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January 2002

REPORT OF THE MEETING OF THE OIE FISH DISEASES COMMISSION

Paris 14–17 January 2002

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The OIE Fish Diseases Commission (FDC) met at the OIE headquarters from 14 to 17 January 2002. The meeting was chaired by Prof. Tore Håstein, and Prof. Barry J. Hill, Secretary General, acted as Rapporteur. The Agenda and the List of Participants are given as Appendices I and II, respectively.

The Director General of the OIE, Dr Bernard Vallat, welcomed the FDC Members. In his talk, Dr Vallat commented on the new organisational structure of the OIE and introduced the new Deputy Head of the Scientific and Technical Department, Dr Dewan Sibartie. He also mentioned that Dr Alex A. Schudel would be the new Head of the Department, replacing Dr James E. Pearson in June when he retires.

Dr Vallat was happy to see that the FDC will meet three times this year, which should result in updating the *International Aquatic Animal Health Code* and *Diagnostic Manual for Aquatic Animal Diseases* more rapidly.

Dr Vallat also touched upon the coming World Veterinary Congress in Tunis, Tunisia, where the OIE will organise a one-and-a-half-day seminar. The FDC was invited to propose topics for this seminar.

1. Member Country comments on the report of the previous FDC meeting (September 2001)

The FDC had received comments from the EU[1] and five OIE Member Countries. The specific comments to the report are dealt with under the various agenda items.

2. *International Aquatic Animal Health Code* and *Diagnostic Manual for Aquatic Animal diseases*

2.1. Amendments to the *International Aquatic Animal Health Code*

2.1.1. Article 1.2.1.2. Notifications and epidemiological information

The issue of Member Country disease reporting was discussed. Evidence shows that Member Countries do not always report the occurrence of OIE listed aquatic animal diseases and their agents despite their obligation to do so. One Member Country had commented that the wording in Article 1.2.1.2. of the *International Aquatic Animal Health Code (AAHC)* is unclear. The FDC proposed an amendment (see Appendix III).

1 European Union

2.1.2. Measures applicable to emerging diseases

The issue was discussed at the joint meeting with the Code Commission. The *International Animal Health Code (AHC)* has provisions for notification and control of emerging diseases in Chapter 1.1.3. Article 1.1.3.3. paragraph d. The FDC draws the attention of Member Countries to the equivalent Article in the *AAHC* (see Chapter 1.2.1. Article 1.2.1.3. point 1.).

2.1.3. Development of mechanisms for OIE official recognition of 'free country' or 'free zone'

See Section 4.1.

2.1.4. Fallowing of sites

The draft chapter had been sent for comments to the OIE Member Countries. One Member Country had made a large number of suggestions for changes and the FDC agreed that this country would be asked to provide a new draft to be discussed at the next FDC meeting.

2.1.5. Chapter 2.1.1. Epizootic haematopoietic necrosis

The amended chapter 2.1.1. Epizootic haematopoietic necrosis was discussed. One Member Country alerted the FDC that more fish species than those identified are susceptible to the causative iridovirus. The FDC amended the chapter accordingly (see Appendix IV).

2.1.6. *Gyrodactylus salaris* versus *G. teuchis*

The President of the FDC had discussed the issue of *Gyrodactylus salaris* versus *G. teuchis* with the designated OIE expert. The two parasites are different species and may be easily distinguished morphologically as well as by PCR[2] methods.

2.1.7. Discussion on how to resolve YHV–GAV[3] and related agents (e.g. LOV[4])

The FDC acknowledges that work done in an Australian laboratory clearly shows that GAV and YHV may be distinguished using molecular methods. However, the Commission does not believe that the molecular differences justify the separation into distinctly different disease chapters. Consequently, GAV and all other strains of YHV are therefore notifiable under YHV The chapter in the *AAHC* has been changed accordingly (see Appendix V).

2.1.8. Consistency between *Code* chapters and the model certificates

Some Member Countries had made comments on the consistency between the *AAHC* chapters and the model certificates. Changes were made accordingly (Appendix VI).

2.1.9. Regulations governing packing and posting of infectious material from aquatic animals

Dr Ellen Ariel from the EU Reference Laboratory for Fish Diseases gave a presentation on the international regulations for the 'Safe Transport of Infectious Substances and Diagnostic Specimens'. There is clearly a great lack of awareness of these legal requirements in aquatic animal health laboratories, including OIE Reference Laboratories, and therefore these laboratories could be putting themselves at risk of prosecution and heavy fines. Dr Ariel requested that the FDC consider into which of the four risk categories in the regulations the OIE-listed aquatic animal disease agents should be classified. It was agreed that there is a need not only to increase awareness, but also to provide easily accessible guidelines for the packaging and documentation of infectious material for the purpose of transportation. It was

2 Polymerase chain reaction
3 Yellowhead virus–gill associated virus
4 Lymphoid organ virus

proposed that Dr Ariel, in cooperation with Prof. Hill, should draft appropriate text for addition to Chapter 1.5.6. in the OIE *AAHC* in time for consideration by the Commission at the next meeting in June 2002. This issue will also be referred to the Standards and Code Commissions.

2.2. Amendments to the *Diagnostic Manual for Aquatic Animal Diseases*

2.2.1. Review of the status of the fourth edition of the *Manual*

Nine of the twenty-nine disease chapters have been received. These will be sent to Member Countries and reviewers for comments.

2.2.2. Sampling schedules and numbers – general information chapters

See Section 4.1.

2.2.3. Approval of new or improved diagnostic methods for aquatic animal diseases

Criteria to be used include the complete disclosure of such new methods and/or their publication in peer-reviewed journals. The FDC decided that the OIE Reference Laboratory's opinion would also be sought when a new method is presented to the Commission.

2.2.4. Chapter on *Baculovirus penaei/Penaeus monodon*-type baculovirus (BP/MBV) – should the chapter be split into two chapters?

BP occurs in nature only in Western Hemisphere penaeids and MBV occurs only in Eastern Hemisphere penaeids. The diseases that these agents cause may be readily distinguished using diagnostic methods based on molecular tests or on classical morphological pathology. While the target tissues for both viruses are the same, the pathology is similar, and the viruses are likely to be in the same genus, they are different species as is reflected by their virions and occlusion bodies having a different morphology, and by their differing in genetic sequence, natural host species, geographical distribution, and in diagnostic pathology even with unstained preparations using the light microscope. Unlike the situation with YHV virus, MBV and BP are not different strains of the same virus. Having them in the same chapter as causing the same disease was considered by the Commission as inappropriate. The FDC concluded that a recommendation would be made to the OIE International Committee in May that the chapter be divided into two chapters with the following new disease names: Nuclear polyhedrosis baculoviroses caused by *Baculovirus penaei* to become Tetrahedral baculovirosis (*Baculovirus penaei*) and Nuclear polyhedrosis baculoviroses caused by *Penaeus monodon*-type baculovirus to become Spherical baculovirosis (*Penaeus monodon*-type baculovirus) (see Appendix VII).

2.2.5. New chapter/chapters on GAV–YHV

In view of the FDC decision (see Section 2.1.7.) to consider GAV as a strain of YHV and to have only one chapter, the Commission decided to request that Dr Peter Walker, a GAV expert, include diagnostic methods for all strains of the virus in the *Manual* chapter.

3. OIE Reference Laboratories – role and functions

3.1. New applications for Reference Laboratory status

Approval will be sought at the 2002 OIE General Session for the following applications:

Crayfish plague
Centre for Environment, Fisheries and Aquaculture Science (CEFAS), Weymouth, United Kingdom.
Expert: Dr David Alderman

Mikrocytosis
Fisheries and Oceans, Canada Pacific Biological Station, Nanaimo, British Columbia Canada.
Expert: Dr Susan Mae Bower

3.2. Annual reports of Reference Laboratory activities

Reports had been received from all 21 Reference Laboratories. The Commission commented once again on the impressive range of activities by the Reference Laboratories towards the objectives of the OIE, and the continuing support provided by individual experts to the work of the Fish Diseases Commission. The full set of reports will be supplied to Member Countries and to all the Reference Laboratories and Collaborating Centres. The international activities relevant to the work of the OIE are summarised below:

	General activities	Percentage of Laboratories carrying out these activities
1a)	Diagnostic tests performed	95.2%
1b	Agent identification performed	76.2%
2	Production, testing and distribution of diagnostic reagents	80.95%
3	Research	90.5%
	Specific OIE activities	
1	International harmonisation/standardisation of methods	42.9%
2	Preparation and supply of international reference standards	61.9%
3	Collection, analysis and dissemination of epizootiological data	47.6%
4	Provision of consultant expertise	90.5%
5	Provision of scientific and technical training	52.4%
6	Organisation of international scientific meetings	28.6%
7	Participation in international scientific collaborative studies	47.6%
8	Publications	95.2%

3.3. Cost recovery of Reference Laboratory services

The FDC requested that the OIE Standards Commission change the mandate for Reference Laboratories to make it clear that they may recover the costs of their services.

4. Joint meeting with the International Animal Health Code Commission

Following the joint meeting in September 2001, the two Commissions met again to address further issues of common interest.

4.1. Harmonisation of the *International Aquatic Animal Health Code* and the *International Animal Health Code*

There are currently significant differences in approaches between the *AHC* and the *AAHC* that have major implications with regard to international animal health certification.

One of the fundamental differences is that the *AHC* makes reference only to the animal health status of the exporting country, making recommendations to prevent the spread of animal pathogens as a result of international trade. Furthermore, the *AHC* identifies the responsibilities of importing and exporting countries regarding relevant trade conditions (see Chapter 1.2.1. of the *AHC*) on the basis of the principles contained in the SPS Agreement of the WTO[5]. The *AAHC* focuses primarily on certification requirements according to the status of the importing countries for all listed diseases.

5 Agreement on the Application of Sanitary and Phytosanitary Measures of the World Trade Organization

For the purpose of greater consistency with the *AHC*, the FDC decided to review the *AAHC* using the following approach:

a) Inclusion in the *AAHC* of a section on 'Obligations and Ethics in International Trade', consistent with Section 1.2. in the *AHC*.

b) An in-depth revision of the chapters on 'General Information' on fish, mollusc and crustacean health surveillance/control programmes (*Manual* Chapters I.1., I.2. and I.3.), recognising the need for a more flexible approach to recognition of the disease-free status of a country or zone (e.g. the so-called 'grandfather clause', passive versus active surveillance).

c) An in-depth review of the disease-specific chapters in the *AAHC*, in particular, removing specific reference to importing country health status.

The two Commissions agreed to review jointly horizontal issues including import risk analysis, surveillance and monitoring, evaluation of Competent Authorities and certification procedures with a view to improved harmonisation.

4.2. Notification of animal diseases

According to Resolution No. XXIII adopted at the 69th General Session, a new set of criteria will be required for making a disease notifiable. The two Commissions agreed to cooperate in developing such criteria for future adoption.

The Code Commission will review the provisional criteria that were developed by the FDC based on their recent questionnaire to OIE Member Countries. The Code Commission together with the Foot and Mouth Disease and Other Epizootics Commission will provide comments to the FDC on their draft criteria.

The three Commissions will further develop harmonised draft criteria, to the extent possible, by working out of session prior to their next joint meeting in June 2002.

4.2.1. Link between category of disease and requirements for health certification

The Code Commission clarified that the purpose of listing a disease is to collate and disseminate information on the occurrence of that disease in OIE Member Countries in order to enable Members to take measures that would prevent its spread. The FDC noted that, to date, the listing of an aquatic animal disease is also linked to import and export requirements for health certification as well as to the level of stringency for sanitary measures as described in the *AAHC*. The FDC will consider how to harmonise more fully the *AAHC* with the *AHC*.

4.3. Other key issues of common interest

See Section 2.1.2.

5. Addition/removal/change of listing of diseases in the *International Aquatic Animal Health Code*

5.1. Herpesvirus infection in Koi carp

The FDC is not aware of new significant developments relating to this disease that would justify its listing, nor has there been a request from an OIE Member Country to list the disease. The Commission, however, will continue to monitor the situation.

5.2. Mollusc diseases

The Commission reviewed comments received from Member Countries on the proposed changes to the mollusc section in the *AAHC* (see FDC report September 2001). It was agreed to propose some specific changes for acceptance at the next OIE General Session in May 2002 (see Appendices VII to XIII).

Transfer of haplosporidiosis caused by *Haplosporidium costale* to the list of other significant diseases results in the use in the *AAHC* and *Manual* of the disease name 'haplosporidiosis' for two different aetiologies. In order to resolve this ambiguity, it is proposed to use historical names for these diseases: 'MSX disease' to replace haplosporidiosis caused by *Haplosporidium nelsoni*, and 'SSO disease' to replace haplosporidiosis caused by *H. costale* (see also Appendices VII, IX and XII).

The FDC considered improving the clarity by applying this approach to all mollusc diseases included in the *AAHC*. As an example, marteiliosis, caused by two different pathogens affecting two different hosts, could be proposed as Aber disease (*Marteilia refringens*), and QX disease (*M. sydneyi*). Further changes of this type were considered by the Commission, but it was decided that any such amendments to the disease names should await the outcome of the review of the listing criteria.

The recognition of the existence of species capable of harbouring pathogens without apparent effect (*Crassostrea gigas* and *Haplosporidium nelsoni*, more than 50 mollusc species in the case of *Perkinsus olseni*) indicates the need for new categories of hosts, such as 'carriers' or potential 'vectors'. The FDC asked Dr Franck Berthe to prepare a proposal for new categories on a risk-based approach in order to address this situation.

5.3. Baculoviral midgut gland necrosis virus (BMNV)

The FDC had received information from a Japanese expert that husbandry practices have eliminated BMN as a problem, no case having occurred for 8 years. It was decided to recommend to the OIE International Committee in May that BMNV be removed from the list of other significant diseases of crustaceans (see also Appendix VII).

5.4. Infectious salmon anaemia (ISA)

In its comments on the September report, the EU asked the FDC to evaluate whether ISA fulfils the new criteria to be developed for listing of disease agents (see also 4.2. above). Evaluation will be conducted once the new criteria have been finalised. This will also apply to other diseases suggested by the EU.

The EU had also requested the FDC to examine the possibility of vertical transmission of ISA. This question will be referred to the OIE Reference Laboratory for ISA to obtain the latest expert opinion.

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

6.1. Representation at international meetings and workshops

Profs B.J. Hill and D. Lightner represented the FDC at the SEAFDEC[6]–OIE Seminar/Workshop on 'Disease Control in Fish and Shrimp Aquaculture in South-East Asia – Diagnosis and Husbandry Techniques', which took place in Iloilo City, Philippines, 4–6 December 2001.

6 South-East Asia Fisheries Development Centre

6.2. Publications

6.2.1. *OIE Scientific and Technical Review* issue

Dr Christian Michel had been designated as the Coordinator of the planned issue on 'Risk-based approaches to aquatic animal disease' for the OIE *Scientific and Technical Review*. Dr Michel has collated initial ideas from the other FDC Members; the FDC also noted the EU's offer to assist. Dr Michel will now approach potentially interested contributors with the aim to focus the scope of the issue, and will report back to the FDC with a draft page of contents for the June 2002 meeting. Formal letters of invitation will be sent to prospective authors by the OIE after the FDC has agreed a table of contents.

6.3. Status of diagnostic cards for listed diseases

OIE has received the final missing disease card. A total set of the English version is now available and will be posted on the FDC Web site as soon as possible. The French and Spanish versions will follow as soon as they are completed.

7. Any other business

7.1. Cooperation and partnership with other international and regional organisations

The OIE has been invited by the FAO[7] to participate in an 'Expert Consultation on Surveillance and Monitoring for Responsible Movement of Live Aquatic Animals: A Framework for Reducing the Risk of Trans-boundary Spread of Aquatic Animal Diseases'. Profs Håstein and Hill will represent the FDC at a meeting of the Technical Secretariat for this Consultation with the OIE at the OIE Central Bureau on 18 January 2002.

The FDC discussed aquatic animal disease issues brought to the attention of the OIE Regional Commission for Asia, the Far East and Oceania by the NACA[8] Coordinator, Mr Pedro Bueno, after the Provisional Meeting of the Asia Regional Advisory Group on Aquatic Animal Health held in Bangkok, Thailand, in November 2001. Mr Bueno had informed the OIE Regional Commission about the good progress made with Quarterly Aquatic Animal Disease Reporting in the Asia-Pacific Region, but had also alerted the Regional Commission to discrepancies between data on aquatic animal diseases notifiable to the OIE, as submitted by some OIE Member Countries to the OIE Regional Office in their Quarterly Reports and data sent directly to the OIE Central Bureau in their animal disease status annual return. Mr Bueno had furthermore suggested co-organising a joint meeting between fisheries and veterinary authorities in conjunction with the next meeting of the OIE Regional Commission. This Commission had discussed these issues at its November 2001 meeting in Nepal and asked the FDC to take these issues forward.

The FDC noted and discussed the possible reasons for the inaccuracies, some of which may lie in different authorities collecting the data for the different reports. The President of the FDC will in his report to the OIE International Committee in May 2002 address all OIE Delegates, pointing out the need for accurate reporting of aquatic animal diseases, and the need to cooperate with fisheries authorities to this effect as required.

The FDC also agreed that a joint meeting of veterinary and fisheries authorities would be desirable; aquatic animal health could be a technical item at, for example, the next meeting of the OIE Regional Commission in 2003. Dr Rohana Subasinghe offered the assistance of FAO in supporting the participation of fisheries authorities.

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7 Food and Agriculture Organization of the United Nations
8 Network of Aquaculture Centers in Asia-Pacific

7.2. FDC Web site

Ms Caroline Malotaux and Dr Karim Ben Jebara joined the meeting for this item. Prof. Hill reported that the new FDC Web site is now ready to be made available on-line via a link from the OIE Web site. It was agreed that the Central Bureau would, as soon as possible, publicise the 'launch' of the FDC Web pages in the section entitled 'News Flash' on the OIE home page. The FDC home page includes a section entitled 'Latest News', which Prof. Hill will prepare.

7.3. Collaborating Centre – status of new version of disease database

Prof. Hill demonstrated the new Web site of the OIE Collaborating Centre for Information on Aquatic Animal Diseases and the new version of the on-line database on diseases of aquatic animals, which is now ready to be made publicly available on www.collabcen.net and on the FDC Web site.

7.4. Amphibian disease issues

One Member Country was able to report on this and two Member Countries reported that data on trade in amphibians and their products were not yet available, but would provide data at a later stage. The FDC has reconsidered its approach to this issue and has now decided to take a more active role in investigating the disease situation in these species, particularly in view of recent evidence of a possible transfer of iridoviral diseases between amphibians and fish.

The FDC decided to invite an expert on amphibian diseases to the FDC meeting in June 2002 to present information that have been collated on the issue.

7.5. CGIAR[9] Challenge Programme

With regard to the updated pre-proposal draft for the CGIAR Challenge Programme, the FDC agreed that White spot disease would be its first choice of a disease to be covered. As a second choice, Taura syndrome also has large socio-economic implications in affected countries.

7.6. Resolution No. XX from the General Session, May 2001

The FDC welcomes the recommendations given in Resolution XX. The Importance of Emerging Diseases in Public and Animal Health and Trade. Competent Authorities should address this issue to their national reference laboratory. If the national reference laboratory cannot deal with the emerging disease in question, the Competent Authority should seek assistance from one of the OIE Reference Laboratories having expertise in handling diagnosis of emerging diseases.

7.7. Dates of next meetings

The following are the proposed dates of the next meetings: 17–21 June 2002 and 9–12 December 2002.

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.../Appendices

9 Consultative Group on International Agricultural Research

MEETING OF THE OIE FISH DISEASES COMMISSION

Paris, 14–17 January 2002

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Agenda

1. Member Country comments on the report of the previous FDC meeting (September 2001)

2. *International Aquatic Animal Health Code* and *Diagnostic Manual for Aquatic Animal diseases*

2.1. Amendments to the *International Aquatic Animal Health Code*
2.2. Amendments to the Diagnostic *Manual for Aquatic Animal Diseases*

3. OIE Reference Laboratories – role and functions

3.1. New applications for Reference Laboratory status
3.2. Annual reports of Reference Laboratory activities
3.3. Cost recovery of Reference Laboratory services

4. Joint meeting with the International Animal Health Code Commission

4.1. Harmonisation of the *International Aquatic Animal Health Code* and the *International Animal Health Code*
4.2. Notification of animal diseases
4.3. Other key issues of common interest

5. Addition/removal/change of listing of diseases in the *International Aquatic Animal Health Code*

5.1. Herpesvirus infection in Koi carp
5.2. Mollusc diseases
5.3. Baculoviral midgut gland necrosis virus (BMNV)
5.4. Infectious salmon anaemia (ISA)

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

6.1. Representation at international meetings and workshops
6.2. Publications
6.3. Status of diagnostic cards for listed diseases

7. Any other business

7.1. Cooperation and partnership with other international and regional organisations
7.2. FDC Web site
7.3. Collaborating Centre – status of new version of disease database
7.4. Amphibian disease issues
7.5. CGIAR Challenge Programme
7.6. Resolution No. XX from the General Session, May 2001
7.7. Dates of next meetings

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MEETING OF THE OIE FISH DISEASES COMMISSION

Paris, 14–17 January 2002

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SECTION 1.2.

NOTIFICATION SYSTEMS

CHAPTER 1.2.1.

NOTIFICATIONS AND EPIDEMIOLOGICAL INFORMATION

Article 1.2.1.2.

1. Countries shall make available to other countries, through the OIE, whatever information is necessary to minimise the spread of important aquatic animal *diseases* and their aetiological agents and to assist in achieving better world-wide control of these *diseases*.

2. To achieve this, countries shall comply with the reporting requirements specified in Article 1.2.1.3.

3. To assist in the clear and concise exchange of information, reports shall conform as closely as possible to the format given in Animal Health Status Reports 1 to 3.

4. Recognising that scientific knowledge concerning the relationship between *disease agents* and *diseases* is constantly evolving and that the presence of an infectious agent does not necessarily imply the presence of a *disease,* countries shall ensure through their reports that they comply with the spirit and intention of paragraph 1 above. This means that the presence of an infectious agent, even in the absence of clinical *disease*, should be reported.

5. In addition to *notifying* new findings in accordance with Article 1.2.1.3, countries shall also provide information on the measures taken to prevent the spread of *diseases,* including possible quarantine measures and restrictions on the movement of *aquatic animals, aquatic animal products, biological products* and other miscellaneous objects that could by their nature be responsible for transmission of *disease*.

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CHAPTER 2.1.1.

EPIZOOTIC HAEMATOPOIETIC NECROSIS

Article 2.1.1.1.

For the purposes of this *Code,* susceptible host species for epizootic haematopoietic necrosis (EHN) are: redfin perch *(Perca fluviatilis),* rainbow trout *(Oncorhynchus mykiss),* Macquarie perch *(Macquaria australasica),* silver perch *(Bidyanus bidyanus),* mountain galaxias *(Galaxias olidus),* sheatfish *(Silurus glanis),* [and] catfish *(Ictalurus melas),* and mosquito fish *(Gambusia affinis)* and other species belonging to the family Poeciliidae.

Standards for diagnostic tests are described in the *Manual*.

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CHAPTER 4.1.3.

YELLOWHEAD DISEASE

Article 4.1.3.1.

For the purposes of this *Code*, susceptible host species for yellowhead disease [is] are: Black tiger shrimp *(Penaeus monodon),* Pacific white shrimp *(P. vannamei),* Blue shrimp *(P. styliferus),* Gulf white shrimp *(P. setiferus),* Gulf brown shrimp *(P. aztecus),* Gulf pink shrimp *(P. duorarum),* and Kuruma prawn *(P. japonicus).*

Standards for diagnostic tests are described in the *Manual*.

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SECTION 2.1.

DISEASES NOTIFIABLE TO THE OIE (OF FISH)

CHAPTER 2.1.X.

DISEASE NAME

Article 2.1.X.8.

The *Competent Authorities* in countries officially declared DISEASE NAME free should demand that dead *fish* for importation from countries not free from DISEASE NAME be *eviscerated* before transit.

[In general,] The *Competent Authority* of a country importing uneviscerated dead *fish* should require that the consignment be accompanied by an *international aquatic animal health certificate,* conforming to the Model Certificate No. 2, issued by the *Competent Authority* in the country of origin.

This certificate should declare the health status of the place of production in respect of DISEASE NAME and the other *fish diseases* listed in this *Code*.

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SECTION 4.1.

DISEASES NOTIFIABLE TO THE OIE (OF CRUSTACEANS)

CHAPTER 4.1.X.

DISEASE NAME

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Article 4.1.X.8.

[In general,] The *Competent Authority* of a country importing dead *crustaceans* belonging to the susceptible host species listed in Article 4.1.X.1 should require that the consignment be accompanied by an *international aquatic animal health certificate,* conforming to the Model Certificate No. 5, issued by the *Competent Authority* in the exporting country.

This certificate should declare the health status of the place of harvest of the consignment in respect of DISEASE NAME and the other crustacean diseases listed in this *Code*.

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CHAPTER 1.1.2.

LIST OF DISEASES NOTIFIABLE TO THE OIE AND OTHER SIGNIFICANT DISEASES

Article 1.1.2.1.

Diseases notifiable to the OIE

1. Diseases of fish

   Epizootic haematopoietic necrosis
   Infectious haematopoietic necrosis
   Oncorhynchus masou virus disease
   Spring viraemia of carp
   Viral haemorrhagic septicaemia

2. Diseases of molluscs

   Bonamiosis *(Bonamia ostreae, Bonamia exitiosus, [B. sp.], Mikrocytos roughleyi)*
   MSX disease [Haplosporidiosis] *(Haplosporidium nelsoni, [H. costale])*
   Marteiliosis *(Marteilia refringens, M. sydneyi)*
   Mikrocytosis *(Mikrocytos mackini, [M. roughleyi])*
   Perkinsosis *(Perkinsus marinus, P. olseni/atlanticus)*

3. Diseases of crustaceans

   Taura syndrome
   White spot disease
   Yellowhead disease

Article 1.1.2.2.

Other significant diseases

1. Diseases of fish

   Channel catfish virus disease
   Viral encephalopathy and retinopathy
   Infectious pancreatic necrosis
   Infectious salmon anaemia
   Epizootic ulcerative syndrome
   Bacterial kidney disease *(Renibacterium salmoninarum)*
   Enteric septicaemia of catfish *(Edwardsiella ictaluri)*
   Piscirickettsiosis *(Piscirickettsia salmonis)*
   Gyrodactylosis *(Gyrodactylus salaris)*
   Red sea bream iridoviral disease
   White Sturgeon iridoviral disease

3. Diseases of crustaceans

[Baculoviral midgut gland necrosis]
Tetrahedral baculovirosis [Nuclear polyhedrosis baculoviroses] (*Baculovirus penaei* [and *Penaeus monodon*-type baculovirus])
Spherical baculovirosis [Nuclear polyhedrosis baculoviroses] ([Baculovirus penaei and] *Penaeus monodon*-type baculovirus)
Infectious hypodermal and haematopoietic necrosis
Crayfish plague *(Aphanomyces astaci)*
Spawner-isolated mortality virus disease

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SECTION 3.1.

DISEASES NOTIFIABLE TO THE OIE (OF MOLLUSCS)

CHAPTER 3.1.1.

BONAMIOSIS

(Bonamia ostreae, Bonamia exitiosus [B. sp.], Mikrocytos roughlei)

Article 3.1.1.1.

The present chapter refers only to bonamiosis when caused by the *disease agents* listed below in the susceptible host species indicated for each pathogen.

For the purposes of this *Code,* susceptible host species for *Bonamia ostreae* are: *Ostrea edulis, O. angasi, O. denselammellosa, O. puelchana, Ostreola conchaphila (= O. lurida)* and *Tiostrea chilensis (= T. lutaria),* susceptible host species for *Bonamia exitiosus* [sp.] are *Tiostrea chilensis* and *Ostrea angasi,* and the susceptible host species for *Mikrocytos roughleyi* is: *Saccostrea commercialis.*

Standards for diagnostic tests are described in the *Manual*.

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CHAPTER 3.1.2.

MSX DISEASE [HAPLOSPORIDIOSIS]
(*Haplosporidium nelsoni*, [*H. costale*])

Article 3.1.2.1.

The present chapter refers only to MSX disease [haplosporidiosis] when caused by [the *disease agent* listed below in the susceptible host species indicated for each pathogen] *Haplosporidium nelsoni*.

For the purposes of this *Code,* [susceptible host species for *Haplosporidium costale* is: *Crassostrea virginica,* and] susceptible host species for *Haplosporidium nelsoni* are: *Crassostrea virginica* and *C. gigas*.

Standards for diagnostic tests are described in the *Manual*.

Article 3.1.2.2.

MSX disease [Haplosporidiosis] free country

A country may be considered free from MSX disease [haplosporidiosis] when:

1. no *outbreak* caused by *Haplosporidium nelsoni* [the *disease agents* listed in Article 3.1.2.1] has occurred within its *territory* for at least the previous two years;

2. no *Haplosporidium nelsoni* [*disease agent* listed in Article 3.1.2.1] has been detected in any *mollusc* tested during operation of an official mollusc health *surveillance* scheme for a period of at least two years using the procedures described in the *Manual*.

Article 3.1.2.3.

MSX disease [Haplosporidiosis] free zone

A zone may be considered free from MSX disease [haplosporidiosis] when:

1. no *outbreak* caused by *Haplosporidium nelsoni* [the *disease agents* listed in Article 3.1.2.1] has occurred within its territory for at least the previous two years;

2. no *Haplosporidium nelsoni* [*disease agent* listed in Article 3.1.2.1] has been detected in any *mollusc* tested during operation of an official mollusc health *surveillance* scheme for a period of at least two years using the procedures described in the *Manual* (where a zone common to several countries is involved, these countries should implement harmonised and co-ordinated national disease *surveillance* programmes).

Article 3.1.2.4.

MSX disease [Haplosporidiosis] free aquaculture establishment

An MSX disease [haplosporidiosis] free *aquaculture establishment* may be located within an MSX disease [haplosporidiosis] free country or zone or within an MSX disease [haplosporidiosis] infected zone provided that:

1. it has been tested in an official mollusc health *surveillance* scheme for at least the previous two years using the procedures described in the *Manual,* without detection of *Haplosporidium nelsoni* [any of the *disease agents* listed in Article 3.1.2.1], and

2. it is supplied with water by a means that ensures removal or destruction of any *Haplosporidium nelsoni* [of the *disease agents* listed in Article 3.1.2.1] that may be present.

Article 3.1.2.5.

Restoration of free status

A country, a zone or an *aquaculture establishment* may be restored to MSX disease [haplosporidiosis] free status if no *Haplosporidium nelsoni* [*disease agent* listed in Article 3.1.2.1] has been detected for the last two years of a *surveillance* scheme using the procedures described in the *Manual*.

Article 3.1.2.6.

When importing live *molluscs* of all age groups of any susceptible host species for re-immersion, 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 an official mollusc health *surveillance* scheme comprising inspection and laboratory tests on susceptible host species conducted according to the procedures described in the *Manual,* whether or not the place of harvest of the consignment is a country officially declared MSX disease [haplosporidiosis] free.

If the place of harvest of the consignment is not a country officially declared MSX disease [haplosporidiosis] free, the certificate must state whether the place of harvest of the consignment is:

1. a zone officially declared MSX disease [haplosporidiosis] free, or

2. an *aquaculture establishment* officially declared MSX disease [haplosporidiosis] free.

The certificate shall be in accordance with Model Certificate No. 3 given in Part 6 of this *Code*.

Article 3.1.2.7.

Importing countries that are officially declared MSX disease [haplosporidiosis] free should only accept for importation live *molluscs* from *exporting countries* declared MSX disease [haplosporidiosis] free, or from clearly defined MSX disease [haplosporidiosis] free zones in countries not declared MSX disease [haplosporidiosis] free.

Importing countries not regarded as MSX disease [haplosporidiosis] free, but that have officially recognised MSX disease [haplosporidiosis] free zones, should only import *molluscs* into such zones from other countries or zones that are officially declared MSX disease [haplosporidiosis] free.

For *aquaculture establishments* officially declared MSX disease [haplosporidiosis] free that exist in infected zones, the *Competent Authority* of the country concerned should only allow importation of *molluscs* from officially declared MSX disease [haplosporidiosis] free countries, zones or *aquaculture establishments*.

Article 3.1.2.8.

Competent Authorities of *importing countries* should require:

for *molluscs* of commercial size destined for human consumption

the presentation of an *international aquatic animal health certificate* attesting that the *molluscs* listed as MSX disease [haplosporidiosis] susceptible host species have as their place of harvest a country, a zone or an *aquaculture establishment* free from MSX disease [haplosporidiosis].

The certificate shall be in accordance with Model Certificate No. 3.

This certificate may not be required for *molluscs* listed as susceptible host species originating from an infected zone if they are destined:

1. directly for human consumption without any re-immersion, or

2. for storage, during a short period before consumption, in a tank located in an infected zone. The tank should be isolated from the local environment (e.g. in quarantine) to avoid the potential introduction of different strains of the pathogen.

Article 3.1.2.9.

Certificates are optional for *molluscs* not listed as natural or experimental MSX disease [haplosporidiosis] susceptible host species, even if the *molluscs* originate from an infected country, zone or *aquaculture establishment.*

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CHAPTER 3.1.4.

MIKROCYTOSIS

(*Mikrocytos mackini*, [*M. roughleyi*])

Article 3.1.4.1.

The present chapter refers only to mikrocytosis when caused by *Mikrocytos mackini* [the *disease agents* listed below in the susceptible host species indicated for each pathogen].

For the purposes of this *Code,* susceptible host species for *Mikrocytos mackini* are: *Crassostrea gigas, C. virginica, Ostrea edulis* and *O. conchaphila,* [and susceptible host species for *M. roughleyi* is: *Saccostrea commercialis*.]

Standards for diagnostic tests are described in the *Manual*.

Article 3.1.4.2.

Mikrocytosis free country

A country may be considered free from mikrocytosis when:

1. no *outbreak* caused by *Mikrocytos mackini* [the *disease agents* listed in Article 3.1.4.1] has occurred within its *territory* for at least the previous two years;

2. no *Mikrocytos mackini* [*disease agent* listed in Article 3.1.4.1] has been detected in any *mollusc* tested during operation of an official mollusc health *surveillance* scheme for a period of at least two years using the procedures described in the *Manual*.

Article 3.1.4.3.

Mikrocytosis free zone

A zone may be considered free from mikrocytosis when:

1. no *outbreak* caused by *Mikrocytos mackini* [the *disease agents* listed in Article 3.1.4.1] has occurred within its territory for at least the previous two years;

2. no *Mikrocytos mackini* [*disease agent* listed in Article 3.1.4.1] has been detected in any *mollusc* tested during operation of an official mollusc health *surveillance* scheme for a period of at least two years using the procedures described in the *Manual* (where a zone common to several countries is involved, these countries should implement harmonised and co-ordinated national disease *surveillance* programmes).

Article 3.1.4.4.

Mikrocytosis free aquaculture establishment

A mikrocytosis free *aquaculture establishment* may be located within a mikrocytosis free country or zone or within a mikrocytosis infected zone provided that:

1. it has been tested in an official mollusc health *surveillance* scheme for at least the previous two years using the procedures described in the *Manual,* without detection of *Mikrocytos mackini* [any of the *disease agents* listed in Article 3.1.4.1], and

2. it is supplied with water by a means that ensures removal or destruction of any *Mikrocytos mackini* [of the *disease agents* listed in Article 3.1.4.1] that may be present.

Article 3.1.4.5.

Restoration of free status

A country, a zone or an *aquaculture establishment* may be restored to mikrocytosis free status if no *Mikrocytos mackini* [*disease agent* listed in Article 3.1.4.1] has been detected for the last two years of a *surveillance* scheme using the procedures described in the *Manual*.

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CHAPTER 3.1.5.

PERKINSOSIS

(Perkinsus marinus, P. olseni/atlanticus)

Article 3.1.5.1.

The present chapter relates only to perkinsosis when caused by the *disease agents* listed below in the susceptible host species indicated for each pathogen.

For the purposes of this *Code,* susceptible host species for *Perkinsus marinus* are: *Crassostrea virginica* and *C. gigas,* and susceptible host species for *P. olseni/atlanticus* are: *Haliotis ruber, H. cyclobates, H. scalaris,* [and] *H. laevigata*, *Ruditapes philippinarum* and *R. decussates*.

Some 50 other species of [bivalve] *molluscs* may harbour *Perkinsus* species that are apparently non-pathogenic.

Standards for diagnostic tests are described in the *Manual*.

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SECTION 3.2.

OTHER SIGNIFICANT DISEASES (OF MOLLUSCS)

CHAPTER 3.2.1.

SSO DISEASE

(Haplosporidium costale)

Article 3.2.1.1.

Standards for diagnostic tests are described in the *Manual*.

Article 3.2.1.2.

When importing live *molluscs* of a *susceptible species*, or their *eggs* and *gametes*, the *Competent Authority* of the *importing country* with an official control policy for SSO disease may wish to require the presentation of an *international aquatic animal health certificate* issued by the *Competent Authority* in the *exporting country*, attesting that the country, zone or *aquaculture establishment* of origin has been regularly subjected to appropriate tests for SSO disease with negative results.

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Appendix XIII

CHAPTER 3.2.2.

WITHERING SYNDROME OF ABALONES

(*Candidatus* Xenohaliotis californiensis)

Article 3.2.2.1.

Standards for diagnostic tests are described in the *Manual*.

Article 3.2.2.2.

When importing live *molluscs* of a *susceptible species*, or their *eggs* and *gametes*, the *Competent Authority* of the *importing country* with an official control policy for withering syndrome of abalones may wish to require the presentation of an *international aquatic animal health certificate* issued by the *Competent Authority* in the *exporting country*, attesting that the country, zone or *aquaculture establishment* of origin has been regularly subjected to appropriate tests for withering syndrome of abalones with negative results.

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