2005/3

QUARTERLY AQUATIC ANIMAL DISEASE REPORT (Asia and Pacific Region)

July-September 2005

Published by the

Network of Aquaculture Centres in Asia-Pacific

Suraswadi Building, Department of Fisheries
Kasetsart University Campus, Ladyao, Jatujak
Bangkok 10900, Thailand

Food and Agriculture Organization of the United Nations

Viale delle Terme di Caracalla
Rome 00100
Italy

January 2006

Network of Aquaculture Centres in Asia-Pacific and Food and Agriculture Organization of the United Nations. January 2006. *Quarterly Aquatic Animal Disease Report (Asia and Pacific Region)*, 2005/3, July-September 2005. NACA: Bangkok, Thailand.

Contents

Foreword

The fourth meeting of the Asia Regional Advisory Group (AG) on Aquatic Animal Health (AGM-4) was held at Hotel Taj Samudra, Colombo, Sri Lanka on 22-24 October 2005 in conjunction with the 6th symposium on Diseases in Asian Aquaculture. The meeting attended by 10 Advisory Group and 6 co-opted members, addressed key aquatic animal health issues in Asia, including regional quarterly aquatic animal disease reporting system, spread of emerging aquatic animal diseases in the region, implementation of the Asia Regional Technical Guidelines on Health Management and the Responsible Movement of live aquatic animals, functioning of the three tier regional resource base and ways to further strengthen regional and international cooperation in Asian aquatic animal health management. The AG constituted by NACA governing council in 2001, in cooperation with OIE and FAO, has been providing advice to Asian governments and NACA on aquatic animal health management matters in the region. The final report of the fourth meeting with recommendations has been circulated to the region's fisheries and veterinary authorities, regional and international organizations, and made available to the general public through the NACA website (www.enaca.org/health). Some of the key points discussed and recommendations made are summarized below.

Emerging diseases

The AG expressed concern that transboundary diseases are still hampering or threatening the sustainable development of aquaculture in the region. The spread of diseases, such as infection with KHV and taura syndrome in the region was recognized as a serious issue. Emerging diseases such as red spot disease in grass carp, white tail disease (WTD) in *Macrobrachium rosenbergii*, white body disease and slow growth syndrome in *P. monodon*, and abalone viral mortality were recognized as having serious potential to spread in the region. WTD appears to be present in increasing number of countries, although this is not yet reflected in the QAAD. Underestimated bacterial diseases like streptococcosis (*Streptococcus iniae* and *S. difficilis*), nocardosis (*Nocardia seriolae*) and infection with *Tenacibaculum maritimum* are believed to be associated with serious losses in finfish culture in the region. The AG emphasized the need to increase awareness on emerging and underestimated diseases in the region. National Coordinators (NCs) are advised to strengthen surveillance and collect information on the occurrence of emerging diseases.

The cryptic nature of shrimp viruses and their often high prevalence even in the absence of clinical disease has strong aquatic animal health management implications.The high number of variant of the same virus (e.g. TSV) represent a threat of unknown proportions. The fact that *P. vannamei* has now replaced *P. monodon* as the leading cultivated species in Asia has several aquatic animal health implications. The use of SPF shrimp represents an important way forward, but the fact that non-SPF *P. vannamei* is being used in the region leading to the emergence of several health problems (e.g. TSV, NHP) is a serious concern. In view of this, IMNV first reported in *P. vannamei* in Brazil may represent a threat to *P. vannamei* farming in the region also. Transboundary movement of broodstock still plays a major role in the spread of shrimp pathogens. The practices of holding

broodstock of different species in the same holding space by brokers should therefore be avoided.

Considering the increasing trend of transboundary movement of live aquatics for aquaculture, the AG recommended a continued sharing of regional experiences and lessons learned. The AG recognized that it is difficult for regional and international organizations to recommend blanket ban on introduction of exotic species, however, the AG considered that it would be worthwhile to discourage irresponsible introduction of exotic species.

Asia Regional Technical Guidelines (TG)

Considering the differences in TG implementation across countries, the AG recommended that country-specific strategies for the implementation should be identified. Countries should play a major role in the development and implementation of those strategies with the NACA secretariat acting as supporting rather than implementing body. Countries should consider identifying a staff for secondment, to support NACA in the implementation of country-specific aquatic animal health work programme. The AG appreciated the efforts of NACA in securing funding support from AusAid under the AADCP-RPS framework for implementing two projects in the ASEAN - (1) Strengthening Aquatic Animal Health Capacity and Biosecurity in ASEAN and (2) Operationalise Guidelines on Responsible Movement of Live Food Finfish in ASEAN- and hoped that this would contribute significantly towards implementation of Technical Guidelines in ASEAN member countries.

Considering the potential utility of the three tier regional resource base to support TG implementation, the AG recommended that the number of resource experts and resource centres be expanded to include new subject areas, to follow the specific elements within the TG (e.g. epidemiology, surveillance, risk analysis, disease diagnosis). Recognizing the fact that WTD is spreading in the region and that robust diagnostic methods are available in select number of laboratories, the AG recommended that a regional reference laboratory for WTD be identified and made operational.

Outputs from the OIE General session (May 2005) and Aquatic Animal Health Standards Commission meeting (August 2005)

Considerable changes have been made to the OIE list of diseases. All previously OIE listed diseases have now been assessed against the new listing criteria and diseases that did not meet the listing criteria have been removed from the list. The delisting of 4 diseases (Infectious pancreatic necrosis, Bacterial kidney disease, Infection with *Mikrocytos mackini,* Infection with *Perkinsus olseni*) and the addition of 3 diseases (Koi herpesvirus disease, Necrotizing hepatopancreatitis and Infectious myonecrosis) appear as under study in the currently valid version of the list (see page 34) in the 8th edition of the 2005 *Aquatic Code*. The new online reporting mechanism will include the reporting of:

- The status of all OIE-listed diseases to be conducted every six months;
- Findings of epidemiological significance for non-listed diseases on a six-monthly basis;
- Other information of significance to other countries on an annual basis;
- The occurrence of emergencies within 24 hours

  - For listed diseases: Specified events (e.g. first occurrence or re-occurrence; new host; new strain; new manifestation; new zoonotic potential);
  - For non-listed diseases: emerging disease or pathogenic agent should there be findings that are of epidemiological significance to other countries;
- Weekly follow-up reports on emergencies until the situation is sufficiently stable to revert to six-monthly reporting, in which case the reporting of an emergency should conclude with a final report.

Regional quarterly aquatic animal disease (QAAD) reporting
The AG noted the significant improvement of QAAD reporting in the region over the years (since the 3rd quarter of 1998), and emphasized the need to further strengthen such regional reporting. It was decided that the regional reporting system should keep its quarterly format, but that changes could be made at a later stage in view of the experiences gathered by the OIE through their new six-monthly online reporting system. For all the countries in the region, the AG strongly recommends use of existing structures (e.g. government institutions, private sector, research institutions, etc.) within the country to collect information to be used for the regional disease reporting. NACA should provide countries with technical assistance to strengthen surveillance, especially passive surveillance. It is recommended that efforts should be exerted by member countries towards the development of surveillance systems for commodities other than shrimp;

Changes to the QAAD reporting form
List of diseases in the QAAD reporting form are revised annually to conform with changes to the OIE *Aquatic Animal Health Code* and to reflect the aquatic animal disease situation in the region. The following revisions were approved by the AG.

Under Diseases Prevalent in the Region:

- *Onchoryncus masou* virus disease, infection with *Mikrocytos roughleyi*, infection with *Haplosporidium nelsoni* and spawner isolated mortality virus will be delisted;
- Viral encephalopathy and retinopathy, enteric septicemia of catfish and infection with *Martelia sydneyi* will be included under non-OIE listed diseases relevant to the region; and
- Infection with koi herpes virus and necrotising hepatopancreatitis moved from non-OIE listed diseases relevant to the region to OIE listed diseases prevalent to the region.

Under Diseases Presumed Exotic to the region:

- White sturgeon iridoviral disease and infection with *Haplosporidium costale* will be delisted;
- Infectious myonecrosis will be included under diseases presumed exotic to the region, but listed by OIE; and
- Channel catfish virus disease and piscirickettsiosis will be included under diseases presumed exotic to the region, not listed by the OIE, but of potential relevance.

As in the past, joint letter from OIE/NACA together with a copy of the new QAAD reporting form (see page 35) will be circulated to national authorities to be used from the January-March 2006 reporting period.

Reports Received by the NACA Secretariat

Country: Australia Period: July-September 2005

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	July	August	September		
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	+	-(2005)	-(2005)	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)	+	+	I	5
3. Infection with *Haplosporidium nelsoni*	0000	0000	0000		
4. Infection with *Marteilia sydneyi*	-(2005)	-(2005)	-(2005)		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/-(2005)	0000/-(2005)	0000/-(2005)		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 July 2005. Targeted surveillance: 2. **In**; a) flat tail mullet (*Liza argentea*) b) luderick (*Girella tricuspidata*); 3. **Clinical signs-** No clinical signs; detected during screening of Australian bass (*Macquaria novemaculeata*) for re-stocking; 4. **Pathogen-** betanodavirus; 5. **Mortality rate-** Ni; 6. **Economic loss** n/a; 7. **Geographic extent** single salt water lake- mid New South Wales coast; 8. **Containment measures** n/a; 9. **Laboratory confirmation** Diagnosed by cell culture, histopathology and PCR; 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 Queensland (last reported second quarter 2005) and Western Australia (last reported first quarter 2005). Never reported from Victoria despite passive surveillance. No information available in the Australian Capital Territory.

3	**Epizootic ulcerative syndrome** 1. **Reported in Queensland** in August 2005. Passive surveillance: 2. **In**; juvenile golden perch (*Macquaria ambigua*) 3. **Clinical signs-***;*haemorrhagic ulcerative lesions on the perianal and ventral abdominal areas; 4. **Pathogen-** *Aphanomyces invadans*; 5. **Mortality rate-** 60% (6000/10000); 6. **Economic loss-** not available; 7. **Geographic extent-** single pond, single farm; 8. **Containment measures-** not required; 9. **Laboratory confirmation-** diagnosed by histopathology; 10. **Publications-** Unpublished. Not reported during this period despite passive surveillance, but known to have previously occurred in New South Wales (last reported first quarter 2005), Northern Territory (last year reported 2004) and Victoria (last year reported 2002). Passive surveillance and never reported in South Australia and Tasmania. Not reported this quarter but considered to be endemic in Western Australia. No information available in the Australian Capital Territory.
4	Enteric septicaemia of catfish was not reported this quarter but is known to have previously occurred in zebrafish (*Brachydanio rerio*) in PC2 containment in Tasmania (last year reported 2001). Never reported in New South Wales, Northern Territory, Queensland, South Australia and Victoria despite passive surveillance. No information available in the Australian Capital Territory and Western Australia.
5	***Mikrocytos roughleyi:*** 1. **Reported in New South Wales** in August and September 2005. Passive surveillance: 2. **In**; Sydney rock oysters (*Saccostrea glomerata*); 3. **Clinical signs-** presence of lesions; 4. **Pathogen-** *Mikrocytos roughleyi*; 5. **Mortality rate-** 3-15%; 6. **Economic loss-** not reported; 7. **Geographic extent-** southern oyster producing estuaries; 8. **Containment measures-** raising oysters or moving oysters up river; 9. **Laboratory confirmation-** diagnosed by clincal signs, awaiting confirmation by PCR; 10. **Publications-** Unpublished. Not reported during this period despite passive surveillance, but is known to have previously occurred in 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* was not reported this period despite passive surveillance, but is known to have previously occurred in Queensland (last year reported 2004) and Western Australia (last year reported 1994) Not reported this quarter (no monitoring), but known to have previously occurred in New South Wales (last reported 2nd quarter 2005). 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*** 1. **Reported in New South Wales** in July, August and September 2005. Targeted surveillance: 2. **In-** wild (but not cultured) black lip abalone (*Haliotis rubra)*; 3. **Clinical signs-** no unusual signs reported*;* 4. **Pathogen-** *Perkinsus olseni*; 5. **Mortality rate-** low; all age classes 6. **Economic loss-** uncertain- cumulative estimate ~AU$ 3 million annually; 7. **Geographic extent-** Port Stephens to Jervis Bay; 8. **Containment measures-** fishing closure of area to prevent translocation of stock; 9. **Laboratory confirmation-** Diagnosis made by Rays thioglycollate media and histopathology; 10. **Publications-** Unpublished. 1. **Reported in South Australia** in July, August and September 2005. Targeted surveillance: 2. **In** wild (but not cultured) blacklip abalone (*Haliotis rubra)* and greenlip abalone (*Haliotis laevigata*. 3. **Clinical signs-** Pustules on epipodium (normal clinical signs of perkinsosis in abalone); 4. **Pathogen-** *Perkinsus olseni*; 5. **Mortality rate-** no mortalities observed, some morbidity associated with infection. Infections are ongoing; 6. **Economic loss-** unknown; 7. **Geographic extent-** Open system. Lower Eyre and Yorke Peninsulas; 8. **Containment measures-** none. Open system;

	9. **Laboratory confirmation-** Diagnosed by histology; 10. **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). Active 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** Not reported this period despite active surveillance, but known to have occurred previously in Northern Territory and Western Australia (last reported 2nd quarter 2005). 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 year reported 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 despite passive surveillance, but is known to have previously occurred in Queensland (last year reported 2004) and in Northern Territory (last year reported 2003). 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): None

Country: Hong Kong SAR China Period July-September 2005

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	July	August	September		
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	
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.					
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	Four disease cases caused by Nervous Necrosis Virus were confirmed during the reporting period. Several other cases were positive by virus isolation and/or PCR, but there was no histological evidence of disease. The species involved were green grouper and giant grouper.

2. New aquatic animal health regulations introduced within past six months (with effective date): None

Country: India Period: July-September 2005

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	July	August	September		
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)	***	***	***		
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 very limited areas in the states of Goa and Karnataka

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

Country: Indonesia Period: July-September 2005

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	July	August	September		
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. Lymphocystis virus	***	+	+	III	6
2. Infection with Steptococcus sp	+	+	+	III	7
3. Infection with Aeromonas sp	+	+	+	III	8
4. Infection with Edwardsiella sp	-	+	+		9
5. Infection with Flavobacterium sp.	+	-	+	III	10

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	The VNN disease occurred in humpback grouper (*Cromileptes altivelis*) and tiger grouper (*Ephinephelus fuscoguttatus*) reared in hatchery and net cage at Situbondo, East Java province. Percentage case positive VNN on July: 15.38%; August: 20% and September 17%. Positive VNN samples from Lampung, South Sumatera on July and September have been detected by Mariculture Development Center Lampung laboratory in South Sumatera.
2	KHV outbreak has been occurring since April 2002 in East Java and up to now the disease has spread from Java and Bali island to another island in Sumatera, Kalimantan and caused mortality of 30 – 85 % in Common carp culture systems. Sampling area: Some districts in South Kalimantan Province, Central Kalimantan Province, East Kalimantan Province and West Java Province Species affected : *Cyprinus carpio* Clinical sign : lethargic, swimming with uncoordinated erratic movement, lesions on the skin surface,haemorrhages on part of body, haemorrhages on the gill, necrosis of gill tissue. Samples were analyzed by Freshwater Aquaculture Development Center Sukabumi laboratory in West Java and by Freshwater Aquaculture Development Sub Center Mandiangin laboratory in South Kalimantan. KHV disease sample from North Bengkulu district in South Sumatera in running water pond analyzed by Freshwater Aquaculture Development Center Jambi in Jambi Province Sumatera; KHV was detected by PCR method
3	Post larvae, juvenile and broodstock of *L. vannamei* sent by farmer from East Java were PCR positive against TSV. Percentage case positive TSV in July: 3.22%; August: 1.41% and September 10%. Positive TSV samples have been detected by Mariculture Development Center Lampung laboratory in South Sumatera, but the disease occurred not reported continuously.

4	Sample of *L. vanamei* (juvenile, post larvae and nauplius) were positive for WSSV by PCR with 6.15% in July, 10.98% in August and 5% in September 5% Samples of *P. monodon* (post larva) in July and September were negative, but in August (PL) it was positive. Positive WSSV samples have been detected by Mariculture Development Center Lampung laboratory in South Sumatera, but the disease occurred not reported continuously. In South Sulawesi province all the positive WSSV of brood stock and larvae of *P. monodon* had been eradicated, which is detected by Brackishwater Development Center Takalar in South Sulawesi.
5	Samples of *L. vanamei* (nauplii, post larvae, juvenile and broodstock) from East Java were PCR positive against IHHNV. Percentage case positive IHHNV in July was 6%, August 47.17% and September 0%. Positive infection against IHHNV have been detected by Mariculture Development Center Lampung laboratory in South Sumatera, but the disease occurred not reported and no information available
6	The Lymphocytis virus was detected by Mariculture Development Center Lampung laboratory in South Sumatera with positive cases on August and September.
7	*Streptococcus sp* infection has affected some species: Tilapia, *Cyprinus carpio*, *Osphronemus gouramy*. *Streptococcus sp* was detected on Tilapia in Bajubang Batanghari District, Jambi Province. Some infected area in Subang, Tasikmalaya and South Jakarta in West Java province detected by Freshwater Aquaculture Development Center Sukabumi laboratory in West Java. Clinical signs: pop eye, darkened pigment (melanosis), haemorrhages on part of body and haemorrhages on spleen.
8	*Aeromonas sp.* Infection reported in some species: Tilapia, *Cyprinus carpio*, *Osphronemus gouramy*, Clinical sign: haemorrhage on operculum and part of body and gill damage. Some infected area: Subang, Karawang, Tasikmalaya, Pandeglang and South Jakarta in West Java province, detected by Freshwater Aquaculture Development Center Sukabumi laboratory in West Java
9	*Edwardsiella sp* infection reported in some species: *Cyprinus carpio*, *Osphronemus gouramy,* Clinical sign: haemorrhage on ventral of body and gill damage. Infected area: Purwakarta (Jatiluhur lake),Tasikmalaya in West Java province. Detected by Freshwater Aquaculture Development Center Sukabumi laboratory in West Java.
10	*Flavobacterium sp.* Infection reported in *Cyprinus carpio;* No clinical sign has been found. Infected area: Subang, South Jakarta in West Java province and detected by Freshwater Aquaculture Development Center Sukabumi laboratory in West Java;

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

Country: Iran Period: July-September 2005

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	July	August	September		
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	0000	0000	0000		
2. Infectious haematopoietic necrosis	+	+	-	III	1
3. *Oncorhynchus masou* virus disease	0000	0000	0000		
4. Spring viraemia of carp	-	+	-	III	2
5. Viral haemorrhagic septicaemia	+	-	-	III	3
6. Viral encephalopathy and retinopathy	0000	0000	0000		
7. Infectious pancreatic necrosis	-	-	-		
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	-	-	-		
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	***	***	***		
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	1. The origin of disease was unknown 2. Only rainbow trout had been affected 3. The pathogen was detected by PCR method but we didn't use cell culture 4. The disease happended in some limited area in Razavi Khorassan proveince (Zareei farm), Qom (Mohagheghine farm), Tehran (Shahriar area) in July and Aguest 2005. 5. All of the fishes were killed and farms disinfected and quarantined 6. The samples were sent to C.V.L of I.V.O for confirmation 7. Mortality rate and economic loss was low
2	1. The origion of disease was unknown 2. Rainbow trout had been affected 3. The patogen was detected by PCR but we didn't use cell culture 4. The disease happened in a limited area in Razavi Khorassan (Ardeshiri) in August 2005 5. All of the fishes were killed and farms disinfected and quarantined 6. The samples were sent to C.V.L of I.V.O for confirmation 7. Mortality rate and economic loss was low
3	1. The origion of disease was unknown 2. Only rainbow trout had been affected 3. The patogen was detected by PCR but we didn't use cell culture 4. The disease happened in a limite area in North Khorassan (Shiravan) in July 2005 5. All of the fishes were killed and farms disinfected and quarantined 6. The samples were sent to C.V.L of I.V.O for confirmation 7. Mortality rate and economic loss was low

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

Country: Japan Period: July-September 2005

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

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

a/ Please use the following symbols:

+	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	*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: July-September 2005

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	July	August	September		
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)	(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	0000	0000	0000		
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)	0000	0000	0000		
5. Infectious hypodermal and haematopoietic necrosis	+	-	+	II	1
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	***	***	***		
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	Three samples were found to be positive from *Penaeus vannamei* growouts from Setiawan, Perak in July and one samples found positive from *Penaeus monodon* broodstocks from Sabah Malaysia in September 2005

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

Country: Myanmar Period: July-September 2005

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	July	August	September		
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 26 samples of *Penaeus monodon* have been tested at PCR lab of DOF of which 6 samples (23.08%%) were recorded as TSV positive.
2	A total of 26 samples of *Penaeus monodon* have been tested at PCR lab of DOF of which 4 samples (15.38%) were recorded as WSSV positive
3	A total of 26 samples of *Penaeus monodon* have been tested at PCR lab of DOF of which 7 samples (26.92%) were recorded as IHHNV positive

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

Country: Nepal Period: July-September 2005

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	July	August	September		
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.					
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.)

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

Country: Philippines Period: July-September 2005

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	July	August	September		
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	0000	0000	0000		
2. Infectious haematopoietic necrosis	0000	0000	0000		
3. *Oncorhynchus masou* virus disease	0000	0000	0000		
4. Spring viraemia of carp	0000	0000	0000		
5. Viral haemorrhagic septicaemia	0000	0000	0000		
6. Viral encephalopathy and retinopathy	-	-	-		
7. Infectious pancreatic necrosis	0000	0000	0000		
8. Epizootic ulcerative syndrome (EUS)	-	-	-		
9. Bacterial kidney disease	0000	0000	0000		
10. Red seabream iridoviral disease	0000	0000	0000		
11. Enteric septicaemia of catfish	***	***	***		
Non OIE-listed diseases relevant to the region					
12. Epitheliocystis	***	***	***		
13. Grouper iridoviral disease	***	***	***		
14. Infection with koi herpesvirus	***	***	***		1
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with *Bonamia exitiosa*	0000	0000	0000		
2. Infection with *Mikrocytos roughleyi*	0000	0000	0000		
3. Infection with *Haplosporidium nelsoni*	0000	0000	0000		
4. Infection with *Marteilia sydneyi*	0000	0000	0000		
5. Infection with *Perkinsus olseni/atlanticus* [b/])	0000	0000	0000		
Non OIE-listed diseases relevant to the region					
6. Infection with *Marteilioides chungmuensis*	0000	0000	0000		
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Taura syndrome	0000	0000	0000		
2. White spot disease	+	+	+	III	2
3. Yellowhead disease (YH virus, gill-associated virus)	***	***	***		
4. Spherical baculovirosis (*Penaeus monodon*-type baculovirus)	***	***	***		
5. Infectious hypodermal and haematopoietic necrosis	+	***	***	III	3
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
?	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	Information available was in May-June 2005 when some gill samples taken by non-lethal sampling from imported koi (10 juveniles) contained in the quarantine facility showed positive results for KHV after nested-step PCR. The imported stocks were all apparently healthy (showed no external gross lesions/abnormalities, abnormal manifestations).
2	There were 25 (batches/samples) of *P. monodon* (post larva, juvenile/grow-out stage, spawner) that showed positive results for White spot virus by PCR test. Examinations conducted by BFAR-Central Fish Health lab, SEAFDEC-AQD, Fish Health lab.
3	*P. vannamei* samples from grow-out farms in Zambales showed positive results for IHHN by PCR test. Examination conducted by 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: July-September 2005

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	July	August	September		
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	0000	0000	0000		
2. Infectious haematopoietic necrosis	-	-	-	III	
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	-	-	-	III	
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	III	3
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*	+	+	+	III	
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:

+	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	Viral haemorrhagic septicaemia was detected in flounder (*Paralichthys olivaeceus*) in three farms in Jeollanam-do, in three farms in Ulsan and in three farms in Busan by RT-PCR during surveillance. Mass mortality was recorded in in Jeollanam-do. Not reported this period despite surveillance in flounder in Gyeongsangnbuk-do and Jeju island..
2	Viral encephalopathy and retinopathy was detected in flounder (*Paralichthys olivaeceus*) in two farms in Ulsan, in three farms in Busan, in three farms in Jeollanam-do, in seven farms in Jeju island by RT-PCR during surveillance. Not reported this period despite surveillance in flounder in Gyeongsangnbuk-do and Gyeongsangnam-do.
3	Infection with *Haplosporidium nelsoni* was not detected in oyster (Crassostrea gigas) in Tongyoung and Yeosu by histological examination and PCR during active surveillance.

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

Country: Singapore Period: July-September 2005

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	July	August	September		
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	0000	0000	0000		
2. Infectious haematopoietic necrosis	0000	0000	0000		
3. *Oncorhynchus masou* virus disease	0000	0000	0000		
4. Spring viraemia of carp	0000	0000	0000		
5. Viral haemorrhagic septicaemia	0000	0000	0000		
6. Viral encephalopathy and retinopathy	-	-	-		
7. Infectious pancreatic necrosis	0000	0000	0000		
8. Epizootic ulcerative syndrome (EUS)	0000	0000	0000		
9. Bacterial kidney disease	0000	0000	0000		
10. Red seabream iridoviral disease	0000	0000	0000		
11. Enteric septicaemia of catfish	0000	0000	0000		
Non OIE-listed diseases relevant to the region					
12. Epitheliocystis	-	-	-		
13. Grouper iridoviral disease	-	-	-		
14. Infection with koi herpesvirus	0000	0000	+	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	***	***	***		
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:

+	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	A trial batch of 30 koi submitted by a fish importer from a new Malaysian source was tested positive for koi herpesvirus by nested PCR. The fish were clinically healthy at time of submission. As part of the disease control measures taken, quarantine and movement control was imposed on the affected importer premise. Further koi samples totaling 334 fish taken from the affected fish importer premise and other fish importers who imported koi from Malaysia since August 2005, were tested negative for KHV by nested PCR. There were no signs of clinical disease in the imported koi inspected at time of sampling.

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

Country: Sri Lanka Period: July-September 2005

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	July	August	September		
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	0000	0000	0000		
2. Infectious haematopoietic necrosis	0000	0000	0000		
3. *Oncorhynchus masou* virus disease	0000	0000	0000		
4. Spring viraemia of carp	0000	0000	0000		
5. Viral haemorrhagic septicaemia	0000	0000	0000		
6. Viral encephalopathy and retinopathy	0000	0000	0000		
7. Infectious pancreatic necrosis	0000	0000	0000		
8. Epizootic ulcerative syndrome (EUS)	-	-	-	I	1
9. Bacterial kidney disease	0000	0000	0000		
10. Red seabream iridoviral disease	0000	0000	0000		
11. Enteric septicaemia of catfish	0000	0000	0000		
Non OIE-listed diseases relevant to the region					
12. Epitheliocystis	0000	0000	0000		
13. Grouper iridoviral disease	0000	0000	0000		
14. Infection with koi herpesvirus	0000	0000	0000		
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with *Bonamia exitiosa*	0000	0000	0000		
2. Infection with *Mikrocytos roughleyi*	0000	0000	0000		
3. Infection with *Haplosporidium nelsoni*	0000	0000	0000		
4. Infection with *Marteilia sydneyi*	0000	0000	0000		
5. Infection with *Perkinsus olseni/atlanticus* [b/])	0000	0000	0000		
Non OIE-listed diseases relevant to the region					
6. Infection with *Marteilioides chungmuensis*	0000	0000	0000		
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Taura syndrome	0000	0000	0000		
2. White spot disease	+	+	+	III	
3. Yellowhead disease (YH virus, gill-associated virus)	-	-	-	I	
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	0000	0000	0000		
ANY OTHER DISEASES OF IMPORTANCE					
1. Unidentified disease of crab	+				2
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	Suspected cases were reported in last few years. But not confirmed
2	Signs of muscle deterioration and production of a milky liquid observed. Situation recovered within one week.

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

Country: Thailand Period: July-September 2005

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	July	August	September		
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	+	+	+	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)	+	+	+	III	6
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	There was no new KHVD outbreak during July – September. The records as positive in July and in August were results from the KHV monitoring in program in the quarantine zones of two koi companies using nested PCR. Fish in these two companies found to carry KHV gene without clinical signs. Three fish in one company were destroyed. Over 700 fish in the other company were later released as nested PCR showed negative. In September, 8 kois in one hobbyist house were found nested PCR positive and have been quarantined. Eight kois in the quarantine did not exhibit clinical signs. Therefore they are subjected to close monitoring by the Department of Fisheries. During the KHVD outbreaks in March to September 2005, a total of 3,248 kois in the affected zones of 4 koi companies and 2 koi farms had been destroyed. Currently, kois in 39 koi production farms designated for exportation that have never been in association with or in contact directly or in-directly with the kois that returned from the koi contest are now still safe and free from KHVD.
2	A total of 313 shrimp PL samples had been tested at PCR Laboratories of the DOF before stocking in culture ponds under the health management and disease control strategies. 6 specimens or 2% were recorded as RT-PCR positive or carrying TSV genes that advised to be destroyed.
3	A total of 989 shrimp PL samples had been tested at PCR Laboratories of the DOF before stocking in culture ponds under the health management and disease control strategies. 5 specimens or 0.5% were recorded as PCR positive or carrying SEMBV genes that advised to be destroyed.
4	A total of 174 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. 3 specimens or 1.7% were recorded as PCR positive or carrying YHV genes that advised to be destroyed.

5	A total of 329 shrimp PL samples had been tested at PCR Laboratories of the DOF before stocking in culture ponds under the health management and disease control strategies. 68 specimens or 20.7% 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.
6	White tail disease (MrNV and XSV) has been found for the first time in July 2005 using RT-PCR and sequence analysis of the RT-PCR product in the diseased larvae of the giant prawn, *Macrobrachium rosenbergii*. The MrNV and XSV were detected and confirmed by Inland Aquatic Animal health Research Institute (AAHRI), Department of Fisheries. Most larvae specimens did not exhibit white tail clinical sign, however they exhibited transparent bodies and light-orange to brown discoloration instead. The disease usually appeared days 14 -19 after hatching with high mortalities up to 90 - 100% in most cases. Both viral genes were detected in the same larvae specimens and cytoplasmic inclusion bodies were also observed. Origin of MrNV and XSV has not yet to be confirmed. However the importations of the giant prawn brooders are suspected. These two viruses are found to cause problems mainly in larvae of giant prawns in the hatcheries. Other susceptible species are under investigation. Disease characteristics (in case of Thailand) might identify as an unusual mortality in larvae stage at days 14 – 19 post-hatching and the affected larvae exhibited transparent bodies and light-orange to brown discoloration. Histopathological signs showed cytoplasmic inclusion body in the hepatopancreas of affected larvae. MrNV and XSV genes were found using RT-PCR and had over 95% nucleotide homology to those sequences published in the GenBank. Mortalities were high in the larvae stage in the hatcheries. Death toll or economic loss was mainly in hatcheries. However the disease problems are decreases in November –December which may indicate seasonal related. The infected areas are mainly in Central Thailand. Advice for preventive/control measures has been given through Fisheries Officers and media. This first finding of MrNV and XSV in Thailand was presented in Diseases in Asian Aquaculture VI in Sri Lanka during 25-28 October 2005.

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

Department of Fisheries (DOF) has resumed issuance of import permit of fancy carp fish into Thailand starting from November 24, 2005.

OIE list of diseases in the 8th edition 2005 of the *Aquatic Code*

The following diseases of fish are listed by the OIE: Article 1.1.3.1

- Epizootic haematopoietic necrosis
- Infectious haematopoietic necrosis
- Spring viraemia of carp
- Viral haemorrhagic septicaemia
- Infectious pancreatic necrosis[1]
- Infectious salmon anaemia
- Epizootic ulcerative syndrome
- Bacterial kidney disease (*Renibacterium salmoninarum*)[1]
- Gyrodactylosis (*Gyrodactylus salaris*)
- Red sea bream iridoviral disease
- Koi herpesvirus disease[2]

The following diseases of molluscs are listed by the OIE: Article 1.1.3.2.

- Infection with *Bonamia ostreae*
- Infection with *Bonamia exitiosa*
- Infection with *Marteilia refringens*
- Infection with *Mikrocytos mackini*[1]
- Infection with *Perkinsus marinus*
- Infection with *Perkinsus olseni*[1]
- Infection with *Xenohaliotis californiensis*.

The following diseases of crustaceans are listed by the OIE: Article 1.1.3.3.

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

---

[1] Delisting of this disease is under study.

[2] Listing of this disease is under study.

Revised quarterly aquatic animal disease (QAAD) report form for 2006

Country: Period:

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES					
OIE-listed diseases					
1. Epizootic haematopoietic necrosis					
2. Infectious haematopoietic necrosis					
3. Spring viraemia of carp					
4. Viral haemorrhagic septicaemia					
5. Infectious pancreatic necrosis[1]					
6. Epizootic ulcerative syndrome (EUS)					
7. Bacterial kidney disease[1]					
8. Red seabream iridoviral disease					
9. Infection with koi herpesvirus[2]					
Non OIE-listed diseases relevant to the region					
10. Viral encephalopathy and retinopathy					
11. Enteric septicaemia of catfish					
12. Epitheliocystis					
13. Grouper iridoviral disease					
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with *Bonamia exitiosa*					
2. Infection with *Perkinsus olseni*[1]					
Non OIE-listed diseases relevant to the region					
3. Infection with *Marteilia sydneyi*					
4. Infection with *Marteilioides chungmuensis*					
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Taura syndrome					
2. White spot disease					
3. Yellowhead disease					
4. Spherical baculovirosis (*Penaeus monodon*-type baculovirus)					
5. Infectious hypodermal and haematopoietic necrosis					
6. Tetrahedral baculovirosis (*Baculovirus penaei*)					
7. Necrotising hepatopancreatitis[2]					
Non OIE-listed diseases relevant to the region					
8. Baculoviral midgut gland necrosis					
9. 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[b]
LISTED BY THE OIE
Finfish: Infectious salmon anaemia; Gyrodactylosis (*Gyrodactylus salaris*)
Molluscs: Infection with *Bonamia ostreae*; *Marteilia refringens*; *Mikrocytos mackini*[1] ; *Perkinsus marinus*; *Xenohaliotis californiensis*;
Crustaceans: Crayfish plague (*Aphanomyces astaci*); Infectious myonecrosis[2]
NOT LISTED BY THE OIE, BUT OF POTENTIAL RELEVANCE
Finfish: Channel catfish virus disease; Piscirickettsiosis

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	(year)	Year of last occurrence

[1] Delisting of this disease is under study by OIE.
[2] Listing of this disease is under study by OIE.
b/ 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	
2	
3	
4	

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

Abalone Viral Mortality - Disease Card[1]

Shi Zhengli[2] and Judith Handlinger[3]

Preliminary remark: For the purposes of this disease card, abalone viral mortality encompasses crack-shell disease of *Haliotis hannai* and viral disease of *Haliotis diversicolor*, two syndromes which could be distinct diseases, pending further scientific information.

Pathogen information

1. causative agent

1.1. pathogen type

viruses

1.2. disease name and synonyms

crack-shell disease of *Haliotis hannai*, *Haliotis diversicolor* viral disease

1.3. pathogen common name and synonyms

abalone spherical viruses

1.4. taxonomic affiliation

1.4.1. pathogen scientific name (Genus species sub-species or type)

no data

1.4.2. phylum, class, family etc…

no data

1.5. description of the pathogen

Virus type 1: spherical virion, 90-140 nm in diameter, two-layer envelope (8-10 nm) with a smooth surface; nucleocapsid measured 70-100 nm in diameter; replicated in cytoplasm of haemocytes and interstitial (or connective) tissues. (4,5,7)

Virus type 2: spherical virion, 100 nm in diameter, enveloped, hexagonal nucleocapsid (or icosahedral shape), replicated in cytoplasm of the epithelial cells of liver (hepatopancreas), kidney and intestines, and usually present in endoplasmic reticulum; DNA virus. (1,3,6)

Virus type 3: spherical virion, 135-150 nm, enveloped, with spikes on the surface, icosahedral nucleocapsid with a size of 100-110 nm in diameter; assembled in double-layered vesicles of the cytoplasm of infected liver and intestines cells (both epithelial cells and connective cells); speculated as nuclear replicated virus. (9)

---

[1] Shi Zhengli and Judith Handlinger (2004) Abalone Viral Mortality – Disease card. Developed to support the NACA/FAO/OIE regional quarterly aquatic animal disease (QAAD) reporting system in the Asia-Pacific. NACA, Bangkok, Thailand. 5 pp.

[2] Dr Shi Zhengli, Wuhan Institute of Virology, Chinese Academy of Sciences, 44 Xiao Hong Shan, 430071 Wuhan, Hubei Province, People's Republic of China

[3] Dr Judith Handlinger, Senior Veterinary Pathologist (Aquatic Animals), Fish Health Unit, Animal Health Laboratory, Department of Primary Industries, Water and Environment, Tasmania, Mt Pleasant Laboratories, PO Box 46,Kings Meadows TAS 7249

Virus type 4: spherical virion, 90-110 nm, enveloped with a smooth surface, icosahedral nucleocapsid; assembled in double-layered vesicles of the cytoplasm of infected liver and intestines cells (both epithelial cells and connective cells); speculated as nuclear replicated virus. (9)

Additional information:

- The samples of virus type 2, 3 and 4 are from the same region, Dongshan Fujian province, China.
- *Vibrio alginolyticus* and *V. parahaemolyticus*) may co-infect abalone which has been infected with virus and could be co-factors for *H. diversicolor* diseases. (9,10)

1.6. authority (first scientific description, reference)

virus type 1: Wang B., Li X., Gou C. Infection of spherical viruses from *Haliotis discus hannai* Ino. Virologica Sinica, 1997, 12(4): 360-363

virus type 2: Huang Y., Wu W., Yan J., Zhou W. Investigation on an exterminate disease of *Haliotis divericolor aquatilisi*, Fujian Veterinary and Zootechnics, 1999, 21(3): 4-5

1.7. pathogen environment (fresh, brackish, marine waters)

Marine water

2. modes of transmission

2.1. routes of transmission (horizontal, vertical, direct, indirect)

virus type 1: horizontal, per os or oral transmission

virus type 2 (3 and 4): horizontal,

2.2. life cycle

no data

2.3. associated factors (temperature salinity, etc…)

virus type 1: low temperature (less than 20 ^{o}C)

virus type 2 (3 and 4): low temperature (less than 24 ^{o}C), usually in winter (from October to November) and summer (from April to May)

2.4. additional comments

Virus type 1-like particles were found present in other mollusc species such as turban shell (*Turbo* sp), mussel (*Mytilus edulis)* and tegula (*Tegula* [*Chlorostoma*] *rusticum*).

3. host range

3.1. host type

abalone

3.2. host scientific names

virus type 1: *Haliotis hannai* Ino

virus type 2 (3 and 4): *Haliotis diversicolor* Reeve

3.3. other known or suspected hosts

virus type 1: *Turbo* sp., *Tegula rusticum*, *Mytilus edulis*

virus type 2: unknown

3.4. affected life stage

virus type 1: young abalone. However, viral particles are also found in adult healthy abalone.

virus type 2: all developmental stages of abalone.

3.5. additional comments

Different names are used for the host species, such as *Haliotis diversicolor, Haliotis diversicolor aquatilis, Haliotis diversicolor supertexta* and *Haliotis diversicolor diversicolor*. It is suggested that these different names should be unified to be *Haliotis diversicolor* Reeve.

4. geographic distribution

4.1. region

virus type 1: North and Northeast of China (Dalian, Liaoning province along Bohai coast line)

virus type 2: South of China (Fujian, Hainan and Guangdong province in the southern sea of China)

4.2. country

China

4.3. additional comments

In Bohai and Huanghai coast line of China, the cultured abalone specie is *Haliotis hannai* Ino, while in southern sea coast line, the cultured abalone specie is *Haliotis diversicolor* Reeve

Disease information

1. clinical signs and case description

1.1. host tissues and infected organs

type 1: viral particles present in cytoplasm of haemocytes and interstitial (or connective) tissues.

type 2 (3 and 4): viral particles usually present in cytoplasm of epithelial and connective cells of liver and intestines. Apparently, viral particles may also be found in infected cell nuclei.

1.2. gross observations and macroscopic lesions

type 1 (associated with virus type 1): low activity, lost appetite, unsusceptible to light, thin shell, edge turndown, decreased growth rate, 50% mortality in 40-89 d by oral infection.

type 2 (associated with virus type 3 and 4): secretion of mucus, low activity, lost appetite, contracted feet and mantle, black and hardened feet, dead abalone presents swollen liver and intestines and adheres to the bottom of the pond, high mortality (100% in 3-9 d).

1.3. microscopic lesions and tissue abnormality

type 1: Observation based on H & E staining sections of mantle, feet, gill, liver (hepatopancreas), stomach and intestines, the common pathological changes are: necrosis and disorder of connective tissues of all organs; necrosis of haemocytes and epithelial cells; disorder and detachment of epithelial cells of feet, mantle, liver and gills.

type 2 (3 and 4): based on microscopic observation: disorder and hypertrophy of epithelial cells of liver, detachment and vacuolization of epithelium and connective tissues. Based on ultrathin section observation, the infected cells show pathological change such as swollen membrane and mitochondria, denatured nucleoplasm, vacuolisation of cells and abound of endoplasmic reticulum in the cells.

1.4 OIE status

Currently not listed by the OIE

2. social and economic significance
no data but significant economic importance is suspected through the different reports which are currently available.

3. zoonotic importance
no data

4. diagnostic methods

Three levels of examination procedures are used: screening methods for surveillance, presumptive diagnostic methods when abnormal mortalities occur, and confirmatory methods if available when a pathogen is encountered during screening or mortality outbreaks.

4.1. screening methods

4.1.1. level I

type 1 (associated with virus type 1): low activity, lost appetite, unsusceptible to light, thin shell, edge turndown, decreased growth rate.

type 2 (associated with virus type 2): secretion of mucus, low activity, lost appetite, contracted feet and mantle, black and hardened feet, dead abalone presents swollen liver and intestines and adheres to the bottom of fishpond, high mortality (100% in 3-9 d).

4.1.2. level II: None

4.1.3. level III: None

4.2. presumptive methods

4.2.1. level I: see section 4.1.1.

4.2.2. level II

type 1: Observation based on H & E staining sections of mantle, feet, gill, liver (hepatopancreas), stomach and intestines, the common pathological changes are: necrosis and disorder of connective tissues of all organs; necrosis of haemocytes and epithelial cells; disorder and detachment of epithelial cells of feet, mantle, liver and gills.

type 2 (3 and 4): based on microscopic observation: disorder and hypertrophy of epithelial cells of liver, detachment and vacuolization of epithelium and connective tissues. Based on ultrathin section observation, the infected cells show pathological changes such as swollen

membrane and mitochondria, denatured nucleoplasm, vacuolisation of cells and abound of endoplasmic reticulum in the cells.

4.2.3. level III: None

4.3. confirmatory methods

4.3.1. level I: None

4.3.2. level II: None

4.3.3. level III

Transmission Electron Microscopy. See description in sections above.

5. control methods

No known methods of prevention or control. Infected abalone should not be transported into areas known to be free of the disease.

Selected references

1. Fang Y., Huang Y., Yang J., Yan D., Wu W., Ni Z. Isolation and observation of "virus disease" virus of abalone in Dongshan Fujian. Journal of Oceanography in Taiwan Strait, 2002, 21(2): 199-202.
2. Huang Y., Chen X., Wu W., Yan J., Ni Z. A diagnostic and cure report on the viral disease of *Haliotis divericolor aquatilis*. Fujian Veterinary and Zootechnics, 2000, 22 (4): 5-6
3. Huang Y., Wu W., Yan J., Zhou W. Investigation on an exterminate disease of *Haliotis divericolor aquatilisi*, Fujian Veterinary and Zootechnics, 1999, 21(3): 4-5
4. Li X., Wang B., Liu S., Liu M., Wang Q. Studies on pathogeny and histopathology of "crack shell disease" of *Haliotis discus hanni*. Journal of Fisheries of China, 1998, 22(3):61-66
5. Li X., Wang B., Liu S., Xu J. The infection to a few kinds of shellfish inshore by a kind of virus. Journal of Dalian Fisheries University, 2000, 15(2): 86-91
6. Song Z., Ji R., Yan S., Chen C., Zhong Y., Jiang Y., Ni Z. A sphereovirus resulted in mass mortality of *Haliotis divericolor aquatilis*. Journal of Fisheries of China,24(5): 463-466
7. Wang B., Li X., Gou C. Infection of spherical viruses from *Haliotis discus hannai* Ino. Virologica Sinica, 1997, 12(4): 360-363
8. Wang J., Su Y., Zhang J., Huang Y., Zhang Z., Yan Q., Wang D. Spring explosive epidemic disease of abalone in Dongshan district. Journal of Xiamen University (Natural Science), 1999, 38 (5): 641- 644
9. Zhang Z., Wang J., Su Y., Yan Q., Chi X., Zhou H., Zhou Y. Pathogen and histopathology of the epidemic disease in *Haliotis diversicolor supertexta*. Journal of Xiamen University (Natural Science), 2001a, 40(4): 949-956
10. Zhang Z., Wang J. Zhang J., Su Y., Huan Y., Yan Q. Bacterial diseases of *Haliotis diversicolor supertexta* in Dong Shan, Fujian. Journal of Oceanography in Taiwan strait. 2001b, 20 (2): 193-199.

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, 8th Edition, 2005
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)

List of National Coordinators*

Country	Name and Address
Australia	Dr. Eva -Maria Bernoth Manager, Aquatic Animal Health Unit , Office of the Chief Veterinary Officer Department of Agriculture, Fisheries and Forestry GPO Box 858, Canberra ACT 2601, Australia Fax: 61-2-6272 3150; Tel: 61-2-6272 4328 Email: Eva-Maria.Bernoth@affa.gov.au Mr. Alistair Herfort Aquatic Animal Health Unit , Office of the Chief Veterinary Officer Department of Agriculture, Fisheries and Forestry GPO Box 858, Canberra ACT 2601, Australia Fax: +61 2 6272 3150; tel: +61 2 6272 4009 E-mail: Alistair.Herfort@affa.gov.au
Bangladesh	Dr. M. A. Mazid Director General, Bangladesh Fisheries Research Institute (BFRI) Mymensingh 2201, Bangladesh Fax: 880-2-55259, Tel: 880-2-54874 E-mail: dgbfri@bdonline.com
Cambodia	Mr Hav Viseth Vice Chief, Aquaculture Bureau, Department of Fisheries 186 Norodom Blvd.,P.O. Box 835, Phnom Penh, Cambodia Fax: (855) 23 210 565; Tel: (855) 23 210 565 E-mail: smallfish@online.com.kh
China	Mr Zhuzewen Disease Prevention and Control Division National Fisheries Technique Extension Center (NFTEC) Ministry of Agriculture Mai Zi Dian Street No 18 Chanyang District, Beijing 100026, China Fax: 86-10-65074250; Tel: 86-010-64195073 E-mail:zewenzhu@sina.com
DPR Korea	Mr. Chong Yong Ho Director of Fish Farming Technical Department, Bureau of Freshwater Culture Sochangdong Central District, P.O.Box. 95 , Pyongyong, DPR Korea Fax- 850-2-814416; Tel- 3816001, 3816121
Hong Kong China	Dr Jim Chu Aberdeen Fisheries Office 100 A, Shek Pai Wan Road Aberdeen, Hong Kong Tel: 852-2873833; Fax: 852-28700324 E-Mail: jim_cw_chu@afcd.gov.hk

* The matrix provides a list of National Coordinators and focal points nominated by governments for the *Asia-Pacific Quarterly Aquatic Animal Disease Reports*.

India	Mr Ajay Bhattacharya Joint Secretary (Fisheries) Department of Animal Husbandry and Dairying Ministry of Agriculture Krishi Bhawan, New Delhi 110001 Tel: 91 11 2338 1994; Fax: 91 11 2307 0370 E-Mail: a.bhattacharya@nic.in
Indonesia	Dr Darnas Dana Director for Fish Health and Environment Ministry of Marine affairs and Fisheries Jl. Harsono RM No. 3, Ragunan Pasar Minggu Tromol Pos No.: 1794/JKS Jakarta – 12550 Indonesia Tel: 7804116-119; Fax: 62 21 78835853; 7803196 E-mail: dfhe@indosat.net.id
Iran	Dr. A.E. Maghsodi Fard Manager Director of Aquatic Animal Diseases Department Veterinary Organization Ministry of Jihad – E – Sazandegi Vali-ASR Ave, S.J.Asad Abadi St PO Box 14155 – 6349, Tehran, Iran Tel: 8857007-8857193; Fax: 8857252 E-mail: amaghsodifard@yahoo.com
Japan	Mr. Mahito Masuda Fish and Fishery Products Safety Office Food Safety and Consumer Affairs Bureau Ministry of Agriculture, Forestry and Fisheries 1-2-1, Kasumigaseki Chiyoda-ku, Tokyo 100-8950, Japan Fax: 813-3502-8275; Tel: 813-3502-8098 E-mail: mahito_masuda@nm.maff.go.jp
Lao PDR	Mr. Khampet Roger Fisheries and Livestock Department Ministry of Agriculture, Forestry and Fisheries P.O. Box 811, Vientianne, Lao PDR TeleFax: (856-21) 415674; Tel: (856-21) 416932 E-mail: eulaodlf@laotel.com Mr. Bounma Luang Amath Fisheries and Livestock Department Ministry of Agriculture, Forestry and Fisheries P.O. Box 811, Vientianne, Lao PDR TeleFax: (856-21) 415674; Tel: (856-21) 416932 E-mail: eulaodlf@laotel.com
Malaysia	Dr Siti Zahrah Abdullah National Fish Health Research Centre 11960 Batu Maung Penang, Malaysia Fax: 6-04-6263977; Tel: 6-04-6263922 E-mail: szahrah@fri.gov.my Dr. Ong Bee Lee Head, Regional Veterinary Laboratory Services Department of Veterinary Services, 8th & 9th Floor, Wisma Chase Perdana Off Jln Semantan 50630, Kuala Lumpur, Malaysia Fax: (60-3) 254 0092/253 5804; Tel: (60-3) 254 0077 ext.173 E-mail: ong@jph.gov.my
Myanmar	Ms. Daw May Thanda Wint Assistant Staff Officer, Aquatic Animal Health Section

	Department of Fisheries Sinmin Road, Alone Township , Yangon, Myanmar Fax: (95-01) 228-253; Tel: (95-01) 283-304/705-547 E-mail: dof@mptmail.net.mm Mr. U.Than Win Assistant Director Export and Import Quality Control Laboratory and Aquatic Animal Health Section Department of Fisheries, Ministry of Livestock and Fisheries Sin Minn Road, Alone Township, Yangon, Myanmar Fax: (95-01) 228-253; Tel: (95-01) 283-304/705-547 E-mail: dof@mptmail.net.mm
Nepal	Mr. Dharani Man Singh Senior Fisheries Development Officer, Chief of Central Fisheries Laboratory, Central Fisheries Building, Balaju, Kathmandu. Nepal. E-mail: dharanimsingh@gmail.com) Mr. Shankar Prasad Dahal Assistant Fisheries Development Officer Directorate of Fisheries Development Central Fisheries Building, Balaju, Kathmandu, Nepal Tel: + 350 662 E-mail: dofd@mail.com.np
Pakistan	Dr. Muhammad Hayat Assistant Fisheries Development Commissioner Livestock Division, Ministry of Food, Agriculture and Livestock 10th Floor, Shaheed-e-Millat Secretariat (Livestock Wing) I Islamabad Fax: 92-51-922 1246; Tel: 92-51-920 8267 ahc@isb.paknet.com.pk
Philippines	Dr. Joselito R. Somga Aquaculturist II, Fish Health Section, BFAR 860 Arcadia Building, Quezon Avenue, Quezon City 1003 Fax: (632)3725055/4109987; Tel:(632) 3723878 loc206 or 4109988 to 89 E-mail: jsomga@bfar.da.gov.ph
Republic of Korea	Dr. Mi-Seon Park Director of Pathology Division National Fisheries Research and Development Institute 408-1 Sirang, Kijang, Pusan 619-900 Korea RO Tel: 82-51-720-2470; Fax: 82-51-720-2498 E-mail: parkms@haema.nfrda.re.kr

Singapore	Mr Hanif Loo Jang Jing Programme Executive (Aquaculture) Aquaculture Branch Food Supply & Technology Department Agri-Food & Veterinary Authority of Singapore 5 Maxwell Road, #01-00, Tower Block, MND Complex, Singapore 069110 Tel: 65 – 63257636; Fax: 65 – 63257677 Email: loo_jang_jing@ava.gov.sg Dr. Susan Kueh Head, Aquatic Animal Health Branch Animal and Plant Health Laboratories 6 Perahu Road, Singapore 718827 Tel: 63165140, Fax: 63161090 E-mail: Susan_KUEH@ava.gov.sg
Sri Lanka	Dr S.C.Jayamanne National Aquatic Research and Development Agency Crow Island, Mattakuliya Colombo 15, Sri Lanka Tel/Fax: 094-11-2521932 E-mail: sepalika@nara.ac.lk Mr Mahinda Kulathilaka National Aquaculture Development Authority 758 Baseline Road Colombo 9 Tel: 94 1 2521005; Fax: 94 1 2521932 E-mail: ardaip2@eol.lk
Thailand	Dr. Somkiat Kanchanakhan Fish Virologist, Aquatic Animal Health Research Institute (AAHRI) Department of Fisheries , Kasetsart University Campus Jatujak, Bangkok 10900, Thailand Fax: 662-561-3993; Tel: 662-579-4122, 6977 E-mail: somkiatkc@fisheries.go.th
Vietnam	Dr. Le Thanh Luu Director Research Institute for Aquaculture No. 1 (RIA No. 1) Dinh Bang, Tien Son, Bac Ninh, Vietnam Fax: 84-4-827-1368; Tel: 84-4-827-3070 E-mail: ria1@hn.vnn.vn Ms Phan Thi Van RIA No.1,Dinh Bang , Tien Son, Bac Ninh, Vietnam Fax: 84-4-827-1368; Tel : 84-4-827 - 3070 E-mail: ria1@hn.vnn.vn; phanvan@hn.vnn.vn

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:

OIE
East 311, Shin Aoyama Building, 1-1-1 Minami Aoyama, Minato-ku,
Tokyo 107-0062, Japan
Tel: +81-3-5411-0520; Fax: +81-3-5411-0526
E-mail: oietokyo@tky.3web.ne.jp

NACA
P. O. Box 1040, Kasetsart Post Office, Bangkok 10903, Thailand
Tel: 66-2-561-1728/9 (ext. 117); Fax: 66-2-561-1727
Dr. C.V. Mohan
E-mail: mohan@enaca.org

FAO
Fishery Resources Division, Fisheries Department
FAO of the United Nations
Viale delle Terme di Caracalla, 00100 Rome
Tel. +39 06 570 56473; Fax + 39 06 570 530 20
E-mail: Rohana.Subasinghe@fao.org

Notes

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

ISSN 1513-6558

Printed by Craftsman Press, Bangkok