of freedom from WSD again until the following conditions have been met:

a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and

b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see Aquatic Manual) have been completed; and

c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the past 2 years without detection of WSSV.

In the meantime, one or more areas of the remaining territory may be declared free zone, part of the non-affected area may be declared a free zone provided that they meet the conditions in point 3) of Article 4.1.2.5.

Article 4.1.2.5.

White spot disease free zone or free compartment

A zone or compartment within the territory of one or more countries not declared free from WSD may be declared free by the Competent Authority(ies) of the country(ies) concerned, if the zone or compartment meets the conditions referred to in points 1), 2), 3) or 4) below.

If a zone or compartment extends over more than one country, it can only be declared a WSD free zone or compartment if all the relevant Competent Authorities confirm that the conditions have been met.

1. A zone or compartment where none of the susceptible species species listed in Article 4.1.2.2 is present may be declared free from WSD when basic biosecurity conditions have been met continuously in the zone or compartment for at least the past 2 years.

OR

2. A zone or compartment where the species referred to in Article 4.1.2.2. are present but in which there has not been any observed occurrence of the disease for at least the past 10 years despite conditions that are conducive to its clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may be declared free from WSD when basic biosecurity conditions have been met continuously in the zone or compartment for at least the past 2 years.

OR

3. A zone or compartment where the last observed occurrence of the disease was within the past 10 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may be declared free from WSD when:
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a) basic biosecurity conditions have been met continuously for at least the past 2 years; and

b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place, through the zone or compartment, for at least the past 2 years without detection of WSSV.

OR

4. A zone previously declared free from WSD but in which the disease is detected may not be declared free from WSD again until the following conditions have been met:

a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and

b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see Aquatic Manual) have been completed; and

c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the past 2 years without detection of WSSV.

Article 4.1.2.6.

Maintenance of free status

A country, zone or compartment that is declared free from WSD following the provisions of points 1) or 2) of Articles 4.1.2.4. or 4.1.2.5., as relevant, may maintain its status as WSD free provided that basic biosecurity conditions are continuously maintained.

A country, zone or compartment that is declared free from WSD following the provisions of point 3) of Articles 4.1.2.4. or 4.1.2.5., as relevant, may discontinue targeted surveillance and maintain its status as WSD free provided that conditions that are conducive to clinical expression of WSD, as described in Chapter X.X.X. 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 WSD, targeted surveillance needs to be continued at a level determined by the Competent Authority on the basis of the likelihood of reinfection.

Article 4.1.2.7.

Importation of live animals from a country, zone or compartment declared free from white spot disease

When importing live aquatic animals of the species referred to in Article 4.1.2.2. from a country, zone or compartment declared free from WSD, the Competent Authority of the importing country should require 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 4.1.2.4. or 4.1.2.5. (as applicable), the place of production of the consignment is a country, zone or compartment declared free from WSD.

The certificate shall be in accordance with the Model Certificate No. 4 given in Part 6. of this Aquatic Code in Appendix 6.4.1.

This Article does not apply to commodities listed in point 1) of Article 4.1.2.3.
Article 4.1.2.8.

Importation of live animals for aquaculture from a country, zone or compartment not declared free from white spot disease

1. When importing, for aquaculture, aquatic animals of the species referred to in Article 4.1.2.2 from a country, zone or compartment not declared free from WSD, the Competent Authority of the importing country should assess the risk and apply risk mitigation measures such as:
   a) the consignment is delivered directly into and held in quarantine facilities; and
   b) the imported aquatic animals and their first generation progeny are continuously isolated from the local environment; and
   c) all effluent and waste material from the processing are treated in a manner that ensures inactivation of WSSV.

2. If the intention of the introduction is the establishment of new genetic lines, international standards, such as the Guidelines of the International Council for the Exploration of the Seas (ICES), should be followed.

3. For the purposes of the Aquatic Code, the ICES Guidelines may be summarised to the following main points:
   a) identify stock of interest (cultured or wild) in its current location;
   b) evaluate stock’s health/disease history;
   c) take and test samples for WSSV, pests and general health/disease status;
   d) import and quarantine in a secure facility a founder (F-0) population;
   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 WSSV and perform general examinations for pests and general health/disease status;
   g) if WSSV is not detected, pests are not present, and the general health/disease status of the stock is considered to meet basic biosecurity conditions of the importing country, zone, or compartment, the F-1 stock may be defined as WSD free or specific pathogen free (SPF) for WSSV;
   h) release SPF F-1 stock from quarantine for aquaculture or stocking purposes in the country, zone or compartment.

This Article does not apply to commodities listed in point 1) of Article 4.1.2.3.

Article 4.1.2.9.

Importation of live animals for processing and/or human consumption from a country, zone or compartment not declared free from white spot disease

When importing, for processing and/or human consumption, aquatic animals of the species referred to in Article 4.1.2.2. from a country, zone or compartment not declared free from WSD, the Competent Authority of the importing country should require that assess the risk and apply risk mitigation measures such as:
Appendix XXII (contd)

1. the consignment is delivered directly to and held in\textit{isolation quarantine facilities for a short period before for a short period before until processing and/or consumption}; and

2. all effluent, dead animals and waste material \textit{from the processing} are treated in a manner that ensures inactivation of WSSV.

\textbf{Member Countries should consider introducing internal measures to prevent such commodities being used for any purpose other than for human consumption.}

This Article does not apply to commodities listed in point 1) of Article 4.1.2.3.

\textbf{Article 4.1.2.10.}

\textbf{Importation of products from a country, zone or compartment declared free from white spot disease}

When importing \textit{aquatic animal products} of the species referred to in Article 4.1.2.2. from a country, zone or compartment free from WSD, the Competent Authority of the importing country should require an \textit{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 4.1.2.4. or 4.1.2.5. (as applicable), the place of production of the consignment is a country, zone or compartment declared free from WSD.

The certificate shall be in accordance with \textit{the Model Certificate No. [X] in Appendix 6.1. given in Part 6. of this Aquatic Code.}

This Article does not apply to commodities listed in point 1) of Article 4.1.2.3.

\textbf{Article 4.1.2.11.}

\textbf{Importation of products from a country, zone or compartment not declared free from white spot disease}

When importing \textit{aquatic animal products} of the species referred to in Article 4.1.2.2. from a country, zone or compartment not declared free from WSD, the Competent Authority of the importing country should assess the risk and apply appropriate risk mitigation measures.

This Article does not apply to commodities listed in point 1) of Article 4.1.2.3.
CHAPTER 4.1.1.

TAURA SYNDROME

Article 4.1.1.1.

For the purposes of the Aquatic Code, Taura syndrome (TS) means infection with Taura syndrome virus (TSV). Taura syndrome virus is classified as a species in the family Dicistroviridae. Common synonyms are listed in Chapter 4.1.1. of the Aquatic Manual.

Methods for surveillance and diagnosis are provided in the Aquatic Manual.

Article 4.1.1.2.

Scope

The recommendations in this Chapter apply to: Pacific white shrimp or whiteleg shrimp (Litopenaeus vannamei), blue shrimp (L. stylirostris), northern white shrimp (L. setiferus), southern white shrimp (L. schmitti), greasyback prawn (Metapenaeus ensis) and giant tiger prawn (Penaeus monodon). These recommendations also apply to any other susceptible species referred to in the Aquatic Manual when traded internationally.

Article 4.1.1.3.

Commodities

1. When authorising importation or transit of the following commodities, Competent Authorities of the importing country should not require any TS related conditions, regardless of the TS status of the exporting country, zone or compartment.

   a) For the species in Article 4.1.1.2, for any purpose:

      i) commercially-sterile canned products;

      ii) boiled products (e.g. boiled whole shrimp or tails, lobsters, crabs);

      iii) chemically extracted chitin;

      iv) crustacean meals or by-products made non-infectious by heating or drying (e.g. flame dried or sun dried);

      v) crustacean products made non-infectious through processing as dry feeds (e.g. pelleted or extruded feeds);

      vi) biological samples preserved for diagnostic applications in such a manner as to inactivate TSV (e.g. formalin or alcohol preserved samples).
Appendix XXIII (contd)

b) The following products destined for human consumption from species in Article 4.1.1.2 which have been prepared in such a way as to minimise the risk of diversion for alternative uses:
   
   i) chemically preserved products (e.g. salted, pickled, marinated, pastes, etc.);
   
   ii) products that have been heat treated or dried (e.g. ready prepared meals) in a manner to ensure the inactivation of the pathogen.

For the commodities listed in point 1)b), Member Countries should consider introducing internal measures to prevent the commodity being used for any purpose other than for human consumption.

2. When authorising importation or transit of the commodities of a species referred to in Article 4.1.1.2., other than those listed in point 1 of Article 4.1.1.3., Competent Authorities of the importing country should require the conditions prescribed in Articles 4.1.1.7. to 4.1.1.11., relevant to the TS status of the exporting country, zone or compartment.

3. When considering the importation or transit of any other commodity of a species not referred to in Article 4.1.1.2. but which could be reasonably expected to be a potential TSV carrier from an exporting country, zone or compartment not declared free of TS, Competent Authorities of the importing country should conduct an analysis of the risk of introduction, establishment and spread of TSV and the potential consequences associated with importation of the commodity, prior to a decision. The exporting country should be informed of the outcome of this assessment.

Article 4.1.1.4.

Taura syndrome free country

A country may make a self-declaration of freedom from TS if it meets the conditions in points 1), 2), 3) or 4) below.

If a country shares a zone with one or more other countries, it can only make a self-declaration of freedom from TS if all the areas covered by the shared water are declared TS free countries or zones (see Article 4.1.1.5.).

1. A country where none of the susceptible species is present may make a self-declaration of freedom from TS when basic biosecurity conditions have been met continuously in the country for at least the past 2 years.

   OR

2. A country where the species referred to in Article 4.1.1.2. are present but there has never been any observed occurrence of the disease for at least the past 10 years despite conditions that are conducive to its clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may make a self-declaration of freedom from TS when basic biosecurity conditions have been met continuously in the country for at least the past 2 years.

   OR

3. A country where the last observed occurrence of the disease was within the past 10 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may make a self-declaration of freedom from TS when:
Appendix XXIII (contd)

a) basic biosecurity conditions have been met continuously for at least the past 2 years; and

b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place for at least the last 2 years without detection of TSV.

OR

4. A country that has previously made a self-declaration of freedom from TS but in which the disease is subsequently detected may not make a self-declaration of freedom from TS again until the following conditions have been met:

   a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and

   b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see Aquatic Manual) have been completed; and

   c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the past 2 years without detection of TSV.

In the meantime, part of the non-affected area may be declared a free zone provided that they meet the conditions in point 3) of Article 4.1.1.5.

Article 4.1.1.5.

Taura syndrome free zone or free compartment

A zone or compartment within the territory of one or more countries not declared free from TS may be declared free by the Competent Authority(ies) of the country(ies) concerned, if the zone or compartment meets the conditions referred to in points 1), 2), 3) or 4) below.

If a zone or compartment extends over more than one country, it can only be declared a TS free zone or compartment if all the relevant Competent Authorities confirm that the conditions have been met.

1. A zone or compartment where none of the susceptible species is present may be declared free from TS when basic biosecurity conditions have been met continuously in the zone or compartment for at least the past 2 years.

OR

2. A zone or compartment where the species referred to in Article 4.1.1.2. are present but in which there has not been any observed occurrence of the disease for at least the past 10 years despite conditions that are conducive to its clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may be declared free from TS when basic biosecurity conditions have been met continuously in the zone or compartment for at least the past 2 years.

OR

3. A zone or compartment where the last observed occurrence of the disease was within the past 10 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may be declared free from TS when:
Appendix XXIII (contd)

a) **basic biosecurity conditions** have been met continuously for at least the past 2 years; and

b) **targeted surveillance** as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place, through the zone or compartment, for at least the past 2 years without detection of TSV.

OR

4. A zone previously declared free from TS but in which the disease is detected may not be declared free from TS again until the following conditions have been met:

a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and

b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see Aquatic Manual) have been completed; and

c) **targeted surveillance**, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the past 2 years without detection of TSV.

**Article 4.1.1.6.**

**Maintenance of free status**

A country, zone or compartment that is declared free from TS following the provisions of points 1) or 2) of Articles 4.1.1.4. or 4.1.1.5., as relevant, may maintain its status as TS free provided that **basic biosecurity conditions** are continuously maintained.

A country, zone or compartment that is declared free from TS following the provisions of point 3) of Articles 4.1.1.4. or 4.1.1.5., as relevant, may discontinue **targeted surveillance** and maintain its status as TS free provided that conditions that are conducive to clinical expression of TS, as described in Chapter X.X.X. 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 TS, **targeted surveillance** needs to be continued at a level determined by the Competent Authority on the basis of the likelihood of infection.

**Article 4.1.1.7.**

**Importation of live animals from a country, zone or compartment declared free from Taura syndrome**

When importing live aquatic animals of the species referred to in Article 4.1.1.2. from a country, zone or compartment declared free from TS, the Competent Authority of the importing country should require 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 4.1.1.4. or 4.1.1.5. (as applicable), the place of production of the consignment is a country, zone or compartment declared free from TS.

The certificate should be in accordance with the Model Certificate in Appendix 6.4.1.

This Article does not apply to commodities listed in point 1) of Article 4.1.1.3.
Article 4.1.1.8.

Importation of live animals for aquaculture from a country, zone or compartment not declared free from Taura syndrome

1. When importing, for aquaculture, aquatic animals of the species referred to in Article 4.1.1.2. from a country, zone or compartment not declared free from TS, the Competent Authority of the importing country should assess the risk and apply risk mitigation measures such as:
   a) the consignment is delivered directly into and held in quarantine facilities; and
   b) the imported aquatic animals and their first generation progeny are continuously isolated from the local environment; and
   c) all effluent and waste material from the processing are treated in a manner that ensures inactivation of TSV.

2. If the intention of the introduction is the establishment of new genetic lines, international standards, such as the Guidelines of the International Council for the Exploration of the Seas (ICES), should be followed.

3. For the purposes of the Aquatic Code, the ICES Guidelines may be summarised to the following main points:
   a) identify stock of interest (cultiured or wild) in its current location;
   b) evaluate stock’s health/disease history;
   c) take and test samples for TSV, pests and general health/disease status;
   d) import and quarantine in a secure facility a founder (F-0) population;
   e) produce F-1 generation from the F-0 stock in quarantine;
   f) culture F-1 stock at critical times in its development (life cycle) sample and test for TSV and perform general examinations for pests and general health/disease status;
   g) if TSV is not detected, pests are not present, and the general health/disease status of the stock is considered to meet basic biosecurity conditions of the importing country, zone, or compartment, the F-1 stock may be defined as TS free or specific pathogen free (SPF) for TSV;
   h) release SPF F-1 stock from quarantine for aquaculture or stocking purposes in the country, zone or compartment.

This Article does not apply to commodities listed in point 1) of Article 4.1.1.3.

Article 4.1.1.9.

Importation of live animals for human consumption from a country, zone or compartment not declared free from Taura syndrome

When importing, for human consumption, aquatic animals of the species referred to in Article 4.1.1.2. from a country, zone or compartment not declared free from TS, the Competent Authority of the importing country should require:
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1. the consignment is delivered directly to and held in isolation until consumption; and

2. all effluent, dead animals and waste material from the processing are treated in a manner that ensures inactivation of TSV.

Member Countries should consider introducing internal measures to prevent such commodities being used for any purpose other than for human consumption.

This Article does not apply to commodities listed in point 1) of Article 4.1.1.3.

Article 4.1.1.10.

Importation of products from a country, zone or compartment declared free from Taura syndrome

When importing aquatic animal products of the species referred to in Article 4.1.1.2. from a country, zone or compartment free from TS, the Competent Authority of the importing country should require 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 4.1.1.4. or 4.1.1.5. (as applicable), the place of production of the consignment is a country, zone or compartment declared free from TS.

The certificate should be in accordance with the Model Certificate in Appendix 6.5.1.

This Article does not apply to commodities listed in point 1) of Article 4.1.1.3.

Article 4.1.1.11.

Importation of products from a country, zone or compartment not declared free from Taura syndrome

When importing aquatic animal products of the species referred to in Article 4.1.1.2. from a country, zone or compartment not declared free from TS, the Competent Authority of the importing country should assess the risk and apply appropriate risk mitigation measures.

This Article does not apply to commodities listed in point 1) of Article 4.1.1.3.
CHAPTER 4.1.3.

YELLOWHEAD DISEASE

Article 4.1.3.1.

For the purposes of the Aquatic Code, yellowhead disease (YHD) means infection with yellow head virus (YHV). YHV and the related Gill-associated virus are classified as a species in the genus Okavirus, family Roniviridae, order Nidovirales. Common synonyms are listed in Chapter 4.1.3. of the Aquatic Manual.

Methods for surveillance and diagnosis are provided in the Aquatic Manual.

Article 4.1.3.2.

Scope

The recommendations in this Chapter apply to: giant tiger prawn (Penaeus monodon), brown tiger prawn (P. esculentus) and Kuruma prawn (Marsupenaeus japonicus). These recommendations also apply to any other susceptible species referred to in the Aquatic Manual when traded internationally.

Article 4.1.3.3.

Commodities

1. When authorising importation or transit of the following commodities, Competent Authorities of the importing country should not require any YHD related conditions, regardless of the YHD status of the exporting country, zone or compartment.

   a) For the species in Article 4.1.3.2, for any purpose:

      i) commercially-sterile canned products;

      ii) boiled products (e.g. boiled whole shrimp or tails, lobsters, crabs);

      iii) chemically extracted chitin;

      iv) crustacean meals or by-products made non-infectious by heating or drying (e.g. flame dried or sun dried);

      v) crustacean products made non-infectious through processing as dry feeds (e.g. pelleted or extruded feeds);

      vi) biological samples preserved for diagnostic applications in such a manner as to inactivate YHV (e.g. formalin or alcohol preserved samples).

   b) The following products destined for human consumption from species in Article 4.1.3.2 which have been prepared in such a way as to minimise the risk of diversion for alternative uses:
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i) chemically preserved products (e.g. salted, pickled, marinated, pastes, etc.);

ii) products that have been heat treated or dried (e.g. ready prepared meals) in a manner to ensure the inactivation of the pathogen.

For the commodities listed in point 1)b), Member Countries should consider introducing internal measures to prevent the commodity being used for any purpose other than for human consumption.

2. When authorising importation or transit of the commodities of a species referred to in Article 4.1.3.2., other than those listed in point 1 of Article 4.1.3.3., Competent Authorities of the importing country should require the conditions prescribed in Articles 4.1.3.7. to 4.1.3.11., relevant to the YHD status of the exporting country, zone or compartment.

3. When considering the importation or transit of any other commodity of a species not referred to in Article 4.1.3.2. but which could be reasonably expected to be a potential YHV carrier from an exporting country, zone or compartment not declared free of YHD, Competent Authorities of the importing country should conduct an analysis of the risk of introduction, establishment and spread of YHV and the potential consequences associated with importation of the commodity, prior to a decision. The exporting country should be informed of the outcome of this assessment.

Article 4.1.3.4.

Yellowhead disease free country

A country may make a self-declaration of freedom from YHD if it meets the conditions in points 1), 2), 3) or 4) below.

If a country shares a zone with one or more other countries, it can only make a self-declaration of freedom from YHD if all the areas covered by the shared water are declared YHD free countries or zones (see Article 4.1.3.5.).

1. A country where none of the susceptible species is present may make a self-declaration of freedom from YHD when basic biosecurity conditions have been met continuously in the country for at least the past 2 years.

OR

2. A country where the species referred to in Article 4.1.3.2. are present but there has never been any observed occurrence of the disease for at least the past 10 years despite conditions that are conducive to its clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may make a self-declaration of freedom from YHD when basic biosecurity conditions have been met continuously in the country for at least the past 2 years.

OR

3. A country where the last observed occurrence of the disease was within the past 10 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may make a self-declaration of freedom from YHD when:

   a) basic biosecurity conditions have been met continuously for at least the past 2 years; and

   b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place for at least the last 2 years without detection of YHV.

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OR

4. A country that has previously made a self-declaration of freedom from YHD but in which the disease is subsequently detected may not make a self-declaration of freedom from YHD again until the following conditions have been met:

a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and

b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see Aquatic Manual) have been completed; and

c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the past 2 years without detection of YHV.

In the meantime, part of the non-affected area may be declared a free zone provided that they meet the conditions in point 3) of Article 4.1.3.5.

Article 4.1.3.5.

Yellowhead disease free zone or free compartment

A zone or compartment within the territory of one or more countries not declared free from YHD may be declared free by the Competent Authority(ies) of the country(ies) concerned, if the zone or compartment meets the conditions referred to in points 1), 2), 3) or 4) below.

If a zone or compartment extends over more than one country, it can only be declared a YHD free zone or compartment if all the relevant Competent Authorities confirm that the conditions have been met.

1. A zone or compartment where none of the susceptible species is present may be declared free from YHD when basic biosecurity conditions have been met continuously in the zone or compartment for at least the past 2 years.

OR

2. A zone or compartment where the species referred to in Article 4.1.3.2. are present but in which there has not been any observed occurrence of the disease for at least the past 10 years despite conditions that are conducive to its clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may be declared free from YHD when basic biosecurity conditions have been met continuously in the zone or compartment for at least the past 2 years.

OR

3. A zone or compartment where the last observed occurrence of the disease was within the past 10 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may be declared free from YHD when:

a) basic biosecurity conditions have been met continuously for at least the past 2 years; and

b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place, through the zone or compartment, for at least the past 2 years without detection of YHV.
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OR

4. A zone previously declared free from YHD but in which the disease is detected may not be declared free from YHD again until the following conditions have been met:

   a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and

   b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see Aquatic Manual) have been completed; and

   c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the past 2 years without detection of YHV.

   Article 4.1.3.6.

Maintenance of free status

A country, zone or compartment that is declared free from YHD following the provisions of points 1) or 2) of Articles 4.1.3.4. or 4.1.3.5., as relevant, may maintain its status as YHD free provided that basic biosecurity conditions are continuously maintained.

A country, zone or compartment that is declared free from YHD following the provisions of point 3) of Articles 4.1.3.4. or 4.1.3.5., as relevant, may discontinue targeted surveillance and maintain its status as YHD free provided that conditions that are conducive to clinical expression of YHD, as described in Chapter X.X.X. 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 YHD, targeted surveillance needs to be continued at a level determined by the Competent Authority on the basis of the likelihood of infection.

   Article 4.1.3.7.

Importation of live animals from a country, zone or compartment declared free from yellowhead disease

When importing live aquatic animals of the species referred to in Article 4.1.3.2. from a country, zone or compartment declared free from YHD, the Competent Authority of the importing country should require 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 4.1.3.4. or 4.1.3.5. (as applicable), the place of production of the consignment is a country, zone or compartment declared free from YHD.

The certificate should be in accordance with the Model Certificate in Appendix 6.4.1.

This Article does not apply to commodities listed in point 1) of Article 4.1.3.3.

   Article 4.1.3.8.

Importation of live animals for aquaculture from a country, zone or compartment not declared free from yellowhead disease

1. When importing, for aquaculture, aquatic animals of the species referred to in Article 4.1.3.2. from a country, zone or compartment not declared free from YHD, the Competent Authority of the importing country should assess the risk and apply risk mitigation measures such as:
Appendix XXIV (contd)

a) the consignment is delivered directly into and held in quarantine facilities; and

b) the imported aquatic animals and their first generation progeny are continuously isolated from the local environment; and

c) all effluent and waste material from the processing are treated in a manner that ensures inactivation of YHV.

2. If the intention of the introduction is the establishment of new genetic lines, international standards, such as the Guidelines of the International Council for the Exploration of the Seas (ICES), should be followed.

3. For the purposes of the Aquatic Code, the ICES Guidelines may be summarised to the following main points:

   a) identify stock of interest (cultured or wild) in its current location;
   b) evaluate stock’s health/disease history;
   c) take and test samples for YHV, pests and general health/disease status;
   d) import and quarantine in a secure facility a founder (F-0) population;
   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 YHV and perform general examinations for pests and general health/disease status;
   g) if YHV is not detected, pests are not present, and the general health/disease status of the stock is considered to meet basic biosecurity conditions of the importing country, zone, or compartment, the F-1 stock may be defined as YHD free or specific pathogen free (SPF) for YHV;
   h) release SPF F-1 stock from quarantine for aquaculture or stocking purposes in the country, zone or compartment.

This Article does not apply to commodities listed in point 1) of Article 4.1.3.3.

Article 4.1.3.9.

Importation of live animals for human consumption from a country, zone or compartment not declared free from yellowhead disease

When importing, for human consumption, aquatic animals of the species referred to in Article 4.1.3.2. from a country, zone or compartment not declared free from YHD, the Competent Authority of the importing country should require:

1. the consignment is delivered directly to and held in isolation until consumption; and

2. all effluent, dead animals and waste material from the processing are treated in a manner that ensures inactivation of YHV.

Member Countries should consider introducing internal measures to prevent such commodities being used for any purpose other than for human consumption.

This Article does not apply to commodities listed in point 1) of Article 4.1.3.3.
Appendix XXIV (contd)

Article 4.1.3.10.

Importation of products from a country, zone or compartment declared free from yellowhead disease

When importing aquatic animal products of the species referred to in Article 4.1.3.2. from a country, zone or compartment free from YHD, the Competent Authority of the importing country should require 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 4.1.3.4. or 4.1.3.5. (as applicable), the place of production of the consignment is a country, zone or compartment declared free from YHD.

The certificate should be in accordance with the Model Certificate in Appendix 6.5.1.

This Article does not apply to commodities listed in point 1) of Article 4.1.3.3.

Article 4.1.3.11.

Importation of products from a country, zone or compartment not declared free from yellowhead disease

When importing aquatic animal products of the species referred to in Article 4.1.3.2. from a country, zone or compartment not declared free from YHD, the Competent Authority of the importing country should assess the risk and apply appropriate risk mitigation measures.

This Article does not apply to commodities listed in point 1) of Article 4.1.3.3.
CHAPTER 4.1.4.

TETRAHEDRAL BACULOVIRUS

Article 4.1.4.1.

For the purposes of the Aquatic Code, tetrahedral baculovirosis means infection with Baculovirus penaei (BPV). This virus is closely related to Penaeus monodon baculovirus (Chapter 4.1.5.) which has been classified as a tentative species in the genus Nucleopolyhedrovirus. Common synonyms are listed in Chapter 4.1.4. of the Aquatic Manual.

Methods for surveillance and diagnosis are provided in the Aquatic Manual.

Article 4.1.4.2.

Scope

The recommendations in this Chapter apply to the following genera: Litopenaeus, Farfantepenaeus, Fenneropenaeus, Melicertus, Penea, Trachypenaeus and Protrachyonyx. These recommendations also apply to any other susceptible species referred to in the Aquatic Manual when traded internationally.

Article 4.1.4.3.

Commodities

1. When authorising importation or transit of the following commodities, Competent Authorities of the importing country should not require any tetrahedral baculovirosis related conditions, regardless of the tetrahedral baculovirosis status of the exporting country, zone or compartment.

a) For the species in Article 4.1.4.2. for any purpose:

i) commercially-sterile canned products;

ii) boiled products (e.g. boiled whole shrimp or tails, lobsters, crabs);

iii) chemically extracted chitin;

iv) crustacean meals or by-products made non-infectious by heating or drying (e.g. flame dried or sun dried);

v) crustacean products made non-infectious through processing as dry feeds (e.g. pelleted or extruded feeds);

vi) biological samples preserved for diagnostic applications in such a manner as to inactivate BPV (e.g. formalin or alcohol preserved samples).
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b) The following products destined for human consumption from species in Article 4.1.4.2 which have been prepared in such a way as to minimise the risk of diversion for alternative uses:

i) chemically preserved products (e.g. salted, pickled, marinated, pastes, etc.);

ii) products that have been heat treated or dried (e.g. ready prepared meals) in a manner to ensure the inactivation of the pathogen;

iii) headed and de-veined shrimp tails.

For the commodities listed in point 1)b), Member Countries should consider introducing internal measures to prevent the commodity being used for any purpose other than for human consumption.

2. When authorising importation or transit of the commodities of a species referred to in Article 4.1.4.2., other than those listed in point 1 of Article 4.1.4.3., Competent Authorities of the importing country should require the conditions prescribed in Articles 4.1.4.7. to 4.1.4.11., relevant to the tetrahedral baculovirosis status of the exporting country, zone or compartment.

3. When considering the importation or transit of any other commodity of a species not referred to in Article 4.1.4.2. but which could be reasonably expected to be a potential BPV carrier from an exporting country, zone or compartment not declared free of tetrahedral baculovirosis, Competent Authorities of the importing country should conduct an analysis of the risk of introduction, establishment and spread of BPV and the potential consequences associated with importation of the commodity prior to a decision. The exporting country should be informed of the outcome of this assessment.

Article 4.1.4.4.

Tetrahedral baculovirosis free country

A country may make a self-declaration of freedom from tetrahedral baculovirosis if it meets the conditions in points 1), 2), 3) or 4) below.

If a country shares a zone with one or more other countries, it can only make a self-declaration of freedom from tetrahedral baculovirosis if all the areas covered by the shared water are declared tetrahedral baculovirosis free countries or zones (see Article 4.1.4.5.).

1. A country where none of the susceptible species is present may make a self-declaration of freedom from tetrahedral baculovirosis when basic biosecurity conditions have been met continuously in the country for at least the past 2 years.

OR

2. A country where the species referred to in Article 4.1.4.2. are present but there has never been any observed occurrence of the disease for at least the past 10 years despite conditions that are conducive to its clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may make a self-declaration of freedom from tetrahedral baculovirosis when basic biosecurity conditions have been met continuously in the country for at least the past 2 years.
OR

3. A country where the last observed occurrence of the disease was within the past 10 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may make a self-declaration of freedom from tetrahedral baculovirus when:

a) basic biosecurity conditions have been met continuously for at least the past 2 years; and

b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place for at least the past 2 years without detection of BPV.

OR

4. A country that has previously made a self-declaration of freedom from tetrahedral baculovirus but in which the disease is subsequently detected may not make a self-declaration of freedom from tetrahedral baculovirus again until the following conditions have been met:

a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and

b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see Aquatic Manual) have been completed; and

c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the past 2 years without detection of BPV.

In the meantime, part of the non-affected area may be declared a free zone provided that they meet the conditions in point 3) of Article 4.1.4.5.

Article 4.1.4.5.

Tetrahedral baculovirus free zone or free compartment

A zone or compartment within the territory of one or more countries not declared free from tetrahedral baculovirus may be declared free by the Competent Authority(ies) of the country(ies) concerned, if the zone or compartment meets the conditions referred to in points 1), 2), 3) or 4) below.

If a zone or compartment extends over more than one country, it can only be declared a tetrahedral baculovirus free zone or compartment if all the relevant Competent Authorities confirm that the conditions have been met.

1. A zone or compartment where none of the susceptible species is present may be declared free from tetrahedral baculovirus when basic biosecurity conditions have been met continuously in the zone or compartment for at least the past 2 years.

OR

2. A zone or compartment where the species referred to in Article 4.1.4.2. are present but in which there has not been any observed occurrence of the disease for at least the past 10 years despite conditions that are conducive to its clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may be declared free from tetrahedral baculovirus when basic biosecurity conditions have been met continuously in the zone or compartment for at least the past 2 years.
Appendix XXV (contd)

OR

3. A zone or compartment where the last observed occurrence of the disease was within the past 10 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may be declared free from tetrahedral baculovirosis when:

a) basic biosecurity conditions have been met continuously for at least the past 2 years; and

b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place, through the zone or compartment, for at least the past 2 years without detection of BPV.

OR

4. A zone previously declared free from tetrahedral baculovirosis but in which the disease is detected may not be declared free from tetrahedral baculovirosis again until the following conditions have been met:

a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and

b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see Aquatic Manual) have been completed; and

c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the past 2 years without detection of BPV.

Article 4.1.4.6.

Maintenance of free status

A country, zone or compartment that is declared free from tetrahedral baculovirosis following the provisions of points 1) or 2) of Articles 4.1.4.4. or 4.1.4.5., as relevant, may maintain its status as tetrahedral baculovirosis free provided that basic biosecurity conditions are continuously maintained.

A country, zone or compartment that is declared free from tetrahedral baculovirosis following the provisions of point 3) of Articles 4.1.4.4. or 4.1.4.5., as relevant, may discontinue targeted surveillance and maintain its status as tetrahedral baculovirosis free provided that conditions that are conducive to clinical expression of tetrahedral baculovirosis, as described in Chapter X.X.X. 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 tetrahedral baculovirosis, targeted surveillance needs to be continued at a level determined by the Competent Authority on the basis of the likelihood of infection.
Appendix XXV (contd)

Article 4.1.4.7.

Importation of live animals from a country, zone or compartment declared free from tetraheiral baculovirosis

When importing live aquatic animals of the species referred to in Article 4.1.4.2. from a country, zone or compartment declared free from tetraheiral baculovirosis, the Competent Authority of the importing country should require 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 4.1.4.4. or 4.1.4.5. (as applicable), the place of production of the consignment is a country, zone or compartment declared free from tetraheiral baculovirosis.

The certificate should be in accordance with the Model Certificate in Appendix 6.4.1.

This Article does not apply to commodities listed in point 1) of Article 4.1.4.3.

Article 4.1.4.8.

Importation of live animals for aquaculture from a country, zone or compartment not declared free from tetraheiral baculovirosis

1. When importing, for aquaculture, aquatic animals of the species referred to in Article 4.1.4.2. from a country, zone or compartment not declared free from tetraheiral baculovirosis, the Competent Authority of the importing country should assess the risk and apply risk mitigation measures such as:
   a) the consignment is delivered directly into and held in quarantine facilities; and
   b) the imported aquatic animals and their first generation progeny are continuously isolated from the local environment; and
   c) all effluent and waste material from the processing are treated in a manner that ensures inactivation of BPV.

2. If the intention of the introduction is the establishment of new genetic lines, international standards, such as the Guidelines of the International Council for the Exploration of the Seas (ICES), should be followed.

3. For the purposes of the Aquatic Code, the ICES Guidelines may be summarised to the following main points:
   a) identify stock of interest (cultured or wild) in its current location;
   b) evaluate stock’s health/disease history;
   c) take and test samples for BPV, pests and general health/disease status;
   d) import and quarantine in a secure facility a founder (F-0) population;
   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 BPV and perform general examinations for pests and general health/disease status;
Appendix XXV (contd)

b) release SPF F-1 stock from quarantine for aquaculture or stocking purposes in the country, zone or compartment.

This Article does not apply to commodities listed in point 1) of Article 4.1.4.3.

Article 4.1.4.9.

Importation of live animals for human consumption from a country, zone or compartment not declared free from tetrahedral baculovirosis

When importing, for human consumption, aquatic animals of the species referred to in Article 4.1.4.2. from a country, zone or compartment not declared free from tetrahedral baculovirosis, the Competent Authority of the importing country should require:

1. the consignment is delivered directly to and held in isolation until consumption; and

2. all effluent, dead animals and waste material from the processing are treated in a manner that ensures inactivation of BPV.

Member Countries should consider introducing internal measures to prevent such commodities being used for any purpose other than for human consumption.

This Article does not apply to commodities listed in point 1) of Article 4.1.4.3.

Article 4.1.4.10.

Importation of products from a country, zone or compartment declared free from tetrahedral baculovirosis

When importing aquatic animal products of the species referred to in Article 4.1.4.2. from a country, zone or compartment free from tetrahedral baculovirosis, the Competent Authority of the importing country should require 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 4.1.4.4. or 4.1.4.5. (as applicable), the place of production of the consignment is a country, zone or compartment declared free from tetrahedral baculovirosis.

The certificate should be in accordance with the Model Certificate in Appendix 6.5.1.

This Article does not apply to commodities listed in point 1) of Article 4.1.4.3.

Article 4.1.4.11.

Importation of products from a country, zone or compartment not declared free from tetrahedral baculovirosis

When importing aquatic animal products of the species referred to in Article 4.1.4.2. from a country, zone or compartment not declared free from tetrahedral baculovirosis, the Competent Authority of the importing country should assess the risk and apply appropriate risk mitigation measures.
This Article does not apply to commodities listed in point 1) of Article 4.1.4.3.
CHAPTER 4.1.5.

SPHERICAL BACULOVIROSIS

Article 4.1.5.1.

For the purposes of the Aquatic Code, spherical baculovirosis means infection with *Penaeus monodon* baculovirus (MBV). *Penaeus monodon baculovirus* is classified as a tentative species in the genus *Nucleopolyhedrovirus*. Common synonyms are listed in Chapter 4.1.5. of the Aquatic Manual.

Methods for surveillance and diagnosis are provided in the Aquatic Manual.

Article 4.1.5.2.

Scope

The recommendations in this Chapter apply to the following genera: *Penaeus*, *Metapenaeus*, *Funnepenaeus* and *Melicertus*. These recommendations also apply to any other susceptible species referred to in the Aquatic Manual when traded internationally.

Article 4.1.5.3.

Commodities

1. When authorising importation or transit of the following commodities, Competent Authorities of the importing country should not require any spherical baculovirosis related conditions, regardless of the spherical baculovirosis status of the exporting country, zone or compartment.

   a) For the species in Article 4.1.5.2, for any purpose:
      i) commercially-sterile canned products;
      ii) boiled products (e.g. boiled whole shrimp or tails, lobsters, crabs);
      iii) chemically extracted chitin;
      iv) crustacean meals or by-products made non-infectious by heating or drying (e.g. flame dried or sun dried);
      v) crustacean products made non-infectious through processing as dry feeds (e.g. pelleted or extruded feeds);
      vi) biological samples preserved for diagnostic applications in such a manner as to inactivate MBV (e.g. formalin or alcohol preserved samples).

   b) The following products destined for human consumption from species in Article 4.1.5.2 which have been prepared in such a way as to minimise the risk of diversion for alternative uses:
Appendix XXVI (contd)

i) chemically preserved products (e.g. salted, pickled, marinated, pastes, etc.);
ii) products that have been heat treated or dried (e.g. ready prepared meals) in a manner to ensure the inactivation of the pathogen;
iii) headed and de-veined shrimp tails.

For the commodities listed in point 1)b), Member Countries should consider introducing internal measures to prevent the commodity being used for any purpose other than for human consumption.

2. When authorising importation or transit of the commodities of a species referred to in Article 4.1.5.2, other than those listed in point 1 of Article 4.1.5.3., Competent Authorities of the importing country should require the conditions prescribed in Articles 4.1.5.7. to 4.1.5.11., relevant to the spherical baculovirosis status of the exporting country, zone or compartment.

3. When considering the importation or transit of any other commodity of a species not referred to in Article 4.1.5.2. but which could be reasonably expected to be a potential MBV carrier from an exporting country, zone or compartment not declared free of spherical baculovirosis, Competent Authorities of the importing country should conduct an analysis of the risk of introduction, establishment and spread of MBV and the potential consequences associated with importation of the commodity, prior to a decision. The exporting country should be informed of the outcome of this assessment.

Article 4.1.5.4.

Spherical baculovirosis free country

A country may make a self-declaration of freedom from spherical baculovirosis if it meets the conditions in points 1), 2), 3) or 4) below.

If a country shares a zone with one or more other countries, it can only make a self-declaration of freedom from spherical baculovirosis if all the areas covered by the shared water are declared spherical baculovirosis free countries or zones (see Article 4.1.5.5.).

1. A country where none of the susceptible species is present may make a self-declaration of freedom from spherical baculovirosis when basic biosecurity conditions have been met continuously in the country for at least the past 2 years.

OR

2. A country where the species referred to in Article 4.1.5.2. are present but there has never been any observed occurrence of the disease for at least the past 10 years despite conditions that are conducive to its clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may make a self-declaration of freedom from spherical baculovirosis when basic biosecurity conditions have been met continuously in the country for at least the past 2 years.

OR

3. A country where the last observed occurrence of the disease was within the past 10 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may make a self-declaration of freedom from spherical baculovirosis when:

   a) basic biosecurity conditions have been met continuously for at least the past 2 years; and

   b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place for at least the last 2 years without detection of MBV.
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OR

4. A country that has previously made a self-declaration of freedom from spherical baculovirosis but in which the disease is subsequently detected may not make a self-declaration of freedom from spherical baculovirosis again until the following conditions have been met:

   a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and
   
   b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see Aquatic Manual) have been completed; and
   
   c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the past 2 years without detection of MBV.

   In the meantime, part of the non-affected area may be declared a free zone provided that they meet the conditions in point 3) of Article 4.1.5.5.

   Article 4.1.5.5.

Spherical baculovirosis free zone or free compartment

A zone or compartment within the territory of one or more countries not declared free from spherical baculovirosis may be declared free by the Competent Authority(ies) of the country(ies) concerned, if the zone or compartment meets the conditions referred to in points 1), 2), 3) or 4) below.

If a zone or compartment extends over more than one country, it can only be declared a spherical baculovirosis free zone or compartment if all the relevant Competent Authorities confirm that the conditions have been met.

1. A zone or compartment where none of the susceptible species is present may be declared free from spherical baculovirosis when basic biosecurity conditions have been met continuously in the zone or compartment for at least the past 2 years.

OR

2. A zone or compartment where the species referred to in Article 4.1.5.2. are present but in which there has not been any observed occurrence of the disease for at least the past 10 years despite conditions that are conducive to its clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may be declared free from spherical baculovirosis when basic biosecurity conditions have been met continuously in the zone or compartment for at least the past 2 years.

OR

3. A zone or compartment where the last observed occurrence of the disease was within the past 10 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may be declared free from spherical baculovirosis when:

   a) basic biosecurity conditions have been met continuously for at least the past 2 years; and
   
   b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place, through the zone or compartment, for at least the past 2 years without detection of MBV.
Appendix XXVI (contd)

OR

4. A zone previously declared free from spherical baculovirosis but in which the disease is detected may not be declared free from spherical baculovirosis again until the following conditions have been met:
   a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and
   b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see Aquatic Manual) have been completed; and
   c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the past 2 years without detection of MBV.

Article 4.1.5.6.

Maintenance of free status

A country, zone or compartment that is declared free from spherical baculovirosis following the provisions of points 1) or 2) of Articles 4.1.5.4. or 4.1.5.5., as relevant, may maintain its status as spherical baculovirosis free provided that basic biosecurity conditions are continuously maintained.

A country, zone or compartment that is declared free from spherical baculovirosis following the provisions of point 3) of Articles 4.1.5.4. or 4.1.5.5., as relevant, may discontinue targeted surveillance and maintain its status as spherical baculovirosis free provided that conditions that are conducive to clinical expression of spherical baculovirosis, as described in Chapter X.X.X. 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 spherical baculovirosis, targeted surveillance needs to be continued at a level determined by the Competent Authority on the basis of the likelihood of infection.

Article 4.1.5.7.

Importation of live animals from a country, zone or compartment declared free from spherical baculovirosis

When importing live aquatic animals of the species referred to in Article 4.1.5.2. from a country, zone or compartment declared free from spherical baculovirosis, the Competent Authority of the importing country should require 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 4.1.5.4. or 4.1.5.5. (as applicable), the place of production of the consignment is a country, zone or compartment declared free from spherical baculovirosis.

The certificate should be in accordance with the Model Certificate in Appendix 6.4.1.

This Article does not apply to commodities listed in point 1) of Article 4.1.5.3.
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Article 4.1.5.8.

Importation of live animals for aquaculture from a country, zone or compartment not declared free from spherical baculovirois

1. When importing, for aquaculture, aquatic animals of the species referred to in Article 4.1.5.2. from a country, zone or compartment not declared free from spherical baculovirois, the Competent Authority of the importing country should assess the risk and apply risk mitigation measures such as:

   a) the consignment is delivered directly into and held in quarantine facilities; and
   b) the imported aquatic animals and their first generation progeny are continuously isolated from the local environment; and
   c) all effluent and waste material from the processing are treated in a manner that ensures inactivation of MBV.

2. If the intention of the introduction is the establishment of new genetic lines, international standards, such as the Guidelines of the International Council for the Exploration of the Seas (ICES), should be followed.

3. For the purposes of the Aquatic Code, the ICES Guidelines may be summarised to the following main points:
   a) identify stock of interest (cultured or wild) in its current location;
   b) evaluate stock’s health/disease history;
   c) take and test samples for MBV, pests and general health/disease status;
   d) import and quarantine in a secure facility a founder (F-0) population;
   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 MBV and perform general examinations for pests and general health/disease status;
   g) if MBV is not detected, pests are not present, and the general health/disease status of the stock is considered to meet basic biosecurity conditions of the importing country, zone or compartment, the F-1 stock may be defined as spherical baculoviroisis free or specific pathogen free (SPF) for MBV;
   h) release SPF F-1 stock from quarantine for aquaculture or stocking purposes in the country, zone or compartment.

This Article does not apply to commodities listed in point 1) of Article 4.1.5.3.

Article 4.1.5.9.

Importation of live animals for human consumption from a country, zone or compartment not declared free from spherical baculovirois

When importing, for human consumption, aquatic animals of the species referred to in Article 4.1.5.2. from a country, zone or compartment not declared free from spherical baculovirois, the Competent Authority of the importing country should require:
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1. the consignment is delivered directly to and held in isolation until consumption; and
2. all effluent, dead animals and waste material from the processing are treated in a manner that ensures inactivation of MBV.

Member Countries should consider introducing internal measures to prevent such commodities being used for any purpose other than for human consumption.

This Article does not apply to commodities listed in point 1) of Article 4.1.5.3.

Article 4.1.5.10.

Importation of products from a country, zone or compartment declared free from spherical baculoviriosis

When importing aquatic animal products of the species referred to in Article 4.1.5.2. from a country, zone or compartment free from spherical baculoviriosis, the Competent Authority of the importing country should require 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 4.1.5.4. or 4.1.5.5. (as applicable), the place of production of the consignment is a country, zone or compartment declared free from spherical baculoviriosis.

The certificate should be in accordance with the Model Certificate in Appendix 6.5.1.

This Article does not apply to commodities listed in point 1) of Article 4.1.5.3.

Article 4.1.5.11.

Importation of products from a country, zone or compartment not declared free from spherical baculoviriosis

When importing aquatic animal products of the species referred to in Article 4.1.5.2. from a country, zone or compartment not declared free from spherical baculoviriosis, the Competent Authority of the importing country should assess the risk and apply appropriate risk mitigation measures.

This Article does not apply to commodities listed in point 1) of Article 4.1.5.3.
CHAPTER 4.1.6.

INFECTIOUS HYPODERMAL AND HAEMATOPOIETIC NECROSIS

Article 4.1.6.1.

For the purposes of the Aquatic Code, infectious hypodermal and haematopoietic necrosis (IHHN) means infection with infectious hypodermal and haematopoietic necrosis virus (IHHNV). IHHNV is classified as the species Penaeus stylirostris densovirus in the genus Brividensovirus in the family Paroviridae.

Methods for surveillance and diagnosis are provided in the Aquatic Manual.

Article 4.1.6.2.

Scope

The recommendations in this Chapter apply to: Penaeus monodon, Litopenaeus vannamei and L. stylirostris. These recommendations also apply to any other susceptible species referred to in the Aquatic Manual when traded internationally.

Article 4.1.6.3.

Commodities

1. When authorising importation or transit of the following commodities, Competent Authorities of the importing country should not require any IHHN related conditions, regardless of the IHHN status of the exporting country, zone or compartment.

   a) For the species in Article 4.1.6.2, for any purpose:

      i) commercially-sterile canned products;

      ii) boiled products (e.g. boiled whole shrimp or tails, lobsters, crabs);

      iii) chemically extracted chitin;

      iv) crustacean meals or by-products made non-infectious by heating or drying (e.g. flame dried or sun dried);

      v) crustacean products made non-infectious through processing as dry feeds (e.g. pelleted or extruded feeds);

      vi) biological samples preserved for diagnostic applications in such a manner as to inactivate IHHNV (e.g. formalin or alcohol preserved samples).

   b) The following products destined for human consumption from species in Article 4.1.6.2 which have been prepared in such a way as to minimise the risk of diversion for alternative uses:
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i) chemically preserved products (e.g. salted, pickled, marinated, pastes, etc.);

ii) products that have been heat treated or dried (e.g. ready prepared meals) in a manner to ensure the inactivation of the pathogen.

For the commodities listed in point 1)b), Member Countries should consider introducing internal measures to prevent the commodity being used for any purpose other than for human consumption.

2. When authorising importation or transit of the commodities of a species referred to in Article 4.1.6.2, other than those listed in point 1 of Article 4.1.6.3., Competent Authorities of the importing country should require the conditions prescribed in Articles 4.1.6.7. to 4.1.6.11., relevant to the IHHN status of the exporting country, zone or compartment.

3. When considering the importation or transit of any other commodity of a species not referred to in Article 4.1.6.2. but which could be reasonably expected to be a potential IHHNV carrier from an exporting country, zone or compartment not declared free of IHHN, Competent Authorities of the importing country should conduct an analysis of the risk of introduction, establishment and spread of IHHNV and the potential consequences associated with importation of the commodity, prior to a decision. The exporting country should be informed of the outcome of this assessment.

Article 4.1.6.4.

Infectious hypodermal and haematopoietic necrosis free country

A country may make a self-declaration of freedom from IHHN if it meets the conditions in points 1), 2), 3) or 4) below.

If a country shares a zone with one or more other countries, it can only make a self-declaration of freedom from IHHN if all the areas covered by the shared water are declared IHHN free countries or zones (see Article 4.1.6.5.),

1. A country where none of the susceptible species is present may make a self-declaration of freedom from IHHN when basic biosecurity conditions have been met continuously in the country for at least the past 2 years.

OR

2. A country where the species referred to in Article 4.1.6.2. are present but there has never been any observed occurrence of the disease for at least the past 10 years despite conditions that are conducive to its clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may make a self-declaration of freedom from IHHN when basic biosecurity conditions have been met continuously in the country for at least the past 2 years.

OR

3. A country where the last observed occurrence of the disease was within the past 10 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may make a self-declaration of freedom from IHHN when:

a) basic biosecurity conditions have been met continuously for at least the past 2 years; and

b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place for at least the last 2 years without detection of IHHNV.
OR

4. A country that had previously made a self-declaration of freedom from IHHN but in which the disease is subsequently detected may not make a self-declaration of freedom from IHHN again until the following conditions have been met:
   a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and
   b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see Aquatic Manual) have been completed; and
   c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the past 2 years without detection of IHHNV.

In the meantime, part of the non-affected area may be declared a free zone provided that they meet the conditions in point 3) of Article 4.1.6.5.

Article 4.1.6.5.

Infectious hypodermal and haematopoietic necrosis free zone or free compartment

A zone or compartment within the territory of one or more countries not declared free from IHHN may be declared free by the Competent Authority(ies) of the country(ies) concerned, if the zone or compartment meets the conditions referred to in points 1), 2), 3) or 4) below.

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

1. A zone or compartment where none of the susceptible species is present may be declared free from IHHN when basic biosecurity conditions have been met continuously in the zone or compartment for at least the past 2 years.

OR

2. A zone or compartment where the species referred to in Article 4.1.6.2. are present but in which there has not been any observed occurrence of the disease for at least the past 10 years despite conditions that are conducive to its clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may be declared free from IHHN when basic biosecurity conditions have been met continuously in the zone or compartment for at least the past 2 years.

OR

3. A zone or compartment where the last observed occurrence of the disease was within the past 10 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may be declared free from IHHN when:
   a) basic biosecurity conditions have been met continuously for at least the past 2 years; and
   b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place, through the zone or compartment, for at least the past 2 years without detection of IHHNV.
Appendix XXVII (contd)

OR

4. A zone previously declared free from IHNN but in which the disease is detected may not be declared free from IHNN again until the following conditions have been met:

   a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and

   b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see Aquatic Manual) have been completed; and

   c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the past 2 years without detection of IHNNV.

Article 4.1.6.6.

Maintenance of free status

A country, zone or compartment that is declared free from IHNN following the provisions of points 1) or 2) of Articles 4.1.6.4. or 4.1.6.5., as relevant, may maintain its status as IHNN free provided that basic biosecurity conditions are continuously maintained.

A country, zone or compartment that is declared free from IHNN following the provisions of point 3) of Articles 4.1.6.4. or 4.1.6.5., as relevant, may discontinue targeted surveillance and maintain its status as IHNN free provided that conditions that are conducive to clinical expression of IHNN, as described in Chapter X.X.X. 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 IHNN, targeted surveillance needs to be continued at a level determined by the Competent Authority on the basis of the likelihood of infection.

Article 4.1.6.7.

Importation of live animals from a country, zone or compartment declared free from infectious hypodermal and haematopoietic necrosis

When importing live aquatic animals of the species referred to in Article 4.1.6.2. from a country, zone or compartment declared free from IHNN, the Competent Authority of the importing country should require 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 4.1.6.4. or 4.1.6.5. (as applicable), the place of production of the consignment is a country, zone or compartment declared free from IHNN.

The certificate should be in accordance with the Model Certificate in Appendix 6.4.1.

This Article does not apply to commodities listed in point 1) of Article 4.1.6.3.
Appendix XXVII (contd)

Article 4.1.6.8.

Importation of live animals for aquaculture from a country, zone or compartment not declared free from infectious hypodermal and haematopoietic necrosis

1. When importing, for *aquaculture, aquatic animals* of the species listed in Article 4.1.6.2. from a country, zone or compartment not declared free from IHHN, the Competent Authority of the importing country should assess the risk and apply risk mitigation measures such as:

   a) the consignment is delivered directly into and held in *quarantine* facilities; and

   b) the imported *aquatic animals* and their first generation progeny are continuously isolated from the local environment; and

   c) all effluent and waste material from the processing are treated in a manner that ensures inactivation of IHHNV.

2. If the intention of the introduction is the establishment of new genetic lines, international standards, such as the Guidelines of the International Council for the Exploration of the Seas (ICES), should be followed.

3. For the purposes of the *Aquatic Code*, the ICES Guidelines may be summarised to the following main points:

   a) identify stock of interest (cultured or wild) in its current location;

   b) evaluate stock’s health/disease history;

   c) take and test samples for IHHNV, pests and general health/disease status;

   d) import and quarantine in a secure facility a founder (F-0) population;

   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 IHHNV and perform general examinations for pests and general health/disease status;

   g) if IHHNV is not detected, pests are not present, and the general health/disease status of the stock is considered to meet *basic biosecurity conditions* of the importing country, zone or compartment, the F-1 stock may be defined as IHHN free or specific pathogen free (SPF) for IHHNV;

   h) release SPF F-1 stock from *quarantine* for aquaculture or stocking purposes in the country, zone or compartment.

This Article does not apply to *commodities* listed in point 1) of Article 4.1.6.3.

Article 4.1.6.9.

Importation of live animals for human consumption from a country, zone or compartment not declared free from infectious hypodermal and haematopoietic necrosis

When importing, for human consumption, *aquatic animals* of the species referred to in Article 4.1.6.2. from a country, zone or compartment not declared free from IHHN, the Competent Authority of the importing country should require:
Appendix XXVII (contd)

1. the consignment is delivered directly to and held in isolation until consumption; and

2. all effluent, dead animals and waste material from the processing are treated in a manner that ensures inactivation of IHHNV.

Member Countries should consider introducing internal measures to prevent such commodities being used for any purpose other than for human consumption.

This Article does not apply to commodities listed in point 1) of Article 4.1.6.3.

Article 4.1.6.10.

Importation of products from a country, zone or compartment declared free from IHHN

When importing aquatic animal products of the species referred to in Article 4.1.6.2. from a country, zone or compartment free from IHHN, the Competent Authority of the importing country should require 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 4.1.6.4. or 4.1.6.5. (as applicable), the place of production of the consignment is a country, zone or compartment declared free from IHHN.

The certificate should be in accordance with the Model Certificate in Appendix 6.5.1.

This Article does not apply to commodities listed in point 1) of Article 4.1.6.3.

Article 4.1.6.11.

Importation of products from a country, zone or compartment not declared free from IHHN

When importing aquatic animal products of the species referred to in Article 4.1.6.2. from a country, zone or compartment not declared free from IHHN, the Competent Authority of the importing country should assess the risk and apply appropriate risk mitigation measures.

This Article does not apply to commodities listed in point 1) of Article 4.1.6.3.
CHAPTER 4.1.7.

CRAYFISH PLAGUE

Article 4.1.7.1.

For the purposes of the Aquatic Code, crayfish plague means infection with Aphanomyces astaci Schikora. This organism is a member of a group commonly known as the water moulds (the Oomycetida). Common synonyms are listed in Chapter 4.1.7. of the Aquatic Manual.

Methods for surveillance and diagnosis are provided in the Aquatic Manual.

Article 4.1.7.2.

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.

Crayfish plague is most severe in European crayfish species including the noble crayfish (Astacus astacus), the white claw crayfish (Astropotamobius pallipes), stone crayfish (Astropotamobius torrentium), and the Turkish crayfish (Astacus leptodactylus). In general the Astacidae (except Pacifastacus) are highly susceptible, while the Cambaridae are resistant to disease, but are potential carriers.

Article 4.1.7.3.

Commodities

1. When authorising importation or transit of the following commodities, Competent Authorities of the importing country should not require any crayfish plague related conditions, regardless of the crayfish plague status of the exporting country, zone or compartment.

a) For the species in Article 4.1.7.2. for any purpose:

i) commercially-sterile canned products;

ii) boiled products (e.g. cooked whole shrimp or tails, lobsters, crabs);

iii) chemically extracted chitin;

iv) crustacean meals or by-products made non-infectious by heating ( >60°C for >5 minutes) or drying by-product (e.g. flame dried or sun dried);

v) crustacean products made non-infectious during processing as dry feeds (e.g. pelleted or extruded feeds);

vi) biological samples preserved for diagnostic applications in such a manner as to inactivate A. astaci (e.g. formalin or alcohol preserved samples);

vii) frozen products that have been subjected to -10°C or lower temperatures for at least 24 hours.
Appendix XXVIII (contd)

b) The following products destined for human consumption from species in Article 4.1.7.2 which have been prepared in such a way as to minimise the risk of diversion for alternative uses:

i) chemically preserved products (e.g. salted, pickled, marinated, pastes, etc.);

ii) products that have been heat treated or dried (e.g. ready prepared meals) in a manner to ensure the inactivation of the pathogen.

For the commodities listed in point 1)b), Member Countries should consider introducing internal measures to prevent the commodity being used for any purpose other than for human consumption.

2. When authorising importation or transit of the commodities of a species referred to in Article 4.1.7.2., other than those listed in point 1 of Article 4.1.7.3., Competent Authorities of the importing country should require the conditions prescribed in Articles 4.1.7.7. to 4.1.7.11., relevant to the crayfish plague status of the exporting country, zone or compartment.

3. When considering the importation or transit of any other commodity of a species not referred to in Article 4.1.7.2. but which could be reasonably expected to be a potential *A. astaci* carrier from an exporting country, zone or compartment not declared free of crayfish plague, Competent Authorities of the importing country should conduct an analysis of the risk of introduction, establishment and spread of *A. astaci* and the potential consequences associated with importation of the commodity, prior to a decision. The exporting country should be informed of the outcome of this assessment.

Article 4.1.7.4.

Crayfish plague free country

A country may make a self-declaration of freedom from crayfish plague if it meets the conditions in points 1), 2), 3) or 4) below.

If a country shares a water catchment or with one or more other countries, it can only make a self-declaration of freedom from crayfish plague if all the areas covered by the shared water are declared crayfish plague free countries or zones (see Article 4.1.7.5.).

1. A country where none of the susceptible species is present may make a self-declaration of freedom from crayfish plague when basic biosecurity conditions have been met continuously in the country for at least the past 2 years.

OR

2. A country where the species referred to in Article 4.1.7.2. are present but there has never been any observed occurrence of the disease for at least the past 25 years despite conditions that are conducive to its clinical expression, as described in Chapter X.X.X. of the *Aquatic Manual*, may make a self-declaration of freedom from crayfish plague when basic biosecurity conditions have been met continuously in the country for at least the past 2 years.

OR

3. A country where the last observed occurrence of the disease was within the past 25 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the *Aquatic Manual*, may make a self-declaration of freedom from crayfish plague when:
Appendix XXVIII (contd)

a) **basic biosecurity conditions** have been met continuously for at least the past 2 years; and

b) **targeted surveillance** as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place for at least the last 5 years without detection of *A. astaci*.

OR

4. A country that has previously made a **self-declaration of freedom** from crayfish plague but in which the disease is subsequently detected may not make a **self-declaration of freedom** from crayfish plague again until the following conditions have been met:

a) on detection of the disease, the affected area was declared an **infected zone** and a **buffer zone** was established; and

b) infected populations have been safely destroyed or removed from the **infected zone** by means that minimise the risk of further spread of the disease, and the appropriate **disinfection** procedures (see Aquatic Manual) have been completed; and

c) **targeted surveillance**, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the past 5 years without detection of *A. astaci*.

In the meantime, part of the non-affected area may be declared a free **zone** provided that they meet the conditions in point 3) of Article 4.1.7.5.

**Article 4.1.7.5.**

**Crayfish plague free zone or free compartment**

A **zone** or **compartment** within the **territory** of one or more countries not declared free from crayfish plague may be declared free by the **Competent Authority(ies)** of the country(ies) concerned, if the **zone** or **compartment** meets the conditions referred to in points 1), 2), 3) or 4) below.

If a **zone** or **compartment** extends over more than one country, it can only be declared a crayfish plague free **zone** or **compartment** if all the relevant **Competent Authorities** confirm that the conditions have been met.

1. A **zone** or **compartment** where none of the **susceptible species** is present may be declared free from crayfish plague when **basic biosecurity conditions** have been met continuously in the **zone** or **compartment** for at least the past 2 years.

OR

2. A **zone** or **compartment** where the species referred to in Article 4.1.7.2. are present but in which there has not been any observed occurrence of the disease for at least the past 10 years despite conditions that are conducive to its clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may be declared free from crayfish plague when **basic biosecurity conditions** have been met continuously in the **zone** or **compartment** for at least the past 2 years.

OR

3. A **zone** or **compartment** where the last observed occurrence of the disease was within the past 10 years or where the infection status prior to **targeted surveillance** was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may be declared free from crayfish plague when:
Appendix XXVIII (contd)

a) basic biosecurity conditions have been met continuously for at least the past 2 years; and

b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place, through the zone or compartment, for at least the past 2 years without detection of A. astaci.

OR

4. A zone previously declared free from crayfish plague but in which the disease is detected may not be declared free from crayfish plague again until the following conditions have been met:

a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and

b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see Aquatic Manual) have been completed; and

c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the past 2 years without detection of A. astaci.

Article 4.1.7.6.

Maintenance of free status

A country, zone or compartment that is declared free from crayfish plague following the provisions of points 1) or 2) of Articles 4.1.7.4. or 4.1.7.5., as relevant, may maintain its status as crayfish plague free provided that basic biosecurity conditions are continuously maintained.

A country, zone or compartment that is declared free from crayfish plague following the provisions of point 3) of Articles 4.1.7.4. or 4.1.7.5., as relevant, may discontinue targeted surveillance and maintain its status as crayfish plague free provided that conditions that are conducive to clinical expression of crayfish plague, as described in Chapter X.X.X. 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 crayfish plague, targeted surveillance needs to be continued at a level determined by the Competent Authority on the basis of the likelihood of infection.

Article 4.1.7.7.

Importation of live animals from a country, zone or compartment declared free from crayfish plague

When importing live aquatic animals of the species referred to in Article 4.1.7.2. from a country, zone or compartment declared free from crayfish plague, the Competent Authority of the importing country should require 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 4.1.7.4. or 4.1.7.5. (as applicable), the place of production of the consignment is a country, zone or compartment declared free from crayfish plague.

The certificate should be in accordance with the Model Certificate in Appendix 6.4.1.

This Article does not apply to commodities listed in point 1) of Article 4.1.7.3.
Article 4.1.7.8.

Importation of live animals for aquaculture from a country, zone or compartment not declared free from crayfish plague

1. When importing, for aquaculture, aquatic animals of the species referred to in Article 4.1.7.2. from a country, zone or compartment not declared free from crayfish plague, the Competent Authority of the importing country should assess the risk and apply risk mitigation measures such as:
   a) the consignment is delivered directly into and held in quarantine facilities; and
   b) the imported aquatic animals and their first generation progeny are continuously isolated from the local environment; and
   c) all effluent and waste material from the processing are treated in a manner that ensures inactivation of A. astaci.

2. If the intention of the introduction is the establishment of new genetic lines, international standards, such as the Guidelines of the International Council for the Exploration of the Seas (ICES), should be followed.

3. For the purposes of the Aquatic Code, the ICES Guidelines may be summarised to the following main points:
   a) identify stock of interest (cultured or wild) in its current location;
   b) evaluate stock’s health/disease history;
   c) take and test samples for A. astaci, pests and general health/disease status;
   d) import and quarantine in a secure facility a founder (F-0) population;
   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 A. astaci and perform general examinations for pests and general health/disease status;
   g) if A. astaci is not detected, pests are not present, and the general health/disease status of the stock is considered to meet basic biosecurity conditions of the importing country, zone, or compartment, the F-1 stock may be defined as crayfish plague free or specific pathogen free (SPF) for A. astaci;
   h) release SPF F-1 stock from quarantine for aquaculture or stocking purposes in the country, zone or compartment.

This Article does not apply to commodities listed in point 1) of Article 4.1.7.3.

Article 4.1.7.9.

Importation of live animals for human consumption from a country, zone or compartment not declared free from crayfish plague

When importing, for human consumption, aquatic animals of the species referred to in Article 4.1.7.2. from a country, zone or compartment not declared free from crayfish plague, the Competent Authority of the importing country should require:
Appendix XXVIII (contd)

1. the consignment is delivered directly to and held in isolation until consumption; and

2. all effluent, dead animals and waste material from the processing are treated in a manner that ensures inactivation of \textit{A. astaci}.

Member Countries should consider introducing internal measures to prevent such commodities being used for any purpose other than for human consumption.

This Article does not apply to commodities listed in point 1) of Article 4.1.7.3.

\textbf{Article 4.1.7.10.}

\textbf{Importation of products from a country, zone or compartment declared free from crayfish plague}

When importing \textit{aquatic animal products} of the species referred to in Article 4.1.7.2. from a country, \textit{zone or compartment} free from crayfish plague, the \textit{Competent Authority} of the \textit{importing country} should require an \textit{international aquatic animal health certificate} issued by the \textit{Competent Authority} of the \textit{exporting country} or a \textit{certifying official} approved by the \textit{importing country}, certifying that, on the basis of the procedures described in Articles 4.1.7.4. or 4.1.7.5. (as applicable), the place of production of the consignment is a country, \textit{zone or compartment} declared free from crayfish plague.

The certificate should be in accordance with the Model Certificate in Appendix 6.5.1.

This Article does not apply to commodities listed in point 1) of Article 4.1.7.3.

\textbf{Article 4.1.7.11.}

\textbf{Importation of products from a country, zone or compartment not declared free from crayfish plague}

When importing \textit{aquatic animal products} of the species referred to in Article 4.1.7.2. from a country, \textit{zone or compartment} not declared free from crayfish plague, the \textit{Competent Authority} of the \textit{importing country} should assess the risk and apply appropriate risk mitigation measures.

This Article does not apply to commodities listed in point 1) of Article 4.1.7.3.
CHAPTER 4.1.9.

INFECTIOUS MYONECROSIS

Article 4.1.9.1.

For the purposes of the Aquatic Code, infectious myonecrosis (IMN) means infection with infectious myonecrosis virus (IMNV). This virus is similar to members of the family Togaviridae.

Methods for surveillance and diagnosis are provided in the Aquatic Manual.

Article 4.1.9.2.

Scope

The recommendations in this Chapter apply to: Pacific white shrimp (Litopenaeus vannamei). These recommendations also apply to any other susceptible species referred to in the Aquatic Manual when traded internationally.

Article 4.1.9.3.

Commodities

1. When authorising importation or transit of the following commodities, Competent Authorities of the importing country should not require any IMN related conditions, regardless of the IMN status of the exporting country, zone or compartment.

a) For the species in Article 4.1.9.2, for any purpose:

i) commercially-sterile canned products;

ii) boiled products (e.g. boiled whole shrimp or tails, lobsters, crabs);

iii) chemically extracted chitin;

iv) crustacean meals or by-products made non-infectious by heating or drying (e.g. flame dried or sun dried);

v) crustacean products made non-infectious through processing as dry feeds (e.g. pelleted or extruded feeds);

vi) biological samples preserved for diagnostic applications in such a manner as to inactivate IMNV (e.g. formalin or alcohol preserved samples).

b) The following products destined for human consumption from species in Article 4.1.9.2 which have been prepared in such a way as to minimise the risk of diversion for alternative uses:

i) chemically preserved products (e.g. salted, pickled, marinated, pastes, etc.);
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ii) products that have been heat treated or dried (e.g. ready prepared meals) in a manner to ensure the inactivation of the pathogen.

For the commodities listed in point 1) b), Member Countries should consider introducing internal measures to prevent the commodity being used for any purpose other than for human consumption.

2. When authorising importation or transit of the commodities of a species referred to in Article 4.1.9.2., other than those listed in point 1 of Article 4.1.9.3., Competent Authorities of the importing country should require the conditions prescribed in Articles 4.1.9.7. to 4.1.9.11., relevant to the IMN status of the exporting country, zone or compartment.

3. When considering the importation or transit of any other commodity of a species not referred to in Article 4.1.9.2. but which could be reasonably expected to be a potential IMNV carrier from an exporting country, zone or compartment not declared free of IMN, Competent Authorities of the importing country should conduct an analysis of the risk of introduction, establishment and spread of IMNV and the potential consequences associated with importation of the commodity, prior to a decision. The exporting country should be informed of the outcome of this assessment.

Article 4.1.9.4.

Infectious myonecrosis free country

A country may make a self-declaration of freedom from IMN if it meets the conditions in points 1), 2), 3) or 4) below.

If a country shares a zone with one or more other countries, it can only make a self-declaration of freedom from IMN if all the areas covered by the shared water are declared IMN free countries or zones (see Article 4.1.9.5).

1. A country where none of the susceptible species is present may make a self-declaration of freedom from IMN when basic biosecurity conditions have been met continuously in the country for at least the past 2 years.

OR

2. A country where the species referred to in Article 4.1.9.2. are present but there has never been any observed occurrence of the disease for at least the past 10 years despite conditions that are conducive to its clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may make a self-declaration of freedom from IMN when basic biosecurity conditions have been met continuously in the country for at least the past 2 years.

OR

3. A country where the last observed occurrence of the disease was within the past 10 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may make a self-declaration of freedom from IMN when:

a) basic biosecurity conditions have been met continuously for at least the past 2 years; and

b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place for at least the last 2 years without detection of IMNV.
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OR

4. A country that has previously made a self-declaration of freedom from IMN but in which the disease is subsequently detected may not make a self-declaration of freedom from IMN again until the following conditions have been met:

a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and

b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see Aquatic Manual) have been completed; and

c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the past 2 years without detection of IMNV.

In the meantime, part of the non-affected area may be declared a free zone provided that they meet the conditions in point 3) of Article 4.1.9.5.

Article 4.1.9.5.

Infectious myonecrosis free zone or free compartment

A zone or compartment within the territory of one or more countries not declared free from IMN may be declared free by the Competent Authority(ies) of the country(ies) concerned, if the zone or compartment meets the conditions referred to in points 1), 2), 3) or 4) below.

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

1. A zone or compartment where none of the susceptible species is present may be declared free from IMN when basic biosecurity conditions have been met continuously in the zone or compartment for at least the past 2 years.

OR

2. A zone or compartment where the species referred to in Article 4.1.9.2. are present but in which there has not been any observed occurrence of the disease for at least the past 10 years despite conditions that are conducive to its clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may be declared free from IMN when basic biosecurity conditions have been met continuously in the zone or compartment for at least the past 2 years.

OR

3. A zone or compartment where the last observed occurrence of the disease was within the past 10 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may be declared free from IMN when:

a) basic biosecurity conditions have been met continuously for at least the past 2 years; and

b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place, through the zone or compartment, for at least the past 2 years without detection of IMNV.
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OR

4. A zone previously declared free from IMN but in which the disease is detected may not be declared free from IMN again until the following conditions have been met:
   a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and
   b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see Aquatic Manual) have been completed; and
   c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the past 2 years without detection of IMNV.

Article 4.1.9.6.

Maintenance of free status

A country, zone or compartment that is declared free from IMN following the provisions of points 1) or 2) of Articles 4.1.9.4. or 4.1.9.5., as relevant, may maintain its status as IMN free provided that basic biosecurity conditions are continuously maintained.

A country, zone or compartment that is declared free from IMN following the provisions of point 3) of Articles 4.1.9.4. or 4.1.9.5., as relevant, may discontinue targeted surveillance and maintain its status as IMN free provided that conditions that are conducive to clinical expression of IMN, as described in Chapter X.X.X. 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 IMN, targeted surveillance needs to be continued at a level determined by the Competent Authority on the basis of the likelihood of infection.

Article 4.1.9.7.

Importation of live animals from a country, zone or compartment declared free from infectious myonecrosis

When importing live aquatic animals of the species referred to in Article 4.1.9.2. from a country, zone or compartment declared free from IMN, the Competent Authority of the importing country should require 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 4.1.9.4. or 4.1.9.5. (as applicable), the place of production of the consignment is a country, zone or compartment declared free from IMN.

The certificate should be in accordance with the Model Certificate in Appendix 6.4.1.

This Article does not apply to commodities listed in point 1) of Article 4.1.9.3.

Article 4.1.9.8.

Importation of live animals for aquaculture from a country, zone or compartment not declared free from infectious myonecrosis

1. When importing, for aquaculture, aquatic animals of the species referred to in Article 4.1.9.2. from a country, zone or compartment not declared free from IMN, the Competent Authority of the importing country should assess the risk and apply risk mitigation measures such as:
a) the consignment is delivered directly into and held in quarantine facilities; and

b) the imported aquatic animals and their first generation progeny are continuously isolated from the local environment; and

c) all effluent and waste material from the processing are treated in a manner that ensures inactivation of IMNV.

2. If the intention of the introduction is the establishment of new genetic lines, international standards, such as the Guidelines of the International Council for the Exploration of the Seas (ICES), should be followed.

3. For the purposes of the Aquatic Code, the ICES Guidelines may be summarised to the following main points:

   a) identify stock of interest (cultured or wild) in its current location;

   b) evaluate stock’s health/disease history;

   c) take and test samples for IMNV, pests and general health/disease status;

   d) import and quarantine in a secure facility a founder (F-0) population;

   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 basic biosecurity conditions of the importing country, zone, or compartment, the F-1 stock may be defined as IMN 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.

This Article does not apply to commodities listed in point 1) of Article 4.1.9.3.

Article 4.1.9.9.

Importation of live animals for human consumption from a country, zone or compartment not declared free from infectious myonecrosis

When importing, for human consumption, aquatic animals of the species referred to in Article 4.1.9.2. from a country, zone or compartment not declared free from IMN, the Competent Authority of the importing country should require:

1. the consignment is delivered directly to and held in isolation until consumption; and

2. all effluent, dead animals and waste material from the processing are treated in a manner that ensures inactivation of IMNV.

Member Countries should consider introducing internal measures to prevent such commodities being used for any purpose other than for human consumption.
Appendix XXIX (contd)

This Article does not apply to commodities listed in point 1) of Article 4.1.9.3.

Article 4.1.9.10.

Importation of products from a country, zone or compartment declared free from infectious myonecrosis

When importing aquatic animal products of the species referred to in Article 4.1.9.2. from a country, zone or compartment free from IMN, the Competent Authority of the importing country should require 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 4.1.9.4. or 4.1.9.5. (as applicable), the place of production of the consignment is a country, zone or compartment declared free from IMN.

The certificate should be in accordance with the Model Certificate in Appendix 6.5.1.

This Article does not apply to commodities listed in point 1) of Article 4.1.9.3.

Article 4.1.9.11.

Importation of products from a country, zone or compartment not declared free from infectious myonecrosis

When importing aquatic animal products of the species referred to in Article 4.1.9.2. from a country, zone or compartment not declared free from IMN, the Competent Authority of the importing country should assess the risk and apply appropriate risk mitigation measures.

This Article does not apply to commodities listed in point 1) of Article 4.1.9.3.
CHAPTER 4.1.10.

NECROTISING HEPATOPANCREATITIS

Article 4.1.10.1.

For the purposes of the Aquatic Code, necrotising hepatopancreatitis (NHP) means infection with necrotising hepatopancreatitis bacteria (NHP-B). This bacterium is a member of the order α-Proteobacteria.

Methods for surveillance and diagnosis are provided in the Aquatic Manual.

Article 4.1.10.2.

Scope

The recommendations in this Chapter apply to: Pacific white shrimp (Litopenaeus vannamei), blue shrimp (L. stylirostris), northern white shrimp (L. setiferus) and northern brown shrimp (Farfantepenaeus). These recommendations also apply to any other susceptible species referred to in the Aquatic Manual when traded internationally.

Article 4.1.10.3.

Commodities

1. When authorising importation or transit of the following commodities, Competent Authorities of the importing country should not require any NHP related conditions, regardless of the NHP status of the exporting country, zone or compartment.

   a) For the species in Article 4.1.10.2. for any purpose:

      i) commercially-sterile canned products;

      ii) boiled products (e.g. boiled whole shrimp or tails, lobsters, crabs);

      iii) chemically extracted chitin;

      iv) crustacean meals or by-products made non-infectious by heating or drying (e.g. flame dried or sun dried);

      v) crustacean products made non-infectious through processing as dry feeds (e.g. pelleted or extruded feeds);

      vi) biological samples preserved for diagnostic applications in such a manner as to inactivate NHP-B (e.g. formalin or alcohol preserved samples);

      vii) frozen products.
Appendix XXX (contd)

b) The following products destined for human consumption from species in Article 4.1.10.2 which have been prepared in such a way as to minimise the risk of diversion for alternative uses:

i) chemically preserved products (e.g. salted, pickled, marinated, pastes, etc.);

ii) products that have been heat treated or dried (e.g. ready prepared meals) in a manner to ensure the inactivation of the pathogen.

iii) headed and de-veined shrimp tails.

For the commodities listed in point 1)b), Member Countries should consider introducing internal measures to prevent the commodity being used for any purpose other than for human consumption.

2. When authorising importation or transit of the commodities of a species referred to in Article 4.1.10.2., other than those listed in point 1 of Article 4.1.10.3., Competent Authorities of the importing country should require the conditions prescribed in Articles 4.1.10.7. to 4.1.10.11., relevant to the NHP status of the exporting country, zone or compartment.

3. When considering the importation or transit of any other commodity of a species not referred to in Article 4.1.10.2. but which could be reasonably expected to be a potential NHP-B carrier from an exporting country, zone or compartment not declared free of NHP, Competent Authorities of the importing country should conduct an analysis of the risk of introduction, establishment and spread of NHP-B and the potential consequences associated with importation of the commodity, prior to a decision. The exporting country should be informed of the outcome of this assessment.

Article 4.1.10.4.

Necrotising hepatopancreatitis free country

A country may make a self-declaration of freedom from NHP if it meets the conditions in points 1), 2), 3) or 4) below.

If a country shares a zone with one or more other countries, it can only make a self-declaration of freedom from NHP if all the areas covered by the shared water are declared NHP free countries or zones (see Article 4.1.10.5.).

1. A country where none of the susceptible species is present may make a self-declaration of freedom from NHP when basic biosecurity conditions have been met continuously in the country for at least the past 2 years.

OR

2. A country where the species referred to in Article 4.1.10.2. are present but there has never been any observed occurrence of the disease for at least the past 10 years despite conditions that are conducive to its clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may make a self-declaration of freedom from NHP when basic biosecurity conditions have been met continuously in the country for at least the past 2 years.

OR

3. A country where the last observed occurrence of the disease was within the past 10 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may make a self-declaration of freedom from NHP when:
Appendix XXX (contd)

a) basic biosecurity conditions have been met continuously for at least the past 2 years; and

b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place for at least the last 2 years without detection of NHP-B.

OR

4. A country that has previously made a self-declaration of freedom from NHP but in which the disease is subsequently detected may not make a self-declaration of freedom from NHP again until the following conditions have been met:

a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and

b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see Aquatic Manual) have been completed; and

c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the past 2 years without detection of NHP-B.

In the meantime, part of the non-affected area may be declared a free zone provided that they meet the conditions in point 3) of Article 4.1.10.5.

Article 4.1.10.5.

Necrotising hepatitis pancreatitis free zone or free compartment

A zone or compartment within the territory of one or more countries not declared free from NHP may be declared free by the Competent Authority(ies) of the country(ies) concerned, if the zone or compartment meets the conditions referred to in points 1), 2), 3) or 4) below.

If a zone or compartment extends over more than one country, it can only be declared a NHP free zone or compartment if all the relevant Competent Authorities confirm that the conditions have been met.

1. A zone or compartment where none of the susceptible species is present may be declared free from NHP when basic biosecurity conditions have been met continuously in the zone or compartment for at least the past 2 years.

OR

2. A zone or compartment where the species referred to in Article 4.1.10.2. are present but in which there has not been any observed occurrence of the disease for at least the past 10 years despite conditions that are conducive to its clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may be declared free from NHP when basic biosecurity conditions have been met continuously in the zone or compartment for at least the past 2 years.

OR

3. A zone or compartment where the last observed occurrence of the disease was within the past 10 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may be declared free from NHP when:
Appendix XXX (contd)

a) basic biosecurity conditions have been met continuously for at least the past 2 years; and

b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place, through the zone or compartment, for at least the past 2 years without detection of NHP-B.

OR

4. A zone previously declared free from NHP but in which the disease is detected may not be declared free from NHP again until the following conditions have been met:

a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and

b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see Aquatic Manual) have been completed; and

c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the past 2 years without detection of NHP-B.

Article 4.1.10.6.

Maintenance of free status

A country, zone or compartment that is declared free from NHP following the provisions of points 1) or 2) of Articles 4.1.10.4. or 4.1.10.5., as relevant, may maintain its status as NHP free provided that basic biosecurity conditions are continuously maintained.

A country, zone or compartment that is declared free from NHP following the provisions of point 3) of Articles 4.1.10.4. or 4.1.10.5., as relevant, may discontinue targeted surveillance and maintain its status as NHP free provided that conditions that are conducive to clinical expression of NHP, as described in Chapter X.X.X. 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 NHP, targeted surveillance needs to be continued at a level determined by the Competent Authority on the basis of the likelihood of infection.

Article 4.1.10.7.

Importation of live animals from a country, zone or compartment declared free from necrotising hepatopancreatitis

When importing live aquatic animals of the species referred to in Article 4.1.10.2. from a country, zone or compartment declared free from NHP, the Competent Authority of the importing country should require 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 4.1.10.4. or 4.1.10.5. (as applicable), the place of production of the consignment is a country, zone or compartment declared free from NHP.

The certificate should be in accordance with the Model Certificate in Appendix 6.4.1.

This Article does not apply to commodities listed in point 1) of Article 4.1.10.3.
Article 4.1.10.8.

Importation of live animals for aquaculture from a country, zone or compartment not declared free from necrotising hepatopancreatitis

1. When importing, for aquaculture, aquatic animals of the species referred to in Article 4.1.10.2. from a country, zone or compartment not declared free from NHP, the Competent Authority of the importing country should assess the risk and apply risk mitigation measures such as:
   a) the consignment is delivered directly into and held in quarantine facilities; and
   b) the imported aquatic animals and their first generation progeny are continuously isolated from the local environment; and
   c) all effluent and waste material from the processing are treated in a manner that ensures inactivation of NHP-B.

2. If the intention of the introduction is the establishment of new genetic lines, international standards, such as the Guidelines of the International Council for the Exploration of the Seas (ICES), should be followed.

3. For the purposes of the Aquatic Code, the ICES Guidelines may be summarised to the following main points:
   a) identify stock of interest (cultured or wild) in its current location;
   b) evaluate stock’s health/disease history;
   c) take and test samples for NHP-B, pests and general health/disease status;
   d) import and quarantine in a secure facility a founder (F-0) population;
   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 NHP-B and perform general examinations for pests and general health/disease status;
   g) if NHP-B is not detected, pests are not present, and the general health/disease status of the stock is considered to meet basic biosecurity conditions of the importing country, zone, or compartment, the F-1 stock may be defined as NHP free or specific pathogen free (SPF) for NHP-B;
   h) release SPF F-1 stock from quarantine for aquaculture or stocking purposes in the country, zone or compartment.

This Article does not apply to commodities listed in point 1) of Article 4.1.10.3.

Article 4.1.10.9.

Importation of live animals for human consumption from a country, zone or compartment not declared free from necrotising hepatopancreatitis

When importing, for human consumption, aquatic animals of the species referred to in Article 4.1.10.2. from a country, zone or compartment not declared free from NHP, the Competent Authority of the importing country should require:
Appendix XXX (contd)

1. the consignment is delivered directly to and held in isolation until consumption; and

2. all effluent, dead animals and waste material from the processing are treated in a manner that ensures inactivation of NHP-B.

Member Countries should consider introducing internal measures to prevent such commodities being used for any purpose other than for human consumption.

This Article does not apply to commodities listed in point 1) of Article 4.1.10.3.

**Article 4.1.10.10.**

**Importation of products from a country, zone or compartment declared free from necrotising hepatopancreatitis**

When importing aquatic animal products of the species referred to in Article 4.1.10.2. from a country, zone or compartment free from NHP, the Competent Authority of the importing country should require 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 4.1.10.4. or 4.1.10.5. (as applicable), the place of production of the consignment is a country, zone or compartment declared free from NHP.

The certificate should be in accordance with the Model Certificate in Appendix 6.5.1.

This Article does not apply to commodities listed in point 1) of Article 4.1.10.3.

**Article 4.1.10.11.**

**Importation of products from a country, zone or compartment not declared free from necrotising hepatopancreatitis**

When importing aquatic animal products of the species referred to in Article 4.1.10.2. from a country, zone or compartment not declared free from NHP, the Competent Authority of the importing country should assess the risk and apply appropriate risk mitigation measures.

This Article does not apply to commodities listed in point 1) of Article 4.1.10.3.
CHAPTER 1.1.1.

ANIMAL WELFARE DEFINITIONS

For the purposes of the Aquatic Code, the following definitions apply:

- **Anaesthesia** means a state whereby an *aquatic animal* is insensitive to sensory inputs.

- **Aquatic animal carcass** means the body/trunk of an *aquatic animal* subsequent to killing or death that requires safe disposal.

- **Aquatic animal offal/waste** means the whole or parts of an *aquatic animal* and *aquatic animal products* not approved for human consumption including sludge and sieve material collected during slaughtering.

- **Aquatic animal technician** means a person with knowledge regarding the behaviour and needs of live *aquatic animals* which, with appropriate experience and a professional and positive response to the welfare requirements of *aquatic animals*, results in effective management and good welfare. Their competence should be demonstrated through independent assessment and certification.

- **Aquatic animals for killing** means *aquatic animals* that are killed on site or transported to a suitable location for killing, for disease control purposes.

- **Boat** means a *vessel* constructed or adapted for the transport or temporary holding on water of live *aquatic animals* and their products, and includes well-boats, barges, and boats with tanks on deck.

- **Crustaceans** means crabs, crayfish, lobsters, prawns and shrimps.

- **Death** means irreversible loss of brain activity in fish, and demonstrable loss of sensation in crustaceans.

- **Fish** means live freshwater, estuarine or seawater finfish of any kind.

- **Harvest** means the removal of *fish* from their environment for human consumption.

- **Humane killing** means either immediate death, or death preceded either by immediate unconsciousness or by unconsciousness induced without pain, fear or adverse behaviour.

- **Killing** means any procedure which causes the death of an *aquatic animal*.

- **Mass destruction** means an emergency destruction and disposal of a population of *aquatic animals* for disposal.

- **Slaughtering** means the killing and/or processing of *fish*, with or without sedation/bleeding, for human consumption.

- **Stocking density** means, in the case of *aquatic animals*, the number or body weight of *aquatic animals* per unit area or per unit volume of water on a *vehicle* or a tank.
Appendix XXXI (contd)

- **Stunning** means any mechanical, electrical, chemical or other procedure which causes the loss of consciousness which lasts until death.

- **Transport equipment** means the compartment in which live aquatic animals and transporting water are kept during transport (buckets, cylinders, tanks, wells, etc.), and associated equipment such as water circulation devices, pumps, water treatment equipment, water filtration devices and systems for loading and unloading live fish, valves, tubes and pipelines.

- **Transport unit** means the combination of the transport equipment and the *vehicle/vessel*.

- **Travel means** the movement of a *vehicle/vessel* or container carrying live aquatic animals from one location to another.

- **Vehicle/vessel** means any train, truck, automobile, airplane, helicopter or *boat* that is used for the transport of live aquatic animals.

- **Visual evoked response (VER)** means test that evaluates the conduction of electrical impulses from the optic nerve to the occipital cortex of the brain.

- **Water quality parameters** means its physical, chemical and biological characteristics.
Appendix XXXII

APPENDIX X.X.1.

INTRODUCTION TO OIE GUIDELINES FOR THE WELFARE OF AQUATIC ANIMALS

Article X.X.1.1.

Guiding principles for aquatic animal welfare

1. That there is a critical relationship between aquatic animal health and aquatic animal welfare.

2. That the internationally recognised ‘five freedoms’ as they apply to aquatic animals (freedom to express normal patterns, freedom from pain, injury and disease; freedom from fear and distress; freedom from physical and thermal discomfort; freedom from hunger, thirst and malnutrition) provide valuable guidance in aquatic animal welfare.

3. That the internationally recognised ‘three Rs’ (reduction in numbers of aquatic animals, refinement of experimental methods and replacement of aquatic animals with non-animal techniques) provide valuable guidance for the use of aquatic animals in science.

4. That the scientific assessment of aquatic animal welfare involves diverse elements which need to be considered together, and that selecting and weighing these elements often involves value-based assumptions which should be made as explicit as possible.

5. That the use of aquatic animals in aquaculture, harvest or capture fisheries, research and for recreation (e.g. ornamentals in aquaria), makes a major contribution to the well-being of people.

6. That the use of aquatic animals carries with it an ethical duty to ensure the welfare of such animals to the greatest extent practical.

7. That the improvements in aquatic animal welfare can often improve productivity and food safety and hence lead to economic benefits.

8. That equivalent outcome (performance criteria), rather than identical systems (design criteria), be the basis for comparison of aquatic animal welfare standards and guidelines.

Article X.X.1.2.

Scientific basis for guidelines

1. Welfare is a broad term that describes how well aquatic animals are coping with their environment, management and handling conditions with regard to their optimal health and well being, and minimising negative environmental, physiological and other stressors.

2. The scientific assessment of aquatic animal welfare has progressed in recent years and is the basis for these guidelines. Many areas of aquatic animal welfare may require further research to understand in full the ability of aquatic animals to feel pain and be sentient.

3. Measures of aquatic animal welfare may involve assessing health and injuries; growth, behaviour, and other performance factors; capture, feeding, handling, management, transport, slaughter and other conditions not normally encountered in nature. Environmental and other stressors may also affect aquatic animal production and performance negatively, many of which can be measured and observed in wild, captured and farmed aquatic animals.
Appendix XXXII (contd)

4. Such measures can lead to criteria and indicators that help to evaluate how different methods of managing aquatic animals influence their welfare.
GUIDELINES FOR THE TRANSPORT OF FISH BY BOAT

Preamble: These guidelines apply to the following farmed species of fish: salmonids and cyprinids. The guidelines may also apply to other fish species.

Article 1

The length of time fish spend on a transport should be as short as possible.

Article 2

Responsibilities

The welfare of fish during their transport is the joint responsibility of all people involved. These guidelines apply to the transport of fish by boat within a country and between countries. The roles of each of those responsible are defined below:

1. Owners and managers of fish are responsible for the general health of the fish and their fitness at the start of the journey and to ensure the overall welfare of fish during the transport regardless whether these duties are subcontracted to other parties.

2. Aquatic animal technicians handling fish prior to loading as well as during loading and unloading have a personal responsibility for their welfare.

3. Transport companies, boat owners and captains, in cooperation with the Competent Authorities, are responsible for planning the journey to ensure that the transport can be carried out properly according to fish welfare standards; these include:

   a) responsibility for choosing an appropriate and functioning boat and ensuring that competent staff are available for loading and unloading;

   b) responsibility for developing and keeping up to date contingency plans to address emergencies and minimise stress during transport;

   c) responsibility for correct loading of the boat with the fish, for regular inspections of the fish during the journey and for appropriate responses to problems arising.

4. Captains should be properly trained in transport regulations, and the correct boat and equipment usage to ensure that fish welfare standards are applied. The captain should also be aware of the latest aquatic animal health situation in the zones through which the journey will be made to allow correct journey planning and adjustments as necessary. The captain is responsible for all documentation relevant to the journey, including a journey log.

5. Managers of facilities at the start and at the end of the journey are responsible for:

   a) providing suitable facilities and equipment for loading and unloading to ensure that fish welfare standards are applied;
Appendix XXXIII (contd)

b) providing aquatic animal technicians to load and unload the fish in a manner that causes minimum stress and injury;

c) minimising the opportunities for disease transmission while the fish are in the facilities;

d) providing facilities and agents for washing and disinfecting vehicles after unloading;

e) providing facilities and veterinarians, fish health biologists or other competent persons be enable killing of the fish humanely if required.

6. The responsibilities of the Competent Authorities include:

a) establishing minimum standards for fish welfare, including requirements for the inspection of fish before, during and after their travel, and appropriate certification and record keeping;

b) approving vessels for the transport of fish;

c) ensuring appropriate awareness and training;

d) setting licensing standards for captains, aquatic animal technicians and managers;

e) implementation of the standards, including through accreditation of / interaction with other organisations;

f) providing the latest animal health information and designated restriction zones;

g) monitoring and evaluating health and welfare performance.

7. Private veterinarians and fish health biologists involved in transporting fish and the associated handling procedures should have specialist training in such matters.

Article 3

Competence

1. All persons handling fish, or who are otherwise responsible for fish during journeys, should be competent according to their responsibilities listed in Articles 1 and 4. Competence may be gained through formal training and/or practical experience. Competence in areas other than fish welfare would need to be addressed separately.

2. Any necessary training should address:

a) fish behaviour, physiology, general signs of disease and indicators of poor fish welfare;

b) transport regulations;

c) operation and maintenance of equipment relevant to fish health and welfare;

d) water quality;

e) methods of fish handling during transport and associated activities such as loading and unloading;
f) methods of inspecting animals, managing situations frequently encountered during transport such as adverse weather conditions, and dealing with emergencies;
g) species-specific aspects of fish handling and care, whenever necessary;
h) appropriate record keeping.

Article 4

Planning the journey

1. General considerations
   a) Adequate planning is a key factor affecting the welfare of fish during a journey. Before the
      journey starts, plans should be made in relation to:
      i) type of boat required;
      ii) route, taking into account distance, expected weather and sea conditions;
      iii) nature and duration of the journey;
      iv) care of the fish during the journey;
      v) emergency response procedures.
   b) Extreme weather conditions are hazards for fish undergoing transport and require appropriate
      boat design to minimise risks. In some extreme conditions, fish should not be transported at all.
   c) As fish transport is often a significant factor in the spread of infectious diseases, journey
      planning should take the following into account:
      i) anti-microbials should not be used prophylactically; if used therapeutically, treatment
         should only be carried out upon instruction by a veterinarian or fish health biologist;
      ii) before transport is carried out, the necessary biosecurity level should be assessed (e.g.
         washing and disinfection practices, safe places for changing water, treatment of transport
         water).

2. Contingency plans
   There should be a contingency plan that identifies the important adverse events that may be
   encountered during the journey, the procedures for managing each event and the action to be taken
   in an emergency. For each important event, the plan should document the actions to be undertaken
   and the responsibilities of all parties involved, including communications and record keeping.

3. Boat design and maintenance
   a) Boats used for transport of fish should be designed, constructed and fitted as appropriate to the
      species, size and weight of the fish to be transported. Special attention should be paid to the
      avoidance of injury to fish through the use of secure smooth fittings free from sharp
      protrusions.
   b) In order to minimise the likelihood of the spread of pathogenic agents during a journey, boats
      should be designed to allow the secure handling of dead fish, and thorough cleaning and
      disinfection prior to and after the journey.
Appendix XXXIII (contd)

c) Boats should be maintained in good mechanical and structural condition.

d) Boats should have adequate circulation of water and equipment for oxygenation to meet variations in the conditions during the journey.

e) The fish should be able to be inspected en route to ensure that fish welfare standards are fulfilled.

f) Containers carried on boats should be adequately secured.

g) The maximum number of fish to be transported in a container should be determined before the vehicle is loaded and the biomass should be able to be measured during the loading process.

h) Documentation carried with the boat should include:

i) maintenance programme;

ii) journey logbook;

iii) check-list for completed cleaning and disinfection;

iv) licence from the Competent Authority;

v) drawings (plan) of the container and pipe system of the transport unit.

i) The transport unit should be of a type approved by the Competent Authority which should give consideration to the above factors.

4. Water and equipment on boat and/or container

a) Equipment to keep water circulation, water quality (e.g. oxygen, pH, temperature), and monitoring of water quality should be available.

b) Adequate water circulation and extra oxygenation which can be adjusted to meet variations in temperature during the transport to fulfil the needs of the fish species being transported should be available.

c) The water used should not come from locations under restriction by the Competent Authority. The water should be oxygen saturated.

5. Documentation

a) Fish should not be loaded until the required documentation is complete.

b) The documentation accompanying the consignment (the journey log) should include:

i) journey travel plan including a contingency plan for emergencies and actions to be taken during the transport;

ii) date, time, and place of loading;

iii) fish species transported;

iv) information on biomass load, route, water quality and exchanges, and morbidity/mortality;
v) expected time, date and place of arrival and unloading;

vii) information to allow traceback to the premises of origin;

viii) *stocking density* estimate for containers/compartments in the consignment.

c) The transport log should be made available to the dispatcher and the receiver of the consignment as well as to *Competent Authority* upon request. Transport logs from previous journeys should be kept for a considerable time after completion.

d) When health certification is required to accompany consignments of *fish*, it should include:

i) appropriate information on the origin of the *fish*;

ii) health status including test, treatment and vaccination status.

6. **Preparation of fish for the journey**

a) *Fish* found unfit for transport by inspection by the *aquatic animal technician*, captain or *fish* health biologist/veterinarian should not be loaded onto a *boat*.

b) A group of *fish* that is unfit to travel includes:

i) a group undergoing a disease event which would be exacerbated by handling or transport;

ii) a group with recent exposure to stressors or pathogenic agents.

7. **Species-specific recommendations**

Transport procedures should be able to take account of variations in the behaviour and needs of the *fish* species. Handling procedures that are successful with one species are often ineffective or dangerous with another.

Recommendations for specific species are described in detail in Appendices XXX. Some species may need to be physiologically prepared prior to entering a new environment; this may include food deprivation or osmo-regulatory capacity.

8. **Nature and duration of the journey**

The pre-journey preparation, the duration and route of a journey should be determined by:

a) the purpose of the journey e.g. biosecurity issues, transport of juvenile *fish*, fish for slaughter and killing for disease control purposes;

b) the ability of the *fish* to cope with the stress of *transport*;

c) the previous handling and transport experience of the *fish*;

d) intrinsic factors such as *stocking density*, species and life-stage being transported, metabolic rate of the *fish*;

e) the quality of water and the availability of water exchange facilities;

f) other extrinsic factors such as environmental conditions (e.g. air and water temperature), *vessel* and equipment design, road and weather conditions as well as *boat* transport quality.
Appendix XXXIII (contd)

Article 5

Loading the fish

1. Since loading has been shown to be the procedure most likely to be the cause of poor welfare in transported fish, the issues which should be addressed to avoid unnecessary stress and injury to the fish include:
   a) crowding;
   b) improperly constructed or operated nets;
   c) improperly constructed or operated pumps, pipes and fittings;
   d) water quality.

2. The density of fish in a container or compartment should not exceed the maximum load (kg/m$^3$ and/or kg/m$^3$) for a given species and a given situation. Recommendations for specific species are described in detail in Appendix XXX. During loading, techniques should be used to measure and record the biomass.

3. Loading should be carried out by aquatic animal technicians with knowledge and experience of the behavioural and characteristics of the fish species being loaded.

Article 6

Travel

1. General considerations
   a) The captain should ensure that the load is checked immediately before departure to ensure that the fish have been properly loaded. Each load should be checked again early in the trip.
   b) Periodic inspections should take place during the trip to maintain acceptable welfare conditions. Fish found moribund or dead should be removed from contact with other fish and kept under biosecure conditions.
   c) The captain should ensure that water quality is monitored as appropriate as possible and the necessary adjustments made to avoid extreme conditions regarding water temperature, oxygen levels, CO$_2$ levels, pH changes and ammonia nitrogen.
   d) The captain should try to minimise the effect of adverse environmental conditions which may affect the welfare of the fish.

2. Emergency procedures
   a) In the event of a fish health emergency on board, the captain should contact the relevant Competent Authority to determine the correct procedure to follow.
   b) If the killing of fish is necessary during the journey, the captain should ensure that the killing is carried out in accordance with the guidelines for the humane killing of fish for disease control purposes, and their disposal in compliance with relevant animal health and environmental legislation.
c) *Aquatic animal technicians* at the place of unloading should be notified of increased mortality during the journey to enable appropriate arrangements to be made in accordance with the contingency plan.

**Article 7**

**Unloading the fish**

1. The principles of good *fish* handling during loading apply equally during unloading.

2. Some species of *fish* should be acclimatised if there is a likelihood of the *fish* being unloaded into water of a significantly different temperature.

3. *Fish* should be unloaded from the *vehicle* into appropriate compartments as soon as possible after arrival at the destination, but sufficient time should be allowed for unloading to ensure that the unloading proceeds smoothly and does not cause harm to the *fish*.

4. Unloading should be supervised by *aquatic animal technicians* with knowledge and experience of the behavioural and physical characteristics of the species being unloaded, and of the equipment being used.

5. Moribund or injured *fish* or *fish* otherwise disabled during a journey should be sorted out and disposed in accordance with the guidelines for the humane killing of *fish* for disease control purposes.

**Article 8**

**Post-journey activities**

1. **General considerations**

   a) As the health of the *fish* may be compromised as a result of transport and/or change of environment, the *aquatic animal technician* receiving the *fish* should closely observe them during the post-journey period, and keep appropriate records.

   b) *Fish* which show clinical signs following the journey should be examined by *aquatic animal technicians* and as appropriate treated, isolated or killed in accordance with the Guidelines for the humane killing of *fish* for disease control purposes.

   c) Significant problems arising during a journey should be evaluated and corrective actions taken if necessary.

2. **Cleaning and disinfection**

   If the next journey involved a new pickup or delivery point, or a different type of load, *boats*, containers and other equipment used to transport *fish* should be cleaned and disinfected before re-use, in accordance with Appendix 5.2.1. of the *Aquatic Code*.

**Article 9**

**Actions in the event of an inability to unload a consignment**

1. The welfare of the *fish* should be the first consideration in the event of an inability to unload a consignment.
Appendix XXXIII (contd)

2. In the case of an international journey, the OIE dispute settlement mechanism should be followed to identify a mutually agreed solution which will address animal health and any other welfare issues in a timely manner.
GUIDELINES FOR THE LAND TRANSPORT OF FISH

Preamble: These guidelines apply to the following farmed species of fish: salmonids and cyprinids. The guidelines may also apply to other fish species.

Article 1

The length of time fish spend on a transport should be as short as possible.

Article 2

Responsibilities

The welfare of fish during their transport is paramount and the joint responsibility of all people involved. These guidelines apply to the transport of fish within a country and between countries. The roles of each of those responsible are defined below:

1. Owners and managers of fish are responsible for the general health of the fish and their fitness at the start of the journey and to ensure the overall welfare of fish during the transport regardless whether these duties are subcontracted to other parties.

2. Aquatic animal technicians handling fish prior to loading as well as during loading and unloading have a personal responsibility for their welfare.

3. Transport companies, vehicle owners and drivers, in cooperation with the Competent Authorities, are responsible for planning the journey to ensure that the transport can be carried out properly according to aquatic animal welfare standards; these include:
   a) responsibility for choosing an appropriate and functioning vehicle and ensuring that competent staff are available for loading and unloading;
   b) responsibility for developing and keeping up to date contingency plans to address emergencies and minimise stress during transport;
   c) responsibility for correct loading of the vehicle with the fish, for regular inspections of the fish during the journey and for appropriate responses to problems arising.

4. Drivers should be properly trained in transport regulations, and the correct vehicle and equipment usage to ensure that aquatic animal welfare standards are applied. The driver is responsible for all documentation relevant to the journey.

5. Managers of facilities at the start and at the end of the journey are responsible for:
   a) providing suitable equipment for loading and unloading to ensure that fish welfare standards are applied;
   b) providing aquatic animal technicians to load and unload the fish in a manner that causes minimum stress and injury;
Appendix XXXIV (contd)

c) minimising the opportunities for disease transmission while the fish are in the facilities;
d) providing facilities and agents for washing and disinfecting vehicles after unloading;
e) providing facilities and veterinarians, fish health biologists or other aquatic animal technicians be
able killing of the fish humanely if required.

6. The responsibilities of the Competent Authorities include:

a) establishing minimum standards for fish welfare, including requirements for the inspection of
fish before, during and after their travel, and appropriate certification and record keeping;
b) approving vehicles for the transport of fish;
c) ensuring appropriate awareness and training;
d) setting licensing standards for drivers, aquatic animal technicians and managers;
e) implementation of the standards, including through accreditation of / interaction with other
organisations;
f) providing the latest animal health information and designated restriction zones;
g) monitoring and evaluating health and welfare performance.

7. Private veterinarians and fish health biologists involved in transporting fish and the associated
handling procedures should have specialist training in such matters.

Article 3

Competence

1. All persons handling fish, or who are otherwise responsible for fish during journeys, should be
competent according to their responsibilities listed in Articles 1 and 4. Competence may be gained
through formal training and/or practical experience. Competence in areas other than fish welfare
would need to be addressed separately.

2. Any necessary training should address:

a) fish behaviour, physiology, general signs of disease and indicators of poor fish welfare;
b) transport regulations;
c) operation and maintenance of equipment relevant to fish health and welfare;
d) water quality;
e) methods of fish handling during transport and associated activities such as loading and
unloading;
f) methods of inspecting animals, managing situations frequently encountered during transport
such as adverse weather conditions, and dealing with emergencies;
g) species-specific aspects of fish handling and care, whenever necessary;

h) appropriate record keeping.

Article 4

Planning the journey

1. General considerations

a) Adequate planning is a key factor affecting the welfare of fish during a journey.

b) Before initiation of travel, plans should be made in relation to:

i) type of vehicle required;

ii) route, taking into account distance, type and quality of road, topography, traffic conditions and availability of water exchange stations for fish;

iii) nature and duration of journey;

iv) care of the fish during the journey;

v) emergency response procedures.

c) Extreme weather conditions are hazards for fish undergoing transport and require appropriate vehicle design to minimise risks. In some extreme conditions of heat or cold, fish should not be transported at all.

d) As fish transport is often a significant factor in the spread of infectious diseases, journey planning should take the following into account:

i) anti-microbials should not be used prophylactically; if used therapeutically, treatment should only be carried out upon instruction by a veterinarian or fish health biologist;

ii) before transport, the necessary biosecurity level should be assessed (e.g. washing and disinfection practices, safe places for changing water and treatment of transport water).

2. Contingency plans

There should be a contingency plan that identifies the important adverse events that may be encountered during the journey, the procedures for managing each event and the action to be taken in an emergency. For each important event, the plan should document the actions to be undertaken and the responsibilities of all parties involved, including communications and record keeping.

3. Vehicle and container design and maintenance

a) Vehicles used for the transport of fish should be designed, constructed and fitted as appropriate to the species, size and weight of the fish to be transported; special attention should be paid to the avoidance of injury to fish through the use of secure smooth fittings free from sharp protrusions.
Appendix XXXIV (contd)

b) In order to minimise the likelihood of the spread of pathogenic agents during a journey, *vehicles* and containers should be designed to allow the secure handling of dead *fish*, and thorough cleaning and disinfection prior to and after the journey.

c) *Vehicles* should be maintained in good mechanical and structural condition.

d) The *fish* should be able to be inspected en route to ensure that *fish* welfare standards are fulfilled.

e) Containers carried on *vehicles* should be adequately secured.

f) The maximum number of *fish* to be transported in a container should be determined before the *vehicle* is loaded and the biomass should be able to be measured during the loading process.

g) Documentation carried with the *vehicle* should include:

i) maintenance programme;

ii) transport logbook;

iii) check-list for completed cleaning and disinfection;

iv) licence from the Competent Authority;

v) drawings (plan) of the container and pipe system of the transport unit.

h) The transport unit should be of a type approved by the Competent Authority which should give consideration to the above factors.

4. Water and equipment on vehicle and container

a) Equipment to keep water circulation, water quality (e.g. oxygen, pH, temperature), and monitoring of water quality should be available.

b) Adequate water circulation and extra oxygenation which can be adjusted to meet variations in temperature during the transport to fulfil the needs of the *fish* species being transported, should be available.

c) Water filling and exchange should only take place at the place of loading or at a source that is approved by the Competent Authority. The transport water should be added to the container prior to loading the *fish* and the water should be oxygen saturated.

5. Documentation

a) *Fish* should not be loaded until the required documentation is complete.

b) The documentation accompanying the consignment (the journey log) should include:

i) journey travel plan including a contingency plan for emergencies and actions to be taken during the transport;

ii) date, time, and place of loading;
iii) *fish* species transported;
iv) information on biomass load, route, water quality and exchanges, and morbidity/mortality;
v) expected time, date and place of arrival and unloading;
vi) veterinary certification, when required;
vii) information to allow traceback to the premises of origin;
viii) *stocking density* estimate for containers/compartment in the consignment.

c) The transport log should be made available to the dispatcher and the receiver of the consignment as well as to *Competent Authority* upon request. Transport logs from previous journeys should be kept for a considerable time after completion.
d) When health certification is required to accompany consignments of *fish*, it should include:
i) appropriate information on the origin of the *fish*;
ii) health status including test, treatment and vaccination status.

6. **Preparation of fish for the journey**

   a) *Fish* found unfit for transport by inspection by farm staff, driver or fish health biologist/veterinarian should not be loaded onto a *vehicle*.

   b) A group of *fish* that is unfit to travel includes:

      i) a group undergoing a disease event which would be exacerbated by handling or transport;

      ii) a group with recent exposure to stressors or pathogenic agents.

7. **Species-specific recommendations**

   Transport procedures should be able to take account of variations in the behaviour and needs of the *fish* species. Handling procedures that are successful with one species are often ineffective or dangerous with another.

   Recommendations for specific species are described in detail in Appendices XXX. Some species may need to be physiologically prepared prior to entering a new environment; this may include food deprivation or osmo-regulatory capacity.

8. **Nature and duration of the journey**

   The pre-journey preparation as well as the duration and route of a journey should be determined by:

   a) the purpose of the journey e.g. biosecurity issues;

   b) the ability of the *fish* to cope with the stress of transport;

   c) the previous handling and transport experience of the *fish*;
Appendix XXXIV (contd)

d) intrinsic factors such as stocking density, species and life-stage being transported as well as metabolic rate of the fish;

e) the quality of water and the availability of water exchange facilities;

f) other extrinsic factors such as environmental conditions (e.g. air and water temperature), vehicle and equipment design, road and weather conditions as well as driving quality.

Article 5

Loading the fish

1. Since loading has been shown to be the procedure most likely to be the cause of poor welfare in transported fish, the issues which should be addressed to avoid unnecessary stress and injury to the fish include:

   a) crowding;

   b) improperly constructed or operated nets;

   c) improperly constructed or operated pumps, pipes and fittings;

   d) water quality.

2. The density of fish in a container or compartment should not exceed the maximum load (kg/m² and/or kg/m³) for a given species and a given situation. Recommendations for specific species are described in detail in Appendix XXX. During loading, techniques should be used to measure and record the biomass.

3. Loading should be carried out by aquatic animal technicians with knowledge and experience of the behavioural and physical characteristics of the fish species being loaded.

Article 6

Travel

1. General considerations

   a) The driver should check the load immediately before departure to ensure that the fish have been properly loaded. Each load should be checked again early in the trip.

   b) Periodic inspections should take place during the trip to maintain acceptable welfare conditions. Fish found moribund or dead should be removed from contact with other fish and kept under biosecure conditions.

   c) The driver should monitor water quality and make the necessary adjustments to avoid extreme conditions regarding water temperature, oxygen levels, CO₂ levels, pH changes and ammonia nitrogen.

   d) The driver should utilise smooth, defensive driving techniques, without sudden turns or stops to minimise uncontrolled movements of the fish.
2. **Emergency procedures**

a) In the event of a *fish* health emergency on board, the driver should contact the relevant Competent Authority to determine the correct procedure to follow.

b) If the killing of *fish* is necessary during the journey, the aquatic animal technician should ensure that the killing is carried out in accordance with the guidelines for the humane killing of *fish* for disease control purposes, and their disposal in compliance with relevant animal health and environmental legislation.

c) *Aquatic animal technicians* at the place of unloading should be notified of increased mortality during the journey to enable appropriate arrangements to be made in accordance with the contingency plan.

**Article 7**

**Unloading the fish**

1. The principles of good *fish* handling during loading apply equally during unloading.

2. Some species of *fish* should be acclimatised if there is a likelihood of the *fish* being unloaded into water of a significantly different temperature.

3. *Fish* should be unloaded from the *vehicle* into appropriate compartments as soon as possible after arrival at the destination, but sufficient time should be allowed for unloading to ensure that the unloading proceeds smoothly and does not cause harm to the *fish*.

4. Unloading should be supervised by an aquatic animal technician with knowledge and experience of the behavioural and physical characteristics of the species being unloaded, and of the equipment being used.

5. Moribund or injured *fish* or *fish* otherwise disabled during a journey should be sorted out and disposed in accordance with the guidelines for the humane killing of *fish* for disease control purposes.

**Article 8**

**Post-journey activities**

1. **General considerations**

a) As the health of the *fish* may be compromised as a result of transport and/or change of environment, the aquatic animal technician receiving the *fish* should closely observe them during the post-journey period, and keep appropriate records.

b) *Fish* which show clinical signs following the journey should be examined by qualified personnel and as appropriate treated, isolated or killed in accordance with the Guidelines for the humane killing of fish for disease control purposes.

c) Significant problems arising during a journey should be evaluated and corrective actions taken if necessary.

2. **Cleaning and disinfection**

If the next journey will involve a new pickup or delivery point (or different type of load), *vehicles*, containers and other equipment used to transport *fish* should be cleaned and disinfected before reuse, in accordance with Appendix 5.2.1. of the *Aquatic Code*. 
Appendix XXXIV (contd)

Article 9

Actions in the event of an inability to unload a consignment

1. The welfare of the fish should be the first consideration in the event of an inability to unload a consignment.

2. In the case of an international journey, the OIE dispute settlement mechanism should be followed to identify a mutually agreed solution which will address animal health and any other welfare issues in a timely manner.
GUIDELINES FOR THE SLAUGHTER OF FARMED FISH FOR HUMAN CONSUMPTION

Article 1

1. General principles for slaughter

These guidelines address the need to ensure the welfare of fish during pre-slaughter and slaughter processes, until they are dead.

These guidelines apply to those fish species that are commonly slaughtered in fish slaughterhouses. Other aquatic animals, wherever they have been reared, should be managed to ensure that their transport and slaughter/killing is carried out without causing undue stress to such animals; the principles underpinning these guidelines also apply to those animals.

2. Personnel

Persons engaged in the unloading, moving, handling, stunning and slaughter of fish play an important role in their welfare. Personnel handling fish for slaughter should be experienced and competent in the transport and handling of fish, and understand their behaviour patterns as well as the underlying principles necessary to carry out their tasks. They should also be familiar with these guidelines and the applicable legislation.

The management of the fish slaughterhouse and the Competent Authority should together ensure that these persons carry out their tasks in accordance with the principles of aquatic animal welfare.

Article 2

Transport of fish for slaughter

Fish for slaughter for human consumption should be transported to fish slaughterhouses in accordance with Chapter X.X.X on the Guidelines on the transport of fish.

Article 3

Design of facilities for holding fish prior to slaughter

1. The holding facilities should be designed and constructed to hold the maximum number of fish in relation to the throughput of the slaughterhouse without compromising the welfare of the fish.

2. In order to permit operations to be conducted as smoothly and efficiently as possible without injury or undue stress to the fish, the facilities should be of a size that allows the fish to move freely in the required direction, using their behavioural characteristics.

3. The following guidelines may help to achieve this:

   a) Nets and holding tanks
      
      i) The design of containment or crowding nets should avoid corners or folds, pockets or traps.
Appendix XXXV (contd)

ii) Containment nets should not cause injury and should be of appropriate mesh size and type.

iii) Nets and tanks should generally be circular or of sufficient size, and constructed of suitable materials to allow a continuous forward swimming direction with minimal risk of injury.

iv) Areas or zones of turbulence should be minimised or eliminated.

b) Water

Water quality should be appropriate regarding the density and species of fish.

c) Sensory stimulation

i) Lighting should encourage the movement of fish in the correct direction, by avoiding bright lights and reflective surfaces facing fish.

ii) Undue noise should be minimised.

d) Systems for moving fish, including pumps and pipes

i) For optimum welfare, fish should be pumped in a continuous flow from source to destination.

ii) Pumps should have a capacity to produce a flow sufficient to ensure movement of fish in correct direction; areas of turbulence should be avoided.

iii) There should be a contingency plan in place in case pumping ceases, to avoid exposing fish to low oxygen or other factors which could compromise their welfare.

iv) Materials used in construction should provide smooth contact surfaces and should not contain protrusions which may injure fish; all bends, entries and exits should be designed to allow smooth unobstructed flow of fish and water.

v) Fish should not drop onto hard surfaces at points of exit.

vi) Pipes should be of appropriate diameter and flow of sufficient strength to prevent fish being trapped.

vii) Brailing devices (used to haul fish into boats), if used, should contain an adequate volume of water in proportion to the number of fish, to maintain fish welfare.

Article 4

Unloading and moving fish in slaughterhouses

1. Fish should be transported for slaughter in a way that minimises adverse fish health and welfare outcomes and the transport should be carried out in accordance with the OIE Guidelines for the transport of fish.
2. The following principles should apply to the unloading and moving of *fish* in the slaughterhouse:
   
a) The welfare of the *fish* and their environment should be assessed on arrival prior to unloading, and corrective action taken as appropriate.
   
b) Management procedures should be in place to ensure that suitable environmental conditions are maintained within the holding and moving systems.
   
c) Injured or sick *fish* should be separated and killed humanely.
   
d) Sedation, where approved for *fish* for human consumption, may be used to minimise the stress associated with the movement or crowding of *fish*.
   
e) The crowding period prior to slaughter should be as short as possible, and preferably the *fish* should be subject to crowding conditions once only.
   
f) Physical, mechanical or manual handling of *fish* should be minimised.
   
g) Where possible, *fish* should be allowed to swim directly into a percussive stunning device (without handling) to avoid handling stress.

**Article 5**

**Summary of acceptable stunning methods for fish and their respective welfare issues**

<table>
<thead>
<tr>
<th>Stunning method</th>
<th>Fish welfare concerns / implications</th>
<th>Applicable species</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percussive stunning</td>
<td><em>Hand operated equipment may be hampered by uncontrolled movement of the fish. Unconsciousness may not be achieved due to a too weak blow to the head. Injuries may occur.</em></td>
<td>Salmonids Halibut</td>
</tr>
<tr>
<td>Spiking</td>
<td><em>Inaccurate application may cause injuries. May be hampered by uncontrolled movement of the fish. Difficult to apply.</em></td>
<td>Salmonids Tuna</td>
</tr>
<tr>
<td>Electrical stunning</td>
<td><em>Difficult to control and apply correctly in the field. Optimal control parameters unknown. May be hazardous to operating personnel.</em></td>
<td>Salmonids</td>
</tr>
<tr>
<td>Free bullet</td>
<td><em>Shooting distance; calibre. Noise of guns may cause stress reaction. May be hazardous for operating personnel.</em></td>
<td>Tuna</td>
</tr>
</tbody>
</table>

Note: A key *fish* welfare requirement is the competence of the personnel carrying out the stunning methods.
Appendix XXXV (contd)

Article 6

Stunning methods

1. **General considerations**

   For details on stunning methods, see Appendix X.X.X. on the Guidelines for the humane killing of fish for disease control purposes.

   The *Competent Authority* should regularly ensure the appropriateness and effectiveness of the stunning equipment and process, and that the operators are competent to humanely kill fish. The responsibility for operator competence lies with the management of the fish slaughterhouse.

   If fish are removed from the water, stunning should take place as soon as possible (preferably within 5–10 seconds).

   The equipment used for stunning should be maintained, adjusted and operated in accordance with the recommendations of the manufacturer. It should be tested on a regular basis to ensure that performance is adequate.

   Bleeding should only be performed on fish which are effectively stunned.

   Stunning should not take place if slaughter is likely to be delayed.

   When killing novel fish species, it is important to obtain information on the exact location of the brain and Medulla oblongata in order to target the stunning correctly to the head.

   Signs of correct stunning include:

   a) immediate loss of respiratory movement (loss in opercular activity);

   b) loss of visual evoked response (VER);

   c) immediate loss of vestibulo-ocular reflex (VOR, eye rolling);

   d) loss of tail reflex and muscular movements.

2. **Mechanical stunning**

   Percussive stunning is achieved by a blow of sufficient strength to the head applied above or immediately adjacent to the brain in order to damage the brain.

   Spiking, coring or Iki-jime are irreversible killing methods for fish based on physical damage to the brain by inserting a spike into the brain either manually or using specially developed equipment to destroy sensory and motor functions in large fish. The so-called captive needle stun is a modification of spiking.

   Mechanical stunning is an irreversible method in more than 99% of the cases if correctly applied. If stunned fish show recovery of reflexes or motor function, the fish should be re-stunned.
3. **Electrical stunning**

Electrical *stunning* involves the application of an electrical current of sufficient strength, frequency and duration to cause immediate unconsciousness.

An electrical *stunning* device should be used in accordance with the following principles:

a) The operators should be competent in applying the method properly.

b) The electrical *stunning* device should be constructed and used for the specific *fish* species and their environment.

c) It should be ensured that heads of the *fish* are confined beneath the surface of the water, and that there is a uniform distribution of electrical current in the stun tank or chamber.

d) The equipment used for *stunning* should be maintained and operated in accordance with the manufacturer’s recommendations, and it should be tested on a regular basis to ensure that the power output is adequate.

e) An effective stun and kill should be verified by the absence of consciousness. For signs of correct *stunning*, see description under mechanical *stunning* above. Eels are reported to be somewhat resistant to electrical *stunning*.

f) Appropriate protective clothing (including rubber gloves and boots) should be worn.

g) The voltage in the stun must be of suitable conductivity.
Article 7

Summary of methods other than stunning used for the sedation, anaesthesia or immobilisation of fish

<table>
<thead>
<tr>
<th>Method</th>
<th>Application / effect</th>
<th>Fish welfare concerns / implications</th>
<th>Key fish welfare requirements</th>
<th>Applicable species</th>
</tr>
</thead>
<tbody>
<tr>
<td>Live chilling</td>
<td>Recoverable immobilisation prior to stunning / slaughter.</td>
<td>Fish have not lost sensation. Season and species dependent.</td>
<td>Competent personnel and suitable control equipment/process</td>
<td>Salmonids / cod/ wolffish / halibut</td>
</tr>
<tr>
<td>Aqui-S</td>
<td>Recoverable sedation/anaesthesia prior to stunning / slaughter.</td>
<td>Fish may recover sensation prior to slaughter.</td>
<td>Control of dose. Competent personnel</td>
<td>Most fish species</td>
</tr>
<tr>
<td>CO₂</td>
<td>Recoverable immobilisation prior to stunning / slaughter.</td>
<td>Aversive. Fish become exhausted and die due to hypoxia and suffocation.</td>
<td>Competent personnel</td>
<td>Most fish species</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fish may not lose sensation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Combination of CO₂/O₂ - Live chilling</td>
<td>Recoverable immobilisation prior to stunning / slaughter</td>
<td>Aversive. Fish may not lose sensation. Season and species dependant.</td>
<td>Competent personnel</td>
<td>Salmonids</td>
</tr>
<tr>
<td>Electrical harpoon</td>
<td>Irreversible electrocution applied to the head prior to slaughter.</td>
<td>Good accuracy required to ensure fish killed</td>
<td>Competent personnel</td>
<td>Large tuna</td>
</tr>
</tbody>
</table>

For more details on methods, see the guidelines on killing of fish for disease control purposes.

Article 8

Unacceptable methods, procedures or practices on fish welfare grounds

The following methods are not considered acceptable for anaesthetising fish on welfare grounds:

1. CO₂ is not acceptable for the mass killing of fish, due to its aversive effects.
2. Live chilling/CO₂ is not acceptable for the mass killing of fish, due to its aversive effects.
3. Salt or ammonia baths are not acceptable due to their aversive effects on fish.
4. Asphyxiation is not acceptable as sensation is not lost during the slow induction.

5. Exsanguination is not acceptable for the killing of conscious fish.

6. Accidental pre-stun electrical shocks as inadequate current and voltage gives recovery of consciousness.

______________________________
GUIDELINES FOR THE HUMANE KILLING OF FISH
FOR DISEASE CONTROL PURPOSES

Article 1

General principles of humane killing of finfish for disease control purposes

1. Disease control contingency plans should be in place at a national level and should contain details of management structure, disease control strategies and operational procedures; fish welfare considerations should be addressed within these disease control contingency plans.

2. Disease control strategies should also address the fish welfare issues that may result from animal movement controls.

3. The following principles apply after a decision to kill the fish has been made.

4. All personnel involved in the humane killing of fish should have necessary competencies for such work. Competence may be gained through formal training and/or practical experience under supervision.

5. As necessary, operational procedures should be adapted to the specific circumstances operating on the premises and should address fish welfare and biosecurity.

6. Following the decision to kill the fish, killing should be carried out as quickly as possible and normal farming procedures should be maintained until the killing is implemented.

7. The handling and movement of fish should be minimised and when done, it should be done in accordance with the guidelines described below.

8. When fish are killed for disease control purposes, the methods used should result in immediate death or immediate loss of consciousness lasting until death.

9. There should be continuous monitoring of the procedures to ensure they are consistently effective with regard to fish welfare and biosecurity.

10. When the operational procedures are concluded, there should be a written report describing the practices adopted and their effect on fish welfare and biosecurity.

11. To the extent possible to minimise public distress, killing of fish and carcass disposal should be carried out away from public view. For carcass handling, see Chapter X.X.X. (under preparation).

Article 2

Organisational structure

The operational activities should be led by a Competent Authority official who has the authority to appoint the aquatic animal technician or operational team for each farm, and ensure that they adhere to the required fish welfare and biosecurity standards. When appointing such personnel, he/she should ensure that the personnel involved have the required competencies.

The Competent Authority official should be responsible for all activities on affected premises and should be supported by coordinators for planning (including communications), operations and logistics to facilitate efficient operations.
Appendix XXXVI (contd)

The Competent Authority official should provide overall guidance to personnel and logistic support for operations on all affected premises to ensure consistency in adherence to the OIE aquatic animal welfare and biosecurity guidelines.

In considering the associated fish welfare issues, responsibility and competencies required by key personnel to be involved in such work are described in Article 4.

Article 3

Responsibilities and competencies of the operational team or aquatic animal technician

1. Team leader
   a) Responsibilities
      i) Plan overall operations on an affected premises;
      ii) determine and address requirements for fish welfare, operator safety and biosecurity;
      iii) organise, brief and manage team of people to facilitate humane killing of the relevant fish on the premises in accordance with national regulations and these guidelines;
      iv) determine logistics required;
      v) monitor operations to ensure that fish welfare, operator safety and biosecurity requirements are met;
      vi) report upwards on progress and problems;
      vii) provide a written report at the conclusion of the killing, describing the practices adopted and their effect on aquatic animal welfare and biosecurity outcomes.
   b) Competencies
      i) Appreciation of fish welfare and the underpinning behavioural, anatomical and physiological processes involved in the killing process;
      ii) skills to manage all activities on premises and deliver outcome on time;
      iii) awareness of psychological effects on farmer, team members and general public;
      iv) effective communication skills.

2. Veterinarian/fish health biologist
   a) Responsibilities
      i) Determine and implement the most appropriate killing method to ensure that the fish are killed without avoidable pain and distress;
ii) determine and implement the additional requirements for fish welfare, including the order of killing;

iii) ensure confirmation that all the fish have been killed at an appropriate time after the stunning/killing procedure;

iv) minimise the risk of disease spread within and from the premises through the supervision of biosecurity procedures;

v) continuously monitor fish welfare and biosecurity procedures;

vi) in cooperation with the team leader, prepare a written report at the conclusion of the killing, describing the practices adopted and their effect on fish welfare.

b) Competencies

i) Ability to assess fish welfare, especially the effectiveness of stunning and killing and to correct any deficiencies;

ii) ability to assess biosecurity risks.

3. Aquatic animal technician

a) Responsibilities

Assist when requested.

b) Competencies

i) Specific knowledge of fish, and their behaviour and environment;

ii) review on-site facilities in terms of their appropriateness for mass destruction;

iii) design and construct temporary fish handling facilities, when required;

iv) experience in fish handling procedures.

4. Personnel responsible for killing

a) Responsibilities

Ensure humane killing of fish through effective stunning/killing.

b) Competencies

i) When required by regulations, licensed to use necessary equipment;

ii) competent to use and maintain relevant equipment and methods for the fish species involved;

iii) competent to assess effective stunning/killing.
Appendix XXXVI (contd)

5. Carcass disposal personnel
   a) Responsibilities
      Ensure efficient carcass disposal to ensure killing operations are not hindered.
   b) Competencies
      Competent to use and maintain available equipment and apply techniques for the fish species involved.

Article 4

Operational guidelines

1. Planning humane killing of fish

   A plan for the humane killing of fish on affected premises should be developed by the Competent Authority. The plan should include consideration of:
   a) minimising handling and movement of fish;
   b) killing the fish on the affected premises; however, there may be circumstances where the fish may need to be moved to another location for killing; when the killing is conducted at fish slaughterhouse, the guidelines in Appendix X.X.X. should be followed;
   c) the species, number, age and size of fish to be killed;
   d) methods of killing the fish, and the costs thereof;
   e) the availability of chemicals/equipment needed for the killing of the fish;
   f) the facilities available on the aquaculture premises for sampling of dead fish following the killing;
   g) biosecurity issues;
   h) any legal issues that may be involved, in example where restricted veterinary drugs or poisons may be used, or where the process may impact on the environment, and
   i) the presence of other nearby aquaculture premises;
   j) implementation time.

   In designing a killing plan, it is essential that the method chosen be consistently reliable to ensure that all fish are humanely and quickly killed.

2. Killing of fish
   a) Single individuals

      Any moribund, injured or seriously sick fish with no chance of recovery should be killed humanely without delay.
Such fish should be killed instantly by a blow to the head or by a suitable anaesthetic. Only anaesthetics registered for use in fish should be used. No fish should die by asphyxiation.

b) Mass kill

Mass kill of fish for disposal due to disease control or other purposes should be conducted under the supervision of the Competent Authority. The method of choice will depend on whether the killing takes place in a closed-, semi-closed- or open system.

Signs of effective stunning/killing include:

i) absence of respiratory movement (loss in opercular activity);

ii) absence of visual evoked response (VER);

iii) absence of vestibulo-ocular reflex (VOR, eye rolling);

iv) absence of tail reflex and muscular movements.

Article 5

Mechanical stunning methods for finfish

1. Percussive stunning

a) Introduction

Killing by a blow to the head may be an appropriate humane killing method for larger fish, when the number of fish is limited. Operating personnel using this method for killing should be competent to ensure the method is performed properly. Ideally, this method should be followed by decapitation, pithing or exsanguination. Percussive stunning is an irreversible method in more than 99% of the cases if correctly applied. The fish should be out of water for only 5–10 seconds before blow is applied.
Appendix XXXVI (contd)

b) Requirements for effective use

i) Operating personnel using manual or automated percussive stunning should be skilled in order to ensure the humane killing of fish.

ii) Fish should be quickly removed from the water, restrained and given a quick blow to the head, delivered either by a club or by mechanical stunning device.

iii) The blow should be of sufficient force and delivered above or adjacent to the brain in order to render immediate unconsciousness.

iv) The fish should be inspected to check the effectiveness of stunning, and restunned if necessary.

c) Advantages

When percussive stunning is applied correctly, loss of consciousness is immediate.

d) Disadvantages

When the method is used improperly, immediate unconsciousness is not achieved and injuries as well as poor welfare to the fish may occur. Manual percussive stunning is only practicable for the killing of a limited number of fish. Defined criteria for all types of fish are lacking.

e) Conclusion

Percussive stunning is suitable for killing fish species such as salmonids and halibut and should ideally be followed by decapitation, pithing or exsanguination to ensure death.

2. Spiking, coring and Iki-jime

a) Introduction

Spiking, coring or Iki-jime are irreversible killing methods for fish based on physical damage to the brain by inserting a spike into the brain either manually or using specially developed equipment to destroy sensory and motor functions in large fish. The so-called captive needle stun is a modification of spiking.
The spike should be aimed on the skull in a position to penetrate the brain of the fish and the impact of the spike should produce immediate unconsciousness. Physical damage to the brain caused by penetration of the bolt may result in death; however, pithing or bleeding should be performed as soon as possible after the shot to ensure the death of the fish. The elapsed time between capture and spiking should be between 5–10 seconds and a minute.

b) Requirements for effective use

i) Operating personnel using manual or automated spiking equipment should be skilled in order to ensure the humane killing of fish.

ii) Only specifically designed devices should be used.

iii) Fish should be quickly removed from the water, restrained and the spike immediately inserted into the brain either manually or by an automated device.

iv) The spike should be inserted in such a way that the brain is completely destroyed.

c) Advantages

Immediate onset of unconsciousness occur when the spike is correctly and accurately applied and with immediate loss of movements and visual evoked response (VER).

d) Disadvantages

i) Difficult to apply in agitated fish.

ii) The handling of the fish during spiking may result in inaccurate application of the spike positioning and orientation may cause disabling and injuries to the fish and thus poor fish welfare will occur.

iii) Not applicable under field conditions unless the fish farm is equipped with sanitary slaughter equipment for the purpose.

e) Conclusion

The method is suitable for killing larger fish (including tuna) when used in fish slaughterhouses or in farms equipped with sanitary slaughter equipment.

3. Free bullet

a) Introduction

Shooting by using a free bullet may be used for killing large fish (tuna). The fish may either be crowded in the net and shot in the head, or caught and held in a fixed position in the surface of the net (gaffing) prior to being shot in the head. Commonly used firearms for shooting large fish include a 12-bore shotgun and a Magnum handgun (0.357).
Appendix XXXVI (contd)

b) Requirements for effective use

The fish should be positioned correctly and the shooting range should be as short as practicable.

c) Advantages

Shooting may be an effective and humane method for killing large fish as minimal handling and restraint are required.

d) Disadvantages

i) Gaffing causes pain.

ii) Gun noise may cause stress reactions.

iii) May be hazardous to operating personnel.

iv) Contamination of the working area due to release of body fluids may present a biosecurity risk.

e) Conclusions

The method is suitable for killing large fish under field conditions.

Article 6

Electrical stunning

1. Introduction

Electrical stunning involves the application of an electrical current of sufficient strength, frequency and duration to cause immediately unconsciousness. Provided sufficient current is applied, fish will not recover consciousness.

2. Requirements for effective use

a) Operating personnel of electrical stunning equipment should be competent in applying the method properly.

b) The electrical stunning device should be constructed and used for the specific fish species and their environment.

c) The equipment used for stunning should be maintained and operated in accordance with the manufacturer’s recommendations, and it should be tested on a regular basis to ensure that the power output is adequate.

d) The equipment should only be used in accordance with the manufacturer’s recommendations.

e) It should be ensured that heads of the fish are confined beneath the surface of the water, and that there is a uniform distribution of electrical current in the stun tank or chamber.
f) Uniform distribution of an appropriate electrical current in the water bath in which the fish are contained.

g) The time between crowding and stunning should be kept to a minimum.

Since fish for disposal do not need to be bled, the duration of the current in the bath should be of sufficient length to ensure that the fish are dead. An effective stun and kill should be verified. Signs of correct stunning include:

h) immediate loss of respiratory movement (loss in opercular activity);

i) loss of visual evoked response (VER);

j) immediate loss of vestibulo-ocular reflex (VOR, eye rolling);

k) loss of tail reflex and muscular movements.

3. Advantages

a) Electrical stunning is humane as the method may stun and kill immediately, and the fish do not have to be removed from the water.

b) A large number of fish may be stunned/killed simultaneously with minimum handling and restraint.

c) Non-invasive technique minimises biosecurity risk.

4. Disadvantages

a) Requires industrial fish slaughterhouse premises or similar and is not applicable for mass kill of fish under field conditions.

b) The electrocution equipment should be applied and maintained correctly to produce an effective stun and kill.

c) Requires a reliable supply of electricity.

d) May be hazardous to operating personnel.

5. Conclusions

The method is suitable for killing fish under controlled conditions.

Chemical and physical killing methods

1. Use of chemicals added to the water

Chemicals used for killing fish should kill the fish effectively, not merely have an anaesthetic effect. When using such chemicals, the operating personnel should ensure that the solution has the correct concentration, and that sea water is used for marine fish species and freshwater for freshwater species. If a chemical solution is to be used several times, aeration or oxygenation of the solution should be carried out to avoid suffocation.
Appendix XXXVI (contd)

Fish should be kept in the chemical solution until they are dead. Fish that are merely anaesthetised should be killed by another method such as bleeding, decapitation or appropriate mechanical stunning.

Suitable chemicals include:

a) Benzocaine hydrochloride can produce a deep anaesthesia when added in an overdose to water. Since the solubility of benzocaine in water is low, it has to be administered from a stock solution of either ethanol (10%) or propylenglycol (5%). A final solution of 100 mg/liter is sufficient to kill fish.

b) Iso-eugenol (2-methoxy-4-propenylphenol) (Aqui S) is effective for killing fish. The effective dose for killing is 25 ml/1000 liter of water.

c) Metacaine (tricaine metansulfonat, MS 222) has a similar effect as benzocaine. The solubility in water is high. A final solution of 100 mg/liter is sufficient to kill fish, but a concentration of \( \geq 250 \text{mg/liter} \) for 10 minutes following cessation of opercular movements is recommended.

d) Metomidate hydrochloride is effective in anaesthetising fish in aquaria as well as catfish, salmonids, etc. Induction of anaesthesia is rapid (1–2 minutes) and without stress reactions such as elevated heart rate. In salmonids, the recommended dose is 2–6 mg/liter of water. Metomidate may give inadequate anaesthesia of larvae of some fish species such as goldfish and red drum.

e) Rotenone is effective for killing fish and may be used for mass killing of feral fish when they are still in natural water courses. The effective dose of active rotenone is 0.025 to 0.15 g/1000 liter depending on fish species to be killed. Rotenone is less effective at temperatures below 10°C and in water with high sediment content. The effect of rotenone is reversible and fish may be revived if introduced into oxygenated water without rotenone.

2. Requirements for effective use

a) Sufficient quantities of the chemical need to be added to the water.

b) Should be followed by killing if fish are merely anaesthetised.

3. Advantages

a) Large numbers of fish may be stunned in one batch.

b) Handling is not required until fish are anaesthetised or euthanized.

c) Biosecurity.

4. Disadvantages

a) May need to be followed by killing if fish are anaesthetised only.

b) Care is essential in the preparation and provision of treated water, and in the disposal of treated water and contaminated carcasses.
5. **Conclusion**

The method is suitable for killing large numbers of fish in closed compartments.

**Article 8**

**Unacceptable methods, procedures or practises on finfish welfare grounds**

The following methods are not acceptable for killing fish on welfare grounds:

a) The use of CO₂ alone or in combination with chilled water/crushed ice is not acceptable for the mass table killing of fish, due to its aversive effects.

b) Salt or ammonia baths used on eels are not acceptable due to their aversive effects.

c) Asphyxiation is not acceptable as sensation is not lost during the slow induction.

d) Exsanguination is not acceptable for killing conscious fish.

**Article 9**

**Other killing methods**

1. **Decapitation**

   a) Introduction

   Decapitation, using a sharp device such as a guillotine or knife, may be used for killing fish but only following anaesthesia; the method results in death by cerebral ischaemia.

   b) Requirements for effective use

   The required equipment should be kept in good working order.

   c) Advantages

   The technique is effective for the killing of eels when applied properly.

   d) Disadvantages

   Contamination of the working area due to bleeding and body fluids may present a biosecurity risk. The method is not applicable to other fish species than eel.

   e) Conclusion

   The method is acceptable only for killing eels.

2. **Maceration**

   a) Introduction

   Maceration by a mechanical device with rotating blades or projections causes immediate fragmentation and death in newly hatched fish and embryonated eggs, as well as fertilised/unfertilised eggs of fish. It is a suitable method for the processing of such material. The procedure results in immediate death and a large number of eggs/newly hatched fry can be killed quickly and humanely. For biosecurity reasons, macerated material from infected fish should be treated by one of the processing methods given in OIE Guidelines for handling and disposal of carcasses and waste of aquatic animals (in preparation).
Appendix XXXVI (contd)

Maceration requires specialised equipment which should be kept in good working order. The rate of introducing material into the device should be such that the equipment does not jam.

b) Conclusion

The method is suitable for killing large numbers of eggs/newly hatched fry of fish.

Article 10

Table summarising acceptable killing methods for fish

<table>
<thead>
<tr>
<th>Species</th>
<th>Method</th>
<th>Animal welfare concerns / implications</th>
<th>Additional comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salmonids, cod (gadids) and flatch (gangids)</td>
<td>Anaesthetic overdose using benzocaine, metacaine, iso-eugenol.</td>
<td>Considered to have a low impact on welfare but mode of operation of chemicals in all species is not known.</td>
<td>Applicable to all sizes of fish</td>
</tr>
<tr>
<td></td>
<td>Percussive stunning.</td>
<td>Should be properly applied to be humane and effective. Low impact on welfare.</td>
<td>Suitable for fry handled individually</td>
</tr>
<tr>
<td></td>
<td>Electrical stunning.</td>
<td>The equipment should be maintained and applied correctly to produce an effective stun and kill. Low impact on welfare. Suitable in salt water.</td>
<td>May be hazardous to personnel. Applicable to all sizes</td>
</tr>
<tr>
<td>Tuna</td>
<td>Spiking, coring, Iki-Jime.</td>
<td>When applied properly, the fish are killed instantly.</td>
<td>Applicable to all sizes</td>
</tr>
<tr>
<td></td>
<td>Free bullet.</td>
<td>When applied properly, the fish are killed instantly.</td>
<td>Applicable to all sizes, Operator safety needs to be addressed.</td>
</tr>
<tr>
<td>Cyprinoids</td>
<td>Anaesthetic overdose using benzocaine, metacaine, iso-eugenol.</td>
<td>Considered a low impact on welfare but mode of operation of chemicals in all species not known.</td>
<td>Applicable to all sizes</td>
</tr>
<tr>
<td>Eels</td>
<td>Decapitation.</td>
<td>Negative impact on welfare. Acceptable if preceded by anaesthesia</td>
<td>May be hazardous to personnel.</td>
</tr>
<tr>
<td></td>
<td>Electrical stunning.</td>
<td>Eels are resistant to electrical stunning and require high currents for at least 5 minutes to achieve insensibility. Negative impact on welfare.</td>
<td>May be hazardous to personnel.</td>
</tr>
<tr>
<td></td>
<td>Percussive stunning.</td>
<td>Low impact on welfare.</td>
<td>Suitable for fry handled individually</td>
</tr>
</tbody>
</table>
### Table 1

<table>
<thead>
<tr>
<th>Species</th>
<th>Method</th>
<th>Animal welfare concerns / implications</th>
<th>Additional comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ornamentals</td>
<td>Anaesthetic overdose using benzocaine,</td>
<td>Considered a low impact on welfare but mode of operation of chemicals in all species not known.</td>
<td>Applicable to all sizes.</td>
</tr>
<tr>
<td></td>
<td>metacaine, iso-eugenol.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other species</td>
<td>Spiking, coring and Iki-jime (tuna).</td>
<td>When applied properly, the <em>fish</em> are killed instantly.</td>
<td></td>
</tr>
<tr>
<td>Percussive stunning.</td>
<td>Should be properly applied to be</td>
<td></td>
<td>Suitable for <em>fish</em> handled individually</td>
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<td>humane and effective. Low impact on</td>
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<td>effective stun and kill. Low impact on</td>
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<td></td>
<td>welfare.</td>
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</tr>
<tr>
<td>Newly hatched fry/eggs of any</td>
<td>Anaesthetic overdose using benzocaine,</td>
<td>Considered a low impact on welfare but mode of operation of chemicals in all species not known.</td>
<td>Applicable to all sizes.</td>
</tr>
<tr>
<td>fish species</td>
<td>metacaine, iso-eugenol.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maceration.</td>
<td>Low impact on welfare.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* The order of description of the methods is not in an order of acceptability from a *fish* welfare point of view.

Note: The table does not represent an exclusive list of acceptable methods.

**Article 11**

**Handling of fish killed for disposal**

See Appendix X.X.X. (under preparation) on the Guidelines for the handling and disposal of carcasses and waste of aquatic animals.
Report of the Meeting of the Teams Comprising the OIE Ad Hoc Group on the List of Aquatic Animal Diseases

Paris, March 2006

The OIE ad hoc Group on the List of Aquatic Animal Diseases comprises three teams – finfish diseases, mollusc diseases and crustacean diseases.

The reports of the discussions of the teams were circulated to Member Countries in the report of the meetings of October 2004 and August 2005 of the Aquatic Animals Commission.

This report addresses the 2005 and 2006 meetings of the crustacean and finfish diseases teams.

The report of the crustacean diseases team is at Appendix A.

The report of the finfish diseases team is at Appendix B.

.../Appendices
The OIE ad hoc group on the OIE List of Aquatic Animal Diseases - Crustacean Team (hereinafter called the ad hoc group) for the OIE Aquatic Animal Health Code (hereinafter called the Aquatic Code) met at the OIE Headquarters from 6 to 7 October 2005.

On behalf of Dr Bernard Vallat, Director General of the OIE, Dr David Wilson, Head of the International Trade Department, welcomed the members of the ad hoc group and thanked them for their willingness to be involved in addressing this mandate of the OIE.

The members of the OIE ad hoc group are listed in Appendix I. The Agenda adopted is given in Appendix II, and the terms of reference in Appendix III.

1. Diseases listed as [under study]

The ad hoc group discussed the diseases listed as [under study] in Chapter 1.1.3. of the Aquatic Code, taking into account the relevant Member Countries’ comments received on the Aquatic Animal Health Standards Commission’s (hereinafter called the Aquatic Animals Commission) reports of October 2004 and January 2005. The ad hoc group noted that those comments mainly addressed the Aquatic Animals Commission’s recommendations to include “Necrotising hepatopancreatitis” (NHP) and “Infectious myonecrosis” (IMN) in the list of Diseases Listed by the OIE.

With regard to NHP caused by necrotising hepatopancreatitis bacteria (NHP-B), Australia questioned the proposed listing of NHP in relation to criteria 4 and 8. The ad hoc group disagreed because several robust diagnostic tests are available from the literature or from commercial sources for confirmation of presumptive infections (see Appendix IV for appropriate peer reviewed publications with diagnostic methods).

The European Union (EU), supported by Norway, expressed concerns regarding criteria 1, 6 and 7. Regarding criterion 1, the ad hoc group pointed out that NHP has been for at least the past 10 years among the most serious diseases in the Americas. Additionally, the management of NHP with medicated feeds was not always effective and poses potential residue problems. Regarding criterion 6, the ad hoc group noted that absence of evidence of transmission of disease (e.g. to Asian countries) is likely due to environmental conditions in those countries not being conducive to clinical expression. Regarding criterion 7, the ad hoc group noted that NHP has never been officially reported outside the Americas, a point which emphasises that a large portion of the world is potentially at risk for introduction of NHP-B. The ad hoc group agreed with the Aquatic Animals Commission’s January 2005 report and recommended the addition of NHP to the OIE list of diseases.
Appendix XXXVII (contd)

Appendix A (contd)

With regard to IMN, the EU (supported by Norway) expressed the opinion that IMN fails to meet criterion 7. The ad hoc group agreed with Aquatic Animals Commission’s conclusion that, while IMN has a limited distribution at the present time (confined to parts of one country only) the disease has shown the potential for rapid spread by spreading from a single region of one Brazilian state in 2002 into adjacent several states by 2005. The ad hoc group pointed out that the same potential for spread would exist were the disease to be introduced to other areas where susceptible species are present. In reference to point 7, therefore, there are no reports of IMN virus outside of the infected country in South America. The ad hoc group considered that this supported the argument that all other regions of the world with susceptible species are free from the disease.

With regard to Australian’s comment re criterion 8, the ad hoc group pointed out that there are at least two commercial PCR kits on the market for detection of IMNV as well as two peer reviewed publications (either currently in print or in press, see Appendix IV for more details). The ad hoc group agreed with Aquatic Animals Commission’s recommendation to add IMN to the OIE list of diseases.

Supporting documentation is attached in Appendix IV.

2. Recommended listed emerging aquatic animal disease

The ad hoc group was joined by Dr Karim Ben Jebara, the Head of the OIE Animal Health Information Department, for clarification on the procedures for OIE listing of aquatic emerging diseases.

The ad hoc group revisited Member Countries’ comments and the Aquatic Animals Commission’s recommendations and supported the inclusion of the following diseases in the list of OIE diseases as they were considered to meet the emerging diseases listing criteria in Article 1.1.2.2. (supporting documentation is attached in Appendix V):

a) Infection by Mourilyan virus (MoV)

The ad hoc group reconsidered the criteria for listing (in Article 1.1.2.1), particularly in relation to Criteria 1, 4 and 5 which the Aquatic Animals Commission and Member Countries do not consider to have been fully met at this time. In particular, Australia questioned the approach the ad hoc group used to evaluate MoV and SMV against the listing criteria and the lack of evidence for demonstrating the association of MoV with disease.

Criterion 1 refers to the disease and its consequences. MoV has been reported to be associated with disease and significant production losses at a national level in *Penaeus monodon* and *Marsupenaeus japonicus* in Australia (Cowley et al., 2005a, 2005b; see Appendix V). The disease in *P. monodon* is known as mid-crop mortality syndrome (MCMS). The ad hoc group agreed with Member Countries that expression of disease may be associated with management and/or environmental factors but this was also true for most or all of the listed crustacean diseases, including white spot disease. On the basis that the disease has caused significant production losses at a national level, the ad hoc group considered Criterion 1 to have been met.

Criteria 4 and 5 refer to the aetiology and potential for spread of the disease. The ad hoc group agreed with Member Countries that populations of *P. monodon* in Australia are commonly infected with several viruses including GAV, SMV, IHHNV and MoV and the roles of each of these viruses in disease is yet to be fully resolved. However, there is little or no evidence that either SMV or IHHNV are involved in the aetiology of disease in *P. monodon* and mortalities in *M. japonicus* have been associated only with MoV in the absence of GAV, SMV and other known pathogens. This association is characterized by a progressive elevation of viral genetic load and systemic spread of the virus up to and during the onset of disease signs and mortalities. Although disease transmission experiments had not yet been conducted and so the infectious aetiology was not yet confirmed, the ad hoc group considered MoV to be strongly associated with the disease. The ad hoc group therefore agreed with the Aquatic Animals Commission that Criterion 4 has not been met but considered that Criterion 5 has been met in relation to MoV.
Other Criteria relevant to disease listing by the *ad hoc* group were not contested by the Aquatic Animals Commission or Member Countries.

The *ad hoc* group agreed with Member Countries that further work is required to adequately document the aetiology of this disease. However, the *ad hoc* group considered there was sufficient evidence that MoV is associated with a significant disease in two major aquaculture production species to merit appropriate measures to limit its spread. There is an active trade in *P. monodon* broodstock from Australia to Asia and the Pacific and there is evidence of MoV infection in some importing countries (*ad hoc* group, unpublished data). There is also evidence that MoV has been transmitted to *M. japonicus* in Australia from *P. monodon* which is the natural host (Cowley and associates, unpublished). As suggested by the Aquatic Animals Commission, the *ad hoc* group therefore recommended listing MoV under emerging disease Criteria 2 and 4 under Article 1.1.2.2.

b) White Tail Disease (MrNV & XSV)

The Commission agreed with Australia that WTD may not fully meet criterion 4. Therefore, the *ad hoc* group supported Aquatic Animals Commission’s recommendation to consider WTD as a candidate for listing as an emerging disease while the experts working on this disease better document the role of the two viral agents believed to be involved in the aetiology of this disease.

c) Infection by HPV

The *ad hoc* group agreed with the European Union (supported by Norway) and Australian comments that HPV may not fully meet criteria 1 and 8.

The *ad hoc* group disagreed with the comments regarding criterion 1 because HPV is clearly documented in the literature as the cause of significant disease problems in several regions and species (see Appendix V for references documenting the current situation).

However, the *ad hoc* group agreed that the criteria 8 in Article 1.1.2.1. was not met with the current diagnostic methods for HPV. Specifically, not all HPV strains are detected with the current PCR testing methods.

Therefore, the *ad hoc* group supported Aquatic Animals Commission’s recommendation to consider HPV as a candidate for listing as an emerging disease.

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.../Appendices
MEETING OF THE OIE AD HOC GROUP ON THE
OIE LIST OF AQUATIC ANIMAL DISEASES - CRUSTACEAN TEAM FOR THE
OIE AQUATIC ANIMAL HEALTH CODE

Paris, 6-7 October 2005

List of Participants

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MEETING OF THE OIE AD HOC GROUP ON THE
OIE LIST OF AQUATIC ANIMAL DISEASES - CRUSTACEAN TEAM FOR THE
OIE AQUATIC ANIMAL HEALTH CODE

Paris, 6-7 October 2005

Adopted Agenda

1 OIE List of Aquatic Animal Diseases
   a. Assess crustacean diseases currently listed as [under study] against the aquatic animal
disease listing criteria considering the comments received
AD HOC GROUP ON THE OIE LIST OF AQUATIC ANIMAL DISEASES

Terms of Reference

1. To assess the diseases currently listed as [under study] in the Aquatic Animal Health Code against the aquatic animal disease listing criteria, and recommend whether they should be added to or deleted from the list; to provide documented scientific justification for any recommendations.

2. To produce a report on these findings to the OIE Aquatic Animal Health Standards Commission.

3. To consider comments received and submit a report to the Commission.
List of crustacean diseases currently shown as “under study” in the OIE list of diseases and the recommendations by the OIE Ad hoc group on the OIE List of Aquatic Animal Diseases - Crustacean Team for the OIE Aquatic Animal Health Code

<table>
<thead>
<tr>
<th>Crustacean diseases</th>
<th>Meets disease listing criteria (Article 1.1.2.1 of the Aquatic Animal Health Code)</th>
<th>OIE List (retain, add, delete)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 2 3 4 5 6 7 8</td>
<td></td>
</tr>
<tr>
<td>Necrotizing Hepatopancreatitis (NHP-B / bacterial)</td>
<td>+ - - + NA + + +</td>
<td>add</td>
</tr>
<tr>
<td>Infectious Myonecrosis (IMNV)</td>
<td>+ - - + NA + + +</td>
<td>add</td>
</tr>
</tbody>
</table>
JUSTIFICATION FOR LISTING

I. Necrotizing Hepatopancreatitis (NHP-B / an alpha proteobacteria)

A. Consequences

1. Significant losses due to morbidity, mortality or product quality

Where NHP occurs, it causes significant production losses in shrimp farms, which may approach 100% if not correctly diagnosed and treated. The occurrence of NHP disease seems to be dependent upon a combination of high temperature and high salinity, with the disease most often tending to occur in regions where the disease is enzootic during the dry season when water temperatures and salinity are near or greater than 30°C and 30 ppt, respectively. In some epizootics of NHP, entire shrimp farming regions are severely impacted with significant crop losses.

While NHP can be treated with medicated feeds containing certain antibiotics to which the causative bacterium is sensitive, cultured stocks with developing infections by NHP are often not diagnosed before going off feed and becoming difficult or impossible to treat.

2. Affects wild crustacean populations

NHP has been detected in wild penaeid shrimp in areas where the disease also occurs in farms.

3. Public health concern

None.

B. Spread

1. Infectious aetiology proven

The aetiology of NHP disease is proven. NHP disease is caused by an alpha proteobacterium that has not formally been named but is generally referred to as NHP-B.

2. Infectious agent associated but aetiology not proven

N/A.

3. Potential for international spread via live animals, their products and inanimate objects

a. International trade in susceptible species exists or likely to develop

Yes.

b. Trading practices make entry and establishment a likely risk

Yes.
NHP has been reported from cultured penaeid shrimp in Texas (USA), Mexico, Central America (Belize, Guatemala, Nicaragua, Costa Rica, and Panama), Peru, Ecuador, Colombia, Venezuela, and Brazil. It was documented to have been transferred to Eritrea (northeast Africa) with imported *Litopenaeus vannamei* from Mexico, where within one year of its introduction it caused such severe disease losses that the importing facility was depopulated and disinfected to eradicate the disease.

Despite numerous introductions into east and southeast Asia of *L. vannamei* and *L. stylirostris* from affected regions in the Americas, NHP has not been reported in these importing countries.

4. **Several countries/zones could be declared free**

No countries or zones have been declared free based on the general surveillance principles outlined in Chapter 1.1.4 of the *Aquatic Manual*. Some compartments in USA have declared freedom from NHP-B.

C. **Diagnosis**

1. **A repeatable and robust means of detection/diagnosis exists**

   a. **Widely available test**

   **Classical methods:** NHP can be tentatively diagnosed using simple wet-mounts of tissue squashes of the hepatopancreas by demonstration of reduce stored lipid droplets in the HP, and by distinctive pathological changes to the HP tubules. Definitive diagnosis is accomplished using routine paraffin/H&E methods.

   **Antibody-based methods:** Monoclonal antibodies to NHP have been developed and these are expected to be commercially available by late 2005.

   **Molecular methods:** Standard PCR and real-time PCR methods, and non-radioactive DNA probe methods are available for the detection of NHP-B, the bacterial agent of NHP.

   b. **Formal standardization and validation**

   Standardized approaches but PCR, ISH, and antibody based diagnostic methods have not been formally validated.

D. **Source of expertise**

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**References**

Appendix XXXVII (contd)

Appendix A (contd)

Appendix IV (contd)


II. Infectious Myonecrosis (IMNV)

A. Consequences

1. **Significant losses due to morbidity, mortality or product quality**

   Infectious myonecrosis (IMN) is a recently identified disease in cultured *Litopenaeus vannamei* in northeast Brazil. IMN causes significant disease and mortalities in juvenile and subadult pond-reared stocks of *L. vannamei*. In 2003, IMN was estimated to have caused $20 million in losses to the affected farms in Brazil. In 2004, the losses to the industry are expected to be greater than $20 million.

   IMN presents as a disease with an acute onset of gross signs and elevated mortalities, but it progresses with a more chronic course accompanied by persistent low level mortalities. To date, IMN appears to be limited to northeast Brazil, but shrimp with similar gross signs have been also reported from other countries where *L. vannamei* are cultured.

2. **Affects wild shrimp populations**

   Not known.

3. **Public health concern**

   None.

B. Spread

1. **Infectious aetiology proven**

   Infectious myonecrosis (IMN) has been demonstrated to be caused by the virus IMNV, a 40 nm unenveloped dsRNA virus tentatively placed in the *Totiviridae*.

2. **Infectious agent associated but aetiology not proven**

   N/A.

3. **Potential for international spread via live animals, their products and inanimate objects**

   Since the disease was first recognized in 2002 in Piauí state in northeast Brazil, the disease spread in 2003 into the states of Ceará and Rio Grande do Norte. By August 2004, the range of the disease had expanded to include shrimp farms in the states of Paraíba and Pernambuco.

   The principal species of shrimp farmed in Brazil is *L. vannamei*. This species is not native to Brazil and all stocks grown in Brazil have been imported. Brazil imposed a ban on imports of live penaeid shrimp in about 1998. Consequently, it developed its large shrimp farming industry using shrimp stocks in the country prior to the import ban. The stocks of *L. vannamei* developed and cultured in Brazil are not deemed to be superior to those cultured elsewhere in Latin America. Hence, Brazilian stocks of live *L. vannamei* have not been exported from Brazil for development elsewhere. Nonetheless, frozen farm raised shrimp (90,000 tons) were exported from Brazil in 2003, and live shrimp (broodstock, nauplii, or post-larvae) might be exported from Brazil to other countries in Latin America for commercial development.
IMNV is known to cause persistent infections in apparently healthy animals which facilitate spread of infection.

4. Several countries/zones could be declared free

No countries or zones have been declared free based on the general surveillance principles outlined in Chapter 1.1.4. of the Aquatic Manual. Some compartments in the USA have declared freedom from IMNV based on the results of testing for the virus in a targeted surveillance programme.

C. Diagnosis

1. A repeatable and robust means of detection/diagnosis exists

   a. Widely available test

      Classical methods: Acute IMN disease can be tentatively diagnosed from gross signs of multifocal to generalized muscle necrosis visible as opaque muscles. Definitive diagnosis is accomplished using routine paraffin/H&E methods by the demonstration of myonecrosis and significant hypertrophy of the lymphoid organ (LO) with the formation of spheroids (LOS), which may also commonly occur at sites distant to the LO (ectopic LOS).

      Molecular methods: Standard one step RT-PCR, nested RT-PCR and non-radioactive DNA probe methods are available for the detection of IMNV, the viral agent of IMN.

   b. Formal standardization and validation

      Standardized approaches but PCR not formally validated.

D. Source of expertise:

DONALD V. LIGHTNER, Department of Veterinary Science and Microbiology, University of Arizona, Tucson, AZ, 85721 USA. e-mail: dvl@u.arizona.edu; office: 1 520 621-8414.

References


List of emerging crustacean diseases recommended for addition to the OIE list of crustacean
diseases by the OIE *Ad hoc* group on the OIE List of Aquatic Animal Diseases -
Crustacean Team for the OIE *Aquatic Animal Health Code*

<table>
<thead>
<tr>
<th>Crustacean diseases</th>
<th>Meets emerging disease listing criteria (Article 1.1.2.2 of the <em>Aquatic Animal Health Code</em>)</th>
<th>OIE List (retain, add, delete)</th>
</tr>
</thead>
<tbody>
<tr>
<td>White Tail Disease (MrNV &amp; XSV)</td>
<td>+  +  -  +</td>
<td>add</td>
</tr>
<tr>
<td>Infection with HPV</td>
<td>+  N/A  -  +</td>
<td>add</td>
</tr>
<tr>
<td>Infection with Mourilyan virus (MoV)</td>
<td>-  +  -  +</td>
<td>add</td>
</tr>
</tbody>
</table>
I. White Tail Disease (WTD caused by infection by MrNV [a nodavirus] & XSV [a very small ssRNA virus])

1) Infectious aetiology proven

Yes. Two viruses have been isolated from diseased prawns with WTD. These have been characterized and named Macrobrachium nodavirus (MrNV) and extra small virus (XSV).

Note (from J.R. Bonami): “About this criterion, it is for the moment difficult to say what is the role of each virus in the disease. What we know is: as the XSV genome codes only for capsid proteins and does not possess a RNA polymerase gene, it should need the help of MrNV-RdRp to replicate. Experimental transmission of the disease was accomplished using a mix of MrNV and XSV”.

2) Infectious agent associated but aetiology not proven

N/A.

3) Public health concern

None.

4) Significant spread in naive populations

Transfer of the disease was documented to have occurred with the movement of infected postlarval *M. rosenbergii* from Guadeloupe to Puerto Rico.

The sudden appearance of the disease in regions of China, Bangladesh (Nair, personal communication) and India suggests that it was introduced. However, the disease has not been reported from southeast Asia, where major industries are present that culture *M. rosenbergii*.

There is significant international trade in live *M. rosenbergii* for aquaculture purposes which may facilitate further spread of WTD.

Source of expertise:

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DR. C.M. NAIR, Associate Professor, College of Fisheries, Cochim, Kerala Agricultural University, Kerale, India. E-mail: naircm@hotmail.com Tel.: +91-484-2700–274.
References


II. Infection with Hepatopancreatic parvovirus (HPV)

1) Infectious aetiology proven

The virus has been successfully passed from infected to uninfected hosts.

Virions of HPV are small, un-enveloped, ~22 nm diameter icosahedrons with a 5 kb ssDNA genome. The virus is considered to belong to the *Densovirinae*.

At least three distinct strains/types of HPV have been shown to exist using molecular methods.

2) Infectious agent associated but aetiology not proven

N/A.

3) Public health concern

None.

4) Significant spread in naive populations

HPV has been shown to adversely affect its host species.

Disease due to hepatopancreatic parvovirus (HPV) infection has been associated with significant disease losses, including high mortality rates, in postlarval and early juvenile stages of *Fenneropenaeus chinensis* and *Penaeus monodon* in the nursery phase of culture when high stocking densities are employed.

In an epidemiological study of significant diseases of pond-reared *P. monodon* in Thailand, HPV was linked to reduced growth and poor culture performance resulting in significantly reduced crop production.

HPV is known to infect a number of penaeid species in many geographic regions including:

Asia: *Fenneropenaeus chinensis, Fe. merguiensis, Fe. indicus, Marsupenaeus japonicus* and *P. monodon*.

Australia: *P. esculentus, Fe. merguiensis* and *Ma. japonicus*

East Africa & the Middle: *East: P. monodon* and *P. semisulcatus*

Americas: *Litopenaeus vannamei, L. stylirostris* and *L. schmitti*.

HPV’s effect on wild populations is not known.

Source of expertise

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Appendix XXXVII (contd)

Appendix A (contd)

Appendix V (contd)

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References


III. Infection with Mourilyan virus (MoV)

1) Infectious aetiology proven

None.

2) Infectious agent associated but aetiology not proven

MoV has been reported to be associated with disease and significant production losses at a national level in *Penaeus monodon* and *Marsupenaeus japonicus* in Australia (Cowley et al., 2005a, 2005b). The disease in *P. monodon* is known as mid-crop mortality syndrome (MCMS). Several viruses including MoV have been associated with MCMS. Disease and mortalities in *M. japonicus* have been associated only with MoV in the absence of other known pathogens. This association is characterized by a progressive elevation of viral genetic load and systemic spread of the virus up to and during the onset of disease signs and mortalities. Disease transmission experiments have not yet been conducted and so the infectious aetiology is not yet proven. However, there is sufficient evidence that MoV is associated with a significant disease in two major aquaculture production species to merit appropriate measures to limit its spread.

3) Public health concern

None.

4) Significant spread in naive populations

MoV occurs with high prevalence in *Penaeus monodon* populations in Australia. There is a significant trade in *P. monodon* broodstock from Australia to Asia and the Pacific and there is evidence of MoV infection in some importing countries (ad hoc group, unpublished data). There is also evidence that MoV has been transmitted to *M. japonicus* in Australia from *P. monodon* which is the natural host (Cowley and associates, unpublished).

Source of expertise

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References


REPORT OF THE MEETING OF THE OIE AD HOC GROUP ON THE OIE LIST OF AQUATIC ANIMAL DISEASES - FINFISH TEAM FOR THE OIE AQUATIC ANIMAL HEALTH CODE

Electronic meeting, September December 2005

The membership of the team is as follows:

<table>
<thead>
<tr>
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<th>Members</th>
</tr>
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</table>
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Further re-assessment of KHV disease for OIE listing

1. INTRODUCTION

At its meeting in January 2005, the Aquatic Animal Health Standards Commission considered Member Countries’ comments on its suggested changes to the list of fish diseases. The Commission accepted some of the comments and decided to retain infectious pancreatic necrosis (IPN) and bacterial kidney disease (BKD) on the list subject to being placed ‘under study’ for re-assessment. In response to a submission from the European Commission on behalf of the EU Member States providing an assessment of koi herpes virus disease (KHVD) against the listing criteria, the Commission also placed this disease on the list as being ‘under study’ until a final decision to propose its full addition or not. The amended list of fish diseases was adopted by the OIE International Committee at the OIE General Session in May 2005.
The finfish team of the ad hoc Group was asked to re-assess IPN, BKD and KHVD taking into account comments received from OIE member countries. The finfish diseases team confirmed its view that infectious pancreatic necrosis (IPN) and bacterial kidney disease (BKD) did not fulfil the necessary OIE criteria for listing and recommended to the Aquatic Animals Commission at its meeting in August 2005 that these diseases should be removed from the OIE list. The Aquatic Animals Commission supported the recommendations that IPN and BKD be removed from the list. Regarding KHVD, one member of the finfish team did not agree with the other members that the disease met the criteria for listing, and instead proposed that the issue be debated further at an international scientific forum. The Commission agreed that, based on comments received from Member Countries and the majority view of the fish team, KHVD would be proposed for listing; however, the Aquatic Animals Commission would review that decision depending on the outcome of the final report of the finfish team.

The finfish diseases team was asked to re-assess KHVD against the aquatic animal disease listing criteria, taking into account information and opinion presented at international scientific fora, and to recommend in a final report to the Aquatic Animals Commission for consideration at its meeting in March 2006 whether this disease should be fully added to, or deleted as ‘under study’, from the OIE list.

2. **APPROACH**

It was not possible for the finfish diseases team members to meet together face to face to discuss the issues in detail, so the work was conducted by email communication only.

3. **DELIBERATIONS**

The finfish team’s previous deliberations on the listing of KHVD concluded that most criteria for listing were met but that an open forum for scientific discussion would be useful to clarify issues on those criteria that appeared less clearly met.

Such an open forum took place in conjunction with the 12th International Conference of European Association of Fish Pathologists held in Copenhagen, Denmark in September 2005. The forum, which included short presentations by leading researchers followed by detailed discussion, took place with over 30 experts on KHV, comprising scientists from the EU, USA, Japan, and Thailand, in attendance. The specific points of discussion included:

- a case definition for the disease,
- a better understanding of the current and potentially broad distribution of the associated agent,
- factors in the complex leading to a KHVD outbreak in koi,
- resolution of the apparently conflicting laboratory data emerging for the role of cyprinids other than *Cyprinus carpio* (koi or common carp) in the virus life cycle including virus transmission,
- review of past and more currently developed serological tests as sufficient indicators of potential virus carriers,
- dependence on PCR as the primary method of confirmation for presence of the associated agent,
- capability of member countries to meet the logistical challenges associated with the surveillance programs to demonstrate freedom from KHV infection, and
- effects of vaccination on surveillance programmes.
A majority of the participants at the meeting concluded that most of the criteria for listing by OIE were fulfilled by KHVD. A report of the meeting has been published in the Bulletin of the EAFP in the early part of 2006 (Haenen, O. and Hedrick, R. (2006). Koi herpesvirus workshop. Bulletin of the European Association of Fish Pathologists, 26 (1), 26-37).

A second open forum to discuss KHVD was held at the 6th Symposium on Diseases in Asian Aquaculture (DAA VI) held in Colombo, Sri Lanka in October 2005. Participants in the informal meeting comprised 10 experts from Philippines, Indonesia, Thailand, Sri Lanka and Japan, with Dr B Hill (representing the OIE Aquatic Animals Commission) acting as moderator (Appendix II). The meeting focused on assessing KHVD against each of the OIE listing criteria, taking into account recent data presented at the Symposium and the report of the KHVD workshop at the EAFP conference. There was no disagreement with the information and the majority views presented at the EAFP meeting and it was concluded unanimously by the participants that KHVD does fulfill all the criteria necessary for listing by OIE.

Given the initial deliberations of the finfish team and the conclusions reached upon the subsequent discussions at the EAFP KHVD workshop in September 2005 and the DAA VI forum in October, the finfish team agrees that KHVD meets the criteria to be listed. This takes into account particularly that robust tests now exist for the detection of the virus (although reliant upon PCR methods) and others tests provide evidence of prior exposure to the virus. Combinations of these detection procedures provide an adequate means to determine infection status at the population level and thus provide the means to establish countries or zones free of disease. The geographic distribution of the disease is expanding and has been confirmed as the cause of mass mortality among more populations of wild common carp. It is realized that the distribution of the virus amongst wild carp populations may increase the difficulty in establishing KHVD-free zones but in many cases, in particular for koi, more closed or controlled production systems are utilized. An unresolved problem is the potential host range of KHV. Most available data suggest a limited host range for the virus, a feature consistent with other known herpesviruses in both higher and lower vertebrates, but further research is need to confirm that this is the case. Determination of whether fish other than *Cyprinus carpio* can be infected and potentially succumb to KHVD, or act as carriers of the virus, is needed and is currently a subject of investigation in several laboratories.

4. CONCLUSION AND RECOMMENDATION

Taking into account the scientific information and expert views presented at the EAFP workshop, and during the forum at the DAA VI symposium, the finfish team unanimously agrees that KHVD meets the necessary criteria and recommends that this disease should be listed by the OIE without remaining ‘under study’.
REPORT OF THE MEETING OF THE OIE AD HOC GROUP ON THE CHAPITERS FOR CRUSTACEAN DISEASES FOR THE OIE AQUATIC ANIMAL HEALTH CODE

Paris, 6-7 October 2005

The OIE ad hoc group on chapters for crustacean diseases for the OIE Aquatic Animal Health Code (hereafter referred to as the ad hoc group) met at the OIE Headquarters on 6-7 October 2005.

On behalf of Dr Bernard Vallat, Director General of the OIE, Dr David Wilson, Head of the International Trade Department, welcomed the members of the ad hoc group and thanked them for their willingness to be involved in addressing this mandate of the OIE.

The members of the OIE ad hoc group are listed in Appendix I. The Agenda adopted is given in Appendix II, and the terms of reference in Appendix III.

The ad hoc group noted the terms of reference provided by the OIE Aquatic Animal Health Standards Commission (hereafter referred to as the Aquatic Animals Commission) and the reports of the ad hoc groups on fish and mollusc disease chapters for the OIE Aquatic Animal Health Code (hereafter referred to as the Aquatic Code). The ad hoc group based its approach on the “Marteilia refringens” and “epizootic haematopoietic necrosis” chapters proposed by the Aquatic Animals Commission in its report of the August 2005 meeting.

1. Internationally traded commodities for which no disease specific measures are required

The section on internationally traded commodities for which no disease specific measures are required addresses three categories of commodities:

a) susceptible species commodities destined for any purpose ;

b) susceptible species commodities destined for human consumption ; and

c) non susceptible species commodities destined for any purpose.

For the commodities from susceptible species destined for any use, the ad hoc group considered that the processing inactivated the pathogens (e.g. crustacean meals are considered non infectious because the heating/drying procedure they undergo).
Commodities from susceptible species destined for human consumption, which have been prepared in such a way as to minimise the likelihood of diversion for alternative uses, were considered suitable for international trade regardless of the health status of the exporting country for a particular disease if they are not diverted from their normal use. The ad hoc group stressed that, in case of diversion of the commodity, the risk posed by the commodity would no longer be negligible.

2. Update of the chapters for the other OIE listed crustacean diseases

Using the “Marteilia refringens” and “epizootic haematopoietic necrosis” proposed chapters as a template, the ad hoc group developed specific chapters on: Taura syndrome2 (Appendix IV), white spot disease (Appendix V), yellowhead disease (Appendix VI), tetrahedral baculovirosis (Appendix VII), spherical baculovirosis (Appendix VIII), infectious hypodermal and haematopoietic necrosis (Appendix IX), crayfish plague (Appendix X), infectious myonecrosis (Appendix XI) and necrotising hepatopancreatitis (Appendix XII).

As spawner-isolated mortality virus disease had been removed from the OIE list of diseases primarily based on the absence of a clear disease association, the ad hoc group recommended the removal of the corresponding chapter in the Aquatic Code. On the other hand, the ad hoc group recommended keeping the relevant Chapter in the OIE Diagnostic Manual for Aquatic Animal Diseases (hereafter referred to as the Aquatic Manual) for diagnostic purposes.

In the process of updating the disease chapters, the ad hoc group identified some issues where there were inconsistencies and decided to bring these issues (listed below) to the attention of the Aquatic Animals Commission:

a) The second Article of all proposed chapters requests that suspected cases of infection “in species other than those listed in this Article should be referred immediately to the appropriate OIE Reference Laboratory, whether or not clinical signs are associated with the findings”. The ad hoc group was concerned that this statement could be contradictory to national policies on disease reporting when the appropriate reference laboratory is not located in the country where the suspect case occurred.

b) The ad hoc group suggested that, for listing the susceptible shrimp species for each disease, the Aquatic Animals Commission provide guidance on which of the taxonomic schemes currently in use should be used. Two taxonomic schemes are currently in use for the penaeid shrimp. Until 1997, the penaeid shrimp nomenclature used was according to that published by the FAO in 1980 (Holthuis, L.B. 1980. FAO Species Catalog. Vol. 1 - Shrimp and Prawns of the World. FAO Fisheries Synopsis No. 125, FAO, Rome, 271). However, since 1997 much of the scientific literature on the penaeid shrimp has followed the taxonomic scheme proposed by Perez Farfante and Kensley (1997: Perez Farfante I. and 1997: Kensley B.F.). The penaeoid and sergestoid shrimps and prawns of the world: keys and diagnosis for the families and genera. Mémoires du Muséum d’histoire naturelle, 175, 1-233). However, the latter has not been universally accepted and both taxonomic schemes are in widespread use. Hence, the ad hoc group pointed out this problem to the Aquatic Animals Commission for its consideration and recommendation on how best to resolve the issue for purposes of the future editions of the OIE Aquatic Code and Aquatic Manual.

c) Because the susceptible species listed in each disease chapter are the species susceptible to natural infection rather than to experimental infection, the ad hoc group suggested that the definition of susceptible species be changed accordingly in the Aquatic Code.

_.../Appendices_

2 Appendices IV, VI, VII, VIII, IX, X, XI and XII propose significant modifications to the current Chapter in the Aquatic Code and are presented as clean text. In Appendix V, on white spot disease, amendments made to the current Chapter are shown as double underlined text, with deleted text in strikeout.

OIE Aquatic Animal Health Standards Commission/March 2006
MEETING OF THE
OIE AD HOC GROUP ON CHAPTERS FOR CRUSTACEAN DISEASES
FOR THE OIE AQUATIC ANIMAL HEALTH CODE
Paris, 6-7 October 2005

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Adopted Agenda

1  Aquatic Animal Health Code
   
   a. Identify safe commodities for Article 4.1.2.3. (white spot disease)
   b. Draft new chapters for the other OIE listed crustacean diseases
Appendix XXXVIII (contd)

Appendix III

AD HOC GROUP ON CHAPTERS FOR CRUSTACEAN DISEASES
FOR THE OIE AQUATIC ANIMAL HEALTH CODE

Terms of Reference

1. With respect to Article 4.1.2.3. (WSD) of the Aquatic Animal Health Code, to identify measures applicable to commonly traded commodities to ensure their safety and to provide documented scientific justification for any recommendations.

2. Using Chapter 4.1.2. (WSD) in the Aquatic Animal Health Code as a model, to draft new chapters for the other OIE listed crustacean diseases and to provide documented scientific justification for any recommendations.

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CHAPTER 4.1.1.

TAURA SYNDROME

Article 4.1.1.1.

For the purposes of this Aquatic Code, Taura syndrome (TS) means infection with Taura syndrome virus (TSV). Taura syndrome virus is classified as a species in the family Dicistroviridae. Common synonyms are listed in Chapter 4.1.1. of the Aquatic Manual.

Methods for surveillance and diagnosis are provided in the Aquatic Manual.

Article 4.1.1.2.

Susceptible species

For the purposes of this Aquatic Code, susceptible species for TS are: Pacific white shrimp or whiteleg shrimp (Litopenaeus vannamei), blue shrimp (L. stylirostris), northern white shrimp (L. setiferus), southern white shrimp (L. schmitti), greasyback prawn (Methapenaeus ensis) and giant tiger prawn (Peneaus monodon).

Suspect cases of natural infection with TSV in species other than those listed in this Article should be referred immediately to the appropriate OIE Reference Laboratory, whether or not clinical signs are associated with the findings.

Article 4.1.1.3.

Commodities

1. When authorising import or transit of the following commodities, Competent Authorities of the importing country should not require any TS related conditions, regardless of the TS status of the exporting country, zone or compartment.

   a) For the species in Article 4.1.1.2, for any purpose:

      i) commercially-sterile canned products;

      ii) boiled products (e.g. boiled whole shrimp or tails, lobsters, crabs);

      iii) chemically extracted chitin;

      iv) crustacean meals or by-products made non-infectious by heating or drying (e.g. flame dried or sun dried);

      v) crustacean products made non-infectious through processing as dry feeds (e.g. pelleted or extruded feeds);

      vi) biological samples preserved for diagnostic applications in such a manner as to inactivate TSV (e.g. formalin or alcohol preserved samples).
Appendix XXXVIII (contd)

Appendix IV (contd)

b) The following products destined for human consumption from species in Article 4.1.1.2 which have been prepared in such a way as to minimise the risk of diversion for alternative uses:

i) chemically preserved products (e.g. salted, pickled, marinated, pastes, etc.);

ii) cooked or dried products (e.g. ready prepared meals).

c) For species other than those listed in Article 4.1.1.2., all aquatic animal products.

For the commodities listed in point 1)b), Member Countries should consider introducing internal measures to prevent the commodity being used for any purpose other than for human consumption.

2. When authorising import or transit of the commodities of a species listed in Article 4.1.1.2., other than those listed in point 1 of Article 4.1.1.3., Competent Authorities of the importing country should require the conditions prescribed in Articles 4.1.1.7. to 4.1.1.11. of this Chapter, relevant to the TS status of the exporting country, zone or compartment.

3. When considering the import or transit of any other commodity of a species not referred to in Article 4.1.1.2. but which could be reasonably expected to be a potential TSV carrier from an exporting country, zone or compartment not declared free of TS, Competent Authorities of the importing country should conduct an analysis of the risk of introduction, establishment and spread of TSV, and the potential consequences, associated with importation of the commodity, prior to a decision. The outcome of this assessment should be made available to the exporting country.

Article 4.1.1.4.

Taura syndrome free country

A country may declare itself free from TS if it meets the conditions in points 1), 2), 3) or 4) below.

If a country shares a water catchment or coastal zone with one or more other countries, it can only declare itself a TS free country if all the areas covered by the shared water are declared TS free countries or zones (see Article 4.1.1.5.).

1. A country where none of the species listed in Article 4.1.1.2. is present may declare itself free from TS when basic biosecurity conditions have been met continuously in the country for at least the past 2 years.

OR

2. A country where the species listed in Article 4.1.1.2. are present but there has never been any observed occurrence of the disease for at least the past 10 years despite conditions that are conducive to its clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may declare itself free from TS when basic biosecurity conditions have been met continuously in the country for at least the past 2 years.

OR

3. A country where the last observed occurrence of the disease was within the past 10 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may declare itself free from TS when:
Appendix XXXVIII (contd)

Appendix IV (contd)

a) *basic biosecurity conditions* have been met continuously for at least the past 2 years; and

b) *targeted surveillance* as described in Chapters 1.1.4. and X.X.X. of the *Aquatic Manual* has been in place for at least the last 2 years without detection of TSV.

OR

4. A country that had previously declared itself free from TS but in which the disease is detected may not declare itself free from TS again until the following conditions have been met:
   a) on detection of the disease, the affected area was declared an *infected zone* and a *buffer zone* was established; and
   b) infected populations have been safely destroyed or removed from the *infected zone* by means that minimise the risk of further spread of the disease, and the appropriate *disinfection* procedures (see *Aquatic Manual*) have been completed; and
   c) *targeted surveillance*, as described in Chapters 1.1.4. and X.X.X. of the *Aquatic Manual*, has been in place for at least the past 2 years without detection of TSV.

In the meantime, other areas of the remaining *territory* may be declared one or more free *zones*, provided that they meet the conditions in point 3) of Article 4.1.1.5.

**Article 4.1.1.5.**

**Taura syndrome free zone or free compartment**

A *zone or compartment* within the *territory* of one or more countries not declared free from TS may be declared free by the *Competent Authority(ies)* of the country(ies) concerned, if the *zone or compartment* meets the conditions referred to in points 1), 2), 3) or 4) below.

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

1. A *zone or compartment* where none of the species listed in Article 4.1.1.2. is present may declare itself free from TS when *basic biosecurity conditions* have been met continuously in the *zone or compartment* for at least the past 2 years.

OR

2. A *zone or compartment* where the species listed in Article 4.1.1.2. are present but in which there has not been any observed occurrence of the disease for at least the past 10 years despite conditions that are conducive to its clinical expression, as described in Chapter X.X.X. of the *Aquatic Manual*, may declare itself free from TS when *basic biosecurity conditions* have been met continuously in the *zone or compartment* for at least the past 2 years.

OR

3. A *zone or compartment* where the last observed occurrence of the disease was within the past 10 years or where the infection status prior to *targeted surveillance* was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the *Aquatic Manual*, may declare itself free from TS when:
Appendix XXXVIII (contd)

Appendix IV (contd)

a) basic biosecurity conditions have been met continuously for at least the past 2 years; and
b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place, through the zone or compartment, for at least the past 2 years without detection of TSV.

OR

4. A zone previously declared free from TS but in which the disease is detected may not be declared free from TS again until the following conditions have been met:

a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and
b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see Aquatic Manual) have been completed; and

c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the past 2 years without detection of TSV.

Article 4.1.1.6.

Maintenance of free status

A country or zone or compartment that is declared free from TS following the provisions of points 1) or 2) of Articles 4.1.1.4. or 4.1.1.5., as relevant, may maintain its status as TS free provided that basic biosecurity conditions are continuously maintained.

A country or zone or compartment that is declared free from TS following the provisions of point 3) of Articles 4.1.1.4. or 4.1.1.5., as relevant, may discontinue targeted surveillance and maintain its status as TS free provided that conditions that are conducive to clinical expression of TS, as described in Chapter X.X.X. 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 TS, targeted surveillance needs to be continued at a level determined by the Competent Authority on the basis of the likelihood of re-infection.

Article 4.1.1.7.

Importation of live animals from a country, zone or compartment declared free from Taura syndrome

When importing live aquatic animals of the species listed in Article 4.1.1.2., other than commodities listed in point 1) of Article 4.1.1.3., from a country, zone or compartment declared free from TS, the Competent Authority of the importing country should require 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 4.1.1.4. or 4.1.1.5. (as applicable), the place of production of the consignment is a country, zone or compartment declared free from TS.

The certificate shall be in accordance with the Model Certificate in Appendix 6.4.1.
Article 4.1.1.8.

Importation of live animals for aquaculture from a country, zone or compartment not declared free from Taura syndrome

1. When importing, for aquaculture, aquatic animals of the species listed in Article 4.1.1.2., other than those commodities listed in point 1) of Article 4.1.1.3., from a country, zone or compartment not declared free from TS, the Competent Authority of the importing country should assess the risk and apply risk mitigation measures such as:
   a) the consignment is delivered directly into and held in quarantine facilities; and
   b) the imported aquatic animals and their first generation progeny are continuously isolated from the local environment; and
   c) all effluent and waste material are treated in a manner that ensures inactivation of TSV.

2. If the intention of the introduction is the establishment of new genetic lines, international standards, such as the Guidelines of the International Council for the Exploration of the Seas (ICES), should be followed.

3. For the purposes of this Aquatic Code, the ICES Guidelines may be summarised to the following main points:
   a) identify stock of interest (cultured or wild) in its current location;
   b) evaluate stock’s health/disease history;
   c) take and test samples for TSV, pests and general health/disease status;
   d) import and quarantine in a secure facility a founder (F-0) population;
   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 TSV and perform general examinations for pests and general health/disease status;
   g) if TSV is not detected, pests are not present, and the general health/disease status of the stock is considered to meet basic biosecurity conditions of the importing country, zone or compartment, the F-1 stock may be defined as TS free or specific pathogen free (SPF) for TSV;
   h) release SPF F-1 stock from quarantine for aquaculture or stocking purposes in the country, zone or compartment.

Article 4.1.1.9.

Importation of live animals for human consumption from a country, zone or compartment not declared free from Taura syndrome

When importing, for human consumption, aquatic animals of the species listed in Article 4.1.1.2., other than any commodities listed in point 1) of Article 4.1.1.3., from a country, zone or compartment not declared free from TS, the Competent Authority of the importing country should require:
Appendix XXXVIII (contd)

Appendix IV (contd)

1. the consignment is delivered directly to and held in isolation until consumption; and

3. all effluent, dead animals and waste material are treated in a manner that ensures inactivation of TSV.

Member Countries should consider introducing internal measures to prevent such commodities being used for any purpose other than for human consumption.

Article 4.1.1.10.

Importation of products from a country, zone or compartment declared free from Taura syndrome

When importing aquatic animal products of the species listed in Article 4.1.1.2., other than those commodities listed in point 1) of Article 4.1.1.3., from a country, zone or compartment free from TS, the Competent Authority of the importing country should require 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 4.1.1.4. or 4.1.1.5. (as applicable), the place of production of the consignment is a country, zone or compartment declared free from TS.

The certificate shall be in accordance with the Model Certificate in Appendix 6.5.1.

Article 4.1.1.11.

Importation of products from a country, zone or compartment not declared free from Taura syndrome

When importing aquatic animal products of the species listed in Article 4.1.1.2., other than those commodities listed in point 1) of Article 4.1.1.3., from a country, zone or compartment not declared free from TS, the Competent Authority of the importing country should assess the risk and apply appropriate risk mitigation measures.
CHAPTER 4.1.2.

WHITE SPOT DISEASE

Article 4.1.2.1.

For the purposes of this Aquatic Code, white spot disease (WSD) means infection with white spot syndrome virus (WSSV), the viral species *White spot syndrome virus I* is classified as a species in the genus *Whisporinus* of the family *Nimaviridae*. Common synonyms are listed in Chapter 4.1.2. of the Aquatic Manual.

Methods for surveillance and diagnosis are provided in the Aquatic Manual.

Article 4.1.2.2.

Susceptible species

For the purposes of this Aquatic Code, susceptible species for WSD are all decapod (order Decapoda) crustaceans from marine and brackish or freshwater sources.

Suspect cases of natural infection with WSSV in species other than those listed in this Article should be referred immediately to the appropriate OIE Reference Laboratory, whether or not clinical signs are associated with the findings.

Article 4.1.2.3.

Commodities

1. When authorising import or transit of the following commodities (under study), Competent Authorities of the importing country should not require any WSD related conditions, regardless of the WSD status of the exporting country, zone or compartment.
   a) For the species in Article 4.1.2.2, for any purpose:
      i) commercially-sterile canned products;
      ii) boiled products (e.g. boiled whole shrimp or tails, lobsters, crabs);
      iii) chemically extracted chitin;
      iv) crustacean meals or by-products made non-infectious by heating or drying (e.g. flame dried or sun dried);
      v) crustacean products made non-infectious through processing as dry feeds (e.g. pelleted or extruded feeds);
      vi) biological samples preserved for diagnostic applications in such a manner as to inactivate WSSV (e.g. formalin or alcohol preserved samples).
   b) The following products destined for human consumption from species in Article 4.1.2.2 which have been prepared in such a way as to minimise the risk of diversion for alternative uses:
      i) chemically preserved products (e.g. salted, pickled, marinated, pastes, etc.);
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ii) cooked or dried products (e.g. ready prepared meals).

c) For species other than those listed in Article 4.1.2.2., all aquatic animal products.

For the commodities listed in point 1)b), Member Countries should consider introducing internal measures to prevent the commodity being used for any purpose other than for human consumption.

2. When authorising import or transit of the following commodities of a species listed in Article 4.1.2.2., other than those listed in point 1 of Article 4.1.2.3., Competent Authorities of the importing country should require the conditions prescribed in Articles 4.1.2.7. to 4.1.2.11. of this Chapter, relevant to the WSD status of the exporting country, zone or compartment:

a) aquatic animals;

b) aquatic animal products.

3. When considering the import or transit of any other commodity of a species not referred to in Article 4.1.2.2. not listed above but which could be reasonably expected to be a potential WSSV carrier from an exporting country, zone or compartment not declared free of WSD, Competent Authorities of the importing country should conduct an analysis of the risk of introduction, establishment and spread of WSSV, and the potential consequences, associated with importation of the commodity, prior to a decision. The outcome of this assessment should be made available to the exporting country.

Article 4.1.2.4.

White spot disease free country

A country may declare itself free from WSD if it meets the conditions in points 1), 2), 3) or 4) below.

If a country shares a water catchment or coastal zone with one or more other countries, it can only declare itself a WSD free country if all the areas covered by the shared water are declared WSD free countries or zones (see Article 4.1.2.5.).

1. A country where none of the species listed in Article 4.1.2.2. is present may declare itself free from WSD when basic biosecurity conditions have been met continuously in the country for at least the past 2 years.

OR

2. A country where the species listed in Article 4.1.2.2. are present but has never been any observed occurrence of the disease for at least the past 10 years despite conditions that are conducive to its clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may declare itself free from WSD when basic biosecurity conditions have been met continuously in the country for at least the past 2 years.

OR

3. A country where the last observed occurrence of the disease was within the past 10 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may declare itself free from WSD when:

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3 The typical life cycle for susceptible species is 2 years or less. Under conditions conducive to disease expression, this period is required because it would cover the time period in which the most susceptible life stage (i.e. juvenile) is present.
Appendix XXXVIII (contd)

Appendix V (contd)

a) **basic biosecurity conditions** have been met continuously for at least the past 2 years; and

b) **targeted surveillance** as described in Chapters 1.1.4. and X.X.X. of the *Aquatic Manual* has been in place for at least the last 2 years without detection of WSSV.

OR

4. A country that had previously declared itself free from WSD but in which the disease is detected may not declare itself free from WSD again until the following conditions have been met:

  a) on detection of the disease, the affected area was declared an *infected zone* and a *buffer zone* was established; and

  b) infected populations have been safely destroyed or removed from the *infected zone* by means that minimise the risk of further spread of the disease, and the appropriate *disinfection* procedures (see *Aquatic Manual*) have been completed; and

  c) **targeted surveillance**, as described in Chapters 1.1.4. and X.X.X. of the *Aquatic Manual*, has been in place for at least the past 2 years without detection of WSSV.

In the meantime, other areas of the remaining *territory* may be declared one or more free *zones*, provided that they meet the conditions in point 3) of Article 4.1.2.5.

**Article 4.1.2.5.**

**White spot disease free zone or free compartment**

A *zone or compartment* within the *territory* of one or more countries not declared free from WSD may be declared free by the *Competent Authority(ies)* of the country(ies) concerned, if the *zone or compartment* meets the conditions referred to in points 1), 2), 3) or 4) below.

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

1. A *zone or compartment* where none of the species listed in Article 4.1.2.2. is present may declare itself free from WSD when *basic biosecurity conditions* have been met continuously in the *zone or compartment* for at least the past 2 years.

OR

2. A *zone or compartment* where the species listed in Article 4.1.2.2. are present but in which there has not been any observed occurrence of the disease for at least the past 10 years despite conditions that are conducive to its clinical expression, as described in Chapter X.X.X. of the *Aquatic Manual*, may declare itself free from WSD when *basic biosecurity conditions* have been met continuously in the *zone or compartment* for at least the past 2 years.

OR

3. A *zone or compartment* where the last observed occurrence of the disease was within the past 10 years or where the infection status prior to **targeted surveillance** was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the *Aquatic Manual*, may declare itself free from WSD when:
Appendix XXXVIII (contd)

Appendix V (contd)

a) basic biosecurity conditions have been met continuously for at least the past 2 years; and
b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place, through the zone or compartment, for at least the past 2 years without detection of WSSV.

OR

4. A zone previously declared free from WSD but in which the disease is detected may not be declared free from WSD again until the following conditions have been met:

a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and
b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see Aquatic Manual) have been completed; and

c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the past 2 years without detection of WSSV.

Article 4.1.2.6.

Maintenance of free status

A country or zone or compartment that is declared free from WSD following the provisions of points 1) or 2) of Articles 4.1.2.4. or 4.1.2.5., as relevant, may maintain its status as WSD free provided that basic biosecurity conditions are continuously maintained.

A country or zone or compartment that is declared free from WSD following the provisions of point 3) of Articles 4.1.2.4. or 4.1.2.5., as relevant, may discontinue targeted surveillance and maintain its status as WSD free provided that conditions that are conducive to clinical expression of WSD, as described in Chapter X.X.X. 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 WSD, targeted surveillance needs to be continued at a level determined by the Competent Authority on the basis of the likelihood of reinfection.

Article 4.1.2.7.

Importation of live animals from a country, zone or compartment declared free from white spot disease

When importing live aquatic animals of the species listed in Article 4.1.2.2., other than commodities listed in point 1) of Article 4.1.2.3., from a country, zone or compartment declared free from WSD, the Competent Authority of the importing country should require 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 4.1.2.4. or 4.1.2.5. (as applicable), the place of production of the consignment is a country, zone or compartment declared free from WSD.

The certificate shall be in accordance with the Model Certificate No. 4 given in Part 6. of this Aquatic Code in Appendix 6.4.1.
Article 4.1.2.8.

Importation of live animals for aquaculture from a country, zone or compartment not declared free from white spot disease

1. When importing, for *aquaculture*, *aquatic animals* of the species listed in Article 4.1.2.2., other than those *commodities* listed in point 1) of Article 4.1.2.3., from a country, *zone* or *compartment* not declared free from WSD, the *Competent Authority* of the importing country should assess the risk and apply risk mitigation measures such as:
   a) the consignment is delivered directly into and held in *quarantine* facilities; and
   b) the imported *aquatic animals* and their first generation progeny are continuously isolated from the local environment; and
   c) all effluent and waste material are treated in a manner that ensures inactivation of WSSV.

2. If the intention of the introduction is the establishment of new genetic lines, international standards, such as the Guidelines of the International Council for the Exploration of the Seas (ICES), should be followed.

3. For the purposes of this *Aquatic Code*, the ICES Guidelines may be summarised to the following main points:
   a) identify stock of interest (cultured or wild) in its current location;
   b) evaluate stock’s health/disease history;
   c) take and test samples for WSSV, pests and general health/disease status;
   d) import and quarantine in a secure facility a founder (F-0) population;
   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 WSSV and perform general examinations for pests and general health/disease status;
   g) if WSSV is not detected, pests are not present, and the general health/disease status of the stock is considered to meet basic biosecurity conditions of the importing country, *zone* or *compartment*, the F-1 stock may be defined as WSD free or specific pathogen free (SPF) for WSSV;
   h) release SPF F-1 stock from *quarantine* for *aquaculture* or stocking purposes in the country, *zone* or *compartment*.

Article 4.1.2.9.

Importation of live animals for processing and/or human consumption from a country, zone or compartment not declared free from white spot disease

When importing, for *processing* and/or *human consumption*, *aquatic animals* of the species listed in Article 4.1.2.2., other than *any* *commodities* listed in point 1) of Article 4.1.2.3., from a country, *zone* or *compartment* not declared free from WSD, the *Competent Authority* of the importing country should *require* assess the risk and apply risk mitigation measures such as:
Appendix XXXVIII (contd)

Appendix V (contd)

1. the consignment is delivered directly to and held in isolation quarantine facilities for a short period before for a short period before until processing and/or consumption; and

2. all effluent, dead animals and waste material are treated in a manner that ensures inactivation of WSSV.

Member Countries should consider introducing internal measures to prevent such commodities being used for any purpose other than for human consumption.

Article 4.1.2.10.

Importation of products from a country, zone or compartment free from white spot disease

When importing aquatic animal products of the species listed in Article 4.1.2.2., other than those commodities listed in point 1) of Article 4.1.2.3., from a country, zone or compartment free from WSD, the Competent Authority of the importing country should require 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 4.1.2.4. or 4.1.2.5. (as applicable), the place of production of the consignment is a country, zone or compartment declared free from WSD.

The certificate shall be in accordance with the Model Certificate No. [X] in Appendix 6.5.1. given in Part 6 of this Aquatic Code.

Article 4.1.2.11.

Importation of products from a country, zone or compartment not declared free from white spot disease

When importing aquatic animal products of the species listed in Article 4.1.2.2., other than those commodities listed in point 1) of Article 4.1.2.3., from a country, zone or compartment not declared free from WSD, the Competent Authority of the importing country should assess the risk and apply appropriate risk mitigation measures.
CHAPTER 4.1.3.
YELLOWHEAD DISEASE

Article 4.1.3.1.

For the purposes of this Aquatic Code, yellowhead disease (YHD) means infection with yellow head virus (YHV). YHV and the related Gill-associated virus are classified as a species in the genus Okavirus, family Roniviridae, order Nidovirales. Common synonyms are listed in Chapter 4.1.3. of the Aquatic Manual.

Methods for surveillance and diagnosis are provided in the Aquatic Manual.

Article 4.1.3.2.

Susceptible species

For the purposes of this Aquatic Code, susceptible species for YHD are: giant tiger prawn (Penaeus monodon), brown tiger prawn (P. esculentus) and Kuruma prawn (Marsupenaeus japonicus).

Suspect cases of natural infection with YHV in species other than those listed in this Article should be referred immediately to the appropriate OIE Reference Laboratory, whether or not clinical signs are associated with the findings.

Article 4.1.3.3.

Commodities

1. When authorising import or transit of the following commodities, Competent Authorities of the importing country should not require any YHD related conditions, regardless of the YHD status of the exporting country, zone or compartment.

   a) For the species in Article 4.1.3.2, for any purpose:

      i) commercially-sterile canned products;
      ii) boiled products (e.g. boiled whole shrimp or tails, lobsters, crabs);
      iii) chemically extracted chitin;
      iv) crustacean meals or by-products made non-infectious by heating or drying (e.g. flame dried or sun dried);
      v) crustacean products made non-infectious through processing as dry feeds (e.g. pelleted or extruded feeds);
      vi) biological samples preserved for diagnostic applications in such a manner as to inactivate YHV (e.g. formalin or alcohol preserved samples).

   b) The following products destined for human consumption from species in Article 4.1.3.2 which have been prepared in such a way as to minimise the risk of diversion for alternative uses:
Appendix XXXVIII (contd)

Appendix VI (contd)

i) chemically preserved products (e.g. salted, pickled, marinated, pastes, etc.);

ii) cooked or dried products (e.g. ready prepared meals).

c) For species other than those listed in Article 4.1.3.2., all aquatic animal products.

For the commodities listed in point 1)b), Member Countries should consider introducing internal measures to prevent the commodity being used for any purpose other than for human consumption.

2. When authorising import or transit of the commodities of a species listed in Article 4.1.3.2., other than those listed in point 1 of Article 4.1.3.3., Competent Authorities of the importing country should require the conditions prescribed in Articles 4.1.3.7. to 4.1.3.11. of this Chapter, relevant to the YHD status of the exporting country, zone or compartment.

3. When considering the import or transit of any other commodity of a species not referred to in Article 4.1.3.2. but which could be reasonably expected to be a potential YHV carrier from an exporting country, zone or compartment not declared free of YHD, Competent Authorities of the importing country should conduct an analysis of the risk of introduction, establishment and spread of YHV, and the potential consequences, associated with importation of the commodity, prior to a decision. The outcome of this assessment should be made available to the exporting country.

Article 4.1.3.4.

Yellowhead disease free country

A country may declare itself free from YHD if it meets the conditions in points 1), 2), 3) or 4) below.

If a country shares a water catchment or coastal zone with one or more other countries, it can only declare itself a YHD free country if all the areas covered by the shared water are declared YHD free countries or zones (see Article 4.1.3.5.).

1. A country where none of the species listed in Article 4.1.3.2. is present may declare itself free from YHD when basic biosecurity conditions have been met continuously in the country for at least the past 2 years.

OR

2. A country where the species listed in Article 4.1.3.2. are present but there has never been any observed occurrence of the disease for at least the past 10 years despite conditions that are conducive to its clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may declare itself free from YHD when basic biosecurity conditions have been met continuously in the country for at least the past 2 years.

OR

3. A country where the last observed occurrence of the disease was within the past 10 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may declare itself free from YHD when:

a) basic biosecurity conditions have been met continuously for at least the past 2 years; and

b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place for at least the last 2 years without detection of YHV.
Appendix XXXVIII (contd)

Appendix VI (contd)

OR

4. A country that had previously declared itself free from YHD but in which the disease is detected may not declare itself free from YHD again until the following conditions have been met:

a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and

b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see Aquatic Manual) have been completed; and

c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the past 2 years without detection of YHV.

In the meantime, other areas of the remaining territory may be declared one or more free zones, provided that they meet the conditions in point 3) of Article 4.1.3.5.

Article 4.1.3.5.

Yellowhead disease free zone or free compartment

A zone or compartment within the territory of one or more countries not declared free from YHD may be declared free by the Competent Authority(ies) of the country(ies) concerned, if the zone or compartment meets the conditions referred to in points 1), 2), 3) or 4) below.

If a zone or compartment extends over more than one country, it can only be declared a YHD free zone or compartment if all the relevant Competent Authorities confirm that the conditions have been met.

1. A zone or compartment where none of the species listed in Article 4.1.3.2. is present may declare itself free from YHD when basic biosecurity conditions have been met continuously in the zone or compartment for at least the past 2 years.

OR

2. A zone or compartment where the species listed in Article 4.1.3.2. are present but in which there has not been any observed occurrence of the disease for at least the past 10 years despite conditions that are conducive to its clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may declare itself free from YHD when basic biosecurity conditions have been met continuously in the zone or compartment for at least the past 2 years.

OR

3. A zone or compartment where the last observed occurrence of the disease was within the past 10 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may declare itself free from YHD when:

a) basic biosecurity conditions have been met continuously for at least the past 2 years; and

b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place, through the zone or compartment, for at least the past 2 years without detection of YHV.
Appendix XXXVIII (contd)

Appendix VI (contd)

OR

4. A zone previously declared free from YHD but in which the disease is detected may not be declared free from YHD again until the following conditions have been met:

a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and

b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see Aquatic Manual) have been completed; and

c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the past 2 years without detection of YHV.

Article 4.1.3.6.

Maintenance of free status

A country or zone or compartment that is declared free from YHD following the provisions of points 1) or 2) of Articles 4.1.3.4. or 4.1.3.5., as relevant, may maintain its status as YHD free provided that basic biosecurity conditions are continuously maintained.

A country or zone or compartment that is declared free from YHD following the provisions of point 3) of Articles 4.1.3.4. or 4.1.3.5., as relevant, may discontinue targeted surveillance and maintain its status as YHD free provided that conditions that are conducive to clinical expression of YHD, as described in Chapter X.X.X. 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 YHD, targeted surveillance needs to be continued at a level determined by the Competent Authority on the basis of the likelihood of reinfection.

Article 4.1.3.7.

Importation of live animals from a country, zone or compartment declared free from yellowhead disease

When importing live aquatic animals of the species listed in Article 4.1.3.2., other than commodities listed in point 1) of Article 4.1.3.3., from a country, zone or compartment declared free from YHD, the Competent Authority of the importing country should require 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 4.1.3.4. or 4.1.3.5. (as applicable), the place of production of the consignment is a country, zone or compartment declared free from YHD.

The certificate shall be in accordance with the Model Certificate in Appendix 6.4.1.

Article 4.1.3.8.

Importation of live animals for aquaculture from a country, zone or compartment not declared free from yellowhead disease

1. When importing, for aquaculture, aquatic animals of the species listed in Article 4.1.3.2., other than those commodities listed in point 1) of Article 4.1.3.3., from a country, zone or compartment not declared free from YHD, the Competent Authority of the importing country should assess the risk and apply risk mitigation measures such as:
Appendix XXXVIII (contd)

Appendix VI (contd)

a) the consignment is delivered directly into and held in quarantine facilities; and

b) the imported aquatic animals and their first generation progeny are continuously isolated from the local environment; and

c) all effluent and waste material are treated in a manner that ensures inactivation of YHV.

2. If the intention of the introduction is the establishment of new genetic lines, international standards, such as the Guidelines of the International Council for the Exploration of the Seas (ICES), should be followed.

3. For the purposes of this Aquatic Code, the ICES Guidelines may be summarised to the following main points:

a) identify stock of interest (cultured or wild) in its current location;

b) evaluate stock’s health/disease history;

c) take and test samples for YHV, pests and general health/disease status;

d) import and quarantine in a secure facility a founder (F-0) population;

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 YHV and perform general examinations for pests and general health/disease status;

g) if YHV is not detected, pests are not present, and the general health/disease status of the stock is considered to meet basic biosecurity conditions of the importing country, zone, or compartment, the F-1 stock may be defined as YHD free or specific pathogen free (SPF) for YHV;

h) release SPF F-1 stock from quarantine for aquaculture or stocking purposes in the country, zone or compartment.

Article 4.1.3.9.

Importation of live animals for human consumption from a country, zone or compartment not declared free from yellowhead disease

When importing, for human consumption, aquatic animals of the species listed in Article 4.1.3.2., other than any commodities listed in point 1) of Article 4.1.3.3., from a country, zone or compartment not declared free from YHD, the Competent Authority of the importing country should require:

1. the consignment is delivered directly to and held in isolation until consumption; and

2. all effluent, dead animals and waste material are treated in a manner that ensures inactivation of YHV.

Member Countries should consider introducing internal measures to prevent such commodities being used for any purpose other than for human consumption.
Appendix XXXVIII (contd)

Appendix VI (contd)

Article 4.1.3.10.

**Importation of products from a country, zone or compartment declared free from yellowhead disease**

When importing *aquatic animal products* of the species listed in Article 4.1.3.2., other than those *commodities* listed in point 1) of Article 4.1.3.3., from a country, *zone or compartment* free from YHD, the *Competent Authority* of the importing country should require 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 4.1.3.4. or 4.1.3.5. (as applicable), the place of production of the consignment is a country, *zone or compartment* declared free from YHD.

The certificate shall be in accordance with the Model Certificate in Appendix 6.5.1.

Article 4.1.3.11.

**Importation of products from a country, zone or compartment not declared free from yellowhead disease**

When importing *aquatic animal products* of the species listed in Article 4.1.3.2., other than those *commodities* listed in point 1) of Article 4.1.3.3., from a country, *zone or compartment* not declared free from YHD, the *Competent Authority* of the importing country should assess the risk and apply appropriate risk mitigation measures.
CHAPTER 4.1.4.

TETRAHEDRAL BACULOVIRUS

Article 4.1.4.1.

For the purposes of this Aquatic Code, tetrahedral baculovirus means infection with Baculovirus penaei (BPV). This virus is closely related to Penaeus monodon baculovirus (Chapter 4.1.5.) which has been classified as a tentative species in the genus Nucleopolyhedrovirus. Common synonyms are listed in Chapter 4.1.4. of the Aquatic Manual.

Methods for surveillance and diagnosis are provided in the Aquatic Manual.

Article 4.1.4.2.

Susceptible species

For the purposes of this Aquatic Code, susceptible species for tetrahedral baculovirus are included in the following genera: Litopenaeus, Farfantopenaeus, Fenneropenaeus, Melicertus, Penaeus, Trachypenaeus and Protrachypene.

Suspect cases of natural infection with BPV in species other than those listed in this Article should be referred immediately to the appropriate OIE Reference Laboratory, whether or not clinical signs are associated with the findings.

Article 4.1.4.3.

Commodities

1. When authorising import or transit of the following commodities, Competent Authorities of the importing country should not require any tetrahedral baculovirus related conditions, regardless of the tetrahedral baculovirus status of the exporting country, zone or compartment.

a) For the species in Article 4.1.4.2. for any purpose:

   i) commercially-sterile canned products;
   
   ii) boiled products (e.g. boiled whole shrimp or tails, lobsters, crabs);
   
   iii) chemically extracted chitin;
   
   iv) crustacean meals or by-products made non-infectious by heating or drying (e.g. flame dried or sun dried);
   
   v) crustacean products made non-infectious through processing as dry feeds (e.g. pelleted or extruded feeds);
   
   vi) biological samples preserved for diagnostic applications in such a manner as to inactivate BPV (e.g. formalin or alcohol preserved samples).
Appendix XXXVIII (contd)

Appendix VII (contd)

b) The following products destined for human consumption from species in Article 4.1.4.2 which have been prepared in such a way as to minimise the risk of diversion for alternative uses:

i) chemically preserved products (e.g. salted, pickled, marinated, pastes, etc.);

ii) cooked or dried products (e.g. ready prepared meals);

iii) headed and de-veined shrimp tails.

c) For species other than those listed in Article 4.1.4.2., all aquatic animal products.

For the commodities listed in point 1)b), Member Countries should consider introducing internal measures to prevent the commodity being used for any purpose other than for human consumption.

2. When authorising import or transit of the commodities of a species listed in Article 4.1.4.2., other than those listed in point 1 of Article 4.1.4.3., Competent Authorities of the importing country should require the conditions prescribed in Articles 4.1.4.7. to 4.1.4.11. of this Chapter, relevant to the tetrahedral baculovirus status of the exporting country, zone or compartment.

3. When considering the import or transit of any other commodity of a species not referred to in Article 4.1.4.2. but which could be reasonably expected to be a potential BPV carrier from an exporting country, zone or compartment not declared free of tetrahedral baculovirus, Competent Authorities of the importing country should conduct an analysis of the risk of introduction, establishment and spread of BPV, and the potential consequences, associated with importation of the commodity, prior to a decision. The outcome of this assessment should be made available to the exporting country.

Article 4.1.4.4.

Tetrahedral baculovirus free country

A country may declare itself free from tetrahedral baculovirus if it meets the conditions in points 1), 2), 3) or 4) below.

If a country shares a water catchment or coastal zone with one or more other countries, it can only declare itself a tetrahedral baculovirus free country if all the areas covered by the shared water are declared tetrahedral baculovirus free countries or zones (see Article 4.1.4.5.).

1. A country where none of the species listed in Article 4.1.4.2. is present may declare itself free from tetrahedral baculovirus when basic biosecurity conditions have been met continuously in the country for at least the past 2 years.

OR

2. A country where the species listed in Article 4.1.4.2. are present but there has never been any observed occurrence of the disease for at least the past 10 years despite conditions that are conducive to its clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may declare itself free from tetrahedral baculovirus when basic biosecurity conditions have been met continuously in the country for at least the past 2 years.
3. A country where the last observed occurrence of the disease was within the past 10 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may declare itself free from tetrahedral baculovirosis when:
   a) basic biosecurity conditions have been met continuously for at least the past 2 years; and
   b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place for at least the last 2 years without detection of BPV.

OR

4. A country that had previously declared itself free from tetrahedral baculovirosis but in which the disease is detected may not declare itself free from tetrahedral baculovirosis again until the following conditions have been met:
   a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and
   b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see Aquatic Manual) have been completed; and
   c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the past 2 years without detection of BPV.

In the meantime, other areas of the remaining territory may be declared one or more free zones, provided that they meet the conditions in point 3) of Article 4.1.4.5.

Article 4.1.4.5.

Tetrahedral baculovirosis free zone or free compartment

A zone or compartment within the territory of one or more countries not declared free from tetrahedral baculovirosis may be declared free by the Competent Authority(ies) of the country(ies) concerned, if the zone or compartment meets the conditions referred to in points 1), 2), 3) or 4) below.

If a zone or compartment extends over more than one country, it can only be declared a tetrahedral baculovirosis free zone or compartment if all the relevant Competent Authorities confirm that the conditions have been met.

1. A zone or compartment where none of the species listed in Article 4.1.4.2. is present may declare itself free from tetrahedral baculovirosis when basic biosecurity conditions have been met continuously in the zone or compartment for at least the past 2 years.

OR

2. A zone or compartment where the species listed in Article 4.1.4.2. are present but in which there has not been any observed occurrence of the disease for at least the past 10 years despite conditions that are conducive to its clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may declare itself free from tetrahedral baculovirosis when basic biosecurity conditions have been met continuously in the zone or compartment for at least the past 2 years.
Appendix XXXVIII (contd)

Appendix VII (contd)

OR

3. A zone or compartment where the last observed occurrence of the disease was within the past 10 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may declare itself free from tetrahedral baculovirosis when:

a) basic biosecurity conditions have been met continuously for at least the past 2 years; and

b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place, through the zone or compartment, for at least the past 2 years without detection of BPV.

OR

4. A zone previously declared free from tetrahedral baculovirosis but in which the disease is detected may not be declared free from tetrahedral baculovirosis again until the following conditions have been met:

a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and

b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see Aquatic Manual) have been completed; and

c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the past 2 years without detection of BPV.

Article 4.1.4.6.

Maintenance of free status

A country or zone or compartment that is declared free from tetrahedral baculovirosis following the provisions of points 1) or 2) of Articles 4.1.4.4. or 4.1.4.5., as relevant, may maintain its status as tetrahedral baculovirosis free provided that basic biosecurity conditions are continuously maintained.

A country or zone or compartment that is declared free from tetrahedral baculovirosis following the provisions of point 3) of Articles 4.1.4.4. or 4.1.4.5., as relevant, may discontinue targeted surveillance and maintain its status as tetrahedral baculovirosis free provided that conditions that are conducive to clinical expression of tetrahedral baculovirosis, as described in Chapter X.X.X. 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 tetrahedral baculovirosis, targeted surveillance needs to be continued at a level determined by the Competent Authority on the basis of the likelihood of reinfection.
Appendix XXXVIII (contd)

Appendix VII (contd)

Article 4.1.4.7.

Importation of live animals from a country, zone or compartment declared free from tetrahedral baculovirosis

When importing live aquatic animals of the species listed in Article 4.1.4.2., other than commodities listed in point 1) of Article 4.1.4.3., from a country, zone or compartment declared free from tetrahedral baculovirosis, the Competent Authority of the importing country should require 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 4.1.4.4. or 4.1.4.5. (as applicable), the place of production of the consignment is a country, zone or compartment declared free from tetrahedral baculovirosis.

The certificate shall be in accordance with the Model Certificate in Appendix 6.4.1.

Article 4.1.4.8.

Importation of live animals for aquaculture from a country, zone or compartment not declared free from tetrahedral baculovirosis

1. When importing, for aquaculture, aquatic animals of the species listed in Article 4.1.4.2., other than those commodities listed in point 1) of Article 4.1.4.3., from a country, zone or compartment not declared free from tetrahedral baculovirosis, the Competent Authority of the importing country should assess the risk and apply risk mitigation measures such as:
   a) the consignment is delivered directly into and held in quarantine facilities; and
   b) the imported aquatic animals and their first generation progeny are continuously isolated from the local environment; and
   c) all effluent and waste material are treated in a manner that ensures inactivation of BPV.

2. If the intention of the introduction is the establishment of new genetic lines, international standards, such as the Guidelines of the International Council for the Exploration of the Seas (ICES), should be followed.

3. For the purposes of this Aquatic Code, the ICES Guidelines may be summarised to the following main points:
   a) identify stock of interest (cultured or wild) in its current location;
   b) evaluate stock’s health/disease history;
   c) take and test samples for BPV, pests and general health/disease status;
   d) import and quarantine in a secure facility a founder (F-0) population;
   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 BPV and perform general examinations for pests and general health/disease status;
Appendix XXXVIII (contd)

Appendix VII (contd)

g) if BPV is not detected, pests are not present, and the general health/disease status of the stock is considered to meet basic biosecurity conditions of the importing country, zone, or compartment, the F-1 stock may be defined as tetrahedral baculovirus free or specific pathogen free (SPF) for BPV;

h) release SPF F-1 stock from quarantine for aquaculture or stocking purposes in the country, zone or compartment.

Article 4.1.4.9.

Importation of live animals for human consumption from a country, zone or compartment not declared free from tetrahedral baculovirus

When importing, for human consumption, aquatic animals of the species listed in Article 4.1.4.2., other than any commodities listed in point 1) of Article 4.1.4.3., from a country, zone or compartment not declared free from tetrahedral baculovirus, the Competent Authority of the importing country should require:

1. the consignment is delivered directly to and held in isolation until consumption; and

2. all effluent, dead animals and waste material are treated in a manner that ensures inactivation of BPV.

Member Countries should consider introducing internal measures to prevent such commodities being used for any purpose other than for human consumption.

Article 4.1.4.10.

Importation of products from a country, zone or compartment declared free from tetrahedral baculovirus

When importing aquatic animal products of the species listed in Article 4.1.4.2., other than those commodities listed in point 1) of Article 4.1.4.3., from a country, zone or compartment free from tetrahedral baculovirus, the Competent Authority of the importing country should require 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 4.1.4.4. or 4.1.4.5. (as applicable), the place of production of the consignment is a country, zone or compartment declared free from tetrahedral baculovirus.

The certificate shall be in accordance with the Model Certificate in Appendix 6.5.1.

Article 4.1.4.11.

Importation of products from a country, zone or compartment not declared free from tetrahedral baculovirus

When importing aquatic animal products of the species listed in Article 4.1.4.2., other than those commodities listed in point 1) of Article 4.1.4.3., from a country, zone or compartment not declared free from tetrahedral baculovirus, the Competent Authority of the importing country should assess the risk and apply appropriate risk mitigation measures.
CHAPTER 4.1.5.

SPHERICAL BACULOVIROSI
S

Article 4.1.5.1.

For the purposes of this Aquatic Code, spherical baculovirosis means infection with Penaeus monodon baculovirus (MBV). Penaeus monodon baculovirus is classified as a tentative species in the genus Nucleopolyhedrovirus. Common synonyms are listed in Chapter 4.1.5. of the Aquatic Manual.

Methods for surveillance and diagnosis are provided in the Aquatic Manual.

Article 4.1.5.2.

Susceptible species

For the purposes of this Aquatic Code, susceptible species for spherical baculovirosis are included in the following genera: Penaeus, Metapenaeus, Fenneropenaeus and Melicertus.

Suspect cases of natural infection with MBV in species other than those listed in this Article should be referred immediately to the appropriate OIE Reference Laboratory, whether or not clinical signs are associated with the findings.

Article 4.1.5.3.

Commodities

1. When authorising import or transit of the following commodities, Competent Authorities of the importing country should not require any spherical baculovirosis related conditions, regardless of the spherical baculovirosis status of the exporting country, zone or compartment.

   a) For the species in Article 4.1.5.2. for any purpose:

      i) commercially-sterile canned products;

      ii) boiled products (e.g. boiled whole shrimp or tails, lobsters, crabs);

      iii) chemically extracted chitin;

      iv) crustacean meals or by-products made non-infectious by heating or drying (e.g. flame dried or sun dried);

      v) crustacean products made non-infectious through processing as dry feeds (e.g. pelleted or extruded feeds);

      vi) biological samples preserved for diagnostic applications in such a manner as to inactivate MBV (e.g. formalin or alcohol preserved samples).

   b) The following products destined for human consumption from species in Article 4.1.5.2 which have been prepared in such a way as to minimise the risk of diversion for alternative uses:
Appendix XXXVIII (contd)

Appendix VIII (contd)

i) chemically preserved products (e.g. salted, pickled, marinated, pastes, etc.);
ii) cooked or dried products (e.g. ready prepared meals);
iii) headed and de-veined shrimp tails.

c) For species other than those listed in Article 4.1.5.2., all aquatic animal products.
For the commodities listed in point 1) b), Member Countries should consider introducing internal
measures to prevent the commodity being used for any purpose other than for human consumption.

2. When authorising import or transit of the commodities of a species listed in Article 4.1.5.2., other than
those listed in point 1 of Article 4.1.5.3., Competent Authorities of the importing country should require
the conditions prescribed in Articles 4.1.5.7. to 4.1.5.11. of this Chapter, relevant to the spherical
baculovirosis status of the exporting country, zone or compartment.

3. When considering the import or transit of any other commodity of a species not referred to in
Article 4.1.5.2. but which could be reasonably expected to be a potential MBV carrier from an
exporting country, zone or compartment not declared free of spherical baculovirosis, Competent Authorities
of the importing country should conduct an analysis of the risk of introduction, establishment and
spread of MBV, and the potential consequences, associated with importation of the commodity, prior
to a decision. The outcome of this assessment should be made available to the exporting country.

Article 4.1.5.4.

Spherical baculovirosis free country

A country may declare itself free from spherical baculovirosis if it meets the conditions in points 1), 2), 3)
or 4) below.

If a country shares a water catchment or coastal zone with one or more other countries, it can only declare
itself a spherical baculovirosis free country if all the areas covered by the shared water are declared
spherical baculovirosis free countries or zones (see Article 4.1.5.5.).

1. A country where none of the species listed in Article 4.1.5.2. is present may declare itself free from
spherical baculovirosis when basic biosecurity conditions have been met continuously in the country for
at least the past 2 years.

OR

2. A country where the species listed in Article 4.1.5.2. are present but there has never been any
observed occurrence of the disease for at least the past 10 years despite conditions that are conducive
to its clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may declare itself free
from spherical baculovirosis when basic biosecurity conditions have been met continuously in the country
for at least the past 2 years.

OR

3. A country where the last observed occurrence of the disease was within the past 10 years or where
the infection status prior to targeted surveillance was unknown, for example because of the absence of
conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual,
may declare itself free from spherical baculovirosis when:

a) basic biosecurity conditions have been met continuously for at least the past 2 years; and

b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in
place for at least the last 2 years without detection of MBV.
OR

4. A country that had previously declared itself free from spherical baculovirosis but in which the disease is detected may not declare itself free from spherical baculovirosis again until the following conditions have been met:
   a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and
   b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see Aquatic Manual) have been completed; and
   c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the past 2 years without detection of MBV.

In the meantime, other areas of the remaining territory may be declared one or more free zones, provided that they meet the conditions in point 3) of Article 4.1.5.5.

Article 4.1.5.5.

Spherical baculovirosis free zone or free compartment

A zone or compartment within the territory of one or more countries not declared free from spherical baculovirosis may be declared free by the Competent Authority(ies) of the country(ies) concerned, if the zone or compartment meets the conditions referred to in points 1), 2), 3) or 4) below.

If a zone or compartment extends over more than one country, it can only be declared a spherical baculovirosis free zone or compartment if all the relevant Competent Authorities confirm that the conditions have been met.

1. A zone or compartment where none of the species listed in Article 4.1.5.2. is present may declare itself free from spherical baculovirosis when basic biosecurity conditions have been met continuously in the zone or compartment for at least the past 2 years.

OR

2. A zone or compartment where the species listed in Article 4.1.5.2. are present but in which there has not been any observed occurrence of the disease for at least the past 10 years despite conditions that are conducive to its clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may declare itself free from spherical baculovirosis when basic biosecurity conditions have been met continuously in the zone or compartment for at least the past 2 years.

OR

3. A zone or compartment where the last observed occurrence of the disease was within the past 10 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may declare itself free from spherical baculovirosis when:
   a) basic biosecurity conditions have been met continuously for at least the past 2 years; and
   b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place, through the zone or compartment, for at least the past 2 years without detection of MBV.
Appendix XXXVIII (contd)

Appendix VIII (contd)

OR

4. A zone previously declared free from spherical baculovirosis but in which the disease is detected may
not be declared free from spherical baculovirosis again until the following conditions have been met:

a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was
   established; and

b) infected populations have been safely destroyed or removed from the infected zone by means that
   minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see
   Aquatic Manual) have been completed; and

c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in
   place for at least the past 2 years without detection of MBV.

   Article 4.1.5.6.

Maintenance of free status

A country or zone or compartment that is declared free from spherical baculovirosis following the provisions
of points 1) or 2) of Articles 4.1.5.4. or 4.1.5.5., as relevant, may maintain its status as spherical
baculovirosis free provided that basic biosecurity conditions are continuously maintained.

A country or zone or compartment that is declared free from spherical baculovirosis following the provisions
of point 3) of Articles 4.1.5.4. or 4.1.5.5., as relevant, may discontinue targeted surveillance and maintain its
status as spherical baculovirosis free provided that conditions that are conducive to clinical expression of
spherical baculovirosis, as described in Chapter X.X.X. 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 spherical baculovirosis, targeted surveillance needs to be continued at
a level determined by the Competent Authority on the basis of the likelihood of reinfection.

   Article 4.1.5.7.

Importation of live animals from a country, zone or compartment declared free from spherical baculovirosis

When importing live aquatic animals of the species listed in Article 4.1.5.2., other than commodities listed in
point 1) of Article 4.1.5.3., from a country, zone or compartment declared free from spherical baculovirosis,
the Competent Authority of the importing country should require 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 4.1.5.4. or 4.1.5.5. (as applicable), the
place of production of the consignment is a country, zone or compartment declared free from spherical
baculovirosis.

The certificate shall be in accordance with the Model Certificate in Appendix 6.4.1.
Appendix XXXVIII (contd)

Appendix VIII (contd)

Article 4.1.5.8.

Importation of live animals for aquaculture from a country, zone or compartment not declared free from spherical baculovirosis

1. When importing, for aquaculture, aquatic animals of the species listed in Article 4.1.5.2., other than those commodities listed in point 1) of Article 4.1.5.3., from a country, zone or compartment not declared free from spherical baculovirosis, the Competent Authority of the importing country should assess the risk and apply risk mitigation measures such as:
   a) the consignment is delivered directly into and held in quarantine facilities; and
   b) the imported aquatic animals and their first generation progeny are continuously isolated from the local environment; and
   c) all effluent and waste material are treated in a manner that ensures inactivation of MBV.

2. If the intention of the introduction is the establishment of new genetic lines, international standards, such as the Guidelines of the International Council for the Exploration of the Seas (ICES), should be followed.

3. For the purposes of this Aquatic Code, the ICES Guidelines may be summarised to the following main points:
   a) identify stock of interest (cultured or wild) in its current location;
   b) evaluate stock’s health/disease history;
   c) take and test samples for MBV, pests and general health/disease status;
   d) import and quarantine in a secure facility a founder (F-0) population;
   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 MBV and perform general examinations for pests and general health/disease status;
   g) if MBV is not detected, pests are not present, and the general health/disease status of the stock is considered to meet basic biosecurity conditions of the importing country, zone, or compartment, the F-1 stock may be defined as spherical baculovirosis free or specific pathogen free (SPF) for MBV;
   h) release SPF F-1 stock from quarantine for aquaculture or stocking purposes in the country, zone or compartment.

Article 4.1.5.9.

Importation of live animals for human consumption from a country, zone or compartment not declared free from spherical baculovirosis

When importing, for human consumption, aquatic animals of the species listed in Article 4.1.5.2., other than any commodities listed in point 1) of Article 4.1.5.3., from a country, zone or compartment not declared free from spherical baculovirosis, the Competent Authority of the importing country should require:

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1. the consignment is delivered directly to and held in isolation until consumption; and

2. all effluent, dead animals and waste material are treated in a manner that ensures inactivation of MBV.

Member Countries should consider introducing internal measures to prevent such commodities being used for any purpose other than for human consumption.

Article 4.1.5.10.

Importation of products from a country, zone or compartment declared free from spherical baculovirosis

When importing aquatic animal products of the species listed in Article 4.1.5.2., other than those commodities listed in point 1) of Article 4.1.5.3., from a country, zone or compartment free from spherical baculovirosis, the Competent Authority of the importing country should require 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 4.1.5.4. or 4.1.5.5. (as applicable), the place of production of the consignment is a country, zone or compartment declared free from spherical baculovirosis.

The certificate shall be in accordance with the Model Certificate in Appendix 6.5.1.

Article 4.1.5.11.

Importation of products from a country, zone or compartment not declared free from spherical baculovirosis

When importing aquatic animal products of the species listed in Article 4.1.5.2., other than those commodities listed in point 1) of Article 4.1.5.3., from a country, zone or compartment not declared free from spherical baculovirosis, the Competent Authority of the importing country should assess the risk and apply appropriate risk mitigation measures.
CHAPTER 4.1.6.

INFECTIOUS HYPODERMAL AND HAEMATOPOIETIC NECROSIS

Article 4.1.6.1.

For the purposes of this *Aquatic Code*, infectious hypodermal and haematopoietic necrosis (IHHN) means infection with infectious hypodermal and haematopoietic necrosis virus (IHHNv). IHHNv is classified as the species *Peneaus stylirostris densovirus* in the genus *Breviadensovirinae* in the family Paroviridae.

Methods for surveillance and diagnosis are provided in the *Aquatic Manual*.

Article 4.1.6.2.

Susceptible species

For the purposes of this *Aquatic Code*, susceptible species for IHHN are: *Peneaus monodon, Litopenaeus vannamei*, and *L. stylirostris*.

Suspect cases of natural infection with IHHNv in species other than those listed in this Article should be referred immediately to the appropriate OIE Reference Laboratory, whether or not clinical signs are associated with the findings.

Article 4.1.6.3.

Commodities

1. When authorising import or transit of the following commodities, Competent Authorities of the importing country should not require any IHHN related conditions, regardless of the IHHN status of the exporting country, zone or compartment:

   a) For the species in Article 4.1.6.2, for any purpose:

      i) commercially-sterile canned products;

      ii) boiled products (e.g. boiled whole shrimp or tails, lobsters, crabs);

      iii) chemically extracted chitin;

      iv) crustacean meals or by-products made non-infectious by heating or drying (e.g. flame dried or sun dried);

      v) crustacean products made non-infectious through processing as dry feeds (e.g. pelleted or extruded feeds);

      vi) biological samples preserved for diagnostic applications in such a manner as to inactivate IHHNv (e.g. formalin or alcohol preserved samples).

   b) The following products destined for human consumption from species in Article 4.1.6.2 which have been prepared in such a way as to minimise the risk of diversion for alternative uses:
Appendix XXXVIII (contd)

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i) chemically preserved products (e.g. salted, pickled, marinated, pastes, etc.);

ii) cooked or dried products (e.g. ready prepared meals).

c) For species other than those listed in Article 4.1.6.2, all aquatic animal products.

For the commodities listed in point 1) b), Member Countries should consider introducing internal
measures to prevent the commodity being used for any purpose other than for human consumption.

2. When authorising import or transit of the commodities of a species listed in Article 4.1.6.2, other than
those listed in point 1 of Article 4.1.6.3, Competent Authorities of the importing country should require
the conditions prescribed in Articles 4.1.6.7. to 4.1.6.11. of this Chapter, relevant to the IHHN status
of the exporting country, zone or compartment.

3. When considering the import or transit of any other commodity of a species not referred to in
Article 4.1.6.2, but which could be reasonably expected to be a potential IHHNV carrier from an
exporting country, zone or compartment not declared free of IHHN, Competent Authorities of the importing
country should conduct an analysis of the risk of introduction, establishment and spread of IHHNV,
and the potential consequences, associated with importation of the commodity, prior to a decision. The
outcome of this assessment should be made available to the exporting country.

Article 4.1.6.4.

Infectious hypodermal and haematopoietic necrosis free country

A country may declare itself free from IHHN if it meets the conditions in points 1), 2), 3) or 4) below.

If a country shares a water catchment or coastal zone with one or more other countries, it can only declare
itself a IHHN free country if all the areas covered by the shared water are declared IHHN free countries
or zones (see Article 4.1.6.5).

1. A country where none of the species listed in Article 4.1.6.2. is present may declare itself free from
IHHN when basic biosecurity conditions have been met continuously in the country for at least the past
2 years.

OR

2. A country where the species listed in Article 4.1.6.2. are present but there has never been any
observed occurrence of the disease for at least the past 10 years despite conditions that are conducive
to its clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may declare itself free
from IHHN when basic biosecurity conditions have been met continuously in the country for at least the
past 2 years.

OR

3. A country where the last observed occurrence of the disease was within the past 10 years or where
the infection status prior to targeted surveillance was unknown, for example because of the absence of
conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual,
may declare itself free from IHHN when:

a) basic biosecurity conditions have been met continuously for at least the past 2 years; and

b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in
place for at least the last 2 years without detection of IHHNV.
4. A country that had previously declared itself free from IHHN but in which the disease is detected may not declare itself free from IHHN again until the following conditions have been met:
   a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and
   b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see Aquatic Manual) have been completed; and
   c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the past 2 years without detection of IHHNV.

In the meantime, other areas of the remaining territory may be declared one or more free zones, provided that they meet the conditions in point 3) of Article 4.1.6.5.

Article 4.1.6.5.

Infectious hypodermal and haematopoietic necrosis free zone or free compartment

A zone or compartment within the territory of one or more countries not declared free from IHHN may be declared free by the Competent Authority(ies) of the country(ies) concerned, if the zone or compartment meets the conditions referred to in points 1), 2), 3) or 4) below.

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

1. A zone or compartment where none of the species listed in Article 4.1.6.2. is present may declare itself free from IHHN when basic biosecurity conditions have been met continuously in the zone or compartment for at least the past 2 years.

OR

2. A zone or compartment where the species listed in Article 4.1.6.2. are present but in which there has not been any observed occurrence of the disease for at least the past 10 years despite conditions that are conducive to its clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may declare itself free from IHHN when basic biosecurity conditions have been met continuously in the zone or compartment for at least the past 2 years.

OR

3. A zone or compartment where the last observed occurrence of the disease was within the past 10 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may declare itself free from IHHN when:
   a) basic biosecurity conditions have been met continuously for at least the past 2 years; and
   b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place, through the zone or compartment, for at least the past 2 years without detection of IHHNV.
Appendix XXXVIII (contd)

Appendix IX (contd)

OR

4. A zone previously declared free from IHHN but in which the disease is detected may not be declared free from IHHN again until the following conditions have been met:
   a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and
   b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see Aquatic Manual) have been completed; and
   c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the past 2 years without detection of IHHNV.

Article 4.1.6.6.

Maintenance of free status

A country or zone or compartment that is declared free from IHHN following the provisions of points 1) or 2) of Articles 4.1.6.4. or 4.1.6.5., as relevant, may maintain its status as IHHN free provided that basic biosecurity conditions are continuously maintained.

A country or zone or compartment that is declared free from IHHN following the provisions of point 3) of Articles 4.1.6.4. or 4.1.6.5., as relevant, may discontinue targeted surveillance and maintain its status as IHHN free provided that conditions that are conducive to clinical expression of IHHN, as described in Chapter X.X.X. 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 IHHN, targeted surveillance needs to be continued at a level determined by the Competent Authority on the basis of the likelihood of reinfection.

Article 4.1.6.7.

Importation of live animals from a country, zone or compartment declared free from infectious hypodermal and haematopoietic necrosis

When importing live aquatic animals of the species listed in Article 4.1.6.2., other than commodities listed in point 1) of Article 4.1.6.3., from a country, zone or compartment declared free from IHHN, the Competent Authority of the importing country should require 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 4.1.6.4. or 4.1.6.5. (as applicable), the place of production of the consignment is a country, zone or compartment declared free from IHHN.

The certificate shall be in accordance with the Model Certificate in Appendix 6.4.1.

Article 4.1.6.8.

Importation of live animals for aquaculture from a country, zone or compartment not declared free from infectious hypodermal and haematopoietic necrosis

1. When importing, for aquaculture, aquatic animals of the species listed in Article 4.1.6.2., other than those commodities listed in point 1) of Article 4.1.6.3., from a country, zone or compartment not declared free from IHHN, the Competent Authority of the importing country should assess the risk and apply risk mitigation measures such as:
Appendix XXXVIII (contd)

Appendix IX (contd)

a) the consignment is delivered directly into and held in quarantine facilities; and

b) the imported aquatic animals and their first generation progeny are continuously isolated from the local environment; and

c) all effluent and waste material are treated in a manner that ensures inactivation of IHNNV.

2. If the intention of the introduction is the establishment of new genetic lines, international standards, such as the Guidelines of the International Council for the Exploration of the Seas (ICES), should be followed.

3. For the purposes of this Aquatic Code, the ICES Guidelines may be summarised to the following main points:

a) identify stock of interest (cultured or wild) in its current location;

b) evaluate stock’s health/disease history;

c) take and test samples for IHNNV, pests and general health/disease status;

d) import and quarantine in a secure facility a founder (F-0) population;

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 IHNNV and perform general examinations for pests and general health/disease status;

g) if IHNNV is not detected, pests are not present, and the general health/disease status of the stock is considered to meet basic biosecurity conditions of the importing country, zone, or compartment, the F-1 stock may be defined as IHHN free or specific pathogen free (SPF) for IHNNV;

h) release SPF F-1 stock from quarantine for aquaculture or stocking purposes in the country, zone or compartment.

Article 4.1.6.9.

Importation of live animals for human consumption from a country, zone or compartment not declared free from infectious hypodermal and haematopoietic necrosis

When importing, for human consumption, aquatic animals of the species listed in Article 4.1.6.2., other than any commodities listed in point 1) of Article 4.1.6.3., from a country, zone or compartment not declared free from IHHN, the Competent Authority of the importing country should require:

1. the consignment is delivered directly to and held in isolation until consumption; and

2. all effluent, dead animals and waste material are treated in a manner that ensures inactivation of IHNNV.

Member Countries should consider introducing internal measures to prevent such commodities being used for any purpose other than for human consumption.
Appendix XXXVIII (contd)

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Article 4.1.6.10.

Importation of products from a country, zone or compartment declared free from IHHN

When importing aquatic animal products of the species listed in Article 4.1.6.2., other than those commodities listed in point 1) of Article 4.1.6.3., from a country, zone or compartment free from IHHN, the Competent Authority of the importing country should require 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 4.1.6.4. or 4.1.6.5. (as applicable), the place of production of the consignment is a country, zone or compartment declared free from IHHN.

The certificate shall be in accordance with the Model Certificate in Appendix 6.5.1.

Article 4.1.6.11.

Importation of products from a country, zone or compartment not declared free from IHHN

When importing aquatic animal products of the species listed in Article 4.1.6.2., other than those commodities listed in point 1) of Article 4.1.6.3., from a country, zone or compartment not declared free from IHHN, the Competent Authority of the importing country should assess the risk and apply appropriate risk mitigation measures.
CHAPTER 4.1.7.

CRAYFISH PLAGUE

Article 4.1.7.1.

For the purposes of this Aquatic Code, crayfish plague means infection with Aphanomyces astaci Schikora. This organism is a member of a group commonly known as the water moulds (the Oomycetida). Common synonyms are listed in Chapter 4.1.7. of the Aquatic Manual.

Methods for surveillance and diagnosis are provided in the Aquatic Manual.

Article 4.1.7.2.

Susceptible species

For the purposes of this Aquatic Code, susceptible species for crayfish plague include all species of crayfish in all three crayfish families (Cambaridae, Astacidae, and Parastacidae). Crayfish plague is most severe in European crayfish species including the noble crayfish (Astacus astacus), the white claw crayfish (Austropotamobius pallipes), stone crayfish (Austropotamobius torrentium), and the Turkish crayfish (Astacus leptodactylus). In general the Astacidae (except Pacifastacus) are highly susceptible, while the Cambaridae are resistant to disease, but are potential carriers. Suspect cases of natural infection with A. astaci in species other than those listed in this Article should be referred immediately to the appropriate OIE Reference Laboratory, whether or not clinical signs are associated with the findings.

Article 4.1.7.3.

Commodities

1. When authorising import or transit of the following commodities, Competent Authorities of the importing country should not require any crayfish plague related conditions, regardless of the crayfish plague status of the exporting country, zone or compartment.

   a) For the species in Article 4.1.7.2, for any purpose:

   i) commercially-sterile canned products;
   ii) boiled products (e.g. cooked whole shrimp or tails, lobsters, crabs);
   iii) chemically extracted chitin;
   iv) crustacean meals or by-products made non-infectious by heating (>60°C for >5 minutes) or drying by-product (e.g. flame dried or sun dried);
   v) crustacean products made non-infectious during processing as dry feeds (e.g. pelleted or extruded feeds);
   vi) biological samples preserved for diagnostic applications in such a manner as to inactivate A. astaci (e.g. formalin or alcohol preserved samples);
   vii) frozen products that have been subjected to -10°C or lower temperatures for at least 24 hours.

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b) The following products destined for human consumption from species in Article 4.1.7.2 which have been prepared in such a way as to minimise the risk of diversion for alternative uses:
   i) chemically preserved products (e.g. salted, pickled, marinated, pastes, etc.);
   ii) cooked or dried products (e.g. ready prepared meals).

c) For species other than those listed in Article 4.1.7.2. all aquatic animal products.

For the commodities listed in point 1)b), Member Countries should consider introducing internal measures to prevent the commodity being used for any purpose other than for human consumption.

2. When authorising import or transit of the commodities of a species listed in Article 4.1.7.2., other than those listed in point 1 of Article 4.1.7.3., Competent Authorities of the importing country should require the conditions prescribed in Articles 4.1.7.7. to 4.1.7.11. of this Chapter, relevant to the crayfish plague status of the exporting country, zone or compartment.

3. When considering the import or transit of any other commodity of a species not referred to in Article 4.1.7.2. but which could be reasonably expected to be a potential A. astaci carrier from an exporting country, zone or compartment not declared free of crayfish plague, Competent Authorities of the importing country should conduct an analysis of the risk of introduction, establishment and spread of A. astaci, and the potential consequences, associated with importation of the commodity, prior to a decision. The outcome of this assessment should be made available to the exporting country.

Article 4.1.7.4.

Crayfish plague free country

A country may declare itself free from crayfish plague if it meets the conditions in points 1), 2), 3) or 4) below.

If a country shares a water catchment or with one or more other countries, it can only declare itself a crayfish plague free country if all the areas covered by the shared water are declared crayfish plague free countries or zones (see Article 4.1.7.5.).

1. A country where none of the species listed in Article 4.1.7.2. is present may declare itself free from crayfish plague when basic biosecurity conditions have been met continuously in the country for at least the past 2 years.

OR

2. A country where the species listed in Article 4.1.7.2. are present but there has never been any observed occurrence of the disease for at least the past 25 years despite conditions that are conducive to its clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may declare itself free from crayfish plague when basic biosecurity conditions have been met continuously in the country for at least the past 2 years.

OR

3. A country where the last observed occurrence of the disease was within the past 25 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may declare itself free from crayfish plague when:
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a) basic biosecurity conditions have been met continuously for at least the past 2 years; and

b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place for at least the last 5 years without detection of A. astaci.

OR

4. A country that had previously declared itself free from crayfish plague but in which the disease is detected may not declare itself free from crayfish plague again until the following conditions have been met:

a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and

b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see Aquatic Manual) have been completed; and

c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the past 5 years without detection of A. astaci.

In the meantime, other areas of the remaining territory may be declared one or more free zones, provided that they meet the conditions in point 3) of Article 4.1.7.5.

Article 4.1.7.5.

Crayfish plague free zone or free compartment

A zone or compartment within the territory of one or more countries not declared free from crayfish plague may be declared free by the Competent Authority(ies) of the country(ies) concerned, if the zone or compartment meets the conditions referred to in points 1), 2), 3) or 4) below.

If a zone or compartment extends over more than one country, it can only be declared a crayfish plague free zone or compartment if all the relevant Competent Authorities confirm that the conditions have been met.

1. A zone or compartment where none of the species listed in Article 4.1.7.2. is present may declare itself free from crayfish plague when basic biosecurity conditions have been met continuously in the zone or compartment for at least the past 2 years.

OR

2. A zone or compartment where the species listed in Article 4.1.7.2. are present but in which there has not been any observed occurrence of the disease for at least the past 10 years despite conditions that are conducive to its clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may declare itself free from crayfish plague when basic biosecurity conditions have been met continuously in the zone or compartment for at least the past 2 years.

OR

3. A zone or compartment where the last observed occurrence of the disease was within the past 10 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may declare itself free from crayfish plague when:
Appendix XXXVIII (contd)

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a) basic biosecurity conditions have been met continuously for at least the past 2 years; and

b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place, through the zone or compartment, for at least the past 2 years without detection of A. astaci.

OR

4. A zone previously declared free from crayfish plague but in which the disease is detected may not be declared free from crayfish plague again until the following conditions have been met:

a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and

b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see Aquatic Manual) have been completed; and

c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the past 2 years without detection of A. astaci.

Article 4.1.7.6.

Maintenance of free status

A country or zone or compartment that is declared free from crayfish plague following the provisions of points 1) or 2) of Articles 4.1.7.4. or 4.1.7.5., as relevant, may maintain its status as crayfish plague free provided that basic biosecurity conditions are continuously maintained.

A country or zone or compartment that is declared free from crayfish plague following the provisions of point 3) of Articles 4.1.7.4. or 4.1.7.5., as relevant, may discontinue targeted surveillance and maintain its status as crayfish plague free provided that conditions that are conducive to clinical expression of crayfish plague, as described in Chapter X.X.X. 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 crayfish plague, targeted surveillance needs to be continued at a level determined by the Competent Authority on the basis of the likelihood of reinfection.

Article 4.1.7.7.

Importation of live animals from a country, zone or compartment declared free from crayfish plague

When importing live aquatic animals of the species listed in Article 4.1.7.2., other than commodities listed in point 1) of Article 4.1.7.3., from a country, zone or compartment declared free from crayfish plague, the Competent Authority of the importing country should require 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 4.1.7.4. or 4.1.7.5. (as applicable), the place of production of the consignment is a country, zone or compartment declared free from crayfish plague.

The certificate shall be in accordance with the Model Certificate in Appendix 6.4.1.
Article 4.1.7.8.

Importation of live animals for aquaculture from a country, zone or compartment not declared free from crayfish plague

1. When importing, for aquaculture, aquatic animals of the species listed in Article 4.1.7.2., other than those commodities listed in point 1) of Article 4.1.7.3., from a country, zone or compartment not declared free from crayfish plague, the Competent Authority of the importing country should assess the risk and apply risk mitigation measures such as:

   a) the consignment is delivered directly into and held in quarantine facilities; and
   b) the imported aquatic animals and their first generation progeny are continuously isolated from the local environment; and
   c) all effluent and waste material are treated in a manner that ensures inactivation of A. astaci.

2. If the intention of the introduction is the establishment of new genetic lines, international standards, such as the Guidelines of the International Council for the Exploration of the Seas (ICES), should be followed.

3. For the purposes of this Aquatic Code, the ICES Guidelines may be summarised to the following main points:

   a) identify stock of interest (cultured or wild) in its current location;
   b) evaluate stock’s health/disease history;
   c) take and test samples for A. astaci, pests and general health/disease status;
   d) import and quarantine in a secure facility a founder (F-0) population;
   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 A. astaci and perform general examinations for pests and general health/disease status;
   g) if A. astaci is not detected, pests are not present, and the general health/disease status of the stock is considered to meet basic biosecurity conditions of the importing country, zone, or compartment, the F-1 stock may be defined as crayfish plague free or specific pathogen free (SPF) for A. astaci;
   h) release SPF F-1 stock from quarantine for aquaculture or stocking purposes in the country, zone or compartment.

Article 4.1.7.9.

Importation of live animals for human consumption from a country, zone or compartment not declared free from crayfish plague

When importing, for human consumption, aquatic animals of the species listed in Article 4.1.7.2., other than any commodities listed in point 1) of Article 4.1.7.3., from a country, zone or compartment not declared free from crayfish plague, the Competent Authority of the importing country should require:
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1. the consignment is delivered directly to and held in isolation until consumption; and
2. all effluent, dead animals and waste material are treated in a manner that ensures inactivation of A. astaci.

Member Countries should consider introducing internal measures to prevent such commodities being used for any purpose other than for human consumption.

Article 4.1.7.10.

Importation of products from a country, zone or compartment declared free from crayfish plague

When importing aquatic animal products of the species listed in Article 4.1.7.2., other than those commodities listed in point 1) of Article 4.1.7.3., from a country, zone or compartment free from crayfish plague, the Competent Authority of the importing country should require 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 4.1.7.4. or 4.1.7.5. (as applicable), the place of production of the consignment is a country, zone or compartment declared free from crayfish plague.

The certificate shall be in accordance with the Model Certificate in Appendix 6.5.1.

Article 4.1.7.11.

Importation of products from a country, zone or compartment not declared free from crayfish plague

When importing aquatic animal products of the species listed in Article 4.1.7.2., other than those commodities listed in point 1) of Article 4.1.7.3., from a country, zone or compartment not declared free from crayfish plague, the Competent Authority of the importing country should assess the risk and apply appropriate risk mitigation measures.
CHAPTER 4.1.9.

INFECTIOUS MYONECROSIS

Article 4.1.9.1.

For the purposes of this Aquatic Code, infectious myonecrosis (IMN) means infection with infectious myonecrosis virus (IMNV). This virus is similar to members of the family Togavirus.

Methods for surveillance and diagnosis are provided in the Aquatic Manual.

Article 4.1.9.2.

Susceptible species

For the purposes of this Aquatic Code, susceptible species for IMN is: Pacific white shrimp (Litopenaeus vannamei).

Suspect cases of natural infection with IMNV in species other than those listed in this Article should be referred immediately to the appropriate OIE Reference Laboratory, whether or not clinical signs are associated with the findings.

Article 4.1.9.3.

Commodities

1. When authorising import or transit of the following commodities, Competent Authorities of the importing country should not require any IMN related conditions, regardless of the IMN status of the exporting country, zone or compartment.

   a) For the species in Article 4.1.9.2, for any purpose:

   i) commercially-sterile canned products;

   ii) boiled products (e.g. boiled whole shrimp or tails, lobsters, crabs);

   iii) chemically extracted chitin;

   iv) crustacean meals or by-products made non-infectious by heating or drying (e.g. flame dried or sun dried);

   v) crustacean products made non-infectious through processing as dry feeds (e.g. pelleted or extruded feeds);

   vi) biological samples preserved for diagnostic applications in such a manner as to inactivate IMNV (e.g. formalin or alcohol preserved samples).

   b) The following products destined for human consumption from species in Article 4.1.9.2 which have been prepared in such a way as to minimise the risk of diversion for alternative uses:

   i) chemically preserved products (e.g. salted, pickled, marinated, pastes, etc.);

   ii) cooked or dried products (e.g. ready prepared meals);
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c) For species other than those listed in Article 4.1.9.2., all aquatic animal products.

For the commodities listed in point 1)b), Member Countries should consider introducing internal measures to prevent the commodity being used for any purpose other than for human consumption.

2. When authorising import or transit of the commodities of a species listed in Article 4.1.9.2., other than those listed in point 1 of Article 4.1.9.3., Competent Authorities of the importing country should require the conditions prescribed in Articles 4.1.9.7. to 4.1.9.11. of this Chapter, relevant to the IMN status of the exporting country, zone or compartment.

3. When considering the import or transit of any other commodity of a species not referred to in Article 4.1.9.2., but which could be reasonably expected to be a potential IMV carrier from an exporting country, zone or compartment not declared free of IMN, Competent Authorities of the importing country should conduct an analysis of the risk of introduction, establishment and spread of IMV, and the potential consequences, associated with importation of the commodity, prior to a decision. The outcome of this assessment should be made available to the exporting country.

Article 4.1.9.4.

Infectious myonecrosis free country

A country may declare itself free from IMN if it meets the conditions in points 1), 2), 3) or 4) below.

If a country shares a water catchment or coastal zone with one or more other countries, it can only declare itself an IMN free country if all the areas covered by the shared water are declared IMN free countries or zones (see Article 4.1.9.5).

1. A country where none of the species listed in Article 4.1.9.2. is present may declare itself free from IMN when basic biosecurity conditions have been met continuously in the country for at least the past 2 years.

OR

2. A country where the species listed in Article 4.1.9.2. are present but there has never been any observed occurrence of the disease for at least the past 10 years despite conditions that are conducive to its clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may declare itself free from IMN when basic biosecurity conditions have been met continuously in the country for at least the past 2 years.

OR

3. A country where the last observed occurrence of the disease was within the past 10 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may declare itself free from IMN when:

a) basic biosecurity conditions have been met continuously for at least the past 2 years; and

b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place for at least the last 2 years without detection of IMNV.
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OR

4. A country that had previously declared itself free from IMN but in which the disease is detected may not declare itself free from IMN again until the following conditions have been met:

   a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and

   b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see Aquatic Manual) have been completed; and

   c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the past 2 years without detection of IMNV.

In the meantime, other areas of the remaining territory may be declared one or more free zones, provided that they meet the conditions in point 3) of Article 4.1.9.5.

Article 4.1.9.5.

Infectious myonecrosis free zone or free compartment

A zone or compartment within the territory of one or more countries not declared free from IMN may be declared free by the Competent Authority(ies) of the country(ies) concerned, if the zone or compartment meets the conditions referred to in points 1), 2), 3) or 4) below.

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

1. A zone or compartment where none of the species listed in Article 4.1.9.2. is present may declare itself free from IMN when basic biosecurity conditions have been met continuously in the zone or compartment for at least the past 2 years.

OR

2. A zone or compartment where the species listed in Article 4.1.9.2. are present but in which there has not been any observed occurrence of the disease for at least the past 10 years despite conditions that are conducive to its clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may declare itself free from IMN when basic biosecurity conditions have been met continuously in the zone or compartment for at least the past 2 years.

OR

3. A zone or compartment where the last observed occurrence of the disease was within the past 10 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may declare itself free from IMN when:

   a) basic biosecurity conditions have been met continuously for at least the past 2 years; and

   b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place, through the zone or compartment, for at least the past 2 years without detection of IMNV.
Appendix XXXVIII (contd)

Appendix XI (contd)

OR

4. A zone previously declared free from IMN but in which the disease is detected may not be declared free from IMN again until the following conditions have been met:
   a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and
   b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see Aquatic Manual) have been completed; and
   c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the past 2 years without detection of IMNV.

Article 4.1.9.6.

Maintenance of free status

A country or zone or compartment that is declared free from IMN following the provisions of points 1) or 2) of Articles 4.1.9.4. or 4.1.9.5., as relevant, may maintain its status as IMN free provided that basic biosecurity conditions are continuously maintained.

A country or zone or compartment that is declared free from IMN following the provisions of point 3) of Articles 4.1.9.4. or 4.1.9.5., as relevant, may discontinue targeted surveillance and maintain its status as IMN free provided that conditions that are conducive to clinical expression of IMN, as described in Chapter X.X.X. 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 IMN, targeted surveillance needs to be continued at a level determined by the Competent Authority on the basis of the likelihood of reinfection.

Article 4.1.9.7.

Importation of live animals from a country, zone or compartment declared free from infectious myonecrosis

When importing live aquatic animals of the species listed in Article 4.1.9.2., other than commodities listed in point 1) of Article 4.1.9.3., from a country, zone or compartment declared free from IMN, the Competent Authority of the importing country should require 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 4.1.9.4. or 4.1.9.5. (as applicable), the place of production of the consignment is a country, zone or compartment declared free from IMN.

The certificate shall be in accordance with the Model Certificate in Appendix 6.4.1.

Article 4.1.9.8.

Importation of live animals for aquaculture from a country, zone or compartment not declared free from infectious myonecrosis

1. When importing, for aquaculture, aquatic animals of the species listed in Article 4.1.9.2., other than those commodities listed in point 1) of Article 4.1.9.3., from a country, zone or compartment not declared free from IMN, the Competent Authority of the importing country should assess the risk and apply risk mitigation measures such as:
Appendix XXXVIII (contd)

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a) the consignment is delivered directly into and held in quarantine facilities; and

b) the imported aquatic animals and their first generation progeny are continuously isolated from the local environment; and

c) all effluent and waste material are treated in a manner that ensures inactivation of IMNV.

2. If the intention of the introduction is the establishment of new genetic lines, international standards, such as the Guidelines of the International Council for the Exploration of the Seas (ICES), should be followed.

3. For the purposes of this Aquatic Code, the ICES Guidelines may be summarised to the following main points:

a) identify stock of interest (cultured or wild) in its current location;

b) evaluate stock’s health/disease history;

c) take and test samples for IMNV, pests and general health/disease status;

d) import and quarantine in a secure facility a founder (F-0) population;

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;

gh) if IMNV is not detected, pests are not present, and the general health/disease status of the stock is considered to meet basic biodiversity conditions of the importing country, zone, or compartment, the F-1 stock may be defined as IMN 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.

Article 4.1.9.9.

Importation of live animals for human consumption from a country, zone or compartment not declared free from infectious myonecrosis

When importing, for human consumption, aquatic animals of the species listed in Article 4.1.9.2., other than any commodities listed in point 1) of Article 4.1.9.3., from a country, zone or compartment not declared free from IMN, the Competent Authority of the importing country should require:

1. the consignment is delivered directly to and held in isolation until consumption; and

2. all effluent, dead animals and waste material are treated in a manner that ensures inactivation of IMNV.

Member Countries should consider introducing internal measures to prevent such commodities being used for any purpose other than for human consumption.
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Article 4.1.9.10.

Importation of products from a country, zone or compartment declared free from infectious myonecrosis

When importing aquatic animal products of the species listed in Article 4.1.9.2., other than those commodities listed in point 1) of Article 4.1.9.3., from a country, zone or compartment free from IMN, the Competent Authority of the importing country should require 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 4.1.9.4. or 4.1.9.5. (as applicable), the place of production of the consignment is a country, zone or compartment declared free from IMN.

The certificate shall be in accordance with the Model Certificate in Appendix 6.5.1.

Article 4.1.9.11.

Importation of products from a country, zone or compartment not declared free from infectious myonecrosis

When importing aquatic animal products of the species listed in Article 4.1.9.2., other than those commodities listed in point 1) of Article 4.1.9.3., from a country, zone or compartment not declared free from IMN, the Competent Authority of the importing country should assess the risk and apply appropriate risk mitigation measures.
CHAPTER 4.1.10.

NECROTISING HEPATOPANCREATITIS

Article 4.1.10.1.

For the purposes of this Aquatic Code, necrotising hepatopancreatititis (NHP) means infection with necrotising hepatopancreatititis bacteria (NHP-B). This bacterium is a member of the order α-Proteobacteria.

Methods for surveillance and diagnosis are provided in the Aquatic Manual.

Article 4.1.10.2.

Susceptible species

For the purposes of this Aquatic Code, susceptible species for NHP are included in the following susceptible species are: Pacific white shrimp (Litopenaeus vannamei), blue shrimp (L. stylirostris), northern white shrimp (L. setiferus) and northern brown shrimp (Farfantepenaeus).

Suspect cases of natural infection with NHP-B in species other than those listed in this Article should be referred immediately to the appropriate OIE Reference Laboratory, whether or not clinical signs are associated with the findings.

Article 4.1.10.3.

Commodities

1. When authorising import or transit of the following commodities, Competent Authorities of the importing country should not require any NHP related conditions, regardless of the NHP status of the exporting country, zone or compartment.

   a) For the species in Article 4.1.10.2. for any purpose:
      i) commercially-sterile canned products;
      ii) boiled products (e.g. boiled whole shrimp or tails, lobsters, crabs);
      iii) chemically extracted chitin;
      iv) crustacean meals or by-products made non-infectious by heating or drying (e.g. flame dried or sun dried);
      v) crustacean products made non-infectious through processing as dry feeds (e.g. pelleted or extruded feeds);
      vi) biological samples preserved for diagnostic applications in such a manner as to inactivate NHP-B (e.g. formalin or alcohol preserved samples);
      vii) frozen products.
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b) The following products destined for human consumption from species in Article 4.1.10.2 which have been prepared in such a way as to minimise the risk of diversion for alternative uses:

i) chemically preserved products (e.g. salted, pickled, marinated, pastes, etc.);

ii) cooked or dried products (e.g. ready prepared meals);

iii) headed and de-veined shrimp tails.

c) For species other than those listed in Article 4.1.10.2., all aquatic animal products.

For the commodities listed in point 1) b), Member Countries should consider introducing internal measures to prevent the commodity being used for any purpose other than for human consumption.

2. When authorising import or transit of the commodities of a species listed in Article 4.1.10.2., other than those listed in point 1 of Article 4.1.10.3., Competent Authorities of the importing country should require the conditions prescribed in Articles 4.1.10.7. to 4.1.10.11. of this Chapter, relevant to the NHP status of the exporting country, zone or compartment.

3. When considering the import or transit of any other commodity of a species not referred to in Article 4.1.10.2., but which could be reasonably expected to be a potential NHP-B carrier from an exporting country, zone or compartment not declared free of NHP, Competent Authorities of the importing country should conduct an analysis of the risk of introduction, establishment and spread of NHP-B, and the potential consequences, associated with importation of the commodity, prior to a decision. The outcome of this assessment should be made available to the exporting country.

Article 4.1.10.4.

Necrotising hepatopancreatitis free country

A country may declare itself free from NHP if it meets the conditions in points 1), 2), 3) or 4) below.

If a country shares a water catchment or coastal zone with one or more other countries, it can only declare itself a NHP free country if all the areas covered by the shared water are declared NHP free countries or zones (see Article 4.1.10.5).

1. A country where none of the species listed in Article 4.1.10.2. is present may declare itself free from NHP when basic biosecurity conditions have been met continuously in the country for at least the past 2 years.

OR

2. A country where the species listed in Article 4.1.10.2. are present but there has never been any observed occurrence of the disease for at least the past 10 years despite conditions that are conducive to its clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may declare itself free from NHP when basic biosecurity conditions have been met continuously in the country for at least the past 2 years.

OR

3. A country where the last observed occurrence of the disease was within the past 10 years or where the infection status prior to targeted surveillance was unknown, for example because of the absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may declare itself free from NHP when:
Appendix XXXVIII (contd)

Appendix XII (contd)

a) basic biosecurity conditions have been met continuously for at least the past 2 years; and
b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in
   place for at least the last 2 years without detection of NHP-B.

OR

4. A country that had previously declared itself free from NHP but in which the disease is detected may
   not declare itself free from NHP again until the following conditions have been met:
   a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was
      established; and
   b) infected populations have been safely destroyed or removed from the infected zone by means that
      minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see
      Aquatic Manual) have been completed; and
   c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in
      place for at least the past 2 years without detection of NHP-B.

In the meantime, other areas of the remaining territory may be declared one or more free zones,
provided that they meet the conditions in point 3) of Article 4.1.10.5.

Article 4.1.10.5.

Necrotising hepatopancreatitis free zone or free compartment

A zone or compartment within the territory of one or more countries not declared free from NHP may be
declared free by the Competent Authority(ies) of the country(ies) concerned, if the zone or compartment
meets the conditions referred to in points 1), 2), 3) or 4) below.

If a zone or compartment extends over more than one country, it can only be declared a NHP free zone or
compartment if all the relevant Competent Authorities confirm that the conditions have been met.

1. A zone or compartment where none of the species listed in Article 4.1.10.2. is present may declare itself
   free from NHP when basic biosecurity conditions have been met continuously in the zone or compartment
   for at least the past 2 years.

OR

2. A zone or compartment where the species listed in Article 4.1.10.2. are present but in which there has
   not been any observed occurrence of the disease for at least the past 10 years despite conditions that
   are conducive to its clinical expression, as described in Chapter X.X.X. of the Aquatic Manual, may
   declare itself free from NHP when basic biosecurity conditions have been met continuously in the zone or
   compartment for at least the past 2 years.

OR

3. A zone or compartment where the last observed occurrence of the disease was within the past 10 years
   or where the infection status prior to targeted surveillance was unknown, for example because of the
   absence of conditions conducive to clinical expression, as described in Chapter X.X.X. of the Aquatic
   Manual, may declare itself free from NHP when:
Appendix XXXVIII (contd)

Appendix XII (contd)

a) basic biosecurity conditions have been met continuously for at least the past 2 years; and

b) targeted surveillance as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual has been in place, through the zone or compartment, for at least the past 2 years without detection of NHP-B.

OR

4. A zone previously declared free from NHP but in which the disease is detected may not be declared free from NHP again until the following conditions have been met:

a) on detection of the disease, the affected area was declared an infected zone and a buffer zone was established; and

b) infected populations have been safely destroyed or removed from the infected zone by means that minimise the risk of further spread of the disease, and the appropriate disinfection procedures (see Aquatic Manual) have been completed; and

c) targeted surveillance, as described in Chapters 1.1.4. and X.X.X. of the Aquatic Manual, has been in place for at least the past 2 years without detection of NHP-B.

Article 4.1.10.6.

Maintenance of free status

A country or zone or compartment that is declared free from NHP following the provisions of points 1) or 2) of Articles 4.1.10.4. or 4.1.10.5., as relevant, may maintain its status as NHP free provided that basic biosecurity conditions are continuously maintained.

A country or zone or compartment that is declared free from NHP following the provisions of point 3) of Articles 4.1.10.4. or 4.1.10.5., as relevant, may discontinue targeted surveillance and maintain its status as NHP free provided that conditions that are conducive to clinical expression of NHP, as described in Chapter X.X.X. 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 NHP, targeted surveillance needs to be continued at a level determined by the Competent Authority on the basis of the likelihood of reinfection.

Article 4.1.10.7.

Importation of live animals from a country, zone or compartment declared free from necrotising hepatopancreatitis

When importing live aquatic animals of the species listed in Article 4.1.10.2., other than commodities listed in point 1) of Article 4.1.10.3., from a country, zone or compartment declared free from NHP, the Competent Authority of the importing country should require 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 4.1.10.4. or 4.1.10.5. (as applicable), the place of production of the consignment is a country, zone or compartment declared free from NHP.

The certificate shall be in accordance with the Model Certificate in Appendix 6.4.1.
Article 4.1.10.8.

Importation of live animals for aquaculture from a country, zone or compartment not declared free from necrotising hepatopancreatitis

1. When importing, for aquaculture, aquatic animals of the species listed in Article 4.1.10.2., other than those commodities listed in point 1) of Article 4.1.10.3., from a country, zone or compartment not declared free from NHP, the Competent Authority of the importing country should assess the risk and apply risk mitigation measures such as:
   a) the consignment is delivered directly into and held in quarantine facilities; and
   b) the imported aquatic animals and their first generation progeny are continuously isolated from the local environment; and
   c) all effluent and waste material are treated in a manner that ensures inactivation of NHP-B.

2. If the intention of the introduction is the establishment of new genetic lines, international standards, such as the Guidelines of the International Council for the Exploration of the Seas (ICES), should be followed.

3. For the purposes of this Aquatic Code, the ICES Guidelines may be summarised to the following main points:
   a) identify stock of interest (cultured or wild) in its current location;
   b) evaluate stock’s health/disease history;
   c) take and test samples for NHP-B, pests and general health/disease status;
   d) import and quarantine in a secure facility a founder (F-0) population;
   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 NHP-B and perform general examinations for pests and general health/disease status;
   g) if NHP-B is not detected, pests are not present, and the general health/disease status of the stock is considered to meet basic biosecurity conditions of the importing country, zone, or compartment, the F-1 stock may be defined as NHP free or specific pathogen free (SPF) for NHP-B;
   h) release SPF F-1 stock from quarantine for aquaculture or stocking purposes in the country, zone or compartment.

Article 4.1.10.9.

Importation of live animals for human consumption from a country, zone or compartment not declared free from necrotising hepatopancreatitis

When importing, for human consumption, aquatic animals of the species listed in Article 4.1.10.2., other than any commodities listed in point 1) of Article 4.1.10.3., from a country, zone or compartment not declared free from NHP, the Competent Authority of the importing country should require:
Appendix XXXVIII (contd)

Appendix XII (contd)

1. the consignment is delivered directly to and held in isolation until consumption; and

2. all effluent, dead animals and waste material are treated in a manner that ensures inactivation of NHP-B.

Member Countries should consider introducing internal measures to prevent such commodities being used for any purpose other than for human consumption.

Article 4.1.10.10.

Importation of products from a country, zone or compartment declared free from necrotising hepatopancreatitis

When importing aquatic animal products of the species listed in Article 4.1.10.2., other than those commodities listed in point 1) of Article 4.1.10.3., from a country, zone or compartment free from NHP, the Competent Authority of the importing country should require 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 4.1.10.4. or 4.1.10.5. (as applicable), the place of production of the consignment is a country, zone or compartment declared free from NHP.

The certificate shall be in accordance with the Model Certificate in Appendix 6.5.1.

Article 4.1.10.11.

Importation of products from a country, zone or compartment not declared free from necrotising hepatopancreatitis

When importing aquatic animal products of the species listed in Article 4.1.10.2., other than those commodities listed in point 1) of Article 4.1.10.3., from a country, zone or compartment not declared free from NHP, the Competent Authority of the importing country should assess the risk and apply appropriate risk mitigation measures.
The OIE ad hoc group on Aquatic Animal Transport held its first meeting at the OIE Headquarters from 8 to 10 June 2005.

On behalf of the Director General of the OIE, Dr David Wilson welcomed the members of the ad hoc group and thanked them for their willingness to be involved in addressing the mandate of the OIE for aquatic animal welfare.

The members of the OIE ad hoc group are listed in Appendix I. The Agenda adopted is given in Appendix II, and the terms of reference in Appendix III.

The ad hoc group recognised the close relationship between aquatic animal welfare, and the health of aquatic animals and their ecosystems. It recognised that animal welfare guidelines designed to minimise stress in aquatic animals during transport would result in widespread benefits to their health.

The ad hoc group examined its terms of reference and decided to initially develop two guidelines: one addressing the sea transport of finfish (Appendix V) and the second the transport of finfish by land (Appendix VI). General definitions are given in Appendix IV. General principles for finfish welfare, modified by the ad hoc group on the slaughter and killing of aquatic animals from the principles adopted at the 73rd General Session, were endorsed with the recognition that the wording was biased towards terrestrial animals.

The ad hoc group worked on drafts prepared by Prof. Tore Håstein which took into account the guidelines adopted by the OIE International Committee on the welfare of terrestrial animals.

The ad hoc group developed initially guidelines for the transport of finfish by land and sea, with an emphasis on farmed fish; in this work, the ad hoc group concentrated on the transport of commercial quantities of finfish. At this stage, the ad hoc group has not considered the transport of aquatic animals by air, the transport by land of ornamental fish at the hobbyist level, nor of the transport of larger crustaceans (lobsters, crabs and crayfish). Members with expertise in ornamental fish and crustaceans may be necessary for this work.

Discussions were held on the process by which vehicles/vessels which transport finfish should be approved/certified by Competent Authorities. While members recognised in principle the value of certification/approval, there was no agreement on the means of implementing such procedures.
Appendix XXXIX (contd)

The *ad hoc* group decided that operational guidelines should be developed for boats because of the specialised nature of such a method of transporting finfish, and the likelihood of disease transmission via such a method. These are under preparation.

The *ad hoc* group also discussed how the term ‘animal handler’ in the terrestrial animal guidelines should be defined with regard to aquatic animals, and decided on a corresponding definition of ‘aquatic animal technician’.

Further work is under progress in the preparation of detailed recommendations for specific species (Appendix VII).
MEETING OF THE OIE AD HOC GROUP ON AQUATIC ANIMAL TRANSPORT

Paris, 8-10 June 2005

List of participants

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MEETING OF THE OIE AD HOC GROUP ON AQUATIC ANIMAL TRANSPORT

Paris, 8-10 June 2005

Agenda

1. Introduction
   - Discussion on the report of the last meeting of the OIE Working Group on Animal Welfare
   - Discussion on OIE 73rd General Session (Endorsed Terrestrial Animal Health Code Chapters on Animal Welfare)

2. Development of guiding principles and specific guidelines

3. Future work programme
GUIDELINES FOR AQUATIC ANIMAL TRANSPORT (AIR, LAND, SEA)

Terms of reference

- Review existing standards and as first output – draft guiding principles (rather than a prescriptive approach to limits) specifically addressing land transport, sea transport and air transport (based on the generic OIE guiding principles and policies for animal welfare)
- Review the existing standards on transportation in the Aquatic Animal Health Code (Section 1.5)
- Final output – draft standards/guidelines for the Aquatic Animal Health Code based on approved guiding principles
- Identify future directions in which the Ad hoc Group might need to move
- Produce drafts for review by the OIE Working Group and then by the OIE Aquatic Animal Health Standards Commission

Species to be covered

- Cold water fish species (i.e. salmonids)
  - Land, boat transport
- Warm water fish species (bass, bream, carp, etc.)
  - Land, boat transport
- Ornamental fish species
  - Air transport
- As resources permit and expertise is available, crustaceans (shrimps, lobsters and crabs) will be addressed.
CHAPTER 1.1.1.

GENERAL DEFINITIONS

For the purposes of this Aquatic Code, the following definitions apply:

- **Aquatic animal technician** means a person with knowledge regarding the behaviour and needs of live aquatic animals which, with appropriate experience and a professional and positive response to welfare requirements of aquatic animals, resulting in effective management and good welfare. Their competence should be demonstrated through independent assessment and certification.

- **Boat** means a vessel constructed or adapted for the transport or temporary holding on water of live aquatic animals and their products, and includes well-boats, barges, and boats with tanks on deck.

- **Finfish** means live freshwater, estuarine or seawater finfish of any kind.

- **Stocking density** means, in the case of aquatic animals, the number or body weight of aquatic animals per unit area or per unit volume of water on a vehicle or a tank.

- **Transport equipment** means the compartment in which live aquatic animals and transporting water are kept during transport (buckets, cylinders, tanks, wells, etc.), and associated equipment such as water circulation devices, pumps, water treatment equipment, water filtration devices and systems for loading and unloading live fish, valves, tubes and pipelines.

- **Transport unit** means the combination of the transport equipment and the vehicle/vessel.

- **Travel means** the movement of a vehicle/vessel or container carrying live aquatic animals from one location to another.

- **Vehicle/vessel** means any train, truck, automobile, airplane, helicopter or boat that is used for the transport of live aquatic animals.

- **Water quality parameters** means its physical, chemical and biological characteristics.
GUIDELINES FOR THE TRANSPORT OF FINFISH BY BOAT

Preamble

These guidelines apply to the following farmed species of fish: salmonids and cyprinids. The guidelines may also apply to other finfish species.

Article 1

The length of time finfish spend on a transport should be as short as possible.

Article 2

Responsibilities

The welfare of finfish during their transport is the joint responsibility of all people involved. These guidelines apply to the transport of finfish by boat within a country and between countries. The roles of each of those responsible are defined below:

1. Owners and managers of finfish are responsible for the general health of the finfish and their fitness at the start of the journey and to ensure the overall welfare of finfish during the transport regardless whether these duties are subcontracted to other parties.

2. Aquatic animal technicians handling finfish prior to loading, during loading and unloading have a personal responsibility for their welfare.

3. Transport companies, boat owners and captains, in cooperation with the Competent Authorities, are responsible for planning the journey to ensure that the transport can be carried out properly according to finfish welfare standards; these include:
   a) responsibility for choosing an appropriate and functioning boat and ensuring that competent staff are available for loading and unloading;
   b) responsibility for developing and keeping up to date contingency plans to address emergencies and minimise stress during transport;
   c) responsibility for correct loading of the boat with the finfish, for regular inspections of the finfish during the journey and for appropriate responses to problems arising.

4. Captains should be properly trained in transport regulations, and the correct boat and equipment usage to ensure that finfish welfare standards are applied. The captain should also be aware of the latest aquatic animal health situation in the zones through which the journey will be made to allow correct journey planning and adjustments as necessary. The captain is responsible for all documentation relevant to the journey, including a journey log.

5. Managers of facilities at the start and at the end of the journey are responsible for:
   a) providing suitable facilities and equipment for loading and unloading to ensure that finfish welfare standards are applied;
Appendix XXXIX (contd)

Appendix V (contd)

b) providing aquatic animal technicians to load and unload the finfish in a manner that causes minimum stress and injury;

c) minimising the opportunities for disease transmission while the finfish are in the facilities;

d) providing facilities and agents for washing and disinfecting vehicles after unloading;

e) providing facilities and veterinarians, fish health biologists or other competent persons be enable killing of the finfish humanely if required.

6. The responsibilities of the Competent Authorities include:

a) establishing minimum standards for finfish welfare, including requirements for the inspection of finfish before, during and after their travel, and appropriate certification and record keeping;

b) approving vessels for the transport of finfish;

c) ensuring appropriate awareness and training;

d) setting licensing standards for captains, aquatic animal technicians and managers;

e) implementation of the standards, including through accreditation of / interaction with other organisations;

f) providing the latest animal health information and designated restriction zones;

g) monitoring and evaluating health and welfare performance.

7. Private veterinarians and fish health biologists involved in transporting finfish and the associated handling procedures should have specialist training in such matters.

Article 3

Competence

1. All persons handling finfish, or who are otherwise responsible for finfish during journeys, should be competent according to their responsibilities listed in Articles 1 and 4. Competence may be gained through formal training and/or practical experience. Competence in areas other than finfish welfare would need to be addressed separately.

2. Any necessary training should address:

a) fish behaviour, physiology, general signs of disease and indicators of poor fish welfare;

b) transport regulations;

c) operation and maintenance of equipment relevant to fish health and welfare;

d) water quality;
c) methods of fish handling during transport and associated activities such as loading and unloading;
f) methods of inspecting animals, managing situations frequently encountered during transport such as adverse weather conditions, and dealing with emergencies;
g) species-specific aspects of fish handling and care, whenever necessary;
h) appropriate record keeping.

Article 4

Planning the journey

1. General considerations

a) Adequate planning is a key factor affecting the welfare of finfish during a journey. Before the journey starts, plans should be made in relation to:
   
i) type of boat required;
   ii) route, taking into account distance, expected weather and sea conditions;
   iii) nature and duration of the journey;
   iv) care of the finfish during the journey;
   v) emergency response procedures.

b) Extreme weather conditions are hazards for finfish undergoing transport and require appropriate boat design to minimise risks. In some extreme conditions, finfish should not be transported at all.

c) As finfish transport is often a significant factor in the spread of infectious diseases, journey planning should take the following into account:
   
i) when possible, finfish should have been vaccinated against diseases to which they are likely to be exposed at their destination;
   
ii) anti-microbials should not be used prophylactically; if used therapeutically, treatment should only be carried out upon instruction by a veterinarian or fish health biologist;
   
iii) before transport is carried out, the necessary biosecurity level should be assessed (e.g. washing and disinfection practices, safe places for changing water, treatment of transport water).

2. Contingency plans

There should be a contingency plan that identifies the important adverse events that may be encountered during the journey, the procedures for managing each event and the action to be taken in an emergency. For each important event, the plan should document the actions to be undertaken and the responsibilities of all parties involved, including communications and record keeping.
3. **Boat design and maintenance**

   a) Boats used for transport of *finfish* should be designed, constructed and fitted as appropriate to the species, size and weight of the *finfish* to be transported. Special attention should be paid to the avoidance of injury to *finfish* through the use of secure smooth fittings free from sharp protrusions.

   b) In order to minimise the likelihood of the spread of pathogenic agents during a journey, boats should be designed to allow the secure handling of dead *finfish*, and thorough cleaning and disinfection prior to and after the journey.

   c) Boats should be maintained in good mechanical and structural condition.

   d) Boats should have adequate circulation of water and equipment for oxygenation to meet variations in the conditions during the journey.

   e) The *finfish* should be able to be inspected en route to ensure that *finfish* welfare standards are fulfilled.

   f) Containers carried on boats should be adequately secured.

   g) The maximum number of *finfish* to be transported in a container should be determined before the vehicle is loaded and the biomass should be able to be measured during the loading process.

   h) Documentation carried with the boat should include:

      i) maintenance programme;

      ii) journey logbook;

      iii) check-list for completed cleaning and disinfection;

      iv) licence from the Competent Authority;

      v) drawings (plan) of the container and pipe system of the transport unit.

   i) The transport unit should be of a type approved by the Competent Authority which should give consideration to the above factors.

4. **Water and equipment on boat and/or container**

   a) Equipment to keep water circulation, water quality (e.g. oxygen, pH, temperature), and monitoring of water quality should be available.

   b) Adequate water circulation and extra oxygenation which can be adjusted to meet variations in temperature during the transport to fulfil the needs of the *finfish* species being transported should be available.

   c) The water used should not come from locations under restriction by the Competent Authority. The water should be oxygen saturated.
5. Documentation
   a) **Finfish** should not be loaded until the required documentation is complete.
   b) The documentation accompanying the consignment (the journey log) should include:
      i) journey travel plan including a contingency plan for emergencies and actions to be taken during the transport;
      ii) date, time, and place of loading;
      iii) finfish species transported;
      iv) information on biomass load, route, water quality and exchanges, and morbidity/mortality;
      v) expected time, date and place of arrival and unloading;
      vii) information to allow traceback to the premises of origin;
      viii) stocking density estimate for containers/compartment in the consignment.
   c) The transport log should be made available to the dispatcher and the receiver of the consignment as well as to Competent Authority upon request. Transport logs from previous journeys should be kept for a considerable time after completion.
   d) When health certification is required to accompany consignments of **finfish**, it should include:
      i) appropriate information on the origin of the **finfish**;
      ii) health status including test, treatment and vaccination status.

6. Preparation of finfish for the journey
   a) **Finfish** found unfit for transport by inspection by the aquatic animal technician, captain or fish health biologist/veterinarian should not be loaded onto a boat.
   b) A group of finfish that is unfit to travel includes:
      i) a group undergoing a disease event which would be exacerbated by handling or transport;
      ii) a group with recent exposure to stressors or pathogenic agents.

7. Species-specific recommendations
   Transport procedures should be able to take account of variations in the behaviour and needs of the **finfish** species. Handling procedures that are successful with one species are often ineffective or dangerous with another.

   Recommendations for specific species are described in detail in Appendices XXX. Some species may need to be physiologically prepared prior to entering a new environment; this may include food deprivation or osmo-regulatory capacity.
Appendix XXXIX (contd)

Appendix V (contd)

8. **Nature and duration of the journey**

The pre-journey preparation, the duration and route of a journey should be determined by:

a) the purpose of the journey e.g. biosecurity issues, transport of juvenile *finfish*, fish for slaughter and killing for disease control purposes;

b) the ability of the *finfish* to cope with the stress of transport;

c) the previous handling and transport experience of the *finfish*;

d) intrinsic factors such as stocking density, species and life-stage being transported, metabolic rate of the *finfish*;

e) the quality of water and the availability of water exchange facilities;

f) other extrinsic factors such as environmental conditions (e.g. air and water temperature), vessel and equipment design, road and weather conditions, boat transport quality.

**Article 5**

**Loading the finfish**

1. Since loading has been shown to be the procedure most likely to be the cause of poor welfare in transported *finfish*, the issues which should be addressed to avoid unnecessary stress and injury to the *finfish* include:

   a) crowding;

   b) improperly constructed or operated nets;

   c) improperly constructed or operated pumps, pipes and fittings;

   d) water quality.

2. The density of *finfish* in a container or compartment should not exceed the maximum load (kg/m² and/or kg/m³) for a given species and a given situation. Recommendations for specific species are described in detail in Appendix XXX. During loading, techniques should be used to measure and record the biomass.

3. Loading should be carried out by aquatic animal technicians with knowledge and experience of the behavioural and characteristics of the *finfish* species being loaded.

**Article 6**

**Travel**

1. **General considerations**

   a) The captain should ensure that the load is checked immediately before departure to ensure that the *finfish* have been properly loaded. Each load should be checked again early in the trip.
b) Periodic inspections should take place during the trip to maintain acceptable welfare conditions. *Finfish* found moribund or dead should be removed from contact with other *finfish* and kept under biosecure conditions.

c) The captain should ensure that water quality is monitored as appropriate as possible and the necessary adjustments made to avoid extreme conditions regarding water temperature, oxygen levels, CO₂ levels, pH changes and ammonia nitrogen.

d) The captain should try to minimise the effect of adverse environmental conditions which may affect the welfare of the *finfish*.

2. **Emergency procedures**

   a) In the event of a *finfish* health emergency on board, the captain should contact the relevant Competent Authority to determine the correct procedure to follow.

   b) If the killing of *finfish* is necessary during the journey, the captain should ensure that the killing is carried out in accordance with the guidelines for the *humane killing of finfish* for disease control purposes, and their disposal in compliance with relevant animal health and environmental legislation.

   c) Aquatic animal technicians at the place of unloading should be notified of increased mortality during the journey to enable appropriate arrangements to be made in accordance with the contingency plan.

**Article 6**

**Unloading the finfish**

1. The principles of good *finfish* handling during loading apply equally during unloading.

2. Some species of *finfish* should be acclimatised if there is a likelihood of the *finfish* being unloaded into water of a significantly different temperature.

3. *Finfish* should be unloaded from the vehicle into appropriate compartments as soon as possible after arrival at the destination, but sufficient time should be allowed for unloading to ensure that the unloading proceeds smoothly and does not cause harm to the *finfish*.

4. Unloading should be supervised by aquatic animal technicians with knowledge and experience of the behavioural and physical characteristics of the species being unloaded, and of the equipment being used.

5. Moribund or injured *finfish* or *finfish* otherwise disabled during a journey should be sorted out and disposed in accordance with the guidelines for the *humane killing of finfish* for disease control purposes.

**Article 7**

**Post-journey activities**

1. **General considerations**

   a) As the health of the *finfish* may be compromised as a result of transport and/or change of environment, the aquatic animal technician receiving the *finfish* should closely observe them during the post-journey period, and keep appropriate records.
Appendix XXXIX (contd)

Appendix V (contd)

b) *Finfish* which show clinical signs following the journey should be examined by aquatic animal technicians and as appropriate treated, isolated or killed in accordance with the Guidelines for the humane killing of *finfish* for disease control purposes.

c) Significant problems arising during a journey should be evaluated and corrective actions taken if necessary.

2. Cleaning and disinfection

   If the next journey involved a new pickup or delivery point, or a different type of load, boats, containers and other equipment used to transport *finfish* should be cleaned and disinfected before reuse, in accordance with Appendix 5.2.1. of the *Aquatic Code*.

   **Article 8**

Actions in the event of an inability to unload a consignment

1. The welfare of the *finfish* should be the first consideration in the event of an inability to unload a consignment.

2. In the case of an international journey, the OIE dispute settlement mechanism should be followed to identify a mutually agreed solution which will address animal health and any other welfare issues in a timely manner.

____________________
GUIDELINES FOR THE LAND TRANSPORT OF FINFISH

Preamble

These guidelines apply to the following farmed species of fish: salmonids and cyprinids. The guidelines may also apply to other finfish species.

Article 1

The length of time finfish spend on a transport should be as short as possible.

Article 2

Responsibilities

The welfare of finfish during their transport is paramount and the joint responsibility of all people involved. These guidelines apply to the transport of finfish within a country and between countries. The roles of each of those responsible are defined below:

1. Owners and managers of finfish are responsible for the general health of the finfish and their fitness at the start of the journey and to ensure the overall welfare of finfish during the transport regardless whether these duties are subcontracted to other parties.

2. Aquatic animal technicians handling finfish prior to loading, during loading and unloading have a personal responsibility for their welfare.

3. Transport companies, vehicle owners and drivers, in cooperation with the Competent Authorities, are responsible for planning the journey to ensure that the transport can be carried out properly according to aquatic animal welfare standards; these include:

   a) responsibility for choosing an appropriate and functioning vehicle and ensuring that competent staff are available for loading and unloading;

   b) responsibility for developing and keeping up to date contingency plans to address emergencies and minimise stress during transport;

   c) responsibility for correct loading of the vehicle with the finfish, for regular inspections of the finfish during the journey and for appropriate responses to problems arising.

4. Drivers should be properly trained in transport regulations, and the correct vehicle and equipment usage to ensure that aquatic animal welfare standards are applied. The driver is responsible for all documentation relevant to the journey.

5. Managers of facilities at the start and at the end of the journey are responsible for:

   a) providing suitable equipment for loading and unloading to ensure that finfish welfare standards are applied;

   b) providing aquatic animal technicians to load and unload the finfish in a manner that causes minimum stress and injury;
Appendix XXXIX (contd)

Appendix VI (contd)

c) minimising the opportunities for disease transmission while the finfish are in the facilities;
d) providing facilities and agents for washing and disinfecting vehicles after unloading;
e) providing facilities and veterinarians, fish health biologists or other aquatic animal technicians be enable killing of the finfish humanely if required.

6. The responsibilities of the Competent Authorities include:

a) establishing minimum standards for finfish welfare, including requirements for the inspection of finfish before, during and after their travel, and appropriate certification and record keeping;
b) approving vehicles for the transport of finfish;
c) ensuring appropriate awareness and training;
d) setting licensing standards for drivers, aquatic animal technicians and managers;
e) implementation of the standards, including through accreditation of / interaction with other organisations;
f) providing the latest animal health information and designated restriction zones;
g) monitoring and evaluating health and welfare performance.

7. Private veterinarians and fish health biologists involved in transporting finfish and the associated handling procedures should have specialist training in such matters.

Article 3

Competence

1. All persons handling finfish, or who are otherwise responsible for finfish during journeys, should be competent according to their responsibilities listed in Articles 1 and 4. Competence may be gained through formal training and/or practical experience. Competence in areas other than finfish welfare would need to be addressed separately.

2. Any necessary training should address:

a) fish behaviour, physiology, general signs of disease and indicators of poor fish welfare;
b) transport regulations;
c) operation and maintenance of equipment relevant to fish health and welfare;
d) water quality;
e) methods of fish handling during transport and associated activities such as loading and unloading;
f) methods of inspecting animals, managing situations frequently encountered during transport such as adverse weather conditions, and dealing with emergencies;
g) species-specific aspects of fish handling and care, whenever necessary;

b) appropriate record keeping.

**Planning the journey**

1. **General considerations**

   a) Adequate planning is a key factor affecting the welfare of *finfish* during a journey.

   b) Before initiation of travel, plans should be made in relation to:

      i) type of vehicle required;

      ii) route, taking into account distance, type and quality of road, topography, traffic conditions, availability of water exchange stations for *finfish*;

      iii) nature and duration of journey;

      iv) care of the finfish during the journey;

      v) emergency response procedures.

   c) Extreme weather conditions are hazards for *finfish* undergoing transport and require appropriate vehicle design to minimise risks. In some extreme conditions of heat or cold, *finfish* should not be transported at all.

   d) As *finfish* transport is often a significant factor in the spread of infectious diseases, journey planning should take the following into account:

      i) when possible, *finfish* should have been vaccinated against diseases to which they are likely to be exposed at their destination;

      ii) anti-microbials should not be used prophylactically; if used therapeutically, treatment should only be carried out upon instruction by a veterinarian or fish health biologist;

      iii) before transport, the necessary biosecurity level should be assessed (e.g. washing and disinfection practices, safe places for changing water, treatment of transport water).

2. **Contingency plans**

   There should be a contingency plan that identifies the important adverse events that may be encountered during the journey, the procedures for managing each event and the action to be taken in an emergency. For each important event, the plan should document the actions to be undertaken and the responsibilities of all parties involved, including communications and record keeping.
Appendix XXXIX (contd)

Appendix VI (contd)

3. Vehicle and container design and maintenance

a) Vehicles used for the transport of finfish should be designed, constructed and fitted as appropriate to the species, size and weight of the finfish to be transported; special attention should be paid to the avoidance of injury to finfish through the use of secure smooth fittings free from sharp protrusions.

b) In order to minimise the likelihood of the spread of pathogenic agents during a journey, vehicles and containers should be designed to allow the secure handling of dead finfish, and thorough cleaning and disinfection prior to and after the journey.

c) Vehicles should be maintained in good mechanical and structural condition.

d) The finfish should be able to be inspected en route to ensure that finfish welfare standards are fulfilled.

e) Containers carried on vehicles should be adequately secured.

f) The maximum number of finfish to be transported in a container should be determined before the vehicle is loaded and the biomass should be able to be measured during the loading process.

g) Documentation carried with the vehicle should include:

i) maintenance programme;

ii) transport logbook;

iii) check-list for completed cleaning and disinfection;

iv) licence from the Competent Authority;

v) drawings (plan) of the container and pipe system of the transport unit.

h) The transport unit should be of a type approved by the Competent Authority which should give consideration to the above factors.

4. Water and equipment on vehicle and container

a) Equipment to keep water circulation, water quality (e.g. oxygen, pH, temperature), and monitoring of water quality should be available.

b) Adequate water circulation and extra oxygenation which can be adjusted to meet variations in temperature during the transport to fulfil the needs of the finfish species being transported, should be available.

c) Water filling and exchange should only take place at the place of loading or at a source that is approved by the Competent Authority. The transport water should be added to the container prior to loading the finfish and the water should be oxygen saturated.

5. Documentation

a) Finfish should not be loaded until the required documentation is complete.
Appendix XXXIX (contd)

Appendix VI (contd)

b) The documentation accompanying the consignment (the journey log) should include:

i) journey travel plan including a contingency plan for emergencies and actions to be taken during the transport;

ii) date, time, and place of loading;

iii) finfish species transported;

iv) information on biomass load, route, water quality and exchanges, and morbidity/mortality;

v) expected time, date and place of arrival and unloading;

vi) veterinary certification, when required;

vii) information to allow traceback to the premises of origin;

viii) stocking density estimate for containers/compartments in the consignment.

c) The transport log should be made available to the dispatcher and the receiver of the consignment as well as to Competent Authority upon request. Transport logs from previous journeys should be kept for a considerable time after completion.

d) When health certification is required to accompany consignments of finfish, it should include:

i) appropriate information on the origin of the finfish;

ii) health status including test, treatment and vaccination status.

6. Preparation of finfish for the journey

a) Finfish found unfit for transport by inspection by farm staff, driver or fish health biologist/veterinarian should not be loaded onto a vehicle.

b) A group of finfish that is unfit to travel includes:

i) a group undergoing a disease event which would be exacerbated by handling or transport;

ii) a group with recent exposure to stressors or pathogenic agents.

7. Species-specific recommendations

Transport procedures should be able to take account of variations in the behaviour and needs of the finfish species. Handling procedures that are successful with one species are often ineffective or dangerous with another.

Recommendations for specific species are described in detail in Appendices XXX. Some species may need to be physiologically prepared prior to entering a new environment; this may include food deprivation or osmo-regulatory capacity.
Appendix XXXIX (contd)

Appendix VI (contd)

8. **Nature and duration of the journey**

   The pre-journey preparation, the duration and route of a journey should be determined by:

   a) the purpose of the journey e.g. biosecurity issues;

   b) the ability of the *finfish* to cope with the stress of *transport*;

   c) the previous handling and transport experience of the *finfish*;

   d) intrinsic factors such as stocking density, species and life-stage being transported, metabolic rate of the *finfish*;

   e) the quality of water and the availability of water exchange facilities;

   f) other extrinsic factors such as environmental conditions (e.g. air and water temperature), vehicle and equipment design, road and weather conditions, driving quality.

**Article 5**

**Loading the *finfish***

1. Since loading has been shown to be the procedure most likely to be the cause of poor welfare in transported *finfish*, the issues which should be addressed to avoid unnecessary stress and injury to the *finfish* include:

   a) crowding;

   b) improperly constructed or operated nets;

   c) improperly constructed or operated pumps, pipes and fittings;

   d) water quality.

2. The density of *finfish* in a container or compartment should not exceed the maximum load (kg/m² and/or kg/m³) for a given species and a given situation. Recommendations for specific species are described in detail in Appendix XXX. During loading, techniques should be used to measure and record the biomass.

3. Loading should be carried out by aquatic animal technicians with knowledge and experience of the behavioural and characteristics of the *finfish* species being loaded.

**Article 6**

**Travel**

1. **General considerations**

   a) The driver should check the load immediately before departure to ensure that the *finfish* have been properly loaded. Each load should be checked again early in the trip.
b) Periodic inspections should take place during the trip to maintain acceptable welfare conditions. Finfish found moribund or dead should be removed from contact with other finfish and kept under biosecure conditions.

c) Driver should monitor water quality and make the necessary adjustments to avoid extreme conditions regarding water temperature, oxygen levels, CO₂ levels, pH changes and ammonia nitrogen.

d) The driver should utilise smooth, defensive driving techniques, without sudden turns or stops to minimise uncontrolled movements of the finfish.

2. Emergency procedures

a) In the event of a finfish health emergency on board, the driver should contact the relevant Competent Authority to determine the correct procedure to follow.

b) If the killing of finfish is necessary during the journey, the aquatic animal technician should ensure that the killing is carried out in accordance with the guidelines for the humane killing of finfish for disease control purposes, and their disposal in compliance with relevant animal health and environmental legislation.

c) Aquatic animal technicians at the place of unloading should be notified of increased mortality during the journey to enable appropriate arrangements to be made in accordance with the contingency plan.

Article 7

Unloading the finfish

1. The principles of good finfish handling during loading apply equally during unloading.

2. Some species of finfish should be acclimatised if there is a likelihood of the finfish being unloaded into water of a significantly different temperature.

3. Finfish should be unloaded from the vehicle into appropriate compartments as soon as possible after arrival at the destination, but sufficient time should be allowed for unloading to ensure that the unloading proceeds smoothly and does not cause harm to the finfish.

4. Unloading should be supervised by an aquatic animal technician with knowledge and experience of the behavioural and physical characteristics of the species being unloaded, and of the equipment being used.

5. Moribund or injured finfish or finfish otherwise disabled during a journey should be sorted out and disposed in accordance with the guidelines for the humane killing of finfish for disease control purposes.

Article 8

Post-journey activities

1. General considerations

a) As the health of the finfish may be compromised as a result of transport and/or change of environment, the aquatic animal technician receiving the finfish should closely observe them during the post-journey period, and keep appropriate records.
Appendix XXXIX (contd)

Appendix VI (contd)

b) *Finfish* which show clinical signs following the journey should be examined by qualified personnel and as appropriate treated, isolated or killed in accordance with the Guidelines for the *humane killing of finfish* for disease control purposes.

c) Significant problems arising during a journey should be evaluated and corrective actions taken if necessary.

2. Cleaning and disinfection

If the next journey will involve a new pickup or delivery point, (or different type of load), vehicles, containers and other equipment used to transport *finfish* should be cleaned and disinfected before reuse, in accordance with Appendix 5.2.1. of the *Aquatic Code*.

Article 9

Actions in the event of an inability to unload a consignment

1. The welfare of the *finfish* should be the first consideration in the event of an inability to unload a consignment.

2. In the case of an international journey, the OIE dispute settlement mechanism should be followed to identify a mutually agreed solution which will address animal health and any other welfare issues in a timely manner.
APPENDIX X.X.X.

SPECIES SPECIFIC GUIDELINES

(Under preparation)
The OIE ad hoc group on the Slaughter and Killing of Aquatic Animals held its first meeting at the OIE Headquarters from 6 to 8 June 2005.

On behalf of Dr Bernard Vallat, Director General of the OIE, Dr David Wilson, Head of the International Trade Department, welcomed the members of the ad hoc group and thanked them for their willingness to be involved in addressing the mandate of the OIE for aquatic animal welfare.

The members of the OIE ad hoc group are listed in Appendix I. Dr Peter John Southgate sent his apologies but contributed to the final report.

The Agenda adopted is given in Appendix II, and the terms of reference of the ad hoc group in Appendix III.

The ad hoc group examined its terms of reference and decided to initially develop general principles for aquatic animal welfare and two separate guidelines: one addressing the slaughter of finfish for human consumption (Appendix VI) and the other the killing of finfish for disease control purposes (Appendix VII).

The ad hoc group endorsed some general principles of aquatic animal welfare (Appendix IV), adapted from the principles for terrestrial animals adopted at the 73rd General Session, with the recognition that the wording was biased towards terrestrial animals. General definitions are given in Appendix V.

The ad hoc group initially addressed guidelines for the slaughter of finfish farmed for human consumption, with an emphasis on Atlantic salmon, rainbow trout, tuna and halibut. The ad hoc group considered the relationship between the production methods and the welfare of other commercially farmed and captured species, and decided that this work should be undertaken at a later time. More information may be required before detailed guidelines could be developed.

Regarding the killing of finfish, the ad hoc group confined its discussions to killing for disease control purposes and did not address the killing of finfish for other purposes.

The ad hoc group worked on draft texts prepared by Prof. Tore Håstein which took into account the principles and guidelines for terrestrial animals already adopted by the OIE International Committee.
The ad hoc group discussed the development of guidelines on the welfare of crustaceans during harvesting and processing, and decided to commence addressing the larger crustaceans (lobsters, crabs and crayfish). The ad hoc group decided to seek opinions from experts on two preliminary draft texts on crustacean welfare before developing them further; it considered that the ad hoc group may need additional membership with expertise in crustaceans for this work.
MEETING OF THE OIE AD HOC GROUP ON THE
SLAUGHTER AND KILLING OF AQUATIC ANIMALS

Paris, 6-8 June 2005

List of participants

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MEETING OF THE OIE AD HOC GROUP ON THE
SLAUGHTER AND KILLING OF AQUATIC ANIMALS

Paris, 6-8 June 2005

Agenda

1. Introduction
   - Discussion on the report of the previous meeting of the OIE Working Group on Animal Welfare
   - Discussion on the outcome of the 73rd General Session of the OIE International Committee (Endorsed Terrestrial Code Chapters on Animal Welfare)

2. Development of guiding principles and guidelines

3. Future work programme
AD HOC GROUP ON THE SLAUGHTER AND KILLING OF AQUATIC ANIMALS

A. SLAUGHTER OF AQUATIC ANIMALS FOR HUMAN CONSUMPTION

Terms of reference

- First output – draft guiding principles (rather than a prescriptive approach to limits) specifically addressing humane slaughter of fish for human consumption (based on the generic OIE guiding principles and policies for animal welfare)

- Focus on commercial large-scale slaughter of fish

- Final output – draft standards/guidelines for the Aquatic Animal Health Code based on approved guiding principles

- Identify future directions in which the ad hoc group might need to move

- Prepare draft texts for review by the OIE Working Group and then by the OIE Aquatic Animal Health Standards Commission

Species to be covered

- Cold water fish species (i.e. salmonids)
  - Large-scale slaughter for consumption

- Warm water fish species (bass, bream, carp, etc.)
  - Large-scale slaughter for consumption

- As resources permit and expertise is available, crustaceans (shrimps, lobster, crabs and crayfish) will be addressed regarding harvesting procedures.

B. KILLING OF AQUATIC ANIMALS FOR DISEASE CONTROL PURPOSES

Terms of reference

- First output – draft guiding principles (rather than a prescriptive approach to limits) specifically addressing killing of fish for disease control purposes (based on the generic OIE guiding principles and policies for animal welfare)

- Focus on commercial large-scale killing of fish for disposal with reference to the by-product/carcass aspect

- Final output – draft standards/guidelines for the Aquatic Animal Health Code based on approved guiding principles

- Identify future directions in which the ad hoc group might need to move

- Prepare draft texts for review by the OIE Working Group and then by the OIE Aquatic Animal Health Standards Commission
Appendix XL (contd)

Appendix III (contd)

Species to be covered

- Cold water fish species (i.e. salmonids)
  - Killing for disposal

- Warm water fish species (bass, bream, carp, etc.)
  - Killing for disposal

- Ornamental fish
  - Killing for disposal

- As resources permit and expertise is available, crustaceans (shrimps, lobster, crabs and crayfish) will be addressed regarding harvesting procedures.
SECTION X.X.
ANIMAL WELFARE
APPENDIX X.X.1.

INTRODUCTION TO OIE GUIDELINES FOR THE WELFARE OF AQUATIC ANIMALS

Article X.X.1.1.

Guiding principles for aquatic animal welfare

1. That there is a critical relationship between aquatic animal health and aquatic animal welfare.

2. That the internationally recognised ‘five freedoms’ as they apply to aquatic animals (freedom to express normal patterns, freedom from pain, injury and disease; freedom from fear and distress; freedom from physical and thermal discomfort; freedom from hunger, thirst and malnutrition) provide valuable guidance in aquatic animal welfare.

3. That the internationally recognised ‘three Rs’ (reduction in numbers of aquatic animals, refinement of experimental methods and replacement of aquatic animals with non-animal techniques) provide valuable guidance for the use of aquatic animals in science.

4. That the scientific assessment of aquatic animal welfare involves diverse elements which need to be considered together, and that selecting and weighing these elements often involves value-based assumptions which should be made as explicit as possible.

5. That the use of aquatic animals in aquaculture, harvest or capture fisheries, research and for recreation (e.g. ornamentals in aquaria), makes a major contribution to the well-being of people.

6. That the use of aquatic animals carries with it an ethical duty to ensure the welfare of such animals to the greatest extent practical.

7. That the improvements in aquatic animal welfare can often improve productivity and food safety and hence lead to economic benefits.

8. That equivalent outcome (performance criteria), rather than identical systems (design criteria), be the basis for comparison of aquatic animal welfare standards and guidelines.

Article X.X.1.2.

Scientific basis for guidelines

1. Welfare is a broad term that describes how well aquatic animals are coping with their environment, management and handling conditions to ensure their optimal health and well-being, and minimize negative environmental, physiological and other stressors that may constitute inhumane practices.
Appendix XL (contd)

Appendix IV (contd)

2. The welfare of aquatic animals can be scientifically evaluated to be within normal limits experienced in nature and can be used to assess the welfare of aquatic animal in aquaculture, research, and harvest and recreational fisheries and to formulate guidelines and standards.

3. Indicators of aquatic animal welfare may involve assessing health and injuries; growth, behaviour, and other performance factors; capture, feeding, handling, management, transport, slaughter and other conditions not normally encountered in nature; and environmental and other stressors that may negatively affect aquatic animal production and performance, many of which can be measured and observed in wild, captured and farmed aquatic animals.

4. Many areas of aquatic animal welfare (e.g. the ability of aquatic animals to feel pain and be sentient), require further research.

5. Once performance indicators and measurements of optimal aquatic animal welfare are established, these can be applied for the evaluation of practices in aquaculture, research, and harvest and recreational fisheries, including the acceptability of these in the humane treatment of aquatic animals.
CHAPTER 1.1.1.

GENERAL DEFINITIONS

For the purposes of this Aquatic Code, the following definitions apply:

- **Anaesthesia** means a state whereby an aquatic animal is insensitive to sensory inputs.

- **Aquatic animal carcass** means the body/trunk of an aquatic animal subsequent to killing or death that requires safe disposal.

- **Aquatic animal technician** means a person with knowledge regarding the behaviour and needs of live aquatic animals which, with appropriate experience and a professional and positive response to the welfare requirements of aquatic animals, results in effective management and good welfare. Their competence should be demonstrated through independent assessment and certification.

- **Aquatic animals for killing** means aquatic animals that are killed on site or transported to a suitable location for killing, for disease control purposes.

- **Aquatic animal offal/waste** means the whole or parts of an aquatic animal and aquatic animal products not approved for human consumption including sludge and sieve material collected during slaughtering.

- **Crustaceans** means crabs, crayfish, lobsters, prawns and shrimps.

- **Death** means irreversible loss of brain activity in fish, and demonstrable loss of sensation in crustaceans.

- **Finfish** means live freshwater, estuarine or seawater finfish of any kind.

- **Harvest** means the removal of finfish from their environment for human consumption.

- **Humane killing** means either immediate death, or death preceded either by immediate unconsciousness or by unconsciousness induced without pain, fear or adverse behaviour.

- **Killing** means any procedure which causes the death of an aquatic animal.

- **Mass destruction** means an emergency destruction and disposal of a population of aquatic animals for disposal.

- **Slaughtering** means the killing and/or processing of finfish, with or without sedation/bleeding, for human consumption.

- **Stunning** means any mechanical, electrical, chemical or other procedure which causes the loss of consciousness which lasts until death.

- **Visual evoked response (VER)** means test that evaluates the conduction of electrical impulses from the optic nerve to the occipital cortex of the brain.
Appendix XL (contd)

Appendix V (contd)

- **Vestibulo ocular reflex (VOR)** means the fixation of the eye on an object as the head turns.
- **Yolk sac fry** means newly hatched fry until complete resorption of the yolk sac.
- **Waste water** means fluid from the slaughtering and processing process including water from the cleaning process of the slaughtering or processing plant premises.
GUIDELINES FOR THE SLAUGHTER OF FARMED FINFISH FOR HUMAN CONSUMPTION

Article 1

1. General principles for slaughter

These guidelines address the need to ensure the welfare of finfish during pre-slaughter and slaughter processes, until they are dead.

These guidelines apply to those finfish species that are commonly slaughtered in finfish slaughterhouses. Other aquatic animals, wherever they have been reared, should be managed to ensure that their transport and slaughter/killing is carried out without causing undue stress to such animals; the principles underpinning these guidelines also apply to these animals.

2. Personnel

Persons engaged in the unloading, moving, handling, stunning and slaughter of finfish play an important role in their welfare. Personnel handling finfish for slaughter should be experienced and competent in the transport and handling of finfish, and understand their behaviour patterns as well as the underlying principles necessary to carry out their tasks. They should also be familiar with these guidelines and the applicable legislation.

The management of the finfish slaughterhouse and the Competent Authority should together ensure that these persons carry out their tasks in accordance with the principles of aquatic animal welfare.

Article 2

Transport of finfish for slaughter

Finfish for slaughter for human consumption should be transported to finfish slaughterhouses in accordance with Chapter X.X.X on the Guidelines on the transport of finfish.

Article 3

Design of compartments for holding finfish prior to slaughter

1. The holding compartment should be designed and constructed to hold the maximum number of finfish in relation to the throughput of the slaughterhouse without compromising the welfare of the finfish.

2. In order to permit operations to be conducted as smoothly and efficiently as possible without injury or undue stress to the finfish, the compartment should be of a size that allows the finfish to move freely in the required direction, using their behavioural characteristics.

3. The following guidelines may help to achieve this:
   a) Nets and holding tanks
      i) The design of containment or crowding nets should avoid corners or folds, pockets or traps.
Appendix XL (contd)

Appendix VI (contd)

ii) Containment nets should not cause injury and should be of appropriate mesh size and type.

iii) Nets and tanks should generally be circular or of sufficient size, and constructed of suitable materials to allow a continuous forward swimming direction with minimal risk of injury.

iv) Areas or zones of turbulence should be minimised or eliminated.

b) Water

Water quality should be appropriate regarding the density and species of finfish.

c) Sensory stimulation

i) Lighting should encourage the movement of finfish in the correct direction, by avoiding bright lights and reflective surfaces facing finfish.

ii) Undue noise should be minimised.

d) Systems for moving finfish, including pumps and pipes

i) For optimum welfare, finfish should be pumped in a continuous flow from source to destination.

ii) Pumps should have a capacity to produce a flow sufficient to ensure movement of finfish in correct direction; areas of turbulence should be avoided.

iii) There should be a contingency plan in place in case pumping ceases, to avoid exposing finfish to low oxygen or other factors which could compromise their welfare.

iv) Materials used in construction should provide smooth contact surfaces and should not contain protrusions which may injure finfish; all bends, entries and exits should be designed to allow smooth unobstructed flow of finfish and water.

v) Finfish should not drop onto hard surfaces at points of exit.

vi) Pipes should be of appropriate diameter and flow of sufficient strength to prevent finfish being trapped.

vii) Brailing devices, if used, should contain an adequate volume of water in proportion to the number of finfish, to maintain finfish welfare.

Article 4

Unloading and moving finfish in slaughterhouses

1. Finfish should be transported for slaughter in a way that minimises adverse finfish health and welfare outcomes and the transport should be carried out in accordance with the OIE Guidelines for the transport of finfish.
2. The following principles should apply to the unloading and moving of finfish in the slaughterhouse:

   a) The welfare of the finfish and their environment should be assessed on arrival prior to unloading, and corrective action taken as appropriate.

   b) Management procedures should be in place to ensure that suitable environmental conditions are maintained within the holding and moving systems.

   c) Injured or sick finfish should be separated and killed humanely.

   d) Sedation, where approved for finfish for human consumption, may be used to minimise the stress associated with the movement or crowding of finfish.

   e) The crowding period prior to slaughter should be as short as possible, and preferably the finfish should be subject to crowding conditions once only.

   f) Physical, mechanical or manual handling of finfish should be minimised.

   g) Where possible, finfish should be allowed to swim directly into a percussive stunning device (without handling) to avoid handling stress.

**Article 5**

**Summary of stunning methods for finfish and their respective welfare issues**

<table>
<thead>
<tr>
<th>Stunning method</th>
<th>Finfish welfare concerns / implications</th>
<th>Applicable species</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percussive stunning</td>
<td>Hand operated equipment may be hampered by uncontrolled movement of the finfish. Unconsciousness may not be achieved due to a too weak blow to the head. Injuries may occur.</td>
<td>Salmonids Halibut</td>
</tr>
<tr>
<td>Spiking (Iki-Jime)</td>
<td>Inaccurate application may cause injuries. May be hampered by uncontrolled movement of the finfish. Difficult to apply.</td>
<td>Salmonids Tuna</td>
</tr>
<tr>
<td>Electrical stunning</td>
<td>Difficult to control and apply correctly in the field. Optimal control parameters unknown. May be hazardous to operating personnel.</td>
<td>Salmonids</td>
</tr>
<tr>
<td>Free bullet</td>
<td>Shooting distance; calibre. Noise of guns may cause stress reaction. May be hazardous for operating personnel.</td>
<td>Tuna</td>
</tr>
</tbody>
</table>

Note: A key finfish welfare requirement is the competence of the personnel carrying out the stunning methods.
Appendix XL (contd)

Appendix VI (contd)

Article 6

Stunning methods

1. General considerations

For details on stunning methods, see Appendix X.X.X. on the Guidelines for the humane killing of finfish for disease control purposes.

The Competent Authority should regularly ensure the appropriateness and effectiveness of the stunning equipment and process, and that the operators are competent to humanely kill finfish. The responsibility for operator competence lies with the management of the finfish slaughterhouse.

If finfish are removed from the water, stunning should take place as soon as possible (preferably within 5–10 seconds).

The equipment used for stunning should be maintained, adjusted and operated in accordance with the recommendations of the manufacturer. It should be tested on a regular basis to ensure that performance is adequate.

Bleeding should only be performed on finfish which are effectively stunned.

Stunning should not take place if slaughter is likely to be delayed.

When killing novel finfish species, it is important to obtain information on the exact location of the brain and Medulla oblongata in order to target the stunning correctly to the head.

Signs of correct stunning include:

a) immediate loss of respiratory movement (loss in opercular activity);

b) loss of visual evoked response (VER);

c) immediate loss of vestibulo ocular reflex (VOR, eye rolling);

d) loss of tail reflex and muscular movements.

2. Mechanical stunning

Percussive stunning is achieved by a blow of sufficient strength to the head applied above or immediately adjacent to the brain in order to damage the brain.

Spiking, coring or Iki-jime are irreversible killing methods for finfish based on physical damage to the brain by inserting a spike into the brain either manually or using specially developed equipment to destroy sensory and motor functions in large finfish. The so-called captive needle stun is a modification of spiking.

Mechanical stunning is an irreversible method in more than 99% of the cases if correctly applied. If stunned finfish show recovery of reflexes or motor function, the finfish should be re-stunned.
3. Electrical stunning

Electrical stunning involves the application of an electrical current of sufficient strength, frequency and duration to cause immediate unconsciousness.

An electrical stunning device should be used in accordance with the following principles:

a) The operators should be competent in applying the method properly.

b) The electrical stunning device should be constructed and used for the specific finfish species and their environment.

c) It should be ensured that heads of the finfish are confined beneath the surface of the water, and that there is a uniform distribution of electrical current in the stun tank or chamber.

d) The equipment used for stunning should be maintained and operated in accordance with the manufacturer's recommendations, and it should be tested on a regular basis to ensure that the power output is adequate.
e) An effective stun and kill should be verified by the absence of consciousness. For signs of correct stunning, see description under mechanical stunning above. Eels are reported to be somewhat resistant to electrical stunning.

f) Appropriate protective clothing (including rubber gloves and boots) should be worn.

g) The voltage in the stun must be of suitable conductivity.

Article 7

Summary of other methods used for the sedation, anaesthesia or immobilisation of finfish

<table>
<thead>
<tr>
<th>Method</th>
<th>Application / effect</th>
<th>Finfish welfare concerns / implications</th>
<th>Key finfish welfare requirements</th>
<th>Applicable species</th>
</tr>
</thead>
<tbody>
<tr>
<td>Live chilling</td>
<td>Recoverable immobilisation prior to stunning / slaughter.</td>
<td>Finfish have not lost sensation. Season and species dependant.</td>
<td>Competent personnel and suitable control equipment/process</td>
<td>Salmonids / cod/ wolfish / halibut</td>
</tr>
<tr>
<td>Aqui-S</td>
<td>Recoverable sedation/anaesthesia prior to stunning / slaughter.</td>
<td>Finfish may recover sensation prior to slaughter.</td>
<td>Control of dose. Competent personnel</td>
<td>Most finfish species</td>
</tr>
<tr>
<td>CO₂</td>
<td>Recoverable immobilisation prior to stunning / slaughter.</td>
<td>Aversive. Finfish become exhausted and die due to hypoxia and suffocation. Finfish may not lose sensation</td>
<td>Competent personnel</td>
<td>Most finfish species</td>
</tr>
<tr>
<td>Combination of CO₂/O₂ - Live chilling</td>
<td>Recoverable immobilisation prior to stunning / slaughter</td>
<td>Aversive. Finfish may not lose sensation. Season and species dependant.</td>
<td>Competent personnel</td>
<td>Salmonids</td>
</tr>
<tr>
<td>Electrical harpoon</td>
<td>Irrecoverable electrocution applied to the head prior to slaughter.</td>
<td>Good accuracy required to ensure finfish killed</td>
<td>Competent personnel</td>
<td>Large tuna</td>
</tr>
</tbody>
</table>

For more details on methods, see the guidelines on killing of finfish for disease control purposes.
Article 8

Unacceptable methods, procedures or practices on finfish welfare grounds

The following methods are not considered acceptable for anaesthetising finfish on welfare grounds:

1. CO₂ is not acceptable for the mass killing of finfish, due to its aversive effects.
2. Live chilling/CO₂ is not acceptable for the mass killing of finfish, due to its aversive effects.
3. Salt or ammonia baths are unsuitable due to their aversive effects on finfish.
4. Asphyxiation is unsuitable as sensation is not lost during the slow induction.
5. Essanguination is unsuitable for the killing of conscious finfish.
6. Accidental pre-stun electrical shocks as inadequate current and voltage gives recovery of consciousness.
GUIDELINES FOR THE HUMANE KILLING OF FINFISH

FOR DISEASE CONTROL PURPOSES

Article 1

General principles of humane killing of finfish for disease control purposes

1. Disease control contingency plans should be in place at a national level and should contain details of management structure, disease control strategies and operational procedures; finfish welfare considerations should be addressed within these disease control contingency plans.

2. Disease control strategies should also address the finfish welfare issues that may result from animal movement controls.

3. The following principles apply after a decision to kill the finfish has been made.

4. All personnel involved in the humane killing of finfish should have necessary competencies for such work. Competence may be gained through formal training and/or practical experience under supervision.

5. As necessary, operational procedures should be adapted to the specific circumstances operating on the premises and should address finfish welfare and biosecurity.

6. Following the decision to kill the finfish, killing should be carried out as quickly as possible and normal farming procedures should be maintained until the killing is implemented.

7. The handling and movement of finfish should be minimised and when done, it should be done in accordance with the guidelines described below.

8. When finfish are killed for disease control purposes, the methods used should result in immediate death or immediate loss of consciousness lasting until death.

9. There should be continuous monitoring of the procedures to ensure they are consistently effective with regard to finfish welfare and biosecurity.

10. When the operational procedures are concluded, there should be a written report describing the practices adopted and their effect on finfish welfare and biosecurity.

11. To the extent possible to minimise public distress, killing of finfish and carcass disposal should be carried out away from public view. For carcass handling, see Chapter X.X.X. (under preparation)

Article 2

Organisational structure

The operational activities should be led by a Competent Authority official who has the authority to appoint the aquatic animal technician or operational team for each farm, and ensure that they adhere to the required finfish welfare and biosecurity standards. When appointing such personnel, he/she should ensure that the personnel involved have the required competencies.

The Competent Authority official should be responsible for all activities on affected premises and should be supported by coordinators for planning (including communications), operations and logistics to facilitate
efficient operations.
Appendix XL (contd)

Appendix VII (contd)

The Competent Authority official should provide overall guidance to personnel and logistic support for operations on all affected premises to ensure consistency in adherence to the OIE aquatic animal welfare and biosecurity guidelines.

In considering the associated finfish welfare issues, responsibility and competencies required by key personnel to be involved in such work are described in Article 4.

Article 3

Responsibilities and competencies of the operational team or aquatic animal technician

1. Team leader
   a) Responsibilities
      i) Plan overall operations on an affected premises;
      ii) determine and address requirements for finfish welfare, operator safety and biosecurity;
      iii) organise, brief and manage team of people to facilitate humane killing of the relevant finfish on the premises in accordance with national regulations and these guidelines;
      iv) determine logistics required;
      v) monitor operations to ensure that finfish welfare, operator safety and biosecurity requirements are met;
      vi) report upwards on progress and problems;
      vii) provide a written report at the conclusion of the killing, describing the practices adopted and their effect on aquatic animal welfare and biosecurity outcomes.
   b) Competencies
      i) Appreciation of finfish welfare and the underpinning behavioural, anatomical and physiological processes involved in the killing process;
      ii) skills to manage all activities on premises and deliver outcome on time;
      iii) awareness of psychological effects on farmer, team members and general public;
      iv) effective communication skills.

2. Veterinarian/fish health biologist
   a) Responsibilities
      i) Determine and implement the most appropriate killing method to ensure that the finfish are killed without avoidable pain and distress;
ii) determine and implement the additional requirements for finfish welfare, including the order of killing;

iii) ensure confirmation that all the finfish have been killed at an appropriate time after the stunning/killing procedure;

iv) minimise the risk of disease spread within and from the premises through the supervision of biosecurity procedures;

v) continuously monitor finfish welfare and biosecurity procedures;

vi) in cooperation with the team leader, prepare a written report at the conclusion of the killing, describing the practices adopted and their effect on finfish welfare.

b) Competencies
   i) Ability to assess finfish welfare, especially the effectiveness of stunning and killing and to correct any deficiencies;
   ii) ability to assess biosecurity risks.

3. Aquatic animal technician
   a) Responsibilities
      Assist when requested.

   b) Competencies
      i) Specific knowledge of finfish, and their behaviour and environment;
      ii) review on-site facilities in terms of their appropriateness for mass destruction;
      iii) design and construct temporary finfish handling facilities, when required;
      iv) experience in finfish handling procedures.

4. Personnel responsible for killing
   a) Responsibilities
      Ensure humane killing of finfish through effective stunning/killing.

   b) Competencies
      i) When required by regulations, licensed to use necessary equipment;
      ii) competent to use and maintain relevant equipment and methods for the finfish species involved;
      iii) competent to assess effective stunning/killing.
5. Carcass disposal personnel
   a) Responsibilities
      Ensure efficient carcass disposal to ensure killing operations are not hindered.
   b) Competencies
      Competent to use and maintain available equipment and apply techniques for the finfish species involved.

Article 4

Operational guidelines
1. Planning humane killing of finfish
   A plan for the humane killing of finfish on affected premises should be developed by the Competent Authority. The plan should include consideration of:
   a) minimising handling and movement of finfish;
   b) killing the finfish on the affected premises; however, there may be circumstances where the finfish may need to be moved to another location for killing; when the killing is conducted at finfish slaughterhouse, the guidelines in Appendix X.X.X. should be followed;
   c) the species, number, age and size of finfish to be killed;
   d) methods of killing the finfish, and the costs thereof;
   e) the availability of chemicals/equipment needed for the killing of the finfish;
   f) the facilities available on the aquaculture premises for sampling of dead finfish following the killing;
   g) biosecurity issues;
   h) any legal issues that may be involved, in example where restricted veterinary drugs or poisons may be used, or where the process may impact on the environment, and
   i) the presence of other nearby aquaculture premises;
   j) implementation time.

In designing a killing plan, it is essential that the method chosen be consistently reliable to ensure that all finfish are humanely and quickly killed.

2. Killing of finfish
   a) Single individuals
      Any moribund, injured or seriously sick finfish with no chance of recovery should be killed humanely without delay.
Such finfish should be caught by a net and killed instantly by a blow to the head or by a suitable anaesthetic. Only anaesthetics registered for use in finfish should be used. No finfish should die by asphyxiation.

b) Mass kill

Mass kill of finfish for disposal due to disease control or other purposes should be conducted under the supervision of the Competent Authority. The method of choice will depend on whether the killing takes place in a closed-, semi-closed- or open system.

Signs of effective stunning/killing include:

i) absence of respiratory movement (loss in opercular activity);

ii) absence of visual evoked response (VER);

iii) absence of vestibulo ocular reflex (VOR, eye rolling);

iv) absence of tail reflex and muscular movements.

**Article 5**

**Mechanical stunning methods for finfish**

1. **Percussive stunning**

a) Introduction

Killing by a blow to the head may be an appropriate humane killing method for larger finfish, when the number of finfish is limited. Operating personnel using this method for killing should be competent to ensure the method is performed properly. Ideally, this method should be followed by decapitation, pithing or exsanguination. Percussive stunning is an irreversible method in more than 99% of the cases if correctly applied. The finfish should be out of water for only 5–10 seconds before blow is applied.
Appendix XL (contd)

Appendix VII (contd)

b) Requirements for effective use
   a) Operating personnel using manual or automated percussive stunning should be skilled in order to ensure the humane killing of finfish.
   b) Finfish should be quickly removed from the water, restrained and given a quick blow to the head, delivered either by a club or by mechanical stunning device.
   c) The blow should be of sufficient force and delivered above or adjacent to the brain in order to render immediate unconsciousness.
   d) The finfish should be inspected to check the effectiveness of stunning, and restunne if necessary.

   c) Advantages

   When percussive stunning is applied correctly, loss of consciousness is immediately.

   d) Disadvantages

   When the method is used improperly, immediate unconsciousness is not achieved and injuries as well as poor welfare to the finfish may occur. Manual percussive stunning is only practicable for the killing of a limited number of finfish. Defined criteria for all types of finfish are lacking.

   e) Conclusion

   Percussive stunning is suitable for killing finfish species such as salmonids and halibut and should ideally be followed by decapitation, pithing or exsanguination to ensure death.

2. Spiking, coring and Iki-jime

   a) Introduction

   Spiking, coring or Iki-jime are irreversible killing methods for finfish based on physical damage to the brain by inserting a spike into the brain either manually or using specially developed equipment to destroy sensory and motor functions in large finfish. The so-called captive needle stun is a modification of spiking.
The spike should be aimed on the skull in a position to penetrate the brain of the finfish and the impact of the spike should produce immediate unconsciousness. Physical damage to the brain caused by penetration of the bolt may result in death; however, pithing or bleeding should be performed as soon as possible after the shot to ensure the death of the finfish. The elapsed time between capture and spiking should be between 5–10 seconds and a minute.

b) Requirements for effective use

i) Operating personnel using manual or automated spiking equipment should be skilled in order to ensure the humane killing of finfish.

ii) Only specifically designed devices should be used.

iii) Finfish should be quickly removed from the water, restrained and the spike immediately inserted into the brain either manually or by an automated device.

iv) The spike should be inserted in such a way that the brain is completely destroyed.

c) Advantages

Immediate onset of unconsciousness occur when the spike is correctly and accurately applied and with immediate loss of movements and visual evoked response (VER).

d) Disadvantages

i) Difficult to apply in agitated finfish.

ii) The handling of the finfish during spiking may result in inaccurate application of the spike positioning and orientation may cause disabiling and injuries to the finfish and thus poor finfish welfare will occur.

iii) Not applicable under field conditions unless the finfish farm is equipped with sanitary slaughter equipment for the purpose.

e) Conclusion

The method is suitable for killing larger finfish (including tuna) when used in finfish slaughterhouses or in farms equipped with sanitary slaughter equipment.

3. Free bullet

a) Introduction

Shooting by using a free bullet may be used for killing large finfish (tuna). The finfish may either be crowded in the net and shot in the head, or caught and held in a fixed position in the surface of the net (gaffing) prior to being shot in the head. Commonly used firearms for shooting large finfish include a 12-bore shotgun and a Magnum handgun (0.357).
Appendix XL (contd)

Appendix VII (contd)

b) Requirements for effective use

The finfish should be positioned correctly and the shooting range should be as short as practicable.

c) Advantages

Shooting may be an effective and humane method for killing large finfish as minimal handling and restraint are required.

d) Disadvantages

i) Gaffing causes pain.

ii) Gun noise may cause stress reactions.

iii) May be hazardous to operating personnel.

iv) Contamination of the working area due to release of body fluids may present a biosecurity risk.

e) Conclusions

The method is suitable for killing large finfish under field conditions.

Article 6

Electrical stunning

1. Introduction

Electrical stunning involves the application of an electrical current of sufficient strength, frequency and duration to cause immediately unconsciousness. Provided sufficient current is applied, finfish will not recover consciousness.

2. Requirements for effective use

a) Operating personnel of electrical stunning equipment should be competent in applying the method properly.

b) The electrical stunning device should be constructed and used for the specific finfish species and their environment.

c) The equipment used for stunning should be maintained and operated in accordance with the manufacturer’s recommendations, and it should be tested on a regular basis to ensure that the power output is adequate.

d) The equipment must only be used in the finfish species that it has been designed for.

e) It should be ensured that heads of the finfish are confined beneath the surface of the water, and that there is a uniform distribution of electrical current in the stun tank or chamber.
f) Uniform distribution of an appropriate electrical current in the water bath in which the finfish are contained.

g) The time between crowding and stunning should be kept to a minimum.

Since finfish for disposal do not need to be bled, the duration of the current in the bath should be of sufficient length to ensure that the finfish are dead. An effective stun and kill should be verified. Signs of correct stunning include:

b) immediate loss of respiratory movement (loss in opercular activity);

i) loss of visual evoked response (VER);

j) immediate loss of vestibulo ocular reflex (VOR, eye rolling);

k) loss of tail reflex and muscular movements.

3. **Advantages**

a) Electrical stunning is humane as the method may stun and kill immediately, and the finfish do not have to be removed from the water.

b) A large number of finfish may be stunned/killed simultaneously with minimum handling and restraint.

c) Non-invasive technique minimises biosecurity risk.

4. **Disadvantages**

a) Requires industrial finfish slaughterhouse premises or similar and is not applicable for mass kill of finfish under field conditions.

b) The electrocution equipment should be applied and maintained correctly to produce an effective stun and kill.

c) Requires a reliable supply of electricity.

d) May be hazardous to operating personnel.

5. **Conclusions**

The method is suitable for killing finfish under controlled conditions.

**Article 7**

**Chemical and physical killing methods**

1. **Use of chemicals added to the water**

Chemicals used for killing finfish should kill the finfish effectively, not merely have an anaesthetic effect. When using such chemicals, the operating personnel should ensure that the solution has the correct concentration, and that sea water is used for marine finfish species and freshwater for freshwater species. If a chemical solution is to be used several times, aeration or oxygenation of the solution should be carried out to avoid suffocation.
Appendix XL (contd)

Appendix VII (contd)

Finfish should be kept in the chemical solution until they are dead. Finfish that are merely anaesthetised should be killed by another method such as bleeding, decapitation or appropriate mechanical stunning.

Suitable chemicals include:

a) Benzocaine hydrochloride can produce a deep anaesthesia when added in an overdose to water. Since the solubility of benzocaine in water is low, it has to be administered from a stock solution of either ethanol (10%) or propylenglycol (5%). A final solution of 100 mg/liter is sufficient to kill finfish.

b) Iso-eugenol (2-methoxy-4-propenylphenol (Aquí S) is effective for killing finfish. The effective dose for killing is 25 ml/1000 liter of water.

c) Metacaine (tricaine metansulfonat, MS 222) has a similar effect as benzocaine. The solubility in water is high. A final solution of 100 mg/liter is sufficient to kill finfish, but a concentration of ≥ 250mg/liter for 10 minutes following cessation of opercular movements is recommended.

d) Metomidate hydrochloride is effective in anaesthetising fish in aquaria – and non food species of several fish classes as well as catfish, salmonids, etc. Induction of anaesthesia is rapid (1–2 minutes) and without stress reactions such as elevated heart rate. In salmonids, the recommended dose is 2–6 mg/liter of water. Metomidate may give inadequate anaesthesia of larvae of some fish species such as goldfish and red drum.

e) Rotenone is effective for killing finfish and may be used for mass killing of feral finfish when they are still in natural water courses. The effective dose of active rotenone is 0.025 to 0.15 g/1000 liter depending on finfish species to be killed. Rotenone is less effective at temperatures below 10°C and in water with high sediment content. The effect of rotenone is reversible and finfish may be revived if introduced into oxygenated water without rotenone.

2. Requirements for effective use

a) Sufficient quantities of the chemical need to be added to the water.

b) Should be followed by killing if finfish are merely anaesthetised.

3. Advantages

a) Large numbers of finfish may be stunned in one batch.

b) Handling is not required until finfish are anaesthetised or euthanized.

c) Biosecurity.

4. Disadvantages

a) May need to be followed by killing if finfish are anaesthetised only.

b) Care is essential in the preparation and provision of treated water, and in the disposal of treated water and contaminated carcasses.
5. **Conclusion**

The method is suitable for killing large numbers of finfish in closed compartments.

**Article 8**

**Unacceptable methods, procedures or practices on finfish welfare grounds**

The following methods are not acceptable for killing finfish on welfare grounds:

a) The use of CO₂ alone or in combination with chilled water/crushed ice is not acceptable for the mass table killing of finfish, due to its aversive effects.

b) Salt or ammonia baths used on eels are unsuitable due to their aversive effects.

c) Asphyxiation is unsuitable as sensation is not lost during the slow induction.

d) Exsanguination is unsuitable for killing conscious finfish.

**Article 9**

**Other killing methods**

1. **Decapitation**
   
a) Introduction
   
   Decapitation, using a sharp device such as a guillotine or knife, may be used for killing finfish but only following anaesthesia; the method results in death by cerebral ischaemia.

b) Requirements for effective use
   
The required equipment should be kept in good working order.

c) Advantages
   
The technique is effective for the killing of eels when applied properly.

d) Disadvantages
   
   Contamination of the working area due to bleeding and body fluids may present a biosecurity risk. The method is not applicable to other finfish species than eel.

e) Conclusion
   
The method is suitable only for killing eels.

2. **Maceration**
   
a) Introduction
   
   Maceration by a mechanical device with rotating blades or projections causes immediate fragmentation and death in newly hatched finfish and embryonated eggs, as well as fertilised/unfertilised eggs of finfish. It is a suitable method for the processing of such material. The procedure results in immediate death and a large number of eggs/newly hatched fry can be killed quickly and humanely. For biosecurity reasons, macerated material from infected finfish should be treated by one of the processing methods given in OIE Guidelines for handling and disposal of carcasses and waste of aquatic animals (in preparation).
Maceration requires specialised equipment which should be kept in good working order. The rate of introducing material into the device should be such that the equipment does not jam.

b) Conclusion

The method is suitable for killing large numbers of eggs/newly hatched fry of finfish.

**Article 10**

**Table summarising acceptable killing methods for finfish***

<table>
<thead>
<tr>
<th>Species</th>
<th>Method</th>
<th>Animal welfare concerns / implications</th>
<th>Additional comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salmonids, cod (gadids) and flatfish</td>
<td>Anaesthetic overdose using benzocaine, metacaine, iso-eugenol.</td>
<td>Considered to have a low impact on welfare but mode of operation of chemicals in all species is not known.</td>
<td>Applicable to all sizes of finfish</td>
</tr>
<tr>
<td></td>
<td>Percussive stunning.</td>
<td>Should be properly applied to be humane and effective. Low impact on welfare.</td>
<td>Suitable for finfish handled individually</td>
</tr>
<tr>
<td></td>
<td>Electrical stunning.</td>
<td>The equipment should be maintained and applied correctly to produce an effective stun and kill. Low impact on welfare. Suitable in salt water.</td>
<td>May be hazardous to personnel. Applicable to all sizes</td>
</tr>
<tr>
<td>Tuna</td>
<td>Spiking, coring, Iki-Jime.</td>
<td>When applied properly, the finfish are killed instantly.</td>
<td>Applicable to all sizes</td>
</tr>
<tr>
<td></td>
<td>Free bullet.</td>
<td>When applied properly, the finfish are killed instantly.</td>
<td>Applicable to all sizes. Operator safety needs to be addressed.</td>
</tr>
<tr>
<td>Cyprinids</td>
<td>Anaesthetic overdose using benzocaine, metacaine, iso-eugenol.</td>
<td>Considered a low impact on welfare but mode of operation of chemicals in all species not known.</td>
<td>Applicable to all sizes</td>
</tr>
<tr>
<td>Eels</td>
<td>Decapitation.</td>
<td>Negative impact on welfare. Acceptable if preceded by anaesthesia</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Electrical stunning.</td>
<td>Eels are resistant to electrical stunning and require high currents for at least 5 minutes to achieve insensibility. Negative impact on welfare.</td>
<td>May be hazardous to personnel.</td>
</tr>
<tr>
<td></td>
<td>Percussive stunning.</td>
<td>Low impact on welfare.</td>
<td>Suitable for finfish handled individually.</td>
</tr>
<tr>
<td>Species</td>
<td>Method</td>
<td>Animal welfare concerns / implications</td>
<td>Additional comments</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>---------------------------------------------</td>
<td>-------------------------------------------------------------------------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>Ornamentals</td>
<td>Anaesthetic overdose using benzocaine,</td>
<td>Considered a low impact on welfare but mode of operation of chemicals</td>
<td>Applicable to all sizes.</td>
</tr>
<tr>
<td></td>
<td>metacaine, iso-eugenol.</td>
<td>in all species not known.</td>
<td></td>
</tr>
<tr>
<td>Other species</td>
<td>Spiking, coring and Ikijime (tuna).</td>
<td>When applied properly, the finfish are killed instantly.</td>
<td></td>
</tr>
<tr>
<td>Percussive stunning.</td>
<td>Should be properly applied to be humane and</td>
<td>Low impact on welfare.</td>
<td>Suitable for finfish handled</td>
</tr>
<tr>
<td></td>
<td>effective. Low impact on welfare.</td>
<td></td>
<td>individually</td>
</tr>
<tr>
<td>Electrical stunning.</td>
<td>The equipment should be maintained and</td>
<td>Low impact on welfare.</td>
<td>May be hazardous to personnel.</td>
</tr>
<tr>
<td></td>
<td>applied correctly to produce an effective</td>
<td></td>
<td>Applicable to all sizes.</td>
</tr>
<tr>
<td></td>
<td>stun and kill.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Newly hatched fry/eggs of any</td>
<td>Anaesthetic overdose using benzocaine,</td>
<td>Considered a low impact on welfare but mode of operation of chemicals</td>
<td>Applicable to all sizes.</td>
</tr>
<tr>
<td>finfish species</td>
<td>metacaine, iso-eugenol.</td>
<td>in all species not known.</td>
<td></td>
</tr>
<tr>
<td>Maceration.</td>
<td>Low impact on welfare.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* The order of description of the methods is not in an order of acceptability from a finfish welfare point of view.

Note: The table does not represent an exclusive list of acceptable methods.

**Handling of finfish killed for disposal**

See Appendix X.X.X. (under preparation) on the Guidelines for the handling and disposal of carcasses and waste of aquatic animals.

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OIE Aquatic Animal Health Standards Commission/March 2006
### COMMISSION WORK PLAN FOR 2006/2007

#### Aquatic Animal Health Code

- Ongoing review of the list of diseases
  - Review emerging diseases
- Revise disease chapter for *Gyrodactylus salaris* with the assistance of *ad hoc* group and other experts
- Prepare text for disease chapters for gaining and regaining freedom for compartments
- Harmonise horizontal chapters with those in the *Terrestrial Code*
  - Zoning (and compartmentalisation)
  - Appendix on aquatic animal health surveillance
  - Model certificates
  - Handling and disposal of carcasses and wastes of aquatic animals
- Draft guidelines on animal health issues related to aquatic animal feed
- Aquatic animal welfare guidelines
- antimicrobial resistance in the field of aquatic animals

#### Manual of Diagnostic Tests for Aquatic Animals

- Develop general surveillance chapter and guidelines for surveillance for individual diseases with the assistance of *ad hoc* groups and other experts
- Revise Chapter on methods for disinfection of aquaculture establishments

#### Meetings

- OIE Global Conference on Aquatic Animal Health
- Make presentations on the activities of the Aquatic Animals Commission at the Conferences of the OIE Regional Commissions
- Assist in the implementation of recommendations adopted by the OIE Regional Commission for Asia, the Far East and Oceania in 2003, and endorsed by the OIE International Committee of the OIE in 2004
- 1st International Conference of OIE Reference Laboratories and Collaborating Centres

#### Other issues

- Consider the report from the *ad hoc* group on amphibian diseases and formulate recommendations on the inclusion of amphibians in the remit of OIE standards
- Update the Commission’s web pages
- Consider new candidates for OIE Reference Laboratories for listed diseases
- Coordination of a publication on “Changing trends in managing aquatic animal disease emergencies” under the Rev. Sci. Tech. series
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