2004/2

QUARTERLY AQUATIC ANIMAL DISEASE REPORT (Asia and Pacific Region)

April-June 2004

Published by the

Network of Aquaculture Centres in Asia-Pacific

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Kasetsart University Campus, Ladyao, Jatujak
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Food and Agriculture Organization of the United Nations

Viale delle Terme di Caracalla
Rome 00100
Italy

October 2004

Network of Aquaculture Centres in Asia-Pacific and Food and Agriculture Organization of the United Nations. October 2004. *Quarterly Aquatic Animal Disease Report (Asia and Pacific Region)*, 2004/2, April-June 2004. NACA: Bangkok, Thailand.

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Foreword

Build awareness and capacity to prevent, prepare for and respond to aquatic animal health emergencies

Threats to the sustainability of the aquaculture industry are numerous. Diseases caused by dangerous transboundary pathogens pose the most serious threats to aquaculture in many parts of the Asia-Pacific region. Examples of diseases and pathogens introduced to new areas and hosts leading to serious consequences in the Asia-Pacific region include the epizootic ulcerative syndrome (EUS) in fresh and brackishwater fishes, viral nervous necrosis (VNN) in grouper, koi herpes virus (KHV) in common and koi carp and white spot virus (WSV) and Taura syndrome virus (TSV) in cultured shrimp. Careful examination of the history and spread of transboundary pathogens in the region indicates how lack of effective surveillance systems, contingency plans and awareness by stakeholders can impact aquaculture and wild fisheries resources.

Our prime objective and effort should be to prevent incursions of pathogens to aquatic systems and to avoid occurrence of disease outbreaks. This is not easy. This requires considerable effort, technical know how, financial resources, enabling policy and institutional environment, and effective law enforcement. Getting farmers together to form "farmer groups" to manage aquaculture practices better and to collectively act as a group responsibly also helps in reducing the risks of pathogen incursions and subsequent outbreaks of disease. Our experience, in aquatic animal health as well as in livestock sector reminds us that with all due efforts, disease emergencies still occur, thus we need to be prepared.

Infectious disease emergencies may arise within a country in a number of ways, for example: introductions of known exotic diseases; sudden changes in the pattern of existing endemic diseases; or the appearance of previously unrecognized diseases. Contingency planning, early warning and early response are critical to the effective management of such disease emergencies.

A contingency plan is an agreed management strategy and set of operational procedure that would be adopted in the event of an aquatic animal disease emergency. This should be developed during "peace time" (i.e. not at time of emergencies). When there is an emergency, the response should proceed according to the plans that have been developed. For effectively dealing with aquatic animal health emergencies, governments should have the capability to develop contingency plans and build the required operational capacity to effectively implement the plan. Through a well-documented contingency action plan agreed upon by all major stakeholders, it would be possible to minimize the impact of an aquatic animal disease emergency. Mere establishment of contingency plan without appropriate skill and capacity development would be of little value.

The aim of early warning is to allow the recognition of a potential threat and a rapid detection of a disease emergency. For establishing an effective early warning program, a strong technical capability is fundamental in the areas of disease diagnostics, disease surveillance, epidemiological analysis, aquatic animal health information systems, national and international disease reporting and information communication and sharing. Early response is identified as all actions that would be targeted at rapid and effective eradication/containment/mitigation of an emergency disease outbreak. The responses may be of different types depending on the disease agent and the likely impact. Operational capabilities at different levels (e.g. farm, village, province) are vital to mount an effective early response.

Disease reporting and information sharing can go a long way in minimizing the impact of serious aquatic animal health emergencies. The NACA/FAO/OIE Quarterly Aquatic Animal Disease (QAAD - Asia-Pacific) reporting system lists all diseases listed by the OIE plus diseases of concern to the region (e.g. infection with koi herpes virus, abalone viral mortality, grouper iridoviral disease). The information generated through the regional reporting system, participated by 21 countries, provides information on important diseases in the Asia-Pacific region and also serves as an early warning system for emerging pathogens (e.g. KHV, TSV).

Recognizing the importance of aquatic animal health emergencies in the region, recently the Food and Agricultural Organization of the United Nations (FAO) in partnership with Government of Indonesia, the Network of Aquaculture Centres in Asia-Pacific (NACA) and the WorldFish Centre (WFC) organized a workshop entitled "Emergency Preparedness and Response to Aquatic Animal Diseases in Asia" in Jakarta on 21-23 September 2004. The Workshop reviewed the regional experiences in responding to disease emergencies, and developed a set of recommendations to prevent, prepare for and respond to aquatic animal disease emergencies in the region. The workshop also brought livestock and plant sector experience from the FAO Emergency Prevention System for Transboundary Animal and Plant Pests and Diseases - EMPRESS - (http://www.fao.org/EMPRES/default.htm) and examined how livestock experience could be used in managing aquatic disease emergencies. The recommendations will soon be circulated to governments in the region and is hoped to assist countries to strengthen preparedness and response to serious aquatic animal disease emergencies.

Strong national commitment and continuous awareness and capacity building at producer, disease support and decision making levels are critical for ensuring effective implementation of an early warning and early response system to deal with aquatic animal health emergencies.

Reports Received by the NACA Secretariat

Country: Australia Period: April-June 2004

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	April	May	June		
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	-(2004)	-(2004)	-(2004)		1
2. Infectious haematopoietic necrosis	0000	0000	0000		
3. *Oncorhynchus masou* virus disease	0000	0000	0000		
4. Spring viraemia of carp	0000	0000	0000		
5. Viral haemorrhagic septicaemia	0000	0000	0000		
6. Viral encephalopathy and retinopathy	+	-(2004)	-(2004)	II	2
7. Infectious pancreatic necrosis	0000	0000	0000		
8. Epizootic ulcerative syndrome (EUS)	+	-(2004)	+	II	3
9. Bacterial kidney disease	0000	0000	0000		
10. Red seabream iridoviral disease	0000	0000	0000		
11. Enteric septicaemia of catfish	-(2001)	-(2001)	-(2001)		4
Non OIE-listed diseases relevant to the region					
12. Epitheliocystis	***	***	***		
13. Grouper iridoviral disease	***	***	***		
14. Infection with koi herpesvirus	***	***	***		
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with *Bonamia exitiosa*	0000	0000	0000		
2. Infection with *Mikrocytos roughleyi*	-(2003)	-(2003)	-(2003)		5
3. Infection with *Haplosporidium nelsoni*	0000	0000	0000		
4. Infection with *Marteilia sydneyi*	-(2002)	-(2002)	+	III	6
5. Infection with *Perkinsus olseni/atlanticus* [b/])	+	+	+	I	7
Non OIE-listed diseases relevant to the region					
6. Infection with *Marteilioides chungmuensis*	***	***	***		
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Taura syndrome	0000	0000	0000		
2. White spot disease	0000	0000	0000		
3. Yellowhead disease (YH virus, gill-associated virus)	0000/+	0000/+	0000/+	III	8
4. Spherical baculovirosis (*Penaeus monodon*-type baculovirus)	-(2003)	-(2003)	-(2003)		9
5. Infectious hypodermal and haematopoietic necrosis	-(2004)	-(2004)	-(2004)		10
6. Spawner-isolated mortality virus disease	-(?)	-(?)	-(?)		11
7. Tetrahedral baculovirosis (*Baculovirus penaei*)	0000	0000	0000		
8. Necrotising hepatopancreatitis	0000	0000	0000		
Non OIE-listed diseases relevant to the region					
9. Baculoviral midgut gland necrosis	0000	0000	0000		
UNKNOWN DISEASES OF A SERIOUS NATURE					
1. Koi mass mortality	0000	0000	0000		
2. Akoya oyster disease	0000	0000	0000		
3. Abalone viral mortality	***	***	***		
ANY OTHER DISEASES OF IMPORTANCE					
1.					
2.					

DISEASES PRESUMED EXOTIC TO THE REGION, BUT LISTED BY THE OIE[c/])
Finfish: Channel catfish virus disease; Infectious salmon anaemia; Piscirickettsiosis; Gyrodactylosis (*Gyrodactylus salaris*); White sturgeon iridoviral disease
Molluscs: Infection with *Bonamia ostreae*; *Marteilia refringens*; *Mikrocytos mackini*; *Perkinsus marinus*; *Candidatus Xenohaliotis californiensis*; *Hapolosporidium costale*
Crustaceans: Crayfish plague (*Aphanomyces astaci*)

a/ Please use the following symbols:

		+( )	Occurrence limited to certain zones
+	Disease reported or known to be present	***	No information available
+?	Serological evidence and/or isolation of causative agent but no clinical diseases	0000	Never reported
		-	Not reported (but disease is known to occur)
?	Suspected by reporting officer but presence not confirmed	(year)	Year of last occurrence

b/ *Perkinsus olseni* and *P.atlanticus* are now considered conspecific. They may have different host species in different regions, and countries are encouraged to provide epidemiological comments where either of these agents occur.

c/ If there is suspicion or confirmation of any of these diseases, they must be reported immediately, because the region is considered free of these diseases.

1. Epidemiological comments:

(Comments should include: 1) Origin of the disease or pathogen (history of the disease); 2) Species affected; 3) Disease characteristics (unusual clinical signs or lesions); 4) Pathogen (isolated/sero-typed); 5) Mortality rate (high/low; decreasing/increasing); 6) Death toll (economic loss, etc); 7) Size of infected areas or names of infected areas; 8) Preventive/control measures taken; 9) Samples sent to national or international laboratories for confirmation (indicate the names of laboratories); 10) Published paper (articles in journals/website, etc). and 11) Unknown diseases: describe details as much as possible.)

Comment No.	
1	Epizootic haematopoietic necrosis was not reported this period despite passive surveillance, but is known to have previously occurred in Victoria (last reported 1st quarter 2004), New South Wales (last year reported 2000) and South Australia (last year reported 1992). Targeted surveillance and never reported in Tasmania. Passive surveillance and never reported in Northern Territory, Queensland or Western Australia. Annual occurrence of the disease in the Australian Capital Territory, but no laboratory confirmation.
2	Viral encephalopathy and retinopathy was detected in Queensland by histology in barramundi cod fry (*Cromileptes altivelis*) in April 2004 following clinical signs with extensive mortality. Not reported this period despite targeted surveillance in Northern Territory (last year reported 2002). Not reported this period despite active surveillance from Tasmania (last year reported 2000) and South Australia (last year reported 1998). Not reported this period despite passive surveillance from Western Australia (last reported 1st quarter 2004). Never reported from New South Wales or Victoria despite passive surveillance. No information available in the Australian Capital Territory.
3	Epizootic ulcerative syndrome was reported from Queensland in farmed juvenile jade perch (*Scortum barcoo*) experiencing 30% mortality and a daily mortality of 2-3 young golden perch (*Macquaria ambigua*) in April 2004. Diagnosis was by histology. Also diagnosed by histology in wild bream (*Acanthopagrus australis*) in June 2004 following a reported 25% mortality and skin lesions. Epizootic ulcerative syndrome was reported from Western Australia in April 2004 in wild black bream (*Acanthopagrus butcheri*) by passive surveillance, diagnosed by histology. Not reported during this period despite passive surveillance, but known to have occurred in New South Wales (last year reported 2003) and Victoria (last year reported 2002). Considered enzootic in Northern Territory, but lack of diagnostic submissions. Passive surveillance and never reported in South Australia and Tasmania. No information available in the Australian Capital Territory.
4	Enteric septicaemia of catfish was not reported this quarter but is known to have occurred in zebrafish (*Brachydanio rerio*) in PC2 containment in Tasmania (last year reported 2001). Never reported in New South Wales, Northern Territory, Queensland, South Australia and Victoria despite passive surveillance. No information available in the Australian Capital Territory and Western Australia.

5	*Mikrocytos roughleyi* was not reported during this period (passive surveillance) but is known to have occurred in New South Wales (last year reported 2003) and Western Australia (last year reported 1996). Considered enzootic in Queensland but lack of diagnostic submissions. Active surveillance and never reported in Tasmania. Passive surveillance and never reported in Northern Territory, South Australia and Victoria. No information available in the Australian Capital Territory (no marine water responsibility).
6	*Marteilia sydneyi*: A major QX disease outbreak affecting farmed and wild rock oysters *Saccostrea glomerata* was diagnosed on the Hawkesbury River, NSW in June 2004. Also reported from Queensland in *S. glomerata* in June 2004, on two adjacent leases, following mortality of approximately 40%. Diagnosed by impression smears. Not reported this period from Western Australia (last year reported 1994), despite passive surveillance. Active surveillance and never reported in Tasmania. Passive surveillance and never reported in Northern Territory, South Australia or Victoria. No information available in the Australian Capital Territory (no marine water responsibility).
7	*Perkinsus olseni*: Reported from South Australia in April, May and June 2004 in wild, but not in cultured *Haliotis* spp. (targeted surveillance). Not reported this quarter from Western Australia despite targeted surveillance, but known to have previously occurred in wild, but not in cultured *Haliotis* spp. (last year reported 2003). Not reported this quarter from New South Wales, despite passive surveillance (last year reported 2003). Targeted surveillance and never reported in Tasmania. Passive surveillance and never reported in Northern Territory, Queensland and Victoria. No information available in the Australian Capital Territory (no marine water responsibility).
8	Yellowhead virus: Active surveillance and never reported in the Northern Territory. Passive surveillance and never reported in New South Wales, Queensland, South Australia, Victoria and Western Australia. No information available from Tasmania (susceptible species not present). No information available from the Australian Capital Territory (no marine water responsibility). Gill-associated virus: Detected by PCR on 2 commercial farms in the Northern Territory in April, May and June 2004 in clinically infected *Penaeus monodon* (targeted surveillance). Not reported this period despite passive surveillance, but known to have occurred previously in New South Wales (last year reported 2003). Gill-associated virus is considered endemic in Queensland where the lack of a clear case definition, of readily available detection tests and an apparent role for mixed virus infections, make any conclusion about the incidence of GAV-related epizootics impossible. Active surveillance and never reported in Western Australia. Passive surveillance and never reported in South Australia and Victoria. No information available in Tasmania (susceptible species not present), the Australian Capital Territory (no marine water responsibility).
9	Spherical baculovirosis has not been reported this period despite passive surveillance but is known to have occurred previously in Queensland (last year reported 2003), New South Wales and Western Australia (last year reported 2002). Never reported despite passive surveillance in Northern Territory, South Australia and Victoria. No information available in the Australia Capital Territory (no marine water responsibility) and Tasmania (susceptible species not present).
10	Infectious hypodermal and haematopoietic necrosis was not reported this period (passive surveillance), but is known to have previously occurred in Northern Territory (last year reported 2003) and in Queensland (last reported 1st quarter 2004). Passive surveillance and never reported in New South Wales, South Australia, Victoria and Western Australia. No information available in Australian Capital Territory (no marine responsibility) or Tasmania (susceptible species not present).
11	The lack of a clear case definition, of readily available detection tests and an apparent role for mixed virus infections, make any conclusion about the incidence of SMV-related epizootics impossible.

2. New aquatic animal health regulations introduced within past six months (with effective date): Nil

Country: Bangladesh Period: April - June 2004

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	April	May	June		
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	***	***	***		
2. Infectious haematopoietic necrosis	***	***	***		
3. *Oncorhynchus masou* virus disease	***	***	***		
4. Spring viraemia of carp	***	***	***		
5. Viral haemorrhagic septicaemia	***	***	***		
6. Viral encephalopathy and retinopathy	***	***	***		
7. Infectious pancreatic necrosis	***	***	***		
8. Epizootic ulcerative syndrome (EUS)	-	-	-		
9. Bacterial kidney disease	***	***	***		
10. Red seabream iridoviral disease	***	***	***		
11. Enteric septicaemia of catfish	***	***	***		
Non OIE-listed diseases relevant to the region					
12. Epitheliocystis	***	***	***		
13. Grouper iridoviral disease	***	***	***		
14. Infection with koi herpesvirus	***	***	***		
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with *Bonamia exitiosa*	***	***	***		
2. Infection with *Mikrocytos roughleyi*	***	***	***		
3. Infection with *Haplosporidium nelsoni*	***	***	***		
4. Infection with *Marteilia sydneyi*	***	***	***		
5. Infection with *Perkinsus olseni/atlanticus* [b/])	***	***	***		
Non OIE-listed diseases relevant to the region					
6. Infection with *Marteilioides chungmuensis*	***	***	***		
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Taura syndrome	***	***	***		
2. White spot disease	-	-	-		
3. Yellowhead disease (YH virus, gill-associated virus)	***	***	***		
4. Spherical baculovirosis (*Penaeus monodon*-type baculovirus)	***	***	***		
5. Infectious hypodermal and haematopoietic necrosis	***	***	***		
6. Spawner-isolated mortality virus disease	***	***	***		
7. Tetrahedral baculovirosis (*Baculovirus penaei*)	***	***	***		
8. Necrotising hepatopancreatitis	***	***	***		
Non OIE-listed diseases relevant to the region					
9. Baculoviral midgut gland necrosis	***	***	***		
UNKNOWN DISEASES OF A SERIOUS NATURE					
1. Koi mass mortality	***	***	***		
2. Akoya oyster disease	***	***	***		
3. Abalone viral mortality	***	***	***		
ANY OTHER DISEASES OF IMPORTANCE					
1.Bacterial Disease	+	+	+	I	1
2.					

DISEASES PRESUMED EXOTIC TO THE REGION, BUT LISTED BY THE OIE[c/])
Finfish: Channel catfish virus disease; Infectious salmon anaemia; Piscirickettsiosis; Gyrodactylosis (*Gyrodactylus salaris*); White sturgeon iridoviral disease
Molluscs: Infection with *Bonamia ostreae*; *Marteilia refringens*; *Mikrocytos mackini*; *Perkinsus marinus*; *Candidatus Xenohaliotis californiensis*; *Hapolosporidium costale*
Crustaceans: Crayfish plague (*Aphanomyces astaci*)

a/ Please use the following symbols:

+	Disease reported or known to be present	+( )	Occurrence limited to certain zones
+?	Serological evidence and/or isolation of causative agent but no clinical diseases	***	No information available
		0000	Never reported
		-	Not reported (but disease is known to occur)
?	Suspected by reporting officer but presence not confirmed	(year)	Year of last occurrence

b/ *Perkinsus olseni* and *P.atlanticus* are now considered conspecific. They may have different host species in different regions, and countries are encouraged to provide epidemiological comments where either of these agents occur.

c/ If there is suspicion or confirmation of any of these diseases, they must be reported immediately, because the region is considered free of these diseases.

1. Epidemiological comments:

(Comments should include: 1) Origin of the disease or pathogen (history of the disease); 2) Species affected; 3) Disease characteristics (unusual clinical signs or lesions); 4) Pathogen (isolated/sero-typed); 5) Mortality rate (high/low; decreasing/increasing); 6) Death toll (economic loss, etc); 7) Size of infected areas or names of infected areas; 8) Preventive/control measures taken; 9) Samples sent to national or international laboratories for confirmation (indicate the names of laboratories); 10) Published paper (articles in journals/website, etc). and 11) Unknown diseases: describe details as much as possible.)

Comment No.	
1	Mass mortality observed in the Indian major carp (*Catla catla*) and *Hypopthalmichthys molitrix* in Mymensingh region (Central part of the country) during the reporting period. Superficial lesion, deep ulcer, haemorrhages and infection in the fin base are the main disease symptoms. Disease confirmed by field observation. *Aeromonas* spp. and *Pseudomonas* spp. were identified from the diseased fish. Size of infected areas is not available. Fish farmers used locally produced commercial drugs. Samples were not sent to any of the laboratory.

2. New aquatic animal health regulations introduced within past six months (with effective date): Nil

Country: Cambodia Period: April – June 2004

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	April	May	June		
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	***	***	***		
2. Infectious haematopoietic necrosis	***	***	***		
3. *Oncorhynchus masou* virus disease	***	***	***		
4. Spring viraemia of carp	***	***	***		
5. Viral haemorrhagic septicaemia	***	***	***		
6. Viral encephalopathy and retinopathy	***	***	***		
7. Infectious pancreatic necrosis	***	***	***		
8. Epizootic ulcerative syndrome (EUS)	+	+	+	I	1
9. Bacterial kidney disease	***	***	***		
10. Red seabream iridoviral disease	***	***	***		
11. Enteric septicaemia of catfish	***	***	***		
Non OIE-listed diseases relevant to the region					
12. Epitheliocystis	***	***	***		
13. Grouper iridoviral disease	***	***	***		
14. Infection with koi herpesvirus	***	***	***		
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with *Bonamia exitiosa*	***	***	***		
2. Infection with *Mikrocytos roughleyi*	***	***	***		
3. Infection with *Haplosporidium nelsoni*	***	***	***		
4. Infection with *Marteilia sydneyi*	***	***	***		
5. Infection with *Perkinsus olseni/atlanticus* [b/])	***	***	***		
Non OIE-listed diseases relevant to the region					
6. Infection with *Marteilioides chungmuensis*	***	***	***		
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Taura syndrome	***	***	***		
2. White spot disease	***	***	***		
3. Yellowhead disease (YH virus, gill-associated virus)	***	***	***		
4. Spherical baculovirosis (*Penaeus monodon*-type baculovirus)	***	***	***		
5. Infectious hypodermal and haematopoietic necrosis	***	***	***		
6. Spawner-isolated mortality virus disease	***	***	***		
7. Tetrahedral baculovirosis (*Baculovirus penaei*)	***	***	***		
8. Necrotising hepatopancreatitis	***	***	***		
Non OIE-listed diseases relevant to the region					
9. Baculoviral midgut gland necrosis	***	***	***		
UNKNOWN DISEASES OF A SERIOUS NATURE					
1. Koi mass mortality	***	***	***		
2. Akoya oyster disease	***	***	***		
3. Abalone viral mortality	***	***	***		
ANY OTHER DISEASES OF IMPORTANCE					
1.					
2.					

DISEASES PRESUMED EXOTIC TO THE REGION, BUT LISTED BY THE OIE[c/])
Finfish: Channel catfish virus disease; Infectious salmon anaemia; Piscirickettsiosis; Gyrodactylosis (*Gyrodactylus salaris*); White sturgeon iridoviral disease
Molluscs: Infection with *Bonamia ostreae*; *Marteilia refringens*; *Mikrocytos mackini*; *Perkinsus marinus*; *Candidatus Xenohaliotis californiensis*; *Hapolosporidium costale*
Crustaceans: Crayfish plague (*Aphanomyces astaci*)

a/ Please use the following symbols:

		+( )	Occurrence limited to certain zones
+	Disease reported or known to be present	***	No information available
+?	Serological evidence and/or isolation of causative agent but no clinical diseases	0000	Never reported
		-	Not reported (but disease is known to occur)
?	Suspected by reporting officer but presence not confirmed	(year)	Year of last occurrence

b/ *Perkinsus olseni* and *P.atlanticus* are now considered conspecific. They may have different host species in different regions, and countries are encouraged to provide epidemiological comments where either of these agents occur.

c/ If there is suspicion or confirmation of any of these diseases, they must be reported immediately, because the region is considered free of these diseases.

1. Epidemiological comments:

(Comments should include: 1) Origin of the disease or pathogen (history of the disease); 2) Species affected; 3) Disease characteristics (unusual clinical signs or lesions); 4) Pathogen (isolated/sero-typed); 5) Mortality rate (high/low; decreasing/increasing); 6) Death toll (economic loss, etc); 7) Size of infected areas or names of infected areas; 8) Preventive/control measures taken; 9) Samples sent to national or international laboratories for confirmation (indicate the names of laboratories); 10) Published paper (articles in journals/website, etc). and 11) Unknown diseases: describe details as much as possible.)

Comment No.	
1	Reported from very limited areas of Tonle Sap, Basac River and other places

2. New aquatic animal health regulations introduced within past six months (with effective date):

Country: Hong Kong China Period: April – June 2004

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	April	May	June		
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	0000	0000	0000	II	
2. Infectious haematopoietic necrosis	0000	0000	0000	III	
3. *Oncorhynchus masou* virus disease	0000	0000	0000	II	
4. Spring viraemia of carp	0000	0000	0000	III	
5. Viral haemorrhagic septicaemia	0000	0000	0000	III	
6. Viral encephalopathy and retinopathy	+?	+	-	III	1
7. Infectious pancreatic necrosis	0000	0000	0000	III	
8. Epizootic ulcerative syndrome (EUS)	0000	0000	0000	II	
9. Bacterial kidney disease	0000	0000	0000	III	
10. Red seabream iridoviral disease	-	-	+	III	2
11. Enteric septicaemia of catfish	0000	0000	0000		
Non OIE-listed diseases relevant to the region	0000	0000	0000		
12. Epitheliocystis	+? (2002)			II	3
13. Grouper iridoviral disease	-	+	-	III	4
14. Infection with koi herpesvirus	0000	0000	0000	II	
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with *Bonamia exitiosa*	0000	0000	0000	II	
2. Infection with *Mikrocytos roughleyi*	0000	0000	0000	II	
3. Infection with *Haplosporidium nelsoni*	0000	0000	0000	II	
4. Infection with *Marteilia sydneyi*	0000	0000	0000	II	
5. Infection with *Perkinsus olseni/atlanticus* [b/])	0000	0000	0000	II	
Non OIE-listed diseases relevant to the region					
6. Infection with *Marteilioides chungmuensis*	0000	0000	0000	II	
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Taura syndrome	0000	0000	0000	III	
2. White spot disease	+? (2003)	-	-	III	5
3. Yellowhead disease (YH virus, gill-associated virus)	0000	0000	0000	III	
4. Spherical baculovirosis (*Penaeus monodon*-type baculovirus)	0000	0000	0000	II	
5. Infectious hypodermal and haematopoietic necrosis	0000	0000	0000	II	
6. Spawner-isolated mortality virus disease	0000	0000	0000	II	
7. Tetrahedral baculovirosis (*Baculovirus penaei*)	0000	0000	0000	II	
8. Necrotising hepatopancreatitis	0000	0000	0000	II	
Non OIE-listed diseases relevant to the region					
9. Baculoviral midgut gland necrosis	0000	0000	0000	II	
UNKNOWN DISEASES OF A SERIOUS NATURE					
1. Koi mass mortality	0000	0000	0000	II	
2. Akoya oyster disease	0000	0000	0000	II	
3. Abalone viral mortality	0000	0000	0000	II	
ANY OTHER DISEASES OF IMPORTANCE					
1.					
2.					

DISEASES PRESUMED EXOTIC TO THE REGION, BUT LISTED BY THE OIE[c/])
Finfish: Channel catfish virus disease; Infectious salmon anaemia; Piscirickettsiosis; Gyrodactylosis (*Gyrodactylus salaris*); White sturgeon iridoviral disease
Molluscs: Infection with *Bonamia ostreae*; *Marteilia refringens*; *Mikrocytos mackini*; *Perkinsus marinus*; *Candidatus Xenohaliotis californiensis*; *Hapolosporidium costale*
Crustaceans: Crayfish plague (*Aphanomyces astaci*)

a/ Please use the following symbols:

		+( )	Occurrence limited to certain zones
+	Disease reported or known to be present	***	No information available
+?	Serological evidence and/or isolation of causative agent but no clinical diseases	0000	Never reported
		-	Not reported (but disease is known to occur)
?	Suspected by reporting officer but presence not confirmed	(year)	Year of last occurrence

b/ *Perkinsus olseni* and *P.atlanticus* are now considered conspecific. They may have different host species in different regions, and countries are encouraged to provide epidemiological comments where either of these agents occur.

c/ If there is suspicion or confirmation of any of these diseases, they must be reported immediately, because the region is considered free of these diseases.

1. Epidemiological comments:

(Comments should include: 1) Origin of the disease or pathogen (history of the disease); 2) Species affected; 3) Disease characteristics (unusual clinical signs or lesions); 4) Pathogen (isolated/sero-typed); 5) Mortality rate (high/low; decreasing/increasing); 6) Death toll (economic loss, etc); 7) Size of infected areas or names of infected areas; 8) Preventive/control measures taken; 9) Samples sent to national or international laboratories for confirmation (indicate the names of laboratories); 10) Published paper (articles in journals/website, etc). and 11) Unknown diseases: describe details as much as possible.)

Comment No.	
1	Three cases of infection with a Nervous necrosis virus were identified by virus isolation and PCR during the three month period. Species involved were giant grouper and green grouper imported as small fingerlings from mainland China and Taiwan. All cases involved trickling mortalities that accumulated to about 10% after several weeks. Histology indicated that there were little or no disease changes visible in sections of eye or brain, and secondary bacterial infections were found to be the major contributing factor in the cause of death.
2	Newly-acquired specific PCR primers for RSIV indicated that most cases previously reported as grouper iridovirus were in fact RSIV. Seasonal cases occur in late spring and summer, with 5 cases occurring in June during this reporting period. Species involved were farmed giant grouper, green grouper, hybrid striped bass, seabream and perch. Significant disease with typical histological changes occurred in most cases, with mortalities usually around 20% of fingerlings. Source of infections were all unknown, but virus is believed to be endemic in stock imported from mainland China and Taiwan. Disease outbreaks were self-limiting when water quality issues such as high ammonia levels were addressed
3	No further cases reported.
4	One disease outbreak in green grouper fingerlings was found to be grouper iridovirus after sequence analysis identified a PCR product amplified with generic iridovirus primers. Cumulative mortalities reached about 60% after 2-3 weeks, which was considerably higher than for RSIV cases. Source of infection was unknown, but virus was possibly present in stock imported from mainland China and Taiwan.
5	No further cases reported this period, but virus is known to be present in occasional batches of otherwise healthy ornamental lobsters and crustaceans routinely tested for health certification for export. Most stock originate from breeding establishments in mainland China. No disease has ever been reported associated with positive results from PCR.

2. New aquatic animal health regulations introduced within past six months (with effective date):

Country: India Period: April – June 2004

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	April	May	June		
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	0000	0000	0000		
2. Infectious haematopoietic necrosis	0000	0000	0000		
3. *Oncorhynchus masou* virus disease	0000	0000	0000		
4. Spring viraemia of carp					
5. Viral haemorrhagic septicaemia	0000	0000	0000		
6. Viral encephalopathy and retinopathy					
7. Infectious pancreatic necrosis	0000	0000	0000		
8. Epizootic ulcerative syndrome (EUS)	-	-	-		
9. Bacterial kidney disease	0000	0000	0000		
10. Red seabream iridoviral disease	0000	0000	0000		
11. Enteric septicaemia of catfish					
Non OIE-listed diseases relevant to the region					
12. Epitheliocystis					
13. Grouper iridoviral disease					
14. Infection with koi herpesvirus					
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with *Bonamia exitiosa*	0000	0000	0000		
2. Infection with *Mikrocytos roughleyi*	0000	0000	0000		
3. Infection with *Haplosporidium nelsoni*	0000	0000	0000		
4. Infection with *Marteilia sydneyi*	0000	0000	0000		
5. Infection with *Perkinsus olseni/atlanticus* [b/])	0000	0000	0000		
Non OIE-listed diseases relevant to the region					
6. Infection with *Marteilioides chungmuensis*					
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Taura syndrome	***	***	***		
2. White spot disease	+()	+()	+()	I	1
3. Yellowhead disease (YH virus, gill-associated virus)	***	***	***		
4. Spherical baculovirosis (*Penaeus monodon*-type baculovirus)					
5. Infectious hypodermal and haematopoietic necrosis	***	***	***		
6. Spawner-isolated mortality virus disease	0000	0000	0000		
7. Tetrahedral baculovirosis (*Baculovirus penaei*)					
8. Necrotising hepatopancreatitis					
Non OIE-listed diseases relevant to the region					
9. Baculoviral midgut gland necrosis					
UNKNOWN DISEASES OF A SERIOUS NATURE					
1. Koi mass mortality					
2. Akoya oyster disease					
3. Abalone viral mortality					
ANY OTHER DISEASES OF IMPORTANCE					
1.					
2.					

DISEASES PRESUMED EXOTIC TO THE REGION, BUT LISTED BY THE OIE[c/])
Finfish: Channel catfish virus disease; Infectious salmon anaemia; Piscirickettsiosis; Gyrodactylosis (*Gyrodactylus salaris*); White sturgeon iridoviral disease
Molluscs: Infection with *Bonamia ostreae*; *Marteilia refringens*; *Mikrocytos mackini*; *Perkinsus marinus*; *Candidatus Xenohaliotis californiensis*; *Hapolosporidium costale*
Crustaceans: Crayfish plague (*Aphanomyces astaci*)

a/ Please use the following symbols:

		+( )	Occurrence limited to certain zones
+	Disease reported or known to be present	***	No information available
+?	Serological evidence and/or isolation of causative agent but no clinical diseases	0000	Never reported
		-	Not reported (but disease is known to occur)
?	Suspected by reporting officer but presence not confirmed	(year)	Year of last occurrence

b/ *Perkinsus olseni* and *P.atlanticus* are now considered conspecific. They may have different host species in different regions, and countries are encouraged to provide epidemiological comments where either of these agents occur.

c/ If there is suspicion or confirmation of any of these diseases, they must be reported immediately, because the region is considered free of these diseases.

1. Epidemiological comments:

(Comments should include: 1) Origin of the disease or pathogen (history of the disease); 2) Species affected; 3) Disease characteristics (unusual clinical signs or lesions); 4) Pathogen (isolated/sero-typed); 5) Mortality rate (high/low; decreasing/increasing); 6) Death toll (economic loss, etc); 7) Size of infected areas or names of infected areas; 8) Preventive/control measures taken; 9) Samples sent to national or international laboratories for confirmation (indicate the names of laboratories); 10) Published paper (articles in journals/website, etc). and 11) Unknown diseases: describe details as much as possible.)

Comment No.	
1	Reported from very limited areas of Andhra Pradesh, Tamil Nadu and West Bengal

2. New aquatic animal health regulations introduced within past six months (with effective date): Nil

Country: Indonesia Period: April - June 2004

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	April	May	June		
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	***	***	***		
2. Infectious haematopoietic necrosis	***	***	***		
3. *Oncorhynchus masou* virus disease	***	***	***		
4. Spring viraemia of carp	***	***	***		
5. Viral haemorrhagic septicaemia	***	***	***		
6. Viral encephalopathy and retinopathy	0000	0000	0000		
7. Infectious pancreatic necrosis	0000	0000	0000		
8. Epizootic ulcerative syndrome (EUS)	***	***	***		
9. Bacterial kidney disease	0000	0000	0000		
10. Red seabream iridoviral disease	0000	0000	0000		
11. Enteric septicaemia of catfish	0000	0000	0000		
Non OIE-listed diseases relevant to the region					
12. Epitheliocystis	0000	0000	0000		
13. Grouper iridoviral disease	+()	+()	+()	III	
14. Infection with koi herpesvirus	+	+	+	III	1
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with *Bonamia exitiosa*	0000	0000	0000		
2. Infection with *Mikrocytos roughleyi*	0000	0000	0000		
3. Infection with *Haplosporidium nelsoni*	0000	0000	0000		
4. Infection with *Marteilia sydneyi*	0000	0000	0000		
5. Infection with *Perkinsus olseni/atlanticus* [b/])	0000	0000	0000		
Non OIE-listed diseases relevant to the region					
6. Infection with *Marteilioides chungmuensis*	0000	0000	0000		
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Taura syndrome	+	+	+	III	2
2. White spot disease	+	+	+	III	
3. Yellowhead disease (YH virus, gill-associated virus)	0000	0000	0000		
4. Spherical baculovirosis (*Penaeus monodon*-type baculovirus)	0000	0000	0000		
5. Infectious hypodermal and haematopoietic necrosis	0000	0000	0000		
6. Spawner-isolated mortality virus disease	0000	0000	0000		
7. Tetrahedral baculovirosis (*Baculovirus penaei*)	0000	0000	0000		
8. Necrotising hepatopancreatitis	0000	0000	0000		
Non OIE-listed diseases relevant to the region					
9. Baculoviral midgut gland necrosis	0000	0000	0000		
UNKNOWN DISEASES OF A SERIOUS NATURE					
1. Koi mass mortality					
2. Akoya oyster disease	0000	0000	0000		
3. Abalone viral mortality	0000	0000	0000		
ANY OTHER DISEASES OF IMPORTANCE					
1.					
2.					

DISEASES PRESUMED EXOTIC TO THE REGION, BUT LISTED BY THE OIE[c/])
Finfish: Channel catfish virus disease; Infectious salmon anaemia; Piscirickettsiosis; Gyrodactylosis (*Gyrodactylus salaris*); White sturgeon iridoviral disease
Molluscs: Infection with *Bonamia ostreae*; *Marteilia refringens*; *Mikrocytos mackini*; *Perkinsus marinus*; *Candidatus Xenohaliotis californiensis*; *Hapolosporidium costale*
Crustaceans: Crayfish plague (*Aphanomyces astaci*)

a/ Please use the following symbols:

		+( )	Occurrence limited to certain zones
+	Disease reported or known to be present	***	No information available
+?	Serological evidence and/or isolation of causative agent but no clinical diseases	0000	Never reported
		-	Not reported (but disease is known to occur)
?	Suspected by reporting officer but presence not confirmed	(year)	Year of last occurrence

b/ *Perkinsus olseni* and *P.atlanticus* are now considered conspecific. They may have different host species in different regions, and countries are encouraged to provide epidemiological comments where either of these agents occur.

c/ If there is suspicion or confirmation of any of these diseases, they must be reported immediately, because the region is considered free of these diseases.

1. Epidemiological comments:

(Comments should include: 1) Origin of the disease or pathogen (history of the disease); 2) Species affected; 3) Disease characteristics (unusual clinical signs or lesions); 4) Pathogen (isolated/sero-typed); 5) Mortality rate (high/low; decreasing/increasing); 6) Death toll (economic loss, etc); 7) Size of infected areas or names of infected areas; 8) Preventive/control measures taken; 9) Samples sent to national or international laboratories for confirmation (indicate the names of laboratories); 10) Published paper (articles in journals/website, etc). and 11) Unknown diseases: describe details as much as possible.)

Comment No.	
1	(1) The disease still cause mortality in some areas of West Java in common carp and in Blitar (East Java) in koi carp, with mortality lower than outbreaks in 2002 and 2003 (2) koi carp and common carp (3) Loss of appetite, swimming at the surface, necrosis of gill filaments, hemorrhages on the body surface and skin lesions are some of the clinical signs (4) koi herpes virus (5) High mortality (60-70%) (6) No reports of economic loss available (7) West and east Java (8) Prohibited export of koi and common carp from infected areas to other islands and abroad (9) Samples have been sent to some National laboratories and diagnosis carried out by PCR
2	(1) Taura syndrome introduced through illegal introduction of *Penaeus vannamei* in 2002 and still cause high mortality in Java (2) *Penaeus vannamei* and *P.stylirostris* (3) The disease affects shrimp 10-14 days after stocking. In acute cases the clinical signs are loss of appetite and red tail. In chronic cases the characteristic clinical signs are melanization, growth abnormalities and soft cuticle (4) Taura syndrome virus (5) High mortality (80-90%) (6) no reports on economic loss available (7) Jawa island (8) Restrictions on import of broodstock to Indonesia except SPF broodstock from some countries (9) samples sent to National laboratories for diagnosis by PCR

2. New aquatic animal health regulations introduced within past six months (with effective date): Nil

Country: Japan Period: April - June 2004

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	April	May	June		
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	0000	0000	0000	I	
2. Infectious haematopoietic necrosis	+	+	+	III	
3. *Oncorhynchus masou* virus disease	+	+	+	III	
4. Spring viraemia of carp	0000	0000	0000	I	
5. Viral haemorrhagic septicaemia	+	+	+	III	
6. Viral encephalopathy and retinopathy	-	-	-	I	
7. Infectious pancreatic necrosis	+	+	+	III	
8. Epizootic ulcerative syndrome (EUS)	-	-	-	I	
9. Bacterial kidney disease	+	+	+	III	
10. Red seabream iridoviral disease	+	+	+	III	
11. Enteric septicaemia of catfish	0000	0000	0000	I	
Non OIE-listed diseases relevant to the region					
12. Epitheliocystis	+	+	+	III	
13. Grouper iridoviral disease	0000	0000	0000	I	
14. Infection with koi herpesvirus	+	+	+	III	
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with *Bonamia exitiosa*	0000	0000	0000	I	
2. Infection with *Mikrocytos roughleyi*	0000	0000	0000	I	
3. Infection with *Haplosporidium nelsoni*				I	1
4. Infection with *Marteilia sydneyi*	0000	0000	0000	I	
5. Infection with *Perkinsus olseni/atlanticus* [b/])	0000	0000	0000	I	
Non OIE-listed diseases relevant to the region					
6. Infection with *Marteilioides chungmuensis*	-	-	-	I	
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Taura syndrome	0000	0000	0000	I	
2. White spot disease	-	-	-	I	
3. Yellowhead disease (YH virus, gill-associated virus)	0000	0000	0000	I	
4. Spherical baculovirosis (*Penaeus monodon*-type baculovirus)	0000	0000	0000	I	
5. Infectious hypodermal and haematopoietic necrosis	0000	0000	0000	I	
6. Spawner-isolated mortality virus disease	0000	0000	0000	I	
7. Tetrahedral baculovirosis (*Baculovirus penaei*)	0000	0000	0000	I	
8. Necrotising hepatopancreatitis	0000	0000	0000	I	
Non OIE-listed diseases relevant to the region					
9. Baculoviral midgut gland necrosis	0000	0000	0000	I	
UNKNOWN DISEASES OF A SERIOUS NATURE					
1. Koi mass mortality	0000	0000	0000	I	
2. Akoya oyster disease	-	-	-	I	
3. Abalone viral mortality	0000	0000	0000	I	
ANY OTHER DISEASES OF IMPORTANCE					
1.					
2.					

DISEASES PRESUMED EXOTIC TO THE REGION, BUT LISTED BY THE OIE[c/])
Finfish: Channel catfish virus disease; Infectious salmon anaemia; Piscirickettsiosis; Gyrodactylosis (*Gyrodactylus salaris*); White sturgeon iridoviral disease
Molluscs: Infection with *Bonamia ostreae*; *Marteilia refringens*; *Mikrocytos mackini*; *Perkinsus marinus*; *Candidatus Xenohaliotis californiensis*; *Hapolosporidium costale*
Crustaceans: Crayfish plague (*Aphanomyces astaci*)

a/ Please use the following symbols:

		+( )	Occurrence limited to certain zones
+	Disease reported or known to be present	***	No information available
+?	Serological evidence and/or isolation of causative agent but no clinical diseases	0000	Never reported
		-	Not reported (but disease is known to occur)
?	Suspected by reporting officer but presence not confirmed	(year)	Year of last occurrence

b/ *Perkinsus olseni* and *P.atlanticus* are now considered conspecific. They may have different host species in different regions, and countries are encouraged to provide epidemiological comments where either of these agents occur.

c/ If there is suspicion or confirmation of any of these diseases, they must be reported immediately, because the region is considered free of these diseases.

1. Epidemiological comments:

(Comments should include: 1) Origin of the disease or pathogen (history of the disease); 2) Species affected; 3) Disease characteristics (unusual clinical signs or lesions); 4) Pathogen (isolated/sero-typed); 5) Mortality rate (high/low; decreasing/increasing); 6) Death toll (economic loss, etc); 7) Size of infected areas or names of infected areas; 8) Preventive/control measures taken; 9) Samples sent to national or international laboratories for confirmation (indicate the names of laboratories); 10) Published paper (articles in journals/website, etc). and 11) Unknown diseases: describe details as much as possible.)

Comment No.	
1	*Haplosporidium nelsoni* was detected at 2% positive in Pacific oyster (*Crassostrea gigas*) spats collected from the North-eastern part of Japan (see OIE Disease Information on the 5 October, 2001 on the OIE internet homepage). However, mortality or disease of Pacific oyster associated with *H.nelsoni* has not been reported at all. Therefore, the symbol is not described at the portion of Haplosporidiosis in this report form.

2. New aquatic animal health regulations introduced within past six months (with effective date): Nil

Country: Lao PDR Period: April - June 2004

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	April	May	June		
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	***	***	***		
2. Infectious haematopoietic necrosis	***	***	***		
3. *Oncorhynchus masou* virus disease	***	***	***		
4. Spring viraemia of carp	***	***	***		
5. Viral haemorrhagic septicaemia	***	***	***		
6. Viral encephalopathy and retinopathy	***	***	***		
7. Infectious pancreatic necrosis	***	***	***		
8. Epizootic ulcerative syndrome (EUS)	***	***	***		
9. Bacterial kidney disease	***	***	***		
10. Red seabream iridoviral disease	***	***	***		
11. Enteric septicaemia of catfish	***	***	***		
Non OIE-listed diseases relevant to the region					
12. Epitheliocystis	***	***	***		
13. Grouper iridoviral disease	***	***	***		
14. Infection with koi herpesvirus	***	***	***		
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with *Bonamia exitiosa*	***	***	***		
2. Infection with *Mikrocytos roughleyi*	***	***	***		
3. Infection with *Haplosporidium nelsoni*	***	***	***		
4. Infection with *Marteilia sydneyi*	***	***	***		
5. Infection with *Perkinsus olseni/atlanticus* [b/])	***	***	***		
Non OIE-listed diseases relevant to the region					
6. Infection with *Marteilioides chungmuensis*	***	***	***		
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Taura syndrome	***	***	***		
2. White spot disease	***	***	***		
3. Yellowhead disease (YH virus, gill-associated virus)	***	***	***		
4. Spherical baculovirosis (*Penaeus monodon*-type baculovirus)	***	***	***		
5. Infectious hypodermal and haematopoietic necrosis	***	***	***		
6. Spawner-isolated mortality virus disease	***	***	***		
7. Tetrahedral baculovirosis (*Baculovirus penaei*)	***	***	***		
8. Necrotising hepatopancreatitis	***	***	***		
Non OIE-listed diseases relevant to the region					
9. Baculoviral midgut gland necrosis	***	***	***		
UNKNOWN DISEASES OF A SERIOUS NATURE					
1. Koi mass mortality	***	***	***		
2. Akoya oyster disease	***	***	***		
3. Abalone viral mortality	***	***	***		
ANY OTHER DISEASES OF IMPORTANCE					
1.					
2.					

DISEASES PRESUMED EXOTIC TO THE REGION, BUT LISTED BY THE OIE[c/])
Finfish: Channel catfish virus disease; Infectious salmon anaemia; Piscirickettsiosis; Gyrodactylosis (*Gyrodactylus salaris*); White sturgeon iridoviral disease
Molluscs: Infection with *Bonamia ostreae*; *Marteilia refringens*; *Mikrocytos mackini*; *Perkinsus marinus*; *Candidatus Xenohaliotis californiensis*; *Hapolosporidium costale*
Crustaceans: Crayfish plague (*Aphanomyces astaci*)

a/ Please use the following symbols:

		+( )	Occurrence limited to certain zones
+	Disease reported or known to be present	***	No information available
+?	Serological evidence and/or isolation of causative agent but no clinical diseases	0000	Never reported
		-	Not reported (but disease is known to occur)
?	Suspected by reporting officer but presence not confirmed	(year)	Year of last occurrence

b/ *Perkinsus olseni* and *P.atlanticus* are now considered conspecific. They may have different host species in different regions, and countries are encouraged to provide epidemiological comments where either of these agents occur.

c/ If there is suspicion or confirmation of any of these diseases, they must be reported immediately, because the region is considered free of these diseases.

1. Epidemiological comments:

(Comments should include: 1) Origin of the disease or pathogen (history of the disease); 2) Species affected; 3) Disease characteristics (unusual clinical signs or lesions); 4) Pathogen (isolated/sero-typed); 5) Mortality rate (high/low; decreasing/increasing); 6) Death toll (economic loss, etc); 7) Size of infected areas or names of infected areas; 8) Preventive/control measures taken; 9) Samples sent to national or international laboratories for confirmation (indicate the names of laboratories); 10) Published paper (articles in journals/website, etc). and 11) Unknown diseases: describe details as much as possible.)

2. New aquatic animal health regulations introduced within past six months (with effective date): Nil

Country: Malaysia Period: April - June 2004

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	April	May	June		
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	0000	0000	0000		
2. Infectious haematopoietic necrosis	0000	0000	0000		
3. *Oncorhynchus masou* virus disease	***	***	***		
4. Spring viraemia of carp	0000	0000	0000	III	1
5. Viral haemorrhagic septicaemia	0000	0000	0000		
6. Viral encephalopathy and retinopathy	-	-	-		
7. Infectious pancreatic necrosis	***	***	***		
8. Epizootic ulcerative syndrome (EUS)	-	-	-		
9. Bacterial kidney disease	0000	0000	0000		
10. Red seabream iridoviral disease	0000	0000	0000		
11. Enteric septicaemia of catfish	***	***	***		
Non OIE-listed diseases relevant to the region					
12. Epitheliocystis	***	***	***		
13. Grouper iridoviral disease	-	-	-		
14. Infection with koi herpesvirus	0000	0000	0000	III	2
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with *Bonamia exitiosa*	0000	0000	0000		
2. Infection with *Mikrocytos roughleyi*	0000	0000	0000		
3. Infection with *Haplosporidium nelsoni*	0000	0000	0000		
4. Infection with *Marteilia sydneyi*	0000	0000	0000		
5. Infection with *Perkinsus olseni/atlanticus* [b/])	0000	0000	0000		
Non OIE-listed diseases relevant to the region					
6. Infection with *Marteilioides chungmuensis*	0000	0000	0000		
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Taura syndrome	-	-	-		
2. White spot disease	+( )	+( )	+( )	III	3
3. Yellowhead disease (YH virus, gill-associated virus)	-	-	-		
4. Spherical baculovirosis (*Penaeus monodon*-type baculovirus)	-	-	-		
5. Infectious hypodermal and haematopoietic necrosis	-	-	-		
6. Spawner-isolated mortality virus disease	0000	0000	0000		
7. Tetrahedral baculovirosis (*Baculovirus penaei*)	-	-	-		
8. Necrotising hepatopancreatitis	0000	0000	0000		
Non OIE-listed diseases relevant to the region					
9. Baculoviral midgut gland necrosis					
UNKNOWN DISEASES OF A SERIOUS NATURE					
1. Koi mass mortality	0000	0000	0000		
2. Akoya oyster disease	0000	0000	0000		
3. Abalone viral mortality	0000	0000	0000		
ANY OTHER DISEASES OF IMPORTANCE					
1.					
2.					

DISEASES PRESUMED EXOTIC TO THE REGION, BUT LISTED BY THE OIE[c/])
Finfish: Channel catfish virus disease; Infectious salmon anaemia; Piscirickettsiosis; Gyrodactylosis (*Gyrodactylus salaris*); White sturgeon iridoviral disease
Molluscs: Infection with *Bonamia ostreae*; *Marteilia refringens*; *Mikrocytos mackini*; *Perkinsus marinus*; *Candidatus Xenohaliotis californiensis*; *Hapolosporidium costale*
Crustaceans: Crayfish plague (*Aphanomyces astaci*)

a/ Please use the following symbols:

		+( )	Occurrence limited to certain zones
+	Disease reported or known to be present	***	No information available
+?	Serological evidence and/or isolation of causative agent but no clinical diseases	0000	Never reported
		-	Not reported (but disease is known to occur)
?	Suspected by reporting officer but presence not confirmed	(year)	Year of last occurrence

b/ *Perkinsus olseni* and *P.atlanticus* are now considered conspecific. They may have different host species in different regions, and countries are encouraged to provide epidemiological comments where either of these agents occur.

c/ If there is suspicion or confirmation of any of these diseases, they must be reported immediately, because the region is considered free of these diseases.

1. Epidemiological comments:

(Comments should include: 1) Origin of the disease or pathogen (history of the disease); 2) Species affected; 3) Disease characteristics (unusual clinical signs or lesions); 4) Pathogen (isolated/sero-typed); 5) Mortality rate (high/low; decreasing/increasing); 6) Death toll (economic loss, etc); 7) Size of infected areas or names of infected areas; 8) Preventive/control measures taken; 9) Samples sent to national or international laboratories for confirmation (indicate the names of laboratories); 10) Published paper (articles in journals/website, etc). and 11) Unknown diseases: describe details as much as possible.)

Comment No.	
1	A project had been started by UPM early this year using tissue culture (FHM) and tissue smear on cyprinid (mainly aquarium fishes) to screen for SVC. So far all the specimens examined had been negative
2	UPM had also started a project to screen for koi herpes virus (KHV) using PCR. So far the results had been negative
3	WSSV was confirmed by PCR in PLs from one of the Kuala Selangor, Selangor hatcheries by UPM during the reporting period. The source of the PLs appear to be from Kedah.

2. New aquatic animal health regulations introduced within past six months (with effective date): Nil

Country: Myanmar Period: April-June 2004

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	April	May	June		
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	0000	0000	0000		
2. Infectious haematopoietic necrosis	0000	0000	0000		
3. *Oncorhynchus masou* virus disease	0000	0000	0000		
4. Spring viraemia of carp	0000	0000	0000		
5. Viral haemorrhagic septicaemia	0000	0000	0000		
6. Viral encephalopathy and retinopathy	0000	0000	0000		
7. Infectious pancreatic necrosis	0000	0000	0000		
8. Epizootic ulcerative syndrome (EUS)	-	-	-		
9. Bacterial kidney disease	0000	0000	0000		
10. Red seabream iridoviral disease	0000	0000	0000		
11. Enteric septicaemia of catfish	0000	0000	0000		
Non OIE-listed diseases relevant to the region					
12. Epitheliocystis					
13. Grouper iridoviral disease					
14. Infection with koi herpesvirus					
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with *Bonamia exitiosa*					
2. Infection with *Mikrocytos roughleyi*					
3. Infection with *Haplosporidium nelsoni*					
4. Infection with *Marteilia sydneyi*					
5. Infection with *Perkinsus olseni/atlanticus* [b/])					
Non OIE-listed diseases relevant to the region					
6. Infection with *Marteilioides chungmuensis*					
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Taura syndrome	0000	0000	0000		
2. White spot disease	***	+()	+()	III	1
3. Yellowhead disease (YH virus, gill-associated virus)	0000	0000	0000		
4. Spherical baculovirosis (*Penaeus monodon*-type baculovirus)	0000	0000	0000		
5. Infectious hypodermal and haematopoietic necrosis	+()	+()	+()	III	2
6. Spawner-isolated mortality virus disease	0000	0000	0000		
7. Tetrahedral baculovirosis (*Baculovirus penaei*)	0000	0000	0000		
8. Necrotising hepatopancreatitis	0000	0000	0000		
Non OIE-listed diseases relevant to the region					
9. Baculoviral midgut gland necrosis					
UNKNOWN DISEASES OF A SERIOUS NATURE					
1. Koi mass mortality					
2. Akoya oyster disease					
3. Abalone viral mortality					
ANY OTHER DISEASES OF IMPORTANCE					
1.					
2.					

DISEASES PRESUMED EXOTIC TO THE REGION, BUT LISTED BY THE OIE[c/])
Finfish: Channel catfish virus disease; Infectious salmon anaemia; Piscirickettsiosis; Gyrodactylosis (*Gyrodactylus salaris*); White sturgeon iridoviral disease
Molluscs: Infection with *Bonamia ostreae*; *Marteilia refringens*; *Mikrocytos mackini*; *Perkinsus marinus*; *Candidatus Xenohaliotis californiensis*; *Hapolosporidium costale*
Crustaceans: Crayfish plague (*Aphanomyces astaci*)

a/ Please use the following symbols:

		+( )	Occurrence limited to certain zones
+	Disease reported or known to be present	***	No information available
+?	Serological evidence and/or isolation of causative agent but no clinical diseases	0000	Never reported
		-	Not reported (but disease is known to occur)
?	Suspected by reporting officer but presence not confirmed	(year)	Year of last occurrence

b/ *Perkinsus olseni* and *P.atlanticus* are now considered conspecific. They may have different host species in different regions, and countries are encouraged to provide epidemiological comments where either of these agents occur.

c/ If there is suspicion or confirmation of any of these diseases, they must be reported immediately, because the region is considered free of these diseases.

1. Epidemiological comments:

(Comments should include: 1) Origin of the disease or pathogen (history of the disease); 2) Species affected; 3) Disease characteristics (unusual clinical signs or lesions); 4) Pathogen (isolated/sero-typed); 5) Mortality rate (high/low; decreasing/increasing); 6) Death toll (economic loss, etc); 7) Size of infected areas or names of infected areas; 8) Preventive/control measures taken; 9) Samples sent to national or international laboratories for confirmation (indicate the names of laboratories); 10) Published paper (articles in journals/website, etc). and 11) Unknown diseases: describe details as much as possible.)

Comment No.	
1	A total of 115 shrimp samples (PL, Juvenile, Broodstock) has been tested at PCR Laboratory of DOF. 35 samples or 30.4% were recorded as WSSV positive.
2	A total of 115 shrimp samples (PL, Juvenile, Broodstock) has been tested at PCR Laboratory of DOF. 28 samples or 24.3% were recorded as IHHNV positive.

2. New aquatic animal health regulations introduced within past six months (with effective date): Nil

Country: Nepal Period: April - June 2004

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	April	May	June		
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	***	***	***		
2. Infectious haematopoietic necrosis	***	***	***		
3. *Oncorhynchus masou* virus disease	***	***	***		
4. Spring viraemia of carp	***	***	***		
5. Viral haemorrhagic septicaemia	***	***	***		
6. Viral encephalopathy and retinopathy	***	***	***		
7. Infectious pancreatic necrosis	***	***	***		
8. Epizootic ulcerative syndrome (EUS)	-	-	-		
9. Bacterial kidney disease	***	***	***		
10. Red seabream iridoviral disease	***	***	***		
11. Enteric septicaemia of catfish	***	***	***		
Non OIE-listed diseases relevant to the region					
12. Epitheliocystis	***	***	***		
13. Grouper iridoviral disease	***	***	***		
14. Infection with koi herpesvirus	***	***	***		
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with *Bonamia exitiosa*	***	***	***		
2. Infection with *Mikrocytos roughleyi*	***	***	***		
3. Infection with *Haplosporidium nelsoni*	***	***	***		
4. Infection with *Marteilia sydneyi*	***	***	***		
5. Infection with *Perkinsus olseni/atlanticus* [b/])	***	***	***		
Non OIE-listed diseases relevant to the region					
6. Infection with *Marteilioides chungmuensis*	***	***	***		
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Taura syndrome	***	***	***		
2. White spot disease	***	***	***		
3. Yellowhead disease (YH virus, gill-associated virus)	***	***	***		
4. Spherical baculovirosis (*Penaeus monodon*-type baculovirus)	***	***	***		
5. Infectious hypodermal and haematopoietic necrosis	***	***	***		
6. Spawner-isolated mortality virus disease	***	***	***		
7. Tetrahedral baculovirosis (*Baculovirus penaei*)	***	***	***		
8. Necrotising hepatopancreatitis	***	***	***		
Non OIE-listed diseases relevant to the region					
9. Baculoviral midgut gland necrosis	***	***	***		
UNKNOWN DISEASES OF A SERIOUS NATURE					
1. Koi mass mortality	***	***	***		
2. Akoya oyster disease	***	***	***		
3. Abalone viral mortality	***	***	***		
ANY OTHER DISEASES OF IMPORTANCE					
1. Falling of scales (descaling)	+	+	+	1	1
2.					

DISEASES PRESUMED EXOTIC TO THE REGION, BUT LISTED BY THE OIE[c/])
Finfish: Channel catfish virus disease; Infectious salmon anaemia; Piscirickettsiosis; Gyrodactylosis (*Gyrodactylus salaris*); White sturgeon iridoviral disease
Molluscs: Infection with *Bonamia ostreae*; *Marteilia refringens*; *Mikrocytos mackini*; *Perkinsus marinus*; *Candidatus Xenohaliotis californiensis*; *Hapolosporidium costale*
Crustaceans: Crayfish plague (*Aphanomyces astaci*)

a/ Please use the following symbols:

		+( )	Occurrence limited to certain zones
+	Disease reported or known to be present	***	No information available
+?	Serological evidence and/or isolation of causative agent but no clinical diseases	0000	Never reported
		-	Not reported (but disease is known to occur)
?	Suspected by reporting officer but presence not confirmed	(year)	Year of last occurrence

b/ *Perkinsus olseni* and *P.atlanticus* are now considered conspecific. They may have different host species in different regions, and countries are encouraged to provide epidemiological comments where either of these agents occur.

c/ If there is suspicion or confirmation of any of these diseases, they must be reported immediately, because the region is considered free of these diseases.

1. Epidemiological comments:

(Comments should include: 1) Origin of the disease or pathogen (history of the disease); 2) Species affected; 3) Disease characteristics (unusual clinical signs or lesions); 4) Pathogen (isolated/sero-typed); 5) Mortality rate (high/low; decreasing/increasing); 6) Death toll (economic loss, etc); 7) Size of infected areas or names of infected areas; 8) Preventive/control measures taken; 9) Samples sent to national or international laboratories for confirmation (indicate the names of laboratories); 10) Published paper (articles in journals/website, etc). and 11) Unknown diseases: describe details as much as possible.)

Comment No.	
1	Falling of scales (descaling) amongst cage cultured planktivore fish species in Kulekhani Reservoir leading to fish mortality. Fish species reported to be affected include silver carp *Hypophthalmicthys molitrix* and bighead carp *Aristicthys nobilis*. This is a typical case of unknown etiology confined to planktivore fish species reared in cages under freshwater reservoir system, the case needed further investigations.

2. New aquatic animal health regulations introduced within past six months (with effective date): Nil

Country: Pakistan Period: April - June 2004

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	April	May	June		
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	***	***	***		
2. Infectious haematopoietic necrosis	***	***	***		
3. *Oncorhynchus masou* virus disease	***	***	***		
4. Spring viraemia of carp	***	***	***		
5. Viral haemorrhagic septicaemia	***	***	***		
6. Viral encephalopathy and retinopathy	***	***	***		
7. Infectious pancreatic necrosis	***	***	***		
8. Epizootic ulcerative syndrome (EUS)	-	-	-		
9. Bacterial kidney disease	***	***	***		
10. Red seabream iridoviral disease	***	***	***		
11. Enteric septicaemia of catfish	***	***	***		
Non OIE-listed diseases relevant to the region					
12. Epitheliocystis	***	***	***		
13. Grouper iridoviral disease	***	***	***		
14. Infection with koi herpesvirus	***	***	***		
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with *Bonamia exitiosa*	***	***	***		
2. Infection with *Mikrocytos roughleyi*	***	***	***		
3. Infection with *Haplosporidium nelsoni*	***	***	***		
4. Infection with *Marteilia sydneyi*	***	***	***		
5. Infection with *Perkinsus olseni/atlanticus* [b/])	***	***	***		
Non OIE-listed diseases relevant to the region					
6. Infection with *Marteilioides chungmuensis*	***	***	***		
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Taura syndrome	***	***	***		
2. White spot disease	***	***	***		
3. Yellowhead disease (YH virus, gill-associated virus)	***	***	***		
4. Spherical baculovirosis (*Penaeus monodon*-type baculovirus)	***	***	***		
5. Infectious hypodermal and haematopoietic necrosis	***	***	***		
6. Spawner-isolated mortality virus disease	***	***	***		
7. Tetrahedral baculovirosis (*Baculovirus penaei*)	***	***	***		
8. Necrotising hepatopancreatitis	***	***	***		
Non OIE-listed diseases relevant to the region					
9. Baculoviral midgut gland necrosis	***	***	***		
UNKNOWN DISEASES OF A SERIOUS NATURE					
1. Koi mass mortality	***	***	***		
2. Akoya oyster disease	***	***	***		
3. Abalone viral mortality	***	***	***		
ANY OTHER DISEASES OF IMPORTANCE					
1. Abdominal dropsy	+	+	-	I	
2. Lerneasis	+	+	+	I	
3. Posthodiplostomatosis			+	II	

DISEASES PRESUMED EXOTIC TO THE REGION, BUT LISTED BY THE OIE[c/])

Finfish: Channel catfish virus disease; Infectious salmon anaemia; Piscirickettsiosis; Gyrodactylosis (*Gyrodactylus salaris*); White sturgeon iridoviral disease

Molluscs: Infection with *Bonamia ostreae*; *Marteilia refringens*; *Mikrocytos mackini*; *Perkinsus marinus*; *Candidatus Xenohaliotis californiensis*; *Hapolosporidium costale*

Crustaceans: Crayfish plague (*Aphanomyces astaci*)

a/ Please use the following symbols:

		+( )	Occurrence limited to certain zones
+	Disease reported or known to be present	***	No information available
+?	Serological evidence and/or isolation of causative agent but no clinical diseases	0000	Never reported
		-	Not reported (but disease is known to occur)
?	Suspected by reporting officer but presence not confirmed	(year)	Year of last occurrence

b/ *Perkinsus olseni* and *P.atlanticus* are now considered conspecific. They may have different host species in different regions, and countries are encouraged to provide epidemiological comments where either of these agents occur.

c/ If there is suspicion or confirmation of any of these diseases, they must be reported immediately, because the region is considered free of these diseases.

1. Epidemiological comments:

(Comments should include: 1) Origin of the disease or pathogen (history of the disease); 2) Species affected; 3) Disease characteristics (unusual clinical signs or lesions); 4) Pathogen (isolated/sero-typed); 5) Mortality rate (high/low; decreasing/increasing); 6) Death toll (economic loss, etc); 7) Size of infected areas or names of infected areas; 8) Preventive/control measures taken; 9) Samples sent to national or international laboratories for confirmation (indicate the names of laboratories); 10) Published paper (articles in journals/website, etc). and 11) Unknown diseases: describe details as much as possible.)

2. New aquatic animal health regulations introduced within past six months (with effective date): Nil

Country: Philippines Period: April - June 2004

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	April	May	June		
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	0000	0000	0000		
2. Infectious haematopoietic necrosis	0000	0000	0000		
3. *Oncorhynchus masou* virus disease	0000	0000	0000		
4. Spring viraemia of carp	0000	0000	0000		
5. Viral haemorrhagic septicaemia	0000	0000	0000		
6. Viral encephalopathy and retinopathy	-	-	+	III	1
7. Infectious pancreatic necrosis	0000	0000	0000		
8. Epizootic ulcerative syndrome (EUS)	-	-	-		
9. Bacterial kidney disease	0000	0000	0000		
10. Red seabream iridoviral disease	0000	0000	0000		
11. Enteric septicaemia of catfish	***	***	***		
Non OIE-listed diseases relevant to the region					
12. Epitheliocystis	***	***	***		
13. Grouper iridoviral disease	***	***	***		
14. Infection with koi herpesvirus	0000	0000	0000		
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with *Bonamia exitiosa*	0000	0000	0000		
2. Infection with *Mikrocytos roughleyi*	0000	0000	0000		
3. Infection with *Haplosporidium nelsoni*	0000	0000	0000		
4. Infection with *Marteilia sydneyi*	0000	0000	0000		
5. Infection with *Perkinsus olseni/atlanticus* [b/])	0000	0000	0000		
Non OIE-listed diseases relevant to the region					
6. Infection with *Marteilioides chungmuensis*	0000	0000	0000		
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Taura syndrome	0000	0000	0000		
2. White spot disease	+	+	+	III	2
3. Yellowhead disease (YH virus, gill-associated virus)	***	***	***		
4. Spherical baculovirosis (*Penaeus monodon*-type baculovirus)	***	***	***		
5. Infectious hypodermal and haematopoietic necrosis	***	***	***		
6. Spawner-isolated mortality virus disease	***	***	***		3
7. Tetrahedral baculovirosis (*Baculovirus penaei*)	***	***	***		
8. Necrotising hepatopancreatitis	***	***	***		
Non OIE-listed diseases relevant to the region					
9. Baculoviral midgut gland necrosis	***	***	***		
UNKNOWN DISEASES OF A SERIOUS NATURE					
1. Koi mass mortality	0000	0000	0000		
2. Akoya oyster disease	0000	0000	0000		
3. Abalone viral mortality	0000	0000	0000		
ANY OTHER DISEASES OF IMPORTANCE					
1.					
2.					

DISEASES PRESUMED EXOTIC TO THE REGION, BUT LISTED BY THE OIE[c/])
Finfish: Channel catfish virus disease; Infectious salmon anaemia; Piscirickettsiosis; Gyrodactylosis (*Gyrodactylus salaris*); White sturgeon iridoviral disease
Molluscs: Infection with *Bonamia ostreae*; *Marteilia refringens*; *Mikrocytos mackini*; *Perkinsus marinus*; *Candidatus Xenohaliotis californiensis*; *Hapolosporidium costale*
Crustaceans: Crayfish plague (*Aphanomyces astaci*)

a/ Please use the following symbols:

		+( )	Occurrence limited to certain zones
+	Disease reported or known to be present	***	No information available
+?	Serological evidence and/or isolation of causative agent but no clinical diseases	0000	Never reported
		-	Not reported (but disease is known to occur)
?	Suspected by reporting officer but presence not confirmed	(year)	Year of last occurrence

b/ *Perkinsus olseni* and *P.atlanticus* are now considered conspecific. They may have different host species in different regions, and countries are encouraged to provide epidemiological comments where either of these agents occur.

c/ If there is suspicion or confirmation of any of these diseases, they must be reported immediately, because the region is considered free of these diseases.

1. Epidemiological comments:

(Comments should include: 1) Origin of the disease or pathogen (history of the disease); 2) Species affected; 3) Disease characteristics (unusual clinical signs or lesions); 4) Pathogen (isolated/sero-typed); 5) Mortality rate (high/low; decreasing/increasing); 6) Death toll (economic loss, etc); 7) Size of infected areas or names of infected areas; 8) Preventive/control measures taken; 9) Samples sent to national or international laboratories for confirmation (indicate the names of laboratories); 10) Published paper (articles in journals/website, etc). and 11) Unknown diseases: describe details as much as possible.)

Comment No.	
1	Tilapia (juvenile) from Victorias, Negros Occidental showed positive results for VER by RT-PCR (Nested-Step). Examination conducted by SEAFDEC-AQD, Fish Health Lab.
2	There were 27 (batches/samples) of *P. monodon* (post larva, juvenile/grow-out, spawners/broodstock, eggs/nauplii/mysis) from different areas of the country (Cebu, Iloilo, Samar, Bohol, Pangasinan, Aklan, Sorsogon, Davao, Bulacan, Batangas) that showed positive results for White Spot Virus. Examinations conducted by BFAR- Central and Regional Fish Health Laboratories and SEAFDEC-AQD, Fish Health Lab.
3	Information available was in 1998, when samples of *P. monodon* from selected grow-out farms sent to Australia in October 1988 (Dr. L. Owens, James Cook University). Examination of the samples by *in-situ* hybridization using Spawner Mortality Virus (SMV) probe produced positive results.

2. New aquatic animal health regulations introduced within past six months (with effective date): Nil

Country: Singapore Period: January - March 2004

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	January	February	March		
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	0000	0000	0000		
2. Infectious haematopoietic necrosis	0000	0000	0000		
3. *Oncorhynchus masou* virus disease	0000	0000	0000		
4. Spring viraemia of carp	0000	0000	0000		
5. Viral haemorrhagic septicaemia	0000	0000	0000		
6. Viral encephalopathy and retinopathy	-	-	-		
7. Infectious pancreatic necrosis	0000	0000	0000		
8. Epizootic ulcerative syndrome (EUS)	0000	0000	0000		
9. Bacterial kidney disease	0000	0000	0000		
10. Red seabream iridoviral disease	0000	0000	0000		
11. Enteric septicaemia of catfish	0000	0000	0000		
Non OIE-listed diseases relevant to the region					
12. Epitheliocystis	-	-	-		
13. Grouper iridoviral disease	-	-	-		
14. Infection with koi herpesvirus	0000	0000	0000		
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with *Bonamia exitiosa*	***	***	***		
2. Infection with *Mikrocytos roughleyi*	***	***	***		
3. Infection with *Haplosporidium nelsoni*	***	***	***		
4. Infection with *Marteilia sydneyi*	***	***	***		
5. Infection with *Perkinsus olseni/atlanticus* [b/])	***	***	***		
Non OIE-listed diseases relevant to the region					
6. Infection with *Marteilioides chungmuensis*	***	***	***		
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Taura syndrome	***	***	***		
2. White spot disease	-	-	-		
3. Yellowhead disease (YH virus, gill-associated virus)	***	***	***		
4. Spherical baculovirosis (*Penaeus monodon*-type baculovirus)	-	-	-		
5. Infectious hypodermal and haematopoietic necrosis	***	***	***		
6. Spawner-isolated mortality virus disease	***	***	***		
7. Tetrahedral baculovirosis (*Baculovirus penaei*)	***	***	***		
8. Necrotising hepatopancreatitis	***	***	***		
Non OIE-listed diseases relevant to the region					
9. Baculoviral midgut gland necrosis	***	***	***		
UNKNOWN DISEASES OF A SERIOUS NATURE					
1. Koi mass mortality	0000	0000	0000		
2. Akoya oyster disease	***	***	***		
3. Abalone viral mortality	***	***	***		
ANY OTHER DISEASES OF IMPORTANCE					
1.Mullet systemic iridoviral disease	-	+	-	II	1
2.					

Editor's Note: This is the correct version of the report which was published in the January-March 2004 issue of the QAAD.

DISEASES PRESUMED EXOTIC TO THE REGION, BUT LISTED BY THE OIE[c/])
Finfish: Channel catfish virus disease; Infectious salmon anaemia; Piscirickettsiosis; Gyrodactylosis (*Gyrodactylus salaris*); White sturgeon iridoviral disease
Molluscs: Infection with *Bonamia ostreae*; *Marteilia refringens*; *Mikrocytos mackini*; *Perkinsus marinus*; *Candidatus Xenohaliotis californiensis*; *Hapolosporidium costale*
Crustaceans: Crayfish plague (*Aphanomyces astaci*)

a/ Please use the following symbols:

		+( )	Occurrence limited to certain zones
+	Disease reported or known to be present	***	No information available
+?	Serological evidence and/or isolation of causative agent but no clinical diseases	0000	Never reported
		-	Not reported (but disease is known to occur)
?	Suspected by reporting officer but presence not confirmed	(year)	Year of last occurrence

b/ *Perkinsus olseni* and *P.atlanticus* are now considered conspecific. They may have different host species in different regions, and countries are encouraged to provide epidemiological comments where either of these agents occur.

c/ If there is suspicion or confirmation of any of these diseases, they must be reported immediately, because the region is considered free of these diseases.

1. Epidemiological comments:

(Comments should include: 1) Origin of the disease or pathogen (history of the disease); 2) Species affected; 3) Disease characteristics (unusual clinical signs or lesions); 4) Pathogen (isolated/sero-typed); 5) Mortality rate (high/low; decreasing/increasing); 6) Death toll (economic loss, etc); 7) Size of infected areas or names of infected areas; 8) Preventive/control measures taken; 9) Samples sent to national or international laboratories for confirmation (indicate the names of laboratories); 10) Published paper (articles in journals/website, etc). and 11) Unknown diseases: describe details as much as possible.)

Comment No.	
1	Systemic iridoviral disease was observed histologically in a batch of two-month-old mullet (*Mugil cephalus*) reported as suffering daily mortality estimated at 0.1%, for 2 months since stocking in a floating farm

2. New aquatic animal health regulations introduced within past six months (with effective date): Nil

Country: Singapore Period: April - June 2004

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	April	May	June		
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	0000	0000	0000		
2. Infectious haematopoietic necrosis	0000	0000	0000		
3. *Oncorhynchus masou* virus disease	0000	0000	0000		
4. Spring viraemia of carp	0000	0000	0000		
5. Viral haemorrhagic septicaemia	0000	0000	0000		
6. Viral encephalopathy and retinopathy	-	-	-		
7. Infectious pancreatic necrosis	0000	0000	0000		
8. Epizootic ulcerative syndrome (EUS)	0000	0000	0000		
9. Bacterial kidney disease	0000	0000	0000		
10. Red seabream iridoviral disease	0000	0000	0000		
11. Enteric septicaemia of catfish	0000	0000	0000		
Non OIE-listed diseases relevant to the region					
12. Epitheliocystis	-	-	-		
13. Grouper iridoviral disease	-	-	-		
14. Infection with koi herpesvirus	0000	0000	0000		
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with *Bonamia exitiosa*	***	***	***		
2. Infection with *Mikrocytos roughleyi*	***	***	***		
3. Infection with *Haplosporidium nelsoni*	***	***	***		
4. Infection with *Marteilia sydneyi*	***	***	***		
5. Infection with *Perkinsus olseni/atlanticus* [b/])	***	***	***		
Non OIE-listed diseases relevant to the region					
6. Infection with *Marteilioides chungmuensis*	***	***	***		
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Taura syndrome	***	***	***		
2. White spot disease	-	-	-		
3. Yellowhead disease (YH virus, gill-associated virus)	***	***	***		
4. Spherical baculovirosis (*Penaeus monodon*-type baculovirus)	-	-	-		
5. Infectious hypodermal and haematopoietic necrosis	***	***	***		
6. Spawner-isolated mortality virus disease	***	***	***		
7. Tetrahedral baculovirosis (*Baculovirus penaei*)	***	***	***		
8. Necrotising hepatopancreatitis	***	***	***		
Non OIE-listed diseases relevant to the region					
9. Baculoviral midgut gland necrosis	***	***	***		
UNKNOWN DISEASES OF A SERIOUS NATURE					
1. Koi mass mortality	0000	0000	0000		
2. Akoya oyster disease	***	***	***		
3. Abalone viral mortality	***	***	***		
ANY OTHER DISEASES OF IMPORTANCE					
1.					
2.					

DISEASES PRESUMED EXOTIC TO THE REGION, BUT LISTED BY THE OIE[c/])
Finfish: Channel catfish virus disease; Infectious salmon anaemia; Piscirickettsiosis; Gyrodactylosis (*Gyrodactylus salaris*); White sturgeon iridoviral disease
Molluscs: Infection with *Bonamia ostreae*; *Marteilia refringens*; *Mikrocytos mackini*; *Perkinsus marinus*; *Candidatus Xenohaliotis californiensis*; *Hapolosporidium costale*
Crustaceans: Crayfish plague (*Aphanomyces astaci*)

a/ Please use the following symbols:

		+( )	Occurrence limited to certain zones
+	Disease reported or known to be present	***	No information available
+?	Serological evidence and/or isolation of causative agent but no clinical diseases	0000	Never reported
		-	Not reported (but disease is known to occur)
?	Suspected by reporting officer but presence not confirmed	(year)	Year of last occurrence

b/ *Perkinsus olseni* and *P.atlanticus* are now considered conspecific. They may have different host species in different regions, and countries are encouraged to provide epidemiological comments where either of these agents occur.

c/ If there is suspicion or confirmation of any of these diseases, they must be reported immediately, because the region is considered free of these diseases.

1. Epidemiological comments:

(Comments should include: 1) Origin of the disease or pathogen (history of the disease); 2) Species affected; 3) Disease characteristics (unusual clinical signs or lesions); 4) Pathogen (isolated/sero-typed); 5) Mortality rate (high/low; decreasing/increasing); 6) Death toll (economic loss, etc); 7) Size of infected areas or names of infected areas; 8) Preventive/control measures taken; 9) Samples sent to national or international laboratories for confirmation (indicate the names of laboratories); 10) Published paper (articles in journals/website, etc). and 11) Unknown diseases: describe details as much as possible.)

2. New aquatic animal health regulations introduced within past six months (with effective date): Nil

Country: Sri Lanka Period: April - June 2004

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	April	May	June		
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	0000	0000	0000		
2. Infectious haematopoietic necrosis	0000	0000	0000		
3. *Oncorhynchus masou* virus disease	0000	0000	0000		
4. Spring viraemia of carp	0000	0000	0000		
5. Viral haemorrhagic septicaemia	0000	0000	0000		
6. Viral encephalopathy and retinopathy	0000	0000	0000		
7. Infectious pancreatic necrosis	0000	0000	0000		
8. Epizootic ulcerative syndrome (EUS)	?	?	?	I	1
9. Bacterial kidney disease	0000	0000	0000		
10. Red seabream iridoviral disease	0000	0000	0000		
11. Enteric septicaemia of catfish	0000	0000	0000		
Non OIE-listed diseases relevant to the region					
12. Epitheliocystis	0000	0000	0000		
13. Grouper iridoviral disease	0000	0000	0000		
14. Infection with koi herpesvirus	0000	0000	0000		
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with *Bonamia exitiosa*	0000	0000	0000		
2. Infection with *Mikrocytos roughleyi*	0000	0000	0000		
3. Infection with *Haplosporidium nelsoni*	0000	0000	0000		
4. Infection with *Marteilia sydneyi*	0000	0000	0000		
5. Infection with *Perkinsus olseni/atlanticus* [b/])	0000	0000	0000		
Non OIE-listed diseases relevant to the region					
6. Infection with *Marteilioides chungmuensis*	0000	0000	0000		
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Taura syndrome	0000	0000	0000		
2. White spot disease	+	+	+	III	2
3. Yellowhead disease (YH virus, gill-associated virus)	?	?	?	I	3
4. Spherical baculovirosis (*Penaeus monodon*-type baculovirus)	0000	0000	0000		
5. Infectious hypodermal and haematopoietic necrosis	0000	0000	0000		
6. Spawner-isolated mortality virus disease	0000	0000	0000		
7. Tetrahedral baculovirosis (*Baculovirus penaei*)	0000	0000	0000		
8. Necrotising hepatopancreatitis	0000	0000	0000		
Non OIE-listed diseases relevant to the region					
9. Baculoviral midgut gland necrosis	0000	0000	0000		
UNKNOWN DISEASES OF A SERIOUS NATURE					
1. Koi mass mortality	0000	0000	0000		
2. Akoya oyster disease	0000	0000	0000		
3. Abalone viral mortality	0000	0000	0000		
ANY OTHER DISEASES OF IMPORTANCE					
1.					
2.					

DISEASES PRESUMED EXOTIC TO THE REGION, BUT LISTED BY THE OIE[c/])
Finfish: Channel catfish virus disease; Infectious salmon anaemia; Piscirickettsiosis; Gyrodactylosis (*Gyrodactylus salaris*); White sturgeon iridoviral disease
Molluscs: Infection with *Bonamia ostreae*; *Marteilia refringens*; *Mikrocytos mackini*; *Perkinsus marinus*; *Candidatus Xenohaliotis californiensis*; *Hapolosporidium costale*
Crustaceans: Crayfish plague (*Aphanomyces astaci*)

a/ Please use the following symbols:

		+( )	Occurrence limited to certain zones
+	Disease reported or known to be present	***	No information available
+?	Serological evidence and/or isolation of causative agent but no clinical diseases	0000	Never reported
		-	Not reported (but disease is known to occur)
?	Suspected by reporting officer but presence not confirmed	(year)	Year of last occurrence

b/ *Perkinsus olseni* and *P.atlanticus* are now considered conspecific. They may have different host species in different regions, and countries are encouraged to provide epidemiological comments where either of these agents occur.

c/ If there is suspicion or confirmation of any of these diseases, they must be reported immediately, because the region is considered free of these diseases.

1. Epidemiological comments:

(Comments should include: 1) Origin of the disease or pathogen (history of the disease); 2) Species affected; 3) Disease characteristics (unusual clinical signs or lesions); 4) Pathogen (isolated/sero-typed); 5) Mortality rate (high/low; decreasing/increasing); 6) Death toll (economic loss, etc); 7) Size of infected areas or names of infected areas; 8) Preventive/control measures taken; 9) Samples sent to national or international laboratories for confirmation (indicate the names of laboratories); 10) Published paper (articles in journals/website, etc). and 11) Unknown diseases: describe details as much as possible.)

Comment No.	
1	Clear visual signs were not reported
2	PCR amplifications results from two laboratories indicate that *P.monodon* samples (PL and Broodstock) from selected hatcheries and adult stages from farms at North Western Province (NWP) of the country showed positive results. Due to high infection rate of the last year, farming intensity was reduced to 10-15% of the total. Authorities have decided to establish a monitoring unit for monitoring and extension purposes
3	No symptoms were observed

2. New aquatic animal health regulations introduced within past six months (with effective date): Nil

Country: Thailand Period: April - June 2004

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	April	May	June		
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	0000	0000	0000	III	
2. Infectious haematopoietic necrosis	0000	0000	0000	III	
3. *Oncorhynchus masou* virus disease	0000	0000	0000	III	
4. Spring viraemia of carp	0000	0000	0000	III	
5. Viral haemorrhagic septicaemia	0000	0000	0000	III	
6. Viral encephalopathy and retinopathy	-	-	-	III	
7. Infectious pancreatic necrosis	(1985)	(1985)	(1985)	III	
8. Epizootic ulcerative syndrome (EUS)	-	-	-	II	
9. Bacterial kidney disease	***	***	***		
10. Red seabream iridoviral disease	0000	0000	0000	III	
11. Enteric septicaemia of catfish	***	***	***		
Non OIE-listed diseases relevant to the region					
12. Epitheliocystis	0000	0000	0000	II	
13. Grouper iridoviral disease	0000	0000	0000	III	
14. Infection with koi herpesvirus	0000	0000	0000	III	1
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with *Bonamia exitiosa*	***	***	***		
2. Infection with *Mikrocytos roughleyi*	***	***	***		
3. Infection with *Haplosporidium nelsoni*	***	***	***		
4. Infection with *Marteilia sydneyi*	***	***	***		
5. Infection with *Perkinsus olseni/atlanticus* [b/])	***	***	***		
Non OIE-listed diseases relevant to the region					
6. Infection with *Marteilioides chungmuensis*	***	***	***		
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Taura syndrome	+	+	+	III	2
2. White spot disease	-	-	+	III	3
3. Yellowhead disease (YH virus, gill-associated virus)	-	+	+	III	4
4. Spherical baculovirosis (*Penaeus monodon*-type baculovirus)	?	?	?	II	
5. Infectious hypodermal and haematopoietic necrosis	+	+	+	III	5
6. Spawner-isolated mortality virus disease	***	***	***		
7. Tetrahedral baculovirosis (*Baculovirus penaei*)	***	***	***		
8. Necrotising hepatopancreatitis	***	***	***		
Non OIE-listed diseases relevant to the region					
9. Baculoviral midgut gland necrosis	***	***	***		
UNKNOWN DISEASES OF A SERIOUS NATURE					
1. Koi mass mortality	0000	0000	0000	I	
2. Akoya oyster disease	***	***	***		
3. Abalone viral mortality	***	***	***		
ANY OTHER DISEASES OF IMPORTANCE					
1.					
2.					

DISEASES PRESUMED EXOTIC TO THE REGION, BUT LISTED BY THE OIE[c/])
Finfish: Channel catfish virus disease; Infectious salmon anaemia; Piscirickettsiosis; Gyrodactylosis (*Gyrodactylus salaris*); White sturgeon iridoviral disease
Molluscs: Infection with *Bonamia ostreae*; *Marteilia refringens*; *Mikrocytos mackini*; *Perkinsus marinus*; *Candidatus Xenohaliotis californiensis*; *Hapolosporidium costale*
Crustaceans: Crayfish plague (*Aphanomyces astaci*)

a/ Please use the following symbols:

		+( )	Occurrence limited to certain zones
+	Disease reported or known to be present	***	No information available
+?	Serological evidence and/or isolation of causative agent but no clinical diseases	0000	Never reported
		-	Not reported (but disease is known to occur)
?	Suspected by reporting officer but presence not confirmed	(year)	Year of last occurrence

b/ *Perkinsus olseni* and *P.atlanticus* are now considered conspecific. They may have different host species in different regions, and countries are encouraged to provide epidemiological comments where either of these agents occur.

c/ If there is suspicion or confirmation of any of these diseases, they must be reported immediately, because the region is considered free of these diseases.

1. Epidemiological comments:

(Comments should include: 1) Origin of the disease or pathogen (history of the disease); 2) Species affected; 3) Disease characteristics (unusual clinical signs or lesions); 4) Pathogen (isolated/sero-typed); 5) Mortality rate (high/low; decreasing/increasing); 6) Death toll (economic loss, etc); 7) Size of infected areas or names of infected areas; 8) Preventive/control measures taken; 9) Samples sent to national or international laboratories for confirmation (indicate the names of laboratories); 10) Published paper (articles in journals/website, etc). and 11) Unknown diseases: describe details as much as possible.)

Comment No.	
1	Previously, the Department of Fisheries (DOF) has been using only PCR technique for KHV disease monitoring program. Starting in March 2004, the DOF has combined virus isolation in KF-1 and BF-2 cell lines and PCR detection for the KHV monitoring program at the ornamental fish production farms and exporting premises. There was still no KHV disease or outbreak since August 2002
2	A total of 285 shrimp PL samples had been tested at 4 PCR Laboratories of the DOF before stocking in culture ponds under the health management and disease control strategies. 14 specimens or 4.9% were recorded as RT-PCR positive or carrying TSV genes that advised to be destroyed.
3	A total of 3,303 shrimp PL samples had been tested at 11 PCR Laboratories of the DOF before stocking in culture ponds under the health management and disease control strategies. 9 specimens or 0.3% were recorded as PCR positive or carrying SEMBV genes that advised to be destroyed.
4	A total of 214 shrimp PL samples had been tested at 2 PCR Laboratories of the Department of Fisheries before stocking in culture ponds under the health management and disease control strategies. 3 specimens or 1.4% were recorded as RT-PCR positive or carrying YHV genes that advised to be destroyed.
5	A total of 553 shrimp PL samples had been tested at 3 PCR Laboratories of the DOF before stocking in culture ponds under the health management and disease control strategies. 62 specimens or11.2% were recorded as PCR positive or carrying IHHNV genes that advised to be destroyed.

2. New aquatic animal health regulations introduced within past six months (with effective date):

Role of Department of Fisheries on importation and registration of white shrimp farm for breeding and genetic improvement B.E. 2547 (2004).

Effective date 10th May B.E. 2547 (2004)

In brief: steps of live shrimp brooder importation into Thailand:

1. Pre-arrival of the brooders: The importer or hatchery must have an approved genetic improvement plan and a certificate that the hatchery and quarantine facilities have been inspected and passed the code of conduct (COC) and standard biosecure requirements. The source of the shrimp to be imported into Thailand must be approved by DOF prior to the importation.

2. Animals arrive at the port: Shrimp brooder shipment must accompany with health certificate. Shrimp will be inspected and examined for any possible pathogens. The quarantine officer will check all documents and check shrimp health using Level I diagnosis. At least 10 shrimp will be sampled and sent to DOF laboratories for Level III shrimp viral disease diagnosis.

3. Post-arrival of the aquatic animals: The quarantine officer will order the rest of the shrimp to be quarantined at the certified hatchery. Shrimp will be quarantined for at least 14 days. If the serious viral diseases are found, the shrimp brooder will be destroyed. If no viral diseases found, the shrimp brooder can be removed from the quarantine zone and start genetic improvement plan.

Country: Vietnam Period: January-March 2004

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	January	February	March		
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	0000	0000	0000		
2. Infectious haematopoietic necrosis	0000	0000	0000		
3. *Oncorhynchus masou* virus disease	0000	0000	0000		
4. Spring viraemia of carp	0000	0000	0000		
5. Viral haemorrhagic septicaemia	0000	0000	0000		
6. Viral encephalopathy and retinopathy	-	-	-		
7. Infectious pancreatic necrosis	0000	0000	0000		
8. Epizootic ulcerative syndrome (EUS)	-	-	-		
9. Bacterial kidney disease	0000	0000	0000		
10. Red seabream iridoviral disease	0000	0000	0000		
11. Enteric septicaemia of catfish	0000	0000	0000		
Non OIE-listed diseases relevant to the region					
12. Epitheliocystis					
13. Grouper iridoviral disease	-	-	-		
14. Infection with koi herpesvirus					
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with *Bonamia exitiosa*	0000	0000	0000		
2. Infection with *Mikrocytos roughleyi*	0000	0000	0000		
3. Infection with *Haplosporidium nelsoni*	0000	0000	0000		
4. Infection with *Marteilia sydneyi*	0000	0000	0000		
5. Infection with *Perkinsus olseni/atlanticus* [b/])	0000	0000	0000		
Non OIE-listed diseases relevant to the region					
6. Infection with *Marteilioides chungmuensis*					
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Taura syndrome	+( )	-	-	III	1
2. White spot disease	+	+	+	I, II, III	2
3. Yellowhead disease (YH virus, gill-associated virus)	-	-	+	II, III	3
4. Spherical baculovirosis (*Penaeus monodon*-type baculovirus)	+	+	+	II, III	3
5. Infectious hypodermal and haematopoietic necrosis	?	?	?		
6. Spawner-isolated mortality virus disease	0000	0000	0000		
7. Tetrahedral baculovirosis (*Baculovirus penaei*)	0000	0000	0000		
8. Necrotising hepatopancreatitis	0000	0000	0000		
Non OIE-listed diseases relevant to the region					
9. Baculoviral midgut gland necrosis					
UNKNOWN DISEASES OF A SERIOUS NATURE					
1. Koi mass mortality	0000	0000	0000		
2. Akoya oyster disease	0000	0000	0000		
3. Abalone viral mortality	0000	0000	0000		
ANY OTHER DISEASES OF IMPORTANCE					
1.					
2.					

DISEASES PRESUMED EXOTIC TO THE REGION, BUT LISTED BY THE OIE[c/])
Finfish: Channel catfish virus disease; Infectious salmon anaemia; Piscirickettsiosis; Gyrodactylosis (*Gyrodactylus salaris*); White sturgeon iridoviral disease
Molluscs: Infection with *Bonamia ostreae*; *Marteilia refringens*; *Mikrocytos mackini*; *Perkinsus marinus*; *Candidatus Xenohaliotis californiensis*; *Hapolosporidium costale*
Crustaceans: Crayfish plague (*Aphanomyces astaci*)

a/ Please use the following symbols:

		+( )	Occurrence limited to certain zones
+	Disease reported or known to be present	***	No information available
+?	Serological evidence and/or isolation of causative agent but no clinical diseases	0000	Never reported
		-	Not reported (but disease is known to occur)
?	Suspected by reporting officer but presence not confirmed	(year)	Year of last occurrence

b/ *Perkinsus olseni* and *P.atlanticus* are now considered conspecific. They may have different host species in different regions, and countries are encouraged to provide epidemiological comments where either of these agents occur.

c/ If there is suspicion or confirmation of any of these diseases, they must be reported immediately, because the region is considered free of these diseases.

1. Epidemiological comments:

(Comments should include: 1) Origin of the disease or pathogen (history of the disease); 2) Species affected; 3) Disease characteristics (unusual clinical signs or lesions); 4) Pathogen (isolated/sero-typed); 5) Mortality rate (high/low; decreasing/increasing); 6) Death toll (economic loss, etc); 7) Size of infected areas or names of infected areas; 8) Preventive/control measures taken; 9) Samples sent to national or international laboratories for confirmation (indicate the names of laboratories); 10) Published paper (articles in journals/website, etc). and 11) Unknown diseases: describe details as much as possible.)

Comment No.	
1	TSV was detected by disease labs of Research institute for aquaculture no.1 (RIA1) and RIA2 in some samples from Quang ninh, Bac lieu using PCR. The samples were collected by staff of RIA1 and RIA2 during regular farm visits. There were no more cases since then. No economic loss recorded at this two provinces due to TSV. Still there was no outbreak of TSV in Vietnam
2	Normal observation, PCR and Histopathology were used to detect WSD. The detection was done by labs of RIA1,2,3 and some provincial lab. The diseases occurred in almost all provinces that culture *P.monodon,* however the disease occurred in different times, causing different levels of loss for farmers.
3	Yellow head virus and Spherical baculovirus also detected by PCR and histopathological methods. During this period the disease occurred in some provinces only.

2. New aquatic animal health regulations introduced within past six months (with effective date): Nil

Country: Vietnam Period: April - June 2004

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	April	May	June		
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	0000	0000	0000		
2. Infectious haematopoietic necrosis	0000	0000	0000		
3. *Oncorhynchus masou* virus disease	0000	0000	0000		
4. Spring viraemia of carp	0000	0000	0000		
5. Viral haemorrhagic septicaemia	0000	0000	0000		
6. Viral encephalopathy and retinopathy	+	+	+	II, III	1
7. Infectious pancreatic necrosis	0000	0000	0000		
8. Epizootic ulcerative syndrome (EUS)	-	-	-		
9. Bacterial kidney disease	0000	0000	0000		
10. Red seabream iridoviral disease	0000	0000	0000		
11. Enteric septicaemia of catfish	0000	0000	0000		
Non OIE-listed diseases relevant to the region					
12. Epitheliocystis					
13. Grouper iridoviral disease	-	-	+	III	2
14. Infection with koi herpesvirus					
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with *Bonamia exitiosa*	0000	0000	0000		
2. Infection with *Mikrocytos roughleyi*	0000	0000	0000		
3. Infection with *Haplosporidium nelsoni*	0000	0000	0000		
4. Infection with *Marteilia sydneyi*	0000	0000	0000		
5. Infection with *Perkinsus olseni/atlanticus* [b/])	0000	0000	0000		
Non OIE-listed diseases relevant to the region					
6. Infection with *Marteilioides chungmuensis*					
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Taura syndrome	-	-	-		
2. White spot disease	+	+	+	II, III	3
3. Yellowhead disease (YH virus, gill-associated virus)	+	+	+	II, III	4
4. Spherical baculovirosis (*Penaeus monodon*-type baculovirus)	+	+	+	II, III	4
5. Infectious hypodermal and haematopoietic necrosis	?	?	?		
6. Spawner-isolated mortality virus disease	0000	0000	0000		
7. Tetrahedral baculovirosis (*Baculovirus penaei*)	0000	0000	0000		
8. Necrotising hepatopancreatitis	0000	0000	0000		
Non OIE-listed diseases relevant to the region					
9. Baculoviral midgut gland necrosis					
UNKNOWN DISEASES OF A SERIOUS NATURE					
1. Koi mass mortality	0000	0000	0000		
2. Akoya oyster disease	0000	0000	0000		
3. Abalone viral mortality	0000	0000	0000		
ANY OTHER DISEASES OF IMPORTANCE					
1.					
2.					

DISEASES PRESUMED EXOTIC TO THE REGION, BUT LISTED BY THE OIE[c/])
Finfish: Channel catfish virus disease; Infectious salmon anaemia; Piscirickettsiosis; Gyrodactylosis (*Gyrodactylus salaris*); White sturgeon iridoviral disease
Molluscs: Infection with *Bonamia ostreae*; *Marteilia refringens*; *Mikrocytos mackini*; *Perkinsus marinus*; *Candidatus Xenohaliotis californiensis*; *Hapolosporidium costale*
Crustaceans: Crayfish plague (*Aphanomyces astaci*)

a/ Please use the following symbols:

		+( )	Occurrence limited to certain zones
+	Disease reported or known to be present	***	No information available
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?	Suspected by reporting officer but presence not confirmed	(year)	Year of last occurrence

b/ *Perkinsus olseni* and *P.atlanticus* are now considered conspecific. They may have different host species in different regions, and countries are encouraged to provide epidemiological comments where either of these agents occur.

c/ If there is suspicion or confirmation of any of these diseases, they must be reported immediately, because the region is considered free of these diseases.

1. Epidemiological comments:

(Comments should include: 1) Origin of the disease or pathogen (history of the disease); 2) Species affected; 3) Disease characteristics (unusual clinical signs or lesions); 4) Pathogen (isolated/sero-typed); 5) Mortality rate (high/low; decreasing/increasing); 6) Death toll (economic loss, etc); 7) Size of infected areas or names of infected areas; 8) Preventive/control measures taken; 9) Samples sent to national or international laboratories for confirmation (indicate the names of laboratories); 10) Published paper (articles in journals/website, etc). and 11) Unknown diseases: describe details as much as possible.)

Comment No.	
1	VNN was detected from cultured grouper in Hai phong and Vung tau during PCR and histopathological methods. VNN caused big loss for grouper hatchery and nursery.
2	Irridovirus was also detected in some groupers in Haiphong by PCR method. The disease didn't cause big loss for grouper culture
3	White spot diseases virus were detected by PCR and histological method. During this period, disease occurred in the whole country causing big loss for small scale farmers.
4	Yellow head virus and Spherical baculovirus also detected by PCR and histopathological methods. During this period the disease occurred in some provinces only.

2. New aquatic animal health regulations introduced within past six months (with effective date): Nil

Infection with koi herpesvirus-Disease Card[1]

by

Mark Crane[2], Motohiko Sano[3] and Cedric Komar[4]

Pathogen Information

1. Causative Agent

1.1. Pathogen Type

DNA herpes-like virus

1.2. Disease Name and Synonyms

Infection with koi herpesvirus

Carp nephritis and gill necrosis

Koi mass mortality

1.3. Pathogen Common Name and Synonyms

Koi herpesvirus (KHV)

Carp nephritis and gill necrosis virus (CNGV)

1.4. Taxonomic Affiliation

Unclassified

1.5. Description of the Pathogen

The aetiologic agent was first isolated by Hedrick et al. (2000) and, based on ultrastructure, was named koi herpesvirus. Subsequently, following further disease outbreaks in Israel, it has been suggested that the virus should be named carp nephritis and gill necrosis virus (CNGV) (Ronen et al., 2003). At the International Workshop on koi Herpesvirus, London, February 2004 (Anon., 2004a), it was agreed that these names refer to the same agent as well as the causative agent of the mass mortality of koi and carp reported in the Asian region (Anon., 2004; c.f. Way et al., 2004).

1.6. Authority

In 1997 and 1998, mass mortalities, associated with the presence of a herpes-like virus, occurred in koi carp from several countries including, Germany, UK, the Netherlands, Israel and USA (Bretzinger et al., 1999). The virus was first isolated in cultures of KF-1 cell line (Hedrick et al., 2000). Samples were taken from adult koi (*Cyprinus carpio*) that were maintained in ponds or tanks in the USA and Israel and were suffering mass mortalities.

~~*1.8.*~~*1.7. Pathogen Environment*

Freshwater

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[1] M.Crane, M.Sano and C.Komar (2004). Infection with koi herpes virus - disease card. Developed to support the NACA/FAO/OIE regional quarterly aquatic animal disease (QAAD) reporting system in the Asia-Pacific. NACA, Bangkok, Thailand. 11 pp.

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[4] Technical Officer, Aquatic Animal Health Asia-Pacific Region, Intervet Norbio Singapore Pte.Ltd, 1 Perahu Road, Singapore 718847, cedric.komar@intervet.com

2. Modes of Transmission

2.1. Routes of Transmission

Horizontal

2.2. Life Cycle

The origin of the virus is not fully understood. However, it is proven that the infection is transmitted horizontally from other infected fish, such as introduced carriers of infection (Bercovier et al., 2004).

2.3. Associated Factors

The disease is highly contagious and cumulative mortality can approach 100%. Temperature is an important factor. Moving infected fish from 13^{O}C to 23^{O}C results in rapid onset of mortality (Gilad et al., 2003). In addition, secondary gill infections (for example, *Flavobacterium columnare* and *Aeromonas* spp.) are often associated with KHV infection.

2.4. Additional Comments

Table 1 summarises the sensitivity of the virus to various physico-chemical conditions. Further research is required in this area.

Table 1. Summary of viral sensitivity to physico-chemical conditions

RESISTANCE TO PHYSICAL AND CHEMICAL ACTION	
Temperature	Infectivity destroyed after 2 days at 35^{O}C (Neukirch, 2003). As a guideline, until further research is undertaken, 60^{O}C for 30 minutes for virus inactivation.
pH	Infectivity destroyed at pH <3 or >11 (Neukirch, 2003)
Chemicals	Sensitive to chloroform (and presumably to other lipid solvents and oxidising agents – research required for confirmation)
Disinfection	As a guideline, until further research is undertaken, disinfection should be carried out as recommended by the OIE (2003).
Survival	Virus can survive for at least 20 hours in water and probably longer in mud ponds – further research required.

3. Host Range

3.1. Host Type

Common and koi carp

3.2. Host Scientific Names

Cyprinus carpio

3.3. Other Known or Suspected Hosts

None

3.4. Affected Life Stage

All age classes; the disease has occurred in fingerling, juvenile and adult common and koi carp.

3.5. Additional Comments

Japanese researchers, during an outbreak in the spring of 2004, recorded that the outbreak occurred in wild carp populations at water temperatures >15-16^{O}C, and most of the dead fish were adult. In the field, it appears that adult carp are more susceptible than juveniles.

Permissive temperature range: up to 28^{O}C. While the virus may survive at low temperatures (5^{O}C), the temperature range for disease outbreaks appears to be 17-28^{O}C.

Mortality due to infection of other freshwater fish species, such as goldfish (*Carassius auratus*), grass carp (*Ctenopharyngodon idellus*), silver carp (*Hypophthalmichthys molitrix*), silver perch (*Bidyanus bidyanus*) and tilapia (*Oreochromis niloticus*), by this virus has not been observed naturally or by experimental infection (Perelberg et al., 2003). To date, the disease is species specific.

4. Geographic Distribution

4.1. Region

The disease and agent have been reported from North America, Asia, Europe, Africa and the Middle East.

4.2. Country

In USA, the virus was first isolated in 1997/8 (Hedrick et al., 2000). Outbreaks of disease with signs similar to infection with KHV were first reported from UK in 1998 with virus isolated in 2000. In Israel, KHV was first diagnosed in 1998 and reported in 1999 (Ariav et al., 1999). The current known geographical range of the disease is shown in table 2.

Table 2. List of countries and dates of first reports of KHV

Europe	**America**	**Asia**	**Africa**
United Kingdom (1998)	USA (1998)	Israel (1998)	S. Africa (2003)
Belgium (1999)		Indonesia (2002)	
Denmark (2002)		China (2002)	
Germany (2002)		Taipei China (2002)	
The Netherlands (2002)		Japan (2003)	
Switzerland (2003)			
Luxemburg (2003)			
Italy (2003)			
Austria (2003)			
France (2003)			

4.3. Additional Comments

It is suspected that, due to the worldwide volume of the ornamental fish trade, the actual geographical range is wider than the known geographical range. The distribution is not, yet, worldwide but covers a wide range of continents.

Disease Information

1. Clinical Signs and Case Description

1.1. Host Tissues and Infected Organs

Lesions are observed in, and virus can be isolated from, gill tissue, fresh kidney, liver and spleen indicating that the infection is systemic.

1.2. Gross Observations and Macroscopic Lesions

- Pale/irregular coloration of the gills and skin
- Severe gill necrosis
- Superficial branchial and skin haemorrhages
- Occasionally sunken eyes and congestion of fins are observed

1.3. Microscopic Lesions and Tissue Abnormality

- By light microscopy, hyperplasia and fusion of secondary gill lamellae are observed. Intranuclear inclusions in the branchial epithelium may be observed. Necrosis of liver, spleen and kidney parenchymal cells can be observed.
- By electron microscopy, intranuclear inclusions containing herpes-like viral particles are observed. (N.B. In the cases in Taiwan (Tu et al., 2004) and Japan, the intranuclear inclusions were rarely found).

1.4. *OIE Status*

- Infection with KHV is not listed by the OIE

2. Social and Economic Significance

Cyprinus carpio is raised as a foodfish (common carp) in many countries and ornamental varieties (koi) are popular as pets with hobbyists and as exhibition fish. The value of individual ornamental koi can be as high as US$several thousand. Production of carp aquaculture worldwide is valued at US$several billion per annum.

3. Zoonotic Importance

To date, no zoonotic reports exist.

4. Diagnostic Methods

Different diagnostic procedures exist but, to date, an agreed standard diagnostic procedure has not been developed. Currently, several methods are in the process of being ring-tested among laboratories specialised in KHV diagnosis. Following this evaluation, it is anticipated that a recommended standard diagnostic procedure will be established.

4.1. Screening Methods

Detection of carriers is a major issue. For quarantine, participants at the International koi Herpesvirus Workshop, London, 12-13 Feb. 2004 (Anon., 2004a) recommended that rearing fish at 23-28^{O}C for a minimum of 2 weeks (3-4 weeks would be better) followed by PCR check for KHV can be useful for detection of carrier fish. The procedure should be performed at the time of both exporting and importing.

This principle is used for the testing of koi carp before exhibitions: Due to the highly contagious nature of the disease co-habitation can be used to determine whether very expensive koi carp are infected. Since koi carp are very expensive lethal sampling is not appropriate. Thus prior to importation of koi carp the koi are placed in quarantine tanks together with (cheaper) common carp that were demonstrated free of KHV. After 2 weeks at 23-28^{O}C, the common carp are sacrificed and tested for KHV. If these fish are free from the disease, then the more expensive koi are considered free as well.

4.1.1. Level I

There are no diagnostic signs exhibited by sub-clinical carriers.

4.1.2. Level II

Histopathological lesions in sub-clinical carriers are not detectable.

4.1.3. Level III

Virus isolation in cell culture does not appear to be reliable. Detection of carriers by PCR may be more reliable than virus isolation but is subject to well-established caveats.

4.2. Presumptive Methods

4.2.1. Level I

Disorientation, erratic swimming behaviour, mass mortality, discoloration and severe necrosis of the gills are indicative of infection with KHV.

4.2.2. Level II

By light microscopy, hyperplasia and fusion of secondary gill lamellae are observed. Intranuclear inclusions in the branchial epithelium may be observed. Necrosis of liver, spleen and kidney parenchymal cells can be observed.

4.2.3. Level III

By electron microscopy, intranuclear inclusions containing herpes-like viral particles are observed. (N.B. In the cases from Taiwan (Tu et al., 2004) and Japan, intranuclear inclusions were rarely found).

4.3. Confirmatory Methods

4.3.1. Level I

There are no pathognomonic signs of infection with KHV.

4.3.2. Level II

Differentiation from *Herpesvirus cyprini* (Carp herpesvirus 1 (CHV)) and other gill diseases responsible for gill necrosis such as *Flavobacterium columnare* infection is required.

4.3.3. Level III

4.3.3.1. Virus Isolation

For virus isolation, gill tissue, fresh kidney and spleen from acutely infected or moribund animals should be sampled. However, it should be noted that once gill tissue has been infected by KHV it becomes necrotic and very often develops secondary bacterial infections (for example, *Flavobacterium columnare* or *Aeromonas* spp.). Therefore it is more difficult to isolate virus from necrotic gill tissue and the cell culture medium becomes contaminated by bacteria even with the use of antibiotics. Therefore, it may be preferable to isolate this virus from internal organs and especially kidney. Virus isolation, using fresh tissues from moribund fish, can be achieved using KF-1 (or common carp brain (CCB)) cell cultures (Hedrick et al. 2000; Neukirch & Kunz, 2001). Virus isolation from frozen tissues can be unreliable. This method is not suitable for detection of carriers. Even using moribund or freshly dead fish, virus isolation can sometimes fail (because of low susceptibility of the cells).

4.3.3.2. Nucleic Acid Assay

Currently, any one of several available polymerase chain reaction (PCR) assays can be used (Gilad et al., 2002; Gray et al., 2002; Bercovier et al., 2004). For PCR, fresh or frozen gill tissue, kidney and spleen from moribund or freshly dead fish. In addition, histopathology in conjunction with *in situ* hybridization with specific probe is useful (Way et al., 2004).

4.3.3.3. Immunoassays

ELISA for detecting anti-KHV carp antibody is available for screening exposed fish (Ronen et al., 2003).

5. Control Methods

As with other viral infections, no treatment is possible. In addition, while research on a vaccine is on-going (Ronen et al., 2003), no commercial vaccine is, as yet, available.

For facilities that are affected or are suspected of being affected, the following control measures, where practical, are recommended:

- Restrictions on movements and transportation of fish
- Sanitary slaughtering of affected and suspected fish
- To eliminate contaminated pond water as a source of infection, treat water with chlorine prior to draining (OIE, 2003)
- Restriction of water movements onto and off farms
- For quarantine measures applied to movement of potential carriers see section 4.1.

- Due to the highly contagious nature of this disease, early detection is critical. Where practical, emergency harvest of food fish that remain fit for human consumption should be considered.

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Recent Related Publications

OIE Handbook on Import Risk Analysis for Animals and Animal Products: Vol. I Introduction and qualitative risk analysis, 2004; Vol. II Quantitative risk analysis, 2004.
Volume I of this handbook introduces the concepts of import risk analysis and discusses qualitative risk analysis while Volume II addresses quantitative risk analysis. The key issues in the discipline are explained within the frameworks provided by the World Trade Organization Agreement on the Application of Sanitary and Phytosanitary Measures and the chapters in both *Codes* on risk analysis. The handbook will provide practical guidance to Veterinary Services confronted with the need to analyse the risks posed by imports, to ensure that stakeholders, risk analysts and decision-makers can be confident that the disease risks posed have been identified and can be managed effectively. The handbook will also be useful as a training aid to address the critical need for capacity building in this discipline.

OIE Aquatic Animal Health Code, 7th Edition, 2004
The aim of the aquatic animal health code is to assure the sanitary safety of international trade in aquatic animals and their products. This is achieved through the detailing of health measures to be used by the competent authorities of importing and exporting countries to avoid the transfer of agents pathogenic for animals or humans, while avoiding unjustified sanitary barriers. The health measures in the aquatic animal health code (in the form of standards, guidelines and recommendations) have been formally adopted by the OIE international committee, the general assembly of all delegates of OIE Member Countries. The Aquatic Animal Health Code is available on http://www.oie.int/eng/normes/fcode/A_00003.htm. The book may be ordered from pub.sales@oie.int

Surveillance and Zoning for Aquatic Animal Diseases.
Subasinghe, R.P., McGladdery, S.E. and Hill, B.J. (eds.). FAO Fisheries Technical Paper. No. 451. Rome, FAO. 2004. 73p. This document contains the recommendations and conclusions of an Expert Consultation on Surveillance and Zoning for Aquatic Animal Diseases' jointly organized by FAO, the Federal Department of Fisheries and Oceans Canada (DFO-Canada) and OIE held in October 2002 at the FAO Headquarters in Rome, Italy. The objective of the consultation was to determine what surveillance options can best support scientifically valid zonation frameworks. Contact: Rohana.Subasinghe@fao.org

The introduction of *Penaeus vannamei* and *P. stylirostris* into the Asia-Pacific Region.
Briggs M., S. Funge-Smith, R. Subasinghe and M. Phillips. 2004. Food and Agriculture Organization of the United Nations, Regional Office for Asia and the Pacific, Bangkok. RAP Publication 2004/10.99p.

This report has attempted to gather all of the currently available data on the extent of P. vannamei and P. stylirostris importation and culture in Asia, its potential problems and benefits, and in this way serve as a source document from which to investigate further the means by which control over this issue might be re-established. Recommendations aimed at controlling the importation, testing and culture of these species have been made for all levels and are included in this report.

Capacity and Awareness Building on Import Risk Analysis for Aquatic Animals.
J.R.Arthur and M.G. Bondad-Reantaso. (eds.). Proceedings of the workshop held 1-6 April 2002 in Bangkok, Thailand and 12-17 August 2002 in Mazatlan, Mexico. APEC FWG 01/2002, NACA, Bangkok. 203p. The proceedings contains 26 technical presentations, divided into 4 parts: (a) Background for risk analysis, (b) the risk analysis process, (c) Risk analysis and the World Trade Organization: Country experiences and (d) National strategies for aquatic animal health. Available for download from www.enaca.org

Manual on risk analysis for the safe movement of aquatic animals (FWG/01/2002)
Arthur, J.R., M.G.Bondad-Reantaso, F.C.Baldock, C.J.Rodgers and B.F.Edgerton. 2004. APEC/DoF/NACA/FAO, 59p. This manual provides a simplified overview of the risk analysis process to assist responsible individuals in developing countries to begin formulating national policies and approaches to conducting risk analyses. Available for download from www.enaca.org

Fourth Edition of Manual of Diagnostic Tests for Aquatic Animals, 2003
OIE has published the Fourth Edition of Manual of Diagnostic Tests for Aquatic Animals in August 2003. The aim of the manual is to provide a uniform approach to the diagnosis of the diseases listed in the OIE Aquatic Animal Health Code, so that the requirements for health certification in connection with trade in aquatic animals and aquatic animal products, can be met. The fourth edition includes two new chapters, one on the requirements for surveillance for international recognition of freedom from infection, and one on validation and quality control of PCR methods used for diagnosis of infectious diseases. The Manual of Diagnostic Tests for Aquatic Animals is available on www.oie.int. The book may be ordered from pub.sales@oie.int

Biosecurity Australia 2003, Import Risk Analysis Handbook
This handbook sets out the process that Biosecurity Australia follows to undertake an import risk analysis. Electronic copies are available on www.affa.gov.au/BiosecurityAustralia

Shrimp Health Management Extension Manual. 2003
This extension manual summarizes farm level risk factors and practical management practices that can be used to reduce risks of shrimp disease outbreaks and improve farm production. The recommendations are based on a study conducted by NACA in Andhra Pradesh, India. The publication is of particular relevance to Andhra Pradesh, but many recommendations are still of use to farmers from other areas. Available for download at: http://www.enaca.org/Shrimp/manual/ShrimpHealthManual.pdf

Aquaplan – a five year review 2002
This publication provides a comprehensive review of progress towards the implementation of AQUAPLAN (Australia's National Strategic Plan for Aquatic Animal Health 1998-2003) programs and projects. It can be downloaded from www.affa.gov.au

Primary Aquatic Animal Health Care in Rural, Small-scale, Aquaculture Development, 2002
Arthur, J.R.; Phillips, M.J.; Subasinghe, R.P.; Reantaso, M.B.; MacRae, I.H. (eds.) FAO Fisheries Technical Paper.No.406 .The Technical Proceedings of the Asia Regional Scoping Workshop on "Primary Aquatic Animal Health Care in Rural, Small-scale, Aquaculture Development," held in Dhaka, Bangladesh on 27-30 September 1999. The Proceedings give useful information on socio-economic impacts, risks of disease incursions and health management strategies in rural, small-scale aquaculture and enhanced fisheries programs; and identifies potential interventions for their better health management and appropriate follow-up actions. A copy could be downloaded from http://www.enaca.org/Health/Publications.htm. Copies could also be obtained from FAO through writing to rohana.subasinghe@fao.org

Survey Toolbox for Aquatic Animal Diseases: A Practical Manual. 2002
This book written by Cameron, Angus is designed for people working in the aquatic animal diseases and production. The tools presented in the book will be valuable for anybody who needs to collect reliable information about aquatic diseases or production. The structure of the book allows it to be used on three different levels. Planners, Trainers and Field Operational Staff. The prevention, control, and eradication of aquatic animal diseases depend on a good understanding of the disease and its distribution. ACIAR Monograph MN94. Also available at: http://www.aciar.gov.au/web.nsf/doc/JFRN-5J46ZY

Diseases in Asian Aquaculture IV. 2002
Triennial scientific publication of the Fish Health Section, Asian Fisheries Society. The proceedings contains 43 peer reviewed original research and review papers dealing with the diseases and health management of aquatic animals, with emphasis on the Asia-Pacific Region, presented during the Fourth Symposium on Diseases in Asian Aquaculture (DAA IV), Cebu,, Philippines, November 1999. C.R. Lavilla-Torres and E. Lacierda-Cruz (eds). Further details at: http://afs-fhs.seafdec.org.ph/daa4pub.html

Risk Analysis in Aquatic Animal Health, 2001
A publication from the OIE , edited by C.J.Rodgers, gives a very good account on the need for risk analysis, risk analysis methodology, areas of application to aquatic animal health and many case histories. A very good reference book for people interested in knowing more about risk analysis or interested in performing risk analysis (www.oie.int)

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List of Diseases in the Asia-Pacific
Quarterly Aquatic Animal Disease Reports (Beginning 2004)

DISEASES PREVALENT IN THE REGION
FINFISH DISEASES
OIE-listed diseases
1. Epizootic haematopoietic necrosis
2. Infectious haematopoietic necrosis
3. *Oncorhynchus masou* virus disease
4. Spring viraemia of carp
5. Viral haemorrhagic septicaemia
6. Viral encephalopathy and retinopathy
7. Infectious pancreatic necrosis
8. Epizootic ulcerative syndrome (EUS)
9. Bacterial kidney disease
10. Red seabream iridoviral disease
11. Enteric septicaemia of catfish
Non OIE-listed diseases relevant to the region
12. Epitheliocystis
13. Grouper iridoviral disease
14. Infection with koi herpesvirus
MOLLUSC DISEASES
OIE-listed diseases
1. Infection with *Bonamia exitiosa*
2. Infection with *Mikrocytos roughleyi*
3. Infection with *Haplosporidium nelsoni*
4. Infection with *Marteilia sydneyi*
5. Infection with *Perkinsus olseni/atlanticus* [b/])
Non OIE-listed diseases relevant to the region
6. Infection with *Marteilioides chungmuensis*
CRUSTACEAN DISEASES
OIE-listed diseases
1. Taura syndrome
2. White spot disease
3. Yellowhead disease (YH virus, gill-associated virus)
4. Spherical baculovirosis (*Penaeus monodon*-type baculovirus)
5. Infectious hypodermal and haematopoietic necrosis
6. Spawner-isolated mortality virus disease
7. Tetrahedral baculovirosis (*Baculovirus penaei*)
8. Necrotising hepatopancreatitis
Non OIE-listed diseases relevant to the region
9. Baculoviral midgut gland necrosis
UNKNOWN DISEASES OF A SERIOUS NATURE
1. Koi mass mortality
2. Akoya oyster disease
3. Abalone viral mortality

New Instructions on how to fill in the QUARTERLY AQUATIC ANIMAL DISEASE REPORT

(Revised during the Provisional Meeting of the AG[5], Bangkok, Thailand, November 7-9, 2001)

Symbols used in the report are similar to those used by FAO, OIE and WHO for the *Animal Health Yearbook*. Please read these instructions carefully before you fill in the forms.

Under the heading 'Country', please enter your country.

Under the heading 'Period', please enter the reporting quarter (months) and year, e.g. January to March 2002.

Under the heading "Month", please enter months of a quarter in question, e.g. January, February, March.

In "Level of Diagnosis", please enter the Level of Diagnosis used, e.g., I, II, or III. See Section C below.

In "Epidemiological Comment Numbers", please enter the serial numbers, and write your corresponding epidemiological comments on page 2. See Section D below for guidance on the subjects to be covered under Epidemiological Comments.

If an unknown disease of serious nature appears, please fill in the last line of the form, with additional information on "Level of Diagnosis" and "Epidemiological Comment Numbers" as above.

Please do not fail to enter "*******" or "**-**" as appropriate against each disease, which is essential to incorporate your information on the *Quarterly Aquatic Animal Disease Report (Asia and Pacific Region.)*

If you have new aquatic animal health regulations introduced within the past six months, please describe them under Section 2 on page 2.

Please use the following symbols to fill in the forms.

A. Symbols used for negative occurrence are as follows:

***	This symbol means that no information on a disease in question is available due to reasons such as lack of surveillance systems or expertise.
-	This symbol is used when a disease is not reported during a reporting period. However the disease is known to be present in the country (date of last outbreak is not always known).
0000	This symbol is used when disease surveillance is in place and a disease has never been reported.
(year)	Year of last occurrence (a disease has been absent since then).

B. Symbols used for positive occurrence are shown below.

+	This symbol means that the disease in question is reported or known to be present.
+?	This symbol is used when the presence of a disease is suspected but there is no recognised occurrence of clinical signs of the disease in the country. Serological evidence and isolation of the causal agent may indicate the presence of the disease, but no confirmed report is available. **It is important that the species of animals to which it applies is indicated in the "Comments" on page 2 of the form if you use this symbol**.
+( )	These symbols mean that a disease is present in a very limited zone or zones as exceptional cases. It may also include the occurrence of a disease in a quarantine area.
?	This symbol is used only when a disease is suspected by the reporting officer, but the presence of the disease has not been confirmed.

[5] Regional Advisory Group on Aquatic Animal Health (AG)

C. Levels of Diagnosis

LEVEL	SITE	ACTIVITY
I	Field	Observation of animal and the environment Clinical examination
II	Laboratory	Parasitology Bacteriology Mycology Histopathology
III	Laboratory	Virology Electron microscopy Molecular biology Immunology

D. Subjects to be covered in the Epidemiological Comments

1. Origin of the disease or pathogen (history of the disease);
2. Mortality rate (high/low or decreasing/increasing);
3. Size of infected areas or names of infected areas;
4. Death toll (economic loss, etc.);
5. Preventive/control measures taken;
6. Disease characteristics (unusual clinical signs or lesions);
7. Pathogen (isolated/sero-typed);
8. Unknown diseases (describe details as much as possible);
9. Samples sent to national or international laboratories for confirmation (indicate the names of laboratories); and
10. Published paper (articles in journals)/web site, etc.

IMPORTANT

Please send the **original report** or the best photocopy thereof to the OIE and/or NACA **by fax** and **registered airmail**. Faxed reports are needed to check whether or not the reports are all right. The deadline for submission of the reports is **two and a half months (75 days)** after the end of the quarterly period.

If you require further explanation, please write to the OIE (Tokyo), NACA (Bangkok) or FAO (Rome) at the following addresses, respectively:

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Notes

Published by the Network of Aquaculture Centres in Asia-Pacific and the Food and Agriculture Organization of the United Nations. For inquiries regarding editorial or technical content, please write to NACA, P.O. Box 1040, Kasetsart P.O. , Bangkok 10903, Thailand; Tel. (662) 561- 1728 to 9; Fax: (662) 561-1727; e-mail: **naca@enaca.org or mohan@enaca.org.**
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ISSN 1513-6558

Printed by Craftsman Press, Bangkok