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QUARTERLY AQUATIC ANIMAL DISEASE REPORT (Asia and Pacific Region)

January-March 2005

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Contents

Foreword

Regional expertise to help manage
regional aquatic animal health problems

It is well known that Asia-Pacific region leads the world in aquaculture production but at the same time tops the list for economic losses suffered due to disease outbreaks. Diseases like epizootic ulcerative syndrome, infection with koi herpes virus and white spot disease continue to cause untold miseries to the livelihoods of several thousands of small scale farmers in many countries of the region. Infection with koi herpes virus, since its listing in the regional QAAD reporting system, has been reported from five countries and there is concern that it may be spreading. Recent reporting of taura syndrome virus – an exotic pathogen, adds a new dimension to the whole problem. As of now, five countries culturing *Penaeus vannamei* have officially reported TS outbreaks. Viral pathogens, especially RNA viruses like TSV, change genetically very rapidly, which could conceivably lead to changes in virulence, not only to *P. vannamei* but also to local crustacean species. All this is very worrying.

Increased occurrence of endemic diseases and introduction of exotic pathogens, is not necessarily a reflection of the regions' lack of technical expertise or lack of national and regional agreements/guidelines. Health management is a very broad concept. Understanding and managing the host, pathogen and the environment form the basis. However, it is not simple and straightforward. Implementation of "responsible health management" at all levels is a shared responsibility. Implementation is a slow process and therefore continuous efforts will be required to hasten the process. One way to support implementation would be to effectively use the vast pool of technical expertise that is available in the region. In this direction, NACA has embarked on a new regional initiative – *creating a three tier regional resource base* - to utilize the technical resources available in the region for the benefit of its member countries.

The first resource level of **Regional Resource Experts** (RRE) will contribute their expertise through (a) answering technical questions related to their field of expertise (b) assisting in development of disease cards, diagnostic manuals and supporting documents; and (c) providing diagnostic assistance as far as possible during disease emergencies.

The second resource level of **Regional Resource Centres** (RRC) will support the initiative through (a) provision of scientific and technical training for personnel from the region (b) provision of diagnostic testing facilities to countries who are members of the regional aquatic animal health initiative and their personnel (c) organisation of scientific meetings, training courses and retraining workshops on behalf of NACA and (d) publication and dissemination of any information in their sphere of competence which may be useful to countries in the region.

The third resource level of **Regional Reference Laboratories** (RRL) for diseases of regional concern, not listed by the OIE, would (a) function as centres of expertise and standardisation for designated diseases (b) store and distribute biological reference products and any other reagents used in the diagnosis and control of the designated diseases (c) develop new procedures for diagnosis and control of the designated diseases and (d) gather, process, analyse and disseminate epidemiological data relevant to their speciality.

Good progress has already been made and the current list of RREs and RRCs supporting this initiative can be found at www.enaca.org. The benefits are already being seen in the region. RREs from different countries are involved in jointly developing disease cards, participating in expert consultations, etc – a good example of pooling expertise from different countries for a regional cause. RRCs are assisting fellow scientists from member countries in analyzing disease samples, providing diagnostic kits and reagents. Very recently, the AAHL Fish Diseases Laboratory (AFDL), CSIRO Livestock Industries, Geelong, Australia has been recognised as a NACA Regional Reference Laboratory for Koi herpes virus infection.

The potential to utilize the regional resource is huge. Over the years the region has developed a great deal of expertise on aquatic animal health, to a level that now there is little need to look outside. Now, stakeholders in need of assistance should make sincere efforts (e.g. reporting disease outbreaks, initiating disease outbreak investigations, conducting epidemiological studies, etc.) and take the initiative to utilize the expertise available. NACA's objective is to support countries and the regional resource base represents yet another tool to provide services to the member countries in need of assistance

Reports Received by the NACA Secretariat

Country: Australia Period: January-March 2005

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	-(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	+	+	+	III	2
7. Infectious pancreatic necrosis	0000	0000	0000		
8. Epizootic ulcerative syndrome (EUS)	+	-(2005)	-(2005)	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	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*	-(2004)	-(2004)	-(2004)		5
3. Infection with *Haplosporidium nelsoni*	0000	0000	0000		
4. Infection with *Marteilia sydneyi*	+	+	+	III	6
5. Infection with *Perkinsus olseni/atlanticus* [b/])	+	+	+	II	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)	-(2004)	-(2004)	-(2004)		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		
Non OIE-listed diseases relevant to the region					
8. Necrotising hepatopancreatitis	0000	0000	0000		
9. Baculoviral midgut gland necrosis	0000	0000	0000		
10.White tail disease (MrNV and XSV)	***	***	***		
UNKNOWN DISEASES OF A SERIOUS NATURE					
1. Akoya oyster disease	0000	0000	0000		
2. 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:

+	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	Epizootic haematopoietic necrosis was not reported this period despite passive surveillance, but is known to have previously occurred in Victoria (last year reported 2004), New South Wales (last year reported 2003) 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** 1. **Reported in New South Wales** in January 2005. Targeted surveillance: 2. **In** approximately 20 day old, hatchery reared mulloway larvae (*Argyrosomus japonicus*); 3. **Clinical signs-** mass mortality; 4. **Pathogen-** Nodavirus; 5. **Mortality rate-** 80%; 6. **Economic loss-** AU$ 1000; 7. **Geographic extent-** 4 larval rearing tanks at Government hatchery; 8. **Containment measures-** Euthanasia and decontamination; 9. **Laboratory confirmation-** Diagnosed by PCR, but unable to confirm with histopathology; 10. **Publications-** Unpublished. 1. **Reported in Queensland** in February and March 2005. Passive surveillance: 2. **In**; a) 72 day old artificially bred orange-spot grouper or estuary cod (*Epinephelus coioides*) b) 42 day old barramundi (*Lates calcarifer*) c) 40 day old barramundi (*Lates calcarifer*) d) 75 day old barramundi cod (*Cromileptes altivelis*); 3. **Clinical signs-** a) darkening, lethargy, rapid opercular movements, lying on side at bottom of tank, abnormal swimming, disorientation, kyphosis b) clinically normally c) signs of Columnaris disease d) lethargy, laying on side, abnormal swimming, emaciation; 4. **Pathogen-** betanodavirus; 5. **Mortality rate-** a. 95%; b. nil; c. 20% d. >90% 6. **Economic loss** a. **n/a** b. **n/a** c. ~$1000 d. Unknown

	7. **Geographic extent** a. one tank b. one batch of fry c. one batch of fry d. one tank; 8. **Containment measures** a. all surviving fish euthanased and tank etc disinfected; b. not required, occurrence in endemic area; c. not required, occurrence in endemic area; d. not required, occurrence in endemic area; 9. **Laboratory confirmation** a. Histopathology, imunohistochemistry and nested RT-PCR; b. Histopathology and imunohistochemistry; c. Histopathology; d. Histopathology; 10. **Publications-** Unpublished. Not reported this period despite targeted surveillance from South Australia (last year reported 2004). Not reported this period despite active surveillance from Northern Territory (last year reported 2004) and Tasmania (last year reported 2000). Not reported this period despite passive surveillance from Western Australia (last year reported 2004). Never reported from Victoria despite passive surveillance. No information available in the Australian Capital Territory.
3	**Epizootic ulcerative syndrome** 1. **Reported in New South Wales** in January 2005. Passive surveillance: 2. **In** approximately 4-5 month old farmed eastern freshwater cod (*Maccullochella ikei*); 3. **Clinical signs-** clinical signs consistent with infection with *Aphanomyces invadans ;* 4. **Pathogen-** *Aphanomyces invadans*; 5. **Mortality rate-** approximately 25%; 6. **Economic loss-** estimated AU$2500; 7. **Geographic extent-** 12 tanks on a single commercial hatchery; 8. **Containment measures-** Outbreak controlled with formalin and salt baths. Zero water discharge; 9. **Laboratory confirmation-** Diagnosis made by clinical signs and confirmed by pathognomonic histopathology (florid granulomatous inflammation associated with the skin lesions); 10. **Publications-** Unpublished. Not reported during this period despite passive surveillance, but is known to have occurred in Queensland, Northern Territory and Western Australia (last year reported 2004) and Victoria (last year reported 2002). 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, Queensland, Northern Territory, South Australia and Victoria despite passive surveillance. No information available in the Australian Capital Territory and Western Australia
5	*Mikrocytos roughleyi:* Not reported during this period despite passive surveillance, but known to have previously occurred in New South Wales (last year reported 2004) 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 Australian Capital Territory (no marine water responsibility).
6	***Marteilia sydneyi:*** **Reported in New South Wales** in January, February and March 2005. Targeted surveillance: 1. **In** approximately 1-4 year old Sydney rock oysters (*Saccostrea glomerata*); 2. **Clinical signs-** mass mortality on affected leases*;* 3. **Pathogen-** *Marteilia sydneyi* 4. **Mortality rate-** up to 100% on affected leases; 5. **Economic loss-** estimated AU$3.2 million; 6. **Geographic extent-** Hawkesbury River 7. **Containment measures-** Movement restrictions for entire Hawkesbury River system; 8. **Laboratory confirmation-** Diagnosis made by PCR and hemacolour stained imprint; 9. **Publications-** Unpublished. Not reported this period despite passive surveillance, but known to have previously occurred, in Queensland (last year reported 2004) and Western Australia (last year reported 1994). 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/atlanticus*** **Reported in New South Wales** in January, February and March 2005. Targeted surveillance: 1. **In-** approximately 2-3 year old wild (but not cultured) black lip abalone (*Haliotis rubra)*; 2. **Clinical signs-** no unusual signs reported*;* 3. **Pathogen-** *Perkinsus olseni*; 4. **Mortality rate-** low prevalence (10-20%); 5. **Economic loss-** estimated AU$3 million annually; 6. **Geographic extent-** Port Stephens to Jervis Bay; 7. **Containment measures-** none-wild stock; 8. **Laboratory confirmation-** Diagnosis made by Rays thioglycollate media and histopathology; 9. **Publications-** Unpublished. **Reported in South Australia** in January, February and March 2005. Targeted surveillance: 1. **In** wild (but not cultured) commercial sized black lip abalone (*Haliotis rubra)* and green lip abalone (*H. laevigata)*. 2. **Clinical signs-** Pustules on epipodium (normal clinical signs of Perkinsosis in abalone); 3. **Pathogen-** *Perkinsus olseni*; 4. **Mortality rate-** no mortalities observed, some morbidity associated with infection (total effect unknown). Infections are ongoing; 5. **Economic loss-** unknown; 6. **Geographic extent-** known from lower Eyre Peninsula. Effect in other areas of the state and total extent of infection unknown; 7. **Containment measures-** none. Open system with no geographic features to indicate that zoning would be successful; 8. **Laboratory confirmation-** Diagnosed by histology and RFTM. Molecular studies ongoing; 9. **Publications-** Unpublished. 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). 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 the Australian Capital Territory (no marine water responsibility) and Tasmania (susceptible species not present). **Gill-associated virus** 1. **Reported in Northern Territory** in January, February and March 2005. Active surveillance: 2. **In** *Penaeus monodon* (wild sourced broodstock in captivity); 3. **Clinical signs-** nil; 4. **Pathogen-** gill-associated virus; 5. **Mortality rate-** nil; 6. **Economic loss-** not reported; 7. **Geographic extent-** marine waters; 8. **Containment measures-** not applicable; 9. **Laboratory confirmation-** PCR; 10. **Publications-** nil. 1. **Reported in Western Australia** in March 2005. Active surveillance: 2. **In** post larvae *Penaeus monodon* (submitted for pre translocation screening) and broodstock from Joseph Bonaparte Gulf; 3. **Clinical signs-** nil; 4. **Pathogen-** gill-associated virus; 5. **Mortality rate-** nil;` 6. **Economic loss-** not reported; 7. **Geographic extent-** marine waters; 8. **Containment measures-**permits to collect broodstock from Joseph Bonaparte Gulf suspended; 9. **Laboratory confirmation-** diagnosed by 2 step PCR; 10. **Publications-** Unpublished 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. Passive surveillance and never reported in South

	Australia and Victoria. No information available in Australian Capital Territory (no marine water responsibility) and Tasmania (susceptible species not present).
9	Spherical baculovirosis: Not reported this period despite passive surveillance, but known to have occurred previously in Queensland (last reported in September 2004), 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 virus was not reported this period. This virus is known to have previously occurred in Northern Territory (last year reported 2003) and in Queensland (last reported 1st quarter 2004). No disease has been associated with the virus. The Australian virus is considered to be closest to the avirulent Madagascar strain. 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) and 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):

Importation of freshwater ornamental finfish: policy review of risks associated with iridoviruses

A number of species of freshwater fish are permitted live importation into Australia for use as ornamental fish. These imports are controlled through the *Environmental Protection and Biodiversity Conservation Act 1999* (administered by the Australian Government Department of Environment and Heritage); and the Quarantine Proclamation 1998 and the quarantine conditions established by the 1999 import risk analysis (IRA) of ornamental finfish (Animal Quarantine Policy Memorandum 1999/77). The quarantine conditions on such imports currently include specific risk management measures to address the biosecurity risk posed by iridoviruses, including gourami iridovirus (GIV).

Recently reported research suggests that Murray cod (*Maccullochella peelii peelii*), a native Australian fish, is experimentally susceptible to GIV, and, that GIV may remain as a sub-clinical infection in some species of ornamental fish for a longer period of time than previously expected and might therefore not be detected during quarantine. Biosecurity Australia has since commenced a biosecurity policy review on the importation of live freshwater ornamental finfish with respect to iridoviruses. For further information on this review, see the Biosecurity Australia web page.[1]

[1] www.daff.gov.au/animalbiosecurity

Country: Cambodia Period: January-March 2005

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	***	***	***		
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)	-	-	-	II	
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	+()	+()	+()	I	
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*)	***	***	***		
Non OIE-listed diseases relevant to the region					
8. Necrotising hepatopancreatitis	***	***	***		
9. Baculoviral midgut gland necrosis	***	***	***		
10.White tail disease (MrNV and XSV)	***	***	***		
UNKNOWN DISEASES OF A SERIOUS NATURE					
1. Akoya oyster disease	***	***	***		
2. 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: Hong Kong China Period: January-March 2005

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	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		
8. Epizootic ulcerative syndrome (EUS)	0000	0000	0000		
9. Bacterial kidney disease	0000	0000	0000		
10. Red seabream iridoviral disease	-	+?	-	III	2.
11. Enteric septicaemia of catfish	0000	0000	0000	III	
Non OIE-listed diseases relevant to the region					
12. Epitheliocystis	(2002)			II	
13. Grouper iridoviral disease	-	-	-	III	
14. Infection with koi herpesvirus	-	-	-	III	
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	-	-	-	III	
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	
Non OIE-listed diseases relevant to the region					
8. Necrotising hepatopancreatitis	0000	0000	0000	II	
9. Baculoviral midgut gland necrosis	0000	0000	0000	II	
10.White tail disease (MrNV and XSV)	0000	0000	0000	II	
UNKNOWN DISEASES OF A SERIOUS NATURE					
1. Akoya oyster disease	0000	0000	0000		
2. Abalone viral mortality	0000	0000	0000		
ANY OTHER DISEASES OF IMPORTANCE					
1.					
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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*)

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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	One disease case caused by Nervous Necrosis Virus was identified by virus isolation and PCR during the three month period. Histological lesions were confirmed by immunoperoxidase in affected fish. The species involved was green grouper.
2	There was one case of fish positive for RSIV by PCR, but no histological evidence of disease. The green grouper co-infected with NNV described above were the fish involved.

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

Koi carp held at premises certified for export of ornamental fish are now being routinely tested for Koi Herpesvirus by PCR and histology as from January 1st, 2005. This follows the first case of KHV disease reported in Hong Kong in December 2004.

Country: India Period: January-March 2005

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	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	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	+()	+()	+()	I	1
3. Yellowhead disease (YH virus, gill-associated virus)	?	?	?	I	2
4. Spherical baculovirosis (*Penaeus monodon*-type baculovirus)	0000	0000	0000		
5. Infectious hypodermal and haematopoietic necrosis	***	***	***		
6. Spawner-isolated mortality virus disease	0000	0000	0000		
7. Tetrahedral baculovirosis (*Baculovirus penaei*)	0000	0000	0000		
Non OIE-listed diseases relevant to the region					
8. Necrotising hepatopancreatitis	0000	0000	0000		
9. Baculoviral midgut gland necrosis	0000	0000	0000		
10.White tail disease (MrNV and XSV)	***	***	***		
UNKNOWN DISEASES OF A SERIOUS NATURE					
1. Akoya oyster disease	0000	0000	0000		
2. 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:

+	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
?	Suspected by reporting officer but presence not confirmed	-	Not reported (but disease is known to occur)
		(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 only from Prakasam District of Andhra Pradesh and from very limited areas in Gujarat state during January-February, 2005
2	Suspected only from Prakasam District of Andhra Pradesh during February-March, 2005

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

Country: Indonesia Period: January-March 2005

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	***	***	***		
2. Infectious haematopoietic necrosis	***	***	***		
3. *Oncorhynchus masou* virus disease	***	***	***		
4. Spring viraemia of carp	***	***	***		
5. Viral haemorrhagic septicaemia	***	***	***		
6. Viral encephalopathy and retinopathy	+	+	+	III	1
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	+	+	+	III	2
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	3
2. White spot disease	***	+	+	III	4
3. Yellowhead disease (YH virus, gill-associated virus)	***	***	***		
4. Spherical baculovirosis (*Penaeus monodon*-type baculovirus)					
5. Infectious hypodermal and haematopoietic necrosis	+	+	+	III	5
6. Spawner-isolated mortality virus disease					
7. Tetrahedral baculovirosis (*Baculovirus penaei*)					
Non OIE-listed diseases relevant to the region					
8. Necrotising hepatopancreatitis	***	***	***		
9. Baculoviral midgut gland necrosis	***	***	***		
10.White tail disease (MrNV and XSV)	***	***	***		
UNKNOWN DISEASES OF A SERIOUS NATURE					
1. Akoya oyster disease	***	***	***		
2. Abalone viral mortality	***	***	***		
ANY OTHER DISEASES OF IMPORTANCE					
1. Infection with *Streptococcus*	+	+	+	II	
2. Infection with *Aeromonas* sp	+	+	+	II	
3. Infection with *Edwardsiella* sp.	+	+	+	II	
4. Infection with *Mycobacterium*	+	+	+	II	
5. Infection with *Flavobacterium*	+	+	+	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.)

Comment No.	
1	The VNN disease occurred in humback grouper (*Cromileptes altivelis*) and tiger grouper (*Ephinephelus fuscoguttatus*) reared in hatchery and net cage at Situbondo, East Java Province.
2	**Species affected**: *Cyprinus carpio* **Clinical signs**: Gill rot and erosion and ulcers on skin **Mortality rate**: 90 – 100% **Death Toll**: According to Fisheries Province agency the economic losess in West Java is approximately Rp. 4.727.000 (+ 498 USD) **Infected area** : South Kalimantan, Central Kalimantan, Jambi, Bengkulu, West Sumatera, North Sumatera, South Sumatera **Control measures**: Control measures taken include chemical treatments and water quality improvements. Use of alternate species for culture was suggested for some time
3	**Origin of the disease:** The sample came from farmers who had purchased seed produced from supposedly SPF stock from hatchery in Lampung (free from TSV virus) ; after 15 days in the pond, shrimp got infected with TSV **Species affected**: Infection occurred in *L. vannamei* especially at larval stage (jouvenile and post larvae) **Infected area**: Eat Java, West Nusa Tenggara **Diagnosis**: Diagnosis carried out in Brakishwater Aquaculture Developmenr Center Situbondo
4	**Species affected**: Infection occurred in *P. monodon*. Detection of virus by PCR method **Mortality rate** : > 75 % **Death Toll**: In West Java, estimated economic losses approximately Rp. 441.500.000 (USD46.000), and in the Central Java economic losses attain approximately Rp. 141. 750.000 (USD15.000) (reported by Province Fisheries Agency). **Infected area** : East Java, West Java, Central Java and Bali
5	**Species affected**: Infection occurred in *L. vannamei* especially at larva stage (nauplii, jouvenile and post larvae). Detection of virus by PCR method

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

Country: Iran Period: January-March 2005

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	+	+	+	I	1
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	+	+	+	II	2
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	***	***	***		
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	-	-	-		
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	***	***	***		
7. Tetrahedral baculovirosis (*Baculovirus penaei*)	0000	0000	0000		
Non OIE-listed diseases relevant to the region					
8. Necrotising hepatopancreatitis	0000	0000	0000		
9. Baculoviral midgut gland necrosis	***	***	***		
10.White tail disease (MrNV and XSV)	***	***	***		
UNKNOWN DISEASES OF A SERIOUS NATURE					
1. Akoya oyster disease	***	***	***		
2. 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	By implementation active survilance system, IHN has been recognized in 16 farms of 9 provinces, with mortality and clinical signs, the provinces in clude [Tabriz (East. Azarbayejan)- Allamot (Ghazvin)- Meshkinshahr, Sarein (Ardebil)- Sepidan (Fars)- Sanandaj (Kordestan)- Azna, Doroud (Lorestan)- Kelardasht (Mazandaran)- Kahak (Qom)- All of the samples was confirmed by PCR in national laboratory
2	IPN has been recognized in 14 farms of 8 provinces include [Yasouj, Sisakht (Kohkilyeh)- Allamot (Ghazvin)- Sepidan (Fars)-Sanandaj (Kordestan)- Aligodarz (Lorestan)-Kelardasht, Haraz (Mazandaran)-Ortcand (Khorasan)- Samirom (Esfahan)- the samples was confirmed by PCR in national laboratory. Also implemented active survilance during this period.

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

Country: Japan Period: January-March 2005

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	+	+	+	III	
3. *Oncorhynchus masou* virus disease	+	-	-	III	
4. Spring viraemia of carp	0000	0000	0000		
5. Viral haemorrhagic septicaemia	-	+	+	III	
6. Viral encephalopathy and retinopathy	+	-	-	III	
7. Infectious pancreatic necrosis	+	+	+	III	
8. Epizootic ulcerative syndrome (EUS)	-	-	-	I	
9. Bacterial kidney disease	-	+	-	III	
10. Red seabream iridoviral disease	-	-	-	I	
11. Enteric septicaemia of catfish	0000	0000	0000		
Non OIE-listed diseases relevant to the region					
12. Epitheliocystis	+	+	-	II	
13. Grouper iridoviral disease	0000	0000	0000		
14. Infection with koi herpesvirus	+	+	+	III	
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*					1
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*	+	+	-	III	
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Taura syndrome	0000	0000	0000		
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		
Non OIE-listed diseases relevant to the region					
8. Necrotising hepatopancreatitis	0000	0000	0000		
9. Baculoviral midgut gland necrosis	0000	0000	0000		
10.White tail disease (MrNV and XSV)	0000	0000	0000		
UNKNOWN DISEASES OF A SERIOUS NATURE					
1. Akoya oyster disease	-	-	+	II	
2. 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	*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: Malaysia Period: January-March 2005

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)	(1987)	(1987)	(1987)		
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	?	?	?		
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	+	+	+	III	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*)	-	-	-		
Non OIE-listed diseases relevant to the region					
8. Necrotising hepatopancreatitis	0000	0000	0000		
9. Baculoviral midgut gland necrosis	-	-	-		
10.White tail disease (MrNV and XSV)	-	-	-		
UNKNOWN DISEASES OF A SERIOUS NATURE					
1. Akoya oyster disease	***	***	***		
2. 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	Twelve cases in January, two in February & one in March 05 were detected by PCR. The infected spawners were originated from Trengganu, but sold to Penang farmers for breeding. The problem is addressed immediately after testing.

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

Country: Myanmar Period: January-March 2005

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	***	***	***		
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	+()	+()	(+)	III	1
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	+()	+()	+()	III	3
6. Spawner-isolated mortality virus disease	***	***	***		
7. Tetrahedral baculovirosis (*Baculovirus penaei*)	***	***	***		
Non OIE-listed diseases relevant to the region					
8. Necrotising hepatopancreatitis	***	***	***		
9. Baculoviral midgut gland necrosis	***	***	***		
10.White tail disease (MrNV and XSV)	***	***	***		
UNKNOWN DISEASES OF A SERIOUS NATURE					
1. Akoya oyster disease	***	***	***		
2. 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 96 shrimp samples (PL1) of *Penaeus monodon* have been tested at PCR lab of DOF by using IQ 2000 Kit Multi Vir System. 32 samples (or 22.92%) were recorded as TSV positive. TSV was apparently found within three months after occurrence of Tsunami
2	A total of 96 shrimp samples (PL1) of *Penaeus monodon* have been tested at PCR lab of DOF. 42 samples (or 43.75%) were recorded as WSSV positive
3	A total of 96 shrimp samples (PL1) of *Penaeus monodon* have been tested at PCR lab of DOF. 21 samples (or 21.88%) were recorded as IHHNV positive

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

Country: Nepal Period: January-March 2005

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	***	***	***		
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*)	***	***	***		
Non OIE-listed diseases relevant to the region					
8. Necrotising hepatopancreatitis	***	***	***		
9. Baculoviral midgut gland necrosis	***	***	***		
10.White tail disease (MrNV and XSV)	***	***	***		
UNKNOWN DISEASES OF A SERIOUS NATURE					
1. Akoya oyster disease	***	***	***		
2. 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 ulcerative syndrome (EUS) was reported from Kapilbastu district. The affected species reported were Rohu (*Labeo rohita*), Naini (*Cirrhinus mrigala*), puntius (*Puntius* sp) and snakehead (*Ophiocepahlus* sp). The economic loss has been reported to be not significant. Lime application @500kg/ha had been reported to be effective to control EUS. Amongst affected species, rohu of over 350g size reported to had shown quick recovery signs within 10 days of lime treatment; during recovery reddish brown colored lesions in the fish had slowly changed into blackish color around the periphery of lesions.

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

Country: Pakistan Period: January-March 2005

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	***	***	***		
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*)	***	***	***		
Non OIE-listed diseases relevant to the region					
8. Necrotising hepatopancreatitis	***	***	***		
9. Baculoviral midgut gland necrosis	***	***	***		
10.White tail disease (MrNV and XSV)	***	***	***		
UNKNOWN DISEASES OF A SERIOUS NATURE					
1. Akoya oyster disease	***	***	***		
2. Abalone viral mortality	***	***	***		
ANY OTHER DISEASES OF IMPORTANCE					
1.Abdominal Dropsy	+	+	-	I	1
2.Lernaeasis	+	-	-	II	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 abdominal dropsy (bacterial hemorrhagic septicaemia) were reported from private fish farms (Total infected area 32 acres). Oxytetracycline was suggested for the treatment of disease fish @60mg/kg fish body weight for 5-7 days.
2	Six cases of lernaeosis were reported from private fish farms (infected area 7.5 acres). Dipterax @0.2ppm was suggested to be used in infected ponds.

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

Country: Philippines Period: January-March 2005

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	+	-	-	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	+?	+?	+?	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	0000	0000	0000		
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	***	***	***		4
7. Tetrahedral baculovirosis (*Baculovirus penaei*)	***	***	***		
Non OIE-listed diseases relevant to the region					
8. Necrotising hepatopancreatitis	***	***	***		
9. Baculoviral midgut gland necrosis	***	***	***		
10.White tail disease (MrNV and XSV)	***	***	***		
UNKNOWN DISEASES OF A SERIOUS NATURE					
1. Akoya oyster disease	0000	0000	0000		
2. 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:

+	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	*Epinephelus sp*., (256 g) from Iloilo, showed positive results for VER by Nested-Step PCR. Examination conducted by SEAFDEC-AQD, Fish Health Lab.
2	-During this period there were 28 koi samples at different stages (10 breeders, , 8 juveniles, 14 fingerlings) collected from private koi farms and taken gills and kidney for PCR test for KHV. All the samples showed negative results for KHV after 1st-step PCR. However, 11 (5 breeders, 2 juvenile and 4 fingerlings) out of 28 samples showed positive results after nested-step-PCR. All the koi samples examined were apparently healthy (they did not show any abnormal gross signs and manifestations). -PCR test (January and March 2005) of the gills taken by non-lethal sampling from imported koi (15 breeders and 9 juveniles) showed negative results after 1ststep PCR. However, six (3 breeders and 3 juveniles) showed positive results for KHV after nested-step PCR. The imported stocks were all apparently healthy (showed no external gross lesions/abnormalities and abnormal manifestations). -Examinations conducted by BFAR-Central Office Fish Health Lab. (*Method*: PCR protocol by SEAFDEC-AQD, Fish Health Lab.).
3	-There were 11 (batches/samples) of *P. monodon* (post larva, juvenile/grow-out stage) from Iloilo, Bohol, Samar, Pampanga, Agusan del Norte, Sorsogon that showed positive results for White Spot Virus by PCR test (two step and Nested). Examinations conducted by BFAR-Central Fish Health Lab. and SEAFDEC-AQD, Fish Health Lab.
4	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: Republic of Korea Period: January-March 2005

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	-	-	-		
3. *Oncorhynchus masou* virus disease	0000	0000	0000		
4. Spring viraemia of carp	?	?	?		
5. Viral haemorrhagic septicaemia	+	+	+	III	1
6. Viral encephalopathy and retinopathy	+	+	+	III	2
7. Infectious pancreatic necrosis	?	?	?		
8. Epizootic ulcerative syndrome (EUS)	0000	0000	0000		
9. Bacterial kidney disease	0000	0000	0000		
10. Red seabream iridoviral disease	-(2004)	-(2004)	-(2004)		
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	-	-	-		
14. Infection with koi herpesvirus	(1998)	(1998)	(1998)		
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/])	-(2004)	-(2004)	-(2004)		
Non OIE-listed diseases relevant to the region					
6. Infection with *Marteilioides chungmuensis*	-(2004)	-(2004)	-(2004)		
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Taura syndrome	0000	0000	0000		
2. White spot disease	-(2004)	-(2004)	-(2004)		
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		
Non OIE-listed diseases relevant to the region					
8. Necrotising hepatopancreatitis	0000	0000	0000		
9. Baculoviral midgut gland necrosis	0000	0000	0000		
10.White tail disease (MrNV and XSV)	0000	0000	0000		
UNKNOWN DISEASES OF A SERIOUS NATURE					
1. Akoya oyster disease	0000	0000	0000		
2. 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	Viral haemorrhagic septicaemia was detected in flounder (*Paralichthys olivaeceus*) in two farms in Jeollanam-do by RT-PCR during surveillance. Not reported this period despite surveillance in flounder in Gyeongsangbuk-do and Gyeongsangnam-do.
2	Viral encephalopathy and retinopathy was detected in flounder (*Paralichthys olivaeceus*) in two farms in Gyeongsangbuk-do by RT-PCR during surveillance. Not reported this period despite surveillance in flounder in Jeollanam-do and Gyeongsangnam-do.

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

Country: Singapore Period: January-March 2005

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	-	+	-	III	1
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*)	***	***	***		
Non OIE-listed diseases relevant to the region					
8. Necrotising hepatopancreatitis	***	***	***		
9. Baculoviral midgut gland necrosis	***	***	***		
10.White tail disease (MrNV and XSV)	***	***	***		
UNKNOWN DISEASES OF A SERIOUS NATURE					
1. Akoya oyster disease	***	***	***		
2. 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	Viral encephalopathy and retinopathy was diagnosed in one batch of 2,600 three-month-old brown spotted grouper (*Epinephelus tauvina*) suffering mortality >50%, one batch of 2-week old tiger grouper (*Epinephelus fuscoguttatus)* suffering 100% mortality, and an adult >1 year old giant grouper (*Epinephelus lanceolatus*) by histology & PCR using the striped jack nodavirus primers. The brown spotted grouper fingerlings were originally wild caught and imported one week before disease onset, the tiger grouper from a local hatchery and the giant grouper originally imported as fingerlings from the region. The brown spotted grouper fingerlings and giant grouper were exhibiting abnormal nervous signs, typified by 'bent body' in the former, and 'swollen belly' from abnormal distention of swim bladder with air and a 'belly-up' position in the latter. Similar clinical signs were reported as affecting a few fish in the same batch of giant groupers a few weeks prior to this sample. No abnormal nervous signs were observed in the tiger grouper fry.

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

Country: Thailand Period: January-March 2005

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	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	+	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*)	***	***	***		
Non OIE-listed diseases relevant to the region					
8. Necrotising hepatopancreatitis	***	***	***		
9. Baculoviral midgut gland necrosis	***	***	***		
10.White tail disease (MrNV and XSV)	0000	0000	0000	I	
UNKNOWN DISEASES OF A SERIOUS NATURE					
1. Akoya oyster disease	***	***	***		
2. 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	The koi herpesvirus disease has been found in kois (meaning to fancy carps or color carps) in a hobbyist house in Bangkok for the first time in March 16, 2005. Unfortunately, the some kois in the infected pond had been previously send to the koi competition/contest which held in Bangkok during March 12-13, 2005. After the contest, kois returned to the owners and some of them developed KHVD clinical signs. The KHVD was limited to koi hobbyists and the koi farms that have been in association with or in contact with the koi contest. Disease characteristics were lethargy, focal hemorrhages on the body and pale color at the edge of gill filaments. The disease occurrences were confirmed by Inland Aquatic Animal Health Research Institute (AAHRI), Department of Fisheries (DOF), Bangkok, as KHVD according to the positive result from PCR testing and nucleotide sequence comparisons of the PCR product. Virus isolation attempts were failed to isolate the KHV from the moribund kois the using KF-1 and EPC lines. Mortality rate was high (50%) especially when the kois were co-infected with external monogenic parasites. Death toll was roughly 5-10 million Baht (125,000 – 250,000 $US) as kois prices were related to ethic or moral values. Size of infected areas was limited to the koi hobbyist houses and the koi farms that associated with the koi show or koi contest. For preventive/control measures, the DOF called a meeting to warn the ornamental fish exporters on March 17, 2005 and also gave news to public via all kinds of media. All diseased kois and kois contacted with the disease kois were destroyed under Animal Epidemic Act. The DOF has given an order to quarantine 2 koi farms that had the kois returning from the contest and showed KHVD. These diseased kois are kept for scientific experiments. The nested PCR technique of KHV has been developed from Gilad *et al*., (2002) in order to detect healthy carrier kois. The healthy kois with positive-nested PCR will be quarantined and re-tested within 30 days. If the second nested PCR result is still positive, the kois will be destroyed. The kois in the exporting farms/premises that have never been in association with or in contact directly or in-directly with the koi fish that returned from the koi contest are now still safe and free from KHVD
2	A total of 1,265 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. 8 specimens or 0.6% were recorded as RT-PCR positive or carrying TSV genes that advised to be destroyed.

3	A total of 3,996 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. 14 specimens or 0.35% were recorded as PCR positive or carrying SEMBV genes that advised to be destroyed.
4	A total of 223 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. 2 specimens or 0.9% were recorded as PCR positive or carrying YHV genes that advised to be destroyed.
5	A total of 1,731 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. 638 specimens or 37% were recorded as PCR positive or carrying IHHNV genes that advised to be destroyed. The tested specimens did not show disease clinical signs and there was no outbreak due to IHHNV infection in the hatcheries.

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

Department of Fisheries (DOF) has authorized to temporarily suspend the issuance of such import permit of fancy carp fish into Thailand starting from April 7, 2005.

White Tail Disease - Disease Card[2]

by
A.S.Sahul Hameed[3]

Pathogen information

1. Causative agent

1.1. Pathogen type: virus

1.2. Disease name and synonyms: White Tail disease (WTD)

White Muscle Disease (WMD)

1.3. Pathogen common name and synonyms:

Macrobrachium rosenbergii Nodavirus (*Mr*NV) and extra small virus (XSV).

Both these viruses have been found to be associated with the disease. However, the role of *Mr*NV and XSV is not yet clear

1.4. Taxonomic affiliation

1.4.1. Pathogen scientific name: *Macrobrachium rosenbergii* Nodavirus (*Mr*NV)

1.4.2. Phylum, Class, Family etc.: Family: *Nodaviridae*

1.5. Description of the pathogen: *Mr*NV is an icosahedral non-enveloped RNA virus with a size of 26-27 nm in diameter. Viral replication in the cytoplasm of connective tissue cells of most organs and tissues. It is composed of two linear single stranded RNAs (genome) and CP-43 (capsid) (Bonami *et al*., 2005).

XSV is a satellite virus with a diameter of 14-16 nm, associated with *Mr*NV. It consists of a linear single stranded RNA (genome) and CP-17 (capsid) (Bonami *et al.,* 2005).

1.6. Authority:

Arcier, J.M., Herman, F., Lightner, D.V., Redman, R., Mari, J., Bonami, J.R., 1999. A viral disease associated with mortalities in hatchery-reared postlarvae of the giant freshwater prawn *Macrobrachium rosenbergii*. *Dis. Aquat. Org*. 38, 177– 181.

Qian, D., Shi, Z., Zhang, S., Cao, Z., Liu, W., Li, L., Xie, Y., Cambournac, I., Bonami, J.R., 2003. Extra small virus-like particles (XSV) and nodavirus associated with whitish muscle disease in the giant freshwater prawn, *Macrobrachium rosenbergii*. *J. Fish Dis*. 26, 521–527.

Sahul Hameed, A.S., K.Yoganandhan, J. S. Widada, J.R.Bonami., 2004. Studies on the occurrence and RT-PCR detection of *Macrobrachium rosenbergii* nodavirus and extra small virus-like particles associated with white tail disease of *Macrobrachium rosenbergii* in India. *Aquaculture,* 238, 127-133.

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[2]A.S.Sahul Hameed (2005). White Tail Disease - disease card. Developed to support the NACA/FAO/OIE regional quarterly aquatic animal disease (QAAD) reporting system in the Asia-Pacific. NACA, Bangkok, Thailand. 7 pp.

[3]Aquaculture Division, Dept. of Zoology, C.Abdul Hakeem College, Melvisharam – 632 509, Vellore Dt., Tamil Nadu, India. Tel:+91-4172-269487, Fax:+91-4172-266487,
e-mail: cah_sahul@hotmail.com

Widada, J.S., Durand, S., Cambournac, Qian, D., Shi, Z., Dejonghe, E., Richard, V., Bonami, J.R., 2003. Genome-based detection methods of *Macrobrachium rosenbergii* nodavirus, a pathogen of the giant freshwater prawn, *Macrobrachium rosenbergii*: dot-blot, *in situ* hybridization and RT-PCR. *J. Fish Dis.* 26, 583–590.

1.7. Pathogen environment: Brackish water and Freshwater

2. Modes of transmission

2.1. Routes of transmission: Vertical and horizontal transmission (Sahul Hameed *et al.,* 2004)

2.2. Life cycle: Replication in the cytoplasm of cell

2.3. Associated factors: Unknown

2.4. Additional comments: Nil

3. Host range

3.1. Host type: Giant Freshwater prawn or Malaysian prawn

3.2. Host scientific names: *Macrobrachium rosenbergii* (De Man)

3.3. Other known or suspected hosts: Unknown so far.

3.4. Affected life stage: Larvae, post-larvae and early juvenile

3.5. Additional comments: No evidence of adult life stages being affected. Adults might act as carriers.

4. Geographic distribution

4.1. Region: Northern South America (Caribbean region) and Asia.

4.2. Country: French West Indies, Dominican Republic (Caribbean region), China, Taipei China and India.

4.3. Additional comments: Clinical signs and mortality patterns appear similar in China, Taipei China and Indian outbreaks and it may be assumed that movement of some common prawn population source might be the reason for the wide distribution of the WTD. However, further studies are required to understand the geographic distribution.

Disease information

1. Clinical signs and case description

1.1. Host tissues and infected organs: Abdomen (Tail) is particularly milky and opaque. The discoloration appears to start at the tail extremity (telson region) and gradually progress towards the head. Eventually all muscles in the abdomen and cephalothorax are affected. Very few post-larvae presenting these signs survive and survivors seem to grow normally in grow-out ponds.

1.2. Gross observations and macroscopic lesions: Affected post-larvae are more milky and opaque (Fig. 1). Appearance of these clinical signs usually followed by death with variable mortality rate reaching up to 95%. The tissues most affected in moribund

PLs/early juveniles are striated muscles of the abdomen and cephalothorax and intratubular connective tissue of the hepatopancreas.

1.3. Microscopic lesions and tissue abnormality: Multifocal areas of hyaline necrosis of muscle fibres are found in the striated muscle.

1.4. OIE status: not listed.

2. Social and economic significance: WTD causes significant damage to the critical life stage i.e. post-larvae of the host. Heavy mortalities of post larvae in hatcheries and pond nurseries cause significant economic loss and affect the livelihoods of primary producers.

3. Zoonotic importance: none

4. Diagnostic methods

4.1. Screening methods

4.1.1. Level I: none

4.1.2. Level II: none

4.1.3. Level III: RT-PCR and LAMP

Reverse Transcriptase-PCR (RT-PCR) is a method used to amplify cDNA copies of RNA. The primer sequence for *Mr*NV is 5' GCG TTA TAG ATG GCA CAA GG 3' (forward) and 5' AGC TGT GAA ACT TCC ACT GG 3' (reverse) with amplified product size of 425 bp (Fig. 2). For XSV, 5' GGA GAA CCA TGA GAT CAC G 3' (forward) and 5' CTG CTC ATT ACT GTT CGG AGT 3' (reverse) with amplified product of 500 bp (Widada *et a*l., 2003; Sahul Hameed *et al.*, 2004a; Widada *et al*., 2004).

LAMP (loop-mediated isothermal amplification) is intended to amplify cDNA copies of RNA. Four (*Mr*NV) or six primers (XSV), able to recognize respectively six or eight sequences were used. This methodology is under development (Pathogens and Immunity, CNRS/UM2, Universite Montpellier II,Montpellier, France)

4.2. Presumptive methods

4.2.1 Level I: Gross observations

Presence of post-larvae with whitish colour followed by mortality, 2 to 3 days after the conversion of first post-larva in larval rearing tanks. The abdomen (tail) becomes milky white and opaque. Mortalities reach to maximum around fifth day after the appearance of the first gross sign resulting in complete drain-out of the tank.

4.2.1. Level II: Histopathology

Histopathological changes are characterized by pale to darkly basophilic, reticulated cytoplasmic inclusions in the connective tissue cells of most organs and tissues (Tung *et al*. 1999). Pryonin methyl green staining can be used to distinguish the characteristically green-stained *Mr*NV viral inclusions from hemocyte nuclei (Tung *et al*. 1999).

4.2.2. Level III: Virology

*Mr*NV is an icosahedral non-enveloped RNA virus with a size of 26-27 nm in diameter. It is composed of two linear single stranded RNAs.

XSV has a diameter of 14-16 nm and is associated with *Mr*NV with. It consists of a linear single stranded RNA.

Both the viruses have been found to be associated with the disease, however the role of *Mr*NV and XSV is not yet clear. In view of this, detection of either virus or simultaneous detection of both viruses should be reported as WTD or WTD suspicion.

4.3. Confirmatory methods

4.3.1. Level I: none

4.3.2. Level II: none

4.3.3. Level III: Reverse Transcriptase Polymerase Chain Reaction (RT-PCR) Loop-Mediated Isothermal Amplification (LAMP)

5. Control methods: Because *Macrobrachium rosenbergii* is domesticated completely and an RT-PCR technique is available for commercial use, brood stock and seed screening should be strongly encouraged. The brood stock or seed tested positive for WTD must be discarded with proper zoosanitory methods. Usual sanitation and control protocols for viral infections are recommended.

6. **Selected references:**

Arcier, J.M., Herman, F., Lightner, D.V., Redman, R., Mari, J., Bonami, J.R., 1999. A viral disease associated with mortalities in hatchery-reared postlarvae of the giant freshwater prawn *Macrobrachium rosenbergii*. *Dis. Aquat. Org*. 38, 177– 181.

Bonami, J.R., Shi, Z., Qian, D., and Widada, J.S., 2005. White tail disease of the giant freshwater prawn, Macrobrachium rosenbergii: separation of the associated virions and characterization of *Mr*NV as a new type of nodavirus. *J. Fish Disease* 28(1): 23-32.

Qian, D., Shi, Z., Zhang, S., Cao, Z., Liu, W., Li, L., Xie, Y., Cambournac, I., Bonami, J.R., 2003. Extra small virus-like particles (XSV) and nodavirus associated with whitish muscle disease in the giant freshwater prawn, *Macrobrachium rosenbergii*. *J. Fish Dis*. 26, 521–527.

Romestand, B., Bonami, J.R., 2003. A sandwich enzyme linked immunosorbent assay (S-ELISA) for detection of *Mr*NV in the giant freshwater prawn, *Macrobrachium rosenbergii* (de Man). *J. Fish Dis*. 26, 71–75.

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Sahul Hameed, A.S., K.Yoganandhan, J. S. Widada, J.R.Bonami., 2004. Experimental transmission and tissue tropism of *Macrobrachium rosenbergii* nodavirus (*Mr*NV) and extra small virus like-particles in *Macrobrachium rosenbergii*. *Dis. Aquat. Org.* 62: 191-196

Tung, C.W., Wang, C.S. and Chen, S.N., 1999. Histological and electron microscopic study on *Macrobrachium* muscle virus (MMV) infection in the giant freshwater prawn, *Macrobrachium rosenbergii* (de Man), cultured in Taiwan. *J. Fish Dis.* 22: 319-324.

Widada, J.S, Durand, S., Cambournac, Qian, D., Shi, Z., Dejonghe, E., Richard, V., Bonami, J.R., 2003. Genome-based detection methods of *Macrobrachium rosenbergii* nodavirus, a pathogen of

the giant freshwater prawn, *Macrobrachium rosenbergii*: dot-blot, *in situ* hybridization and RT-PCR. *J. Fish Dis*. 26, 583–590.

Widada, J.S, Richard, V., Cambournac, I., Shi, Z., Qian, D., Bonami, J.R., 2004. Dot-blot hybridization and RT-PCR detection of extra small virus (XSV) associated with white tail disease of prawn *Macrobrachium rossenbergii*. *Dis. Aquat. Org.* 58, 83– 87

Widada, J.S. and J.R. Bonami. 2004. Characteristics of the monocistronic genome of extra small virus, a virus-like particle associated with *Macrobrachium rosenbergii* nodavirus: possible candidate for a new species of satellite virus. *J. Gen. Virol.,* 85: 643-646.

Yoganandhan, K., Widada, J.S., Bonami, J.R. and Sahul Hameed, A.S., 2005. Simultaneous detection of *Macrobrachium rosenbergii* nodavirus and extra small virus by a single tube, one-step multiplex RT-PCR assay. *J. Fish Dis.* 28, 65-69.

Recent Aquatic Animal Health Related Publications

Australian Aquatic Animal Disease Identification Field Guide: The second, revised edition – Aquatic Animal Diseases Significant to Australia: Identification Field Guide – has recently been released by Australia's Department of Agriculture, Fisheries and Forestry (DAFF). It is very informative and user friendly. The field guide can be downloaded from http://www.disease-watch.com. For further information and copies of the field guide, please contact Alistair Herfort at Alistair.Herfort@daff.gov.au. The field guide provides key field identification tips and differential diagnostic features for all the OIE listed diseases and therefore has considerable regional relevance. Dissemination of the information contained in the field guide to the right stakeholders could contribute significantly to improved surveillance and reporting in the region. DAFF has kindly provided NACA with copies of the field guide for wider dissemination in the region. Those interested to receive copies, please write to NACA at mohan@enaca.org

A Colour Atlas of Diseases of Yellowtail (Seriola) Fish: Written by Dr. Mark Sheppard, Canadian veterinarian, a new publication (in Japanese and originally in English) "A Colour Atlas of Diseases of Yellowtail (Seriola) Fish" is now available. A useful diagnostic field guide for fish farmers, fish health professionals, laboratory technicians and students, this book contains 30 pages of high resolution, detailed pathology photomicrographs of most commonly found diseases of yellowtail. More details can be found at http://oberon.ark.com/~svs/index_files/svsindexfile5.html

Histological Techniques for Marine Bivalve Molluscs and Crustaceans: A new publication by DW Howard, EJ Lewis, BJ Keller and CS Smith of the Cooperative Oxford Laboratory, Center for Coastal Environmental Health and Biomolecular Research, National Centers for Coastal Ocean Science, National Ocean Service, NOAA. This is an invaluable guide to histological techniques of shellfish, principally molluscs and crustaceans which every aquatic animal health researcher should have. Those interested to receive copies, please write to the Librarian, Ms Susie Hines at Susie.Hines@noaa.gov

Aquaculture Health International – A New Magazine for Fish & Shellfish Health Professionals: A high quality magazine produced jointly by Patterson Peddie Consulting Ltd in the UK and VIP Publications Ltd in New Zealand has been launched in May 2005. Initially published on a quarterly basis, 'Aquaculture Health International' will be available in both online (pdf) and printed formats (ISSN 1176-8630). Target readership is broad and includes fish health researchers, academics, veterinarians, fish health biologists, government scientists, pharmaceutical companies, fish farmers (finfish and shellfish) and aquaculture consultants. More details can be found at the magazine website: www.aquaculturehealth.com or get in touch with the editor, Dr Scott Peddie at scott@aquaculturehealth.com.

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

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

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

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 2005)

1. DISEASES PREVALENT IN THE REGION	
1.1 FINFISH DISEASES	
OIE-listed diseases	**Non OIE-listed diseases relevant to the region**
1. Epizootic haematopoietic necrosis	12. Epitheliocystis
2. Infectious haematopoietic necrosis	13. Grouper iridoviral disease
3. *Oncorhynchus masou* virus disease	14. Infection with koi herpesvirus
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	
1.2 MOLLUSC DISEASES	
OIE-listed diseases	**Non OIE-listed diseases relevant to the region**
1. Infection with *Bonamia exitiosa*	6. Infection with *Marteilioides chungmuensis*
2. Infection with *Mikrocytos roughleyi*	
3. Infection with *Haplosporidium nelsoni*	
4. Infection with *Marteilia sydneyi*	
5. Infection with *Perkinsus olseni/atlanticus* [b/])	
1.3 CRUSTACEAN DISEASES	
OIE-listed diseases	**Non OIE-listed diseases relevant to the region**
1. Taura syndrome	8. Necrotising hepatopancreatitis
2. White spot disease	9. Baculoviral midgut gland necrosis
3. Yellowhead disease (YH virus, gill-associated virus)	10.White tail disease (MrNV and XSV)
4. Spherical baculovirosis (*Penaeus monodon*-type baculovirus)	
5. Infectious hypodermal and haematopoietic necrosis	
6. Spawner-isolated mortality virus disease	
7. Tetrahedral baculovirosis (*Baculovirus penaei*)	
1.4 UNKNOWN DISEASES OF A SERIOUS NATURE	
OIE-listed diseases	**Non OIE-listed diseases relevant to the region**
	1. Akoya oyster disease
	2. Abalone viral mortality
2. DISEASES PRESUMED EXOTIC TO THE REGION, BUT LISTED BY THE OIE	
2.1 Finfish	
1. Channel catfish virus disease	
2. Infectious salmon anaemia	
3. Piscirickettsiosis	
4. Gyrodactylosis (*Gyrodactylus salaries*)	
5. White sturgeon iridoviral disease	
2.2 Molluscs	
1. Infection with *Bonamia ostreae*	
2. Infection with *Marteilia refringens*	
3. Infection with *Mikrocytos mackini*	
4. Infection with *Perkinsus marinus*	
5. Infection with *Candidatus Xenohaliotis californiensis*	
6. Infection with *Hapolosporidium costale*	
2.3 Crustaceans	
1. Crayfish plague (*Aphanomyces astaci*)	

New Instructions on how to fill in the
QUARTERLY AQUATIC ANIMAL DISEASE REPORT
(Revised during the Provisional Meeting of the AG[4], 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.

[4] 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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