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QUARTERLY AQUATIC ANIMAL DISEASE REPORT (Asia and Pacific Region)

April – June 2011

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Suraswadi Building, Department of Fisheries
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Contents

Foreword

Transboundary Diseases – Where To From Here?

Transboundary diseases have plagued most of our region for the past 20 years. Since the disastrous spread of EUS in the late 1980's through the successive waves of prawn viruses, and to the more recent KHV and IMNV outbreaks, we have been struck by many diseases which have had varying levels of impact. Nearly all of them have been linked to transport of live aquatic animals across borders. The way that EUS jumped oceans demonstrates that distance is no protection. While they cannot be stopped altogether (some of the introductions were done illegally), limiting the damage is an important way of dealing with these diseases once they arrive. Preparedness and response is essential.

The need for adequate emergency aquatic animal disease (EAAD) preparedness and response has been demonstrated repeatedly in the region. It is essential to have a plan decided and agreed upon by all agencies within a country responsible for aquatic animal disease management ***before*** a disease outbreak, to ensure the most rapid and efficient response when a disease event occurs. This will ensure that economic and social consequences are less than if the disease becomes widespread. The spread of diseases throughout the region causes massive economic and social costs. The need for effective EAAD is obvious. Where, as a region, are we in relation to EAAD preparedness?

In the last 10-12 years, there have been a number of activities to help countries in the region to implement EAAD preparedness and response. The *'Asia Regional Technical Guidelines on Health Management for the Responsible Movement of Live Aquatic Animals* and the *Beijing Consensus and Implementation Strategy'*, the supporting 'Manual of Procedures' and the 'Asia Diagnostic Guide' were developed through consensus building and consultations and adopted by NACA member countries in 2000-2001. The *Asia Regional Advisory Group on Aquatic Animal Health* (AG) is an expert group institutionalised under the intergovernmental organization of NACA to provide advice to Asian governments in implementing (and monitoring) the *Technical Guidelines* and aquatic animal health issues within the Asia-Pacific region. The AG recognises that the *Technical Guidelines* are the principle, regionally agreed approach, to building aquatic animal health capabilities in the region.

Contingency planning is one element of the *Technical Guidelines*, under which many other elements fall. To develop a contingency plan, other aspects of management including awareness, surveillance, diagnostics, communication, reporting frameworks, legislation, biosecurity and resources must be in place. The AG has identified that the status of contingency planning in some countries is not certain and that there are gaps in implementation of contingency planning. Contingency planning can assist to identify weaknesses in early detection and early response frameworks. Support for developing contingency plans for a particular disease threat may be a good first point in developing this capability in the region. The current threat of the spread of IMNV and KHV farther than their current reported range gives added impetus to developing contingency plans for these diseases.

Only three of the 21 countries participating in the regional aquatic animal health program of NACA have good contingency planning in place (Mohan and Phillips 2005). Since its inception the AG has identified contingency planning as an important area to continue developing and improving in NACA member countries.

Awareness and knowledge of EAAD is high, due to projects aimed at providing the tools to develop EAAD response plans and frameworks in the region. However, to date, large scale and costly disease outbreaks particularly in *Penaeus monodon* and *Litopenaeus vannamei* farming have suggested that implementation of coordinated disease response is lacking, even though the tools, skills and abilities to manage outbreaks may be present. Lack of contingency plans and implementation of them may contribute to this lack of adequate disease response.

Several projects to address the issue of preparedness and response plans for aquatic animal disease (AAD) in the region were precipitated by the KHV outbreak in Indonesia in 2002. These projects aimed to provide tools for participants to develop effective national systems for EAAD management.

The FAO guidelines on preparedness and response to AAD emergencies in Asia (Arthur et al. 2005) are an excellent resource for developing national response capability. Technical missions to Vietnam, Cambodia, Lao PDR and Myanmar (Strengthening Aquatic Animal Health Capacity and Biosecurity in ASEAN - AADCP-RPS 370-021) assisted these countries to commence drafting and developing plans for AAH management, including preparedness and response outputs. These workshops involved a large number of participants from all levels and sectors of government, education and industry, covering most stakeholder groups. Additional policy and training workshops were also held as part of this project. It is not clear, however, how these guidelines and plans have been used or implemented in the region.

Tools for development of effective preparedness and response in the region have been delivered. However, it also seems as though implementation in some countries has been constrained. Assessment of where countries are in the implementation of preparedness and response strategies, the constraints they face in implementation, and how to address those constraints is required. A clear commitment by governments to build the structures required for effective detection, preparedness and response to EAADs is necessary to assist trade, reduce losses and manage these potentially devastating problems in the region. The cost of doing so is far less than the cost of failure of nationally important industries.

References:

Arthur JR, Baldock FC, Subasinghe RP and McGladdery SE. 2005. Preparedness and Response to aquatic animal health emergencies in Asia: guidelines. FAO: Rome

Mohan CV and Phillips MJ 2005. Capacity building for developing national and regional emergency prevention systems for transboundary aquatic animal diseases. pp147-156. In: Subasinghe, R.P. and Arthur JR (Eds.) Regional Workshop on Preparedness and Response to Aquatic Animal Health Emergencies in Asia. Jakarta, Indonesia, 21-23 September 2004. FAO Fisheries Proceedings No. 4. Rome, FAO. 178p.

Reports Received by the NACA Secretariat

ERRATUM

QAAD Reports from the first quarter of 2010 to the first quarter of 2011 used a template where the old name "Abalone viral mortality" was entered under the OIE-listed diseases for mollusc. All entries under this disease should be for "Infection with abalone herpes-like virus", the name adopted during the AGM 8 based on the amendments made to the OIE Aquatic Code of 2009. Entry for this disease has been amended in this current issue.

Country: AUSTRALIA **Period: April - June 2011**

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	April	May	June		
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	-(2009)	-(2009)	-(2009)		1
2. Infectious haematopoietic necrosis	0000	0000	0000		
3. Spring viraemia of carp	0000	0000	0000		
4. Viral haemorrhagic septicaemia	0000	0000	0000		
5. Epizootic ulcerative syndrome	-(2011)	+	+	III	2
6. Red seabream iridoviral disease	0000	0000	0000		
7. Koi herpesvirus disease	0000	0000	0000		
Non OIE-listed diseases					
8. Grouper iridoviral disease	0000	0000	0000		
9. Viral encephalopathy and retinopathy	+	+	+	III	3
10.Enteric septicaemia of catfish	-(2010)	-(2010)	+	III	4
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with *Bonamia exitiosa*	0000	0000	0000		
2. Infection with *Perkinsus olseni*	-(2011)	-(2011)	-(2011)		5
3. Infection with abalone herpes-like virus	-(2011)	-(2011)	-(2011)		6
Non OIE-listed diseases					
4. Infection with *Marteilioides chungmuensis*	0000	0000	0000		
5. Acute viral necrosis (in scallops)	***	***	***		
6. Akoya oyster disease	0000	0000	0000		
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Taura syndrome	0000	0000	0000		
2. White spot disease	0000	0000	0000		
3. Yellowhead disease	0000	0000	0000		
4. Infectious hypodermal and haematopoietic necrosis	-(2008)	-(2008)	-(2008)		7
5. Infectious myonecrosis	0000	0000	0000		
6. White tail disease (MrNV)	-(2008)	-(2008)	-(2008)		8
7. Necrotising hepatopancreatitis	***	***	***		
Non OIE-listed diseases					
8. *Monodon* slow growth syndrome	0000	0000	0000		
9. Milky haemolymph disease of spiny lobster (*Panulirus* spp.)	0000	0000	0000		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	-(2008)	-(2008)	-(2008)		9
2. Infection with *Batrachochytrium dendrobatidis*	-(2011)	-(2011)	-(2011)		10
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*; *Perkinsus marinus*; *Xenohaliotis californiensis*.
Crustaceans: Crayfish plague (*Aphanomyces astaci*).
NOT LISTED BY THE OIE
Finfish: Channel catfish virus disease

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/ 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 occurred previously in New South Wales (last year reported 2009), Victoria (last year reported 2004) and South Australia (last year reported 1992). Targeted surveillance and never reported in Tasmania. Passive surveillance and never reported in the Northern Territory, Queensland and Western Australia. Not reported during this period, but known to occur in the Australian Capital Territory (last year reported 2008).
2	**Epizootic ulcerative syndrome** 1. **Reported in NSW** in May 2011. Passive surveillance; 2. **Species affecred-** yellowfin bream (*Acanthopagrus australis*) and sea mullet (*Mugil cephalus*), affected fish were 20-25 cm in length; 3. **Clinical signs-** skin ulcerations; 4. **Pathogen-** *Aphanomyces invadans*; 5. **Mortality rate-** 10-100 fish affected; 6. **Economic loss-** n/a; 7. **Geographic extent-** Lake Kimberly (man-made lake); 8. **Containment measures-** artificial lake – does not require containment; 9. **Laboratory confirmation-** diagnosed histopathology including Gomori's silver stain for fungi ; 10. **Publications-** unpublished ; 1. **Reported in NT** in June 2011. Passive surveillance; 2. **Species affecred-** sleepy cod (*Oxyeleostris lineolatus*) 15-24 cm, mullet (Mugilidae) 23 cm, gudgeon (*Mogurnda* spp.) 13 cm, mouth almighty (*Glossamia aprion*) 10-13 cm, archerfish (*Taxotes* spp.) 13-15 cm; 3. **Clinical signs-** n/a; 4. **Pathogen-** *Aphanomyces invadans* with various opportunistic Gram negative bacteria;

2	**Epizootic Ulcerative Syndrome (Ctnd…)** 5. **Mortality rate**- no mortality reported. All clinically affected fish were destroyed; 6. **Economic loss**- n/a; 7. **Geographic extent**- EUS is endemic in certain streams and rivers in NT. Affected fish were caught from the wild and held in captivity in a commercial aquarium fish trader premises for about one month ; 8. **Containment measures**- closed aquarium system (three 1800 L tanks), emptied tanks were chlorinated ; 9. **Laboratory confirmation**- diagnosed by i. histopahtology, ii. PCR ; 10. **Publications**- unpublished Epizootic ulcerative syndrome was not reported this period despite targeted surveillance, but is known to have occurred previously in South Australia (last year reported 2008). Not reported during this period despite passive surveillance in Victoria (last year reported 2010), Queensland (last reported 1st quater 2011) and Western Australia (last year reported 2009). Passive surveilance and never reported in Tasmania. No information available in Australian Capital Territory.
3	**Viral Encephalopathy and Retinopathy** 1. **Reported in Queensland** in April and May 2011. Passive surveillance; 2. **Species affected**- barramundi (*Lates calcarifer*) – 11/12 day old larvae (hatchery 1), 30 day old fry (hatchery 2) and 6 weeks old fry (farm); 3. **Clinical signs**- affected fish had severe vacuolating necrosis of neurons in the retina and brain; 4. **Pathogen**- *Betanovirus*; 5. **Mortality rate**- 0.01% (hatchery 1), 100% (hatchery 2) and 0.5% (farm); 6. **Economic loss**- n/a; 7. **Geographic extent**- farm (April 2011) and two hatcheries (May 2011); 8. **Containment measures**- n/a; 9. **Laboratory confirmation**- diagnosed by histopathology; 10. **Publications**- unpublished. 1. **Reported in NT** in June 2011. Passive surveillance; 2. **Species affected**- barramundi (*Lates calcarifer*) – 61 days old (farm 1) and 64 days old (farm 2); 3. **Clinical signs**- clinical disease (farm 1), asymptomatic (farm 2); 4. **Pathogen**- *Betanovirus*; 5. **Mortality rate**- 40% of a population of 120,000 (farm 1), no mortality (farm 2); 6. **Economic loss**- n/a; 7. **Geographic extent**- four 30,000 L tanks (farm 1), tanks with flow-through system (farm 2); 8. **Containment measures**- all affected fish were destroyed (farm 1), n/a (farm 2); 9. **Laboratory confirmation**- diagnosed by i. Histopathology, ii. qRT-PCR 10. **Publications**- unpublished. Viral encephalopathy and retinopathy was not reported this period despite passive surveillance, but is known to have occurred previously in South Australia and New South Wales (last year reported 2010), Western Australia (last year reported 2004) and Tasmania (last year reported 2000). Never reported from Victoria despite passive surveillance. No information available this period in the Australian Capital Territory.

4	**Enteric septicaemia of catfish** 1. **Reported in NT** in June 2011. Passive surveillance; 2. **Species affected-** black catfish (*Neosilurus ater*) 15-17 cm, and toothless catfish (*Anodontiglanis dahli*) 20 cm; 3. **Clinical signs-** affected fish had pre-existing trauma related to handling, mixed systemic parasitic infection, or asymptomatic; 4. **Pathogen-** *Edwardsiella ictaluri*; 5. **Mortality rate-** 5-10% of about 500 already debilitated fish; 6. **Economic loss-** n/a; 7. **Geographic extent-** commercial aquarium fish trader premise (one 1800 L tank). All were wild caught fish held in captivity for about one month; 8. **Containment measures-** debilitated fish were destroyed, emptied tanks were chlorinated; 9. **Laboratory confirmation-** bacteriology culture, biochemical test kit and PCR; 10. **Publications-** unpublished. Enteric septicaemia of catfish was not reported this period despite passive surveillance in Queensland (last year reported 2008) and Tasmania in zebrafish (*Brachydanio rerio*) in PC2 containment (last year reported 2001). Never reported in New South Wales, South Australia, Victoria and Western Australia despite passive surveillance. No information available this period in the Australian Capital Territory.
5	**Infection with *Perkinsus olseni*** was not reported this period despite passive surveillance but is known to have occurred previously in South Australia (last reported 1st quarter 2011), New South Wales (last year reported 2005) and Western Australia (last year reported 2003). Passive surveillance and never reported in the Northern Territory, Queensland, Tasmania and Victoria. No information available this period in the Australian Capital Territory (no marine water responsibility).
6	**Infection with abalone herpes-like virus** (abalone viral ganglioneuritis) was not reported this period despite passive surveillance but is known to have occurred previously in Tasmania (last reported 1st quarter 2011), Victoria (last year reported 2010). Passive surveillance and never reported in Queensland, New South Wales, South Australia and Western Australia. No information available this period in the Australian Capital Territory (no marine water responsibility) and Northern Territory.
7	**Infectious hypodermal and haematopoietic necrosis virus** was not reported this period despite passive surveillance but is known to have occurred previously in Queensland (last year reported 2008) and Northern Territory (last year reported 2003). 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).
8	**White tail disease** was not reported this period from Queensland despite passive surveillance (last year reported 2008). Passive surveillance and never reported from New South Wales and South Australia. No information available this period in the Australian Capital Territory, Northern Territory, Tasmania, Victoria and Western Australia.
9	**Infection with ranavirus** was not reported this period despite passive surveillance but is known to have occurred previously in the Northern Territory (reported to have occurred in 2008). Suspected but not confirmed despite passive surveillance in Queensland. Passive surveillance and never reported in Tasmania. No information available this period in the Australian Capital Territory, New South Wales, South Australia, Victoria and Western Australia.

10	**Infection with *Batrachochytrium dendrobatidis*** was not reported this period but is known to have occurred previously in Victoria (last reported 1st quarter 2011), Tasmania (last reported 2010). Not reported this period despite passive surveillance in Queensland. No information available this period in the Australian Capital Territory, South Australia, New South Wales and Northern Territory.

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

Country: HONG KONG SAR **Period: April - June 2011**

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	April	May	June		
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	0000	0000	0000	II	
2. Infectious haematopoietic necrosis	0000	0000	0000	III	
3. Spring viraemia of carp	0000	0000	0000	III	
4. Viral haemorrhagic septicaemia	0000	0000	0000	III	
5. Epizootic ulcerative syndrome	0000	0000	0000	II	
6. Red seabream iridoviral disease	-	+	-	III	1
7. Koi herpesvirus disease	-	-	-	III	
Non OIE-listed diseases					
8. Grouper iridoviral disease	-	-	-	III	
9. Viral encephalopathy and retinopathy	-	-	-	III	
10.Enteric septicaemia of catfish	0000	0000	0000	II	
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with *Bonamia exitiosa*	0000	0000	0000	II	
2. Infection with *Perkinsus olseni*	0000	0000	0000	II	
3. Infection with abalone herpes-like virus	0000	0000	0000	II	
Non OIE-listed diseases					
4. Infection with *Marteilioides chungmuensis*	0000	0000	0000	II	
5. Acute viral necrosis (in scallops)	0000	0000	0000	II	
6. Akoya oyster disease	0000	0000	0000	II	
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Taura syndrome	0000	0000	0000	III	
2. White spot disease	-	+	-	III	2
3. Yellowhead disease	0000	0000	0000	III	
4. Infectious hypodermal and haematopoietic necrosis	0000	0000	0000	II	
5. Infectious myonecrosis	0000	0000	0000	II	
6.White tail disease (MrNV)	0000	0000	0000	II	
7. Necrotising hepatopancreatitis	0000	0000	0000	II	
Non OIE-listed diseases					
8. *Monodon* slow growth syndrome	0000	0000	0000	II	
9. Milky haemolymph disease of spiny lobster (*Panulirus* spp.)	0000	0000	0000	II	
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	0000	0000	0000	II	
2. Infection with *Batrachochytrium dendrobatidis*	0000	0000	0000	II	
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*; *Perkinsus marinus*; *Xenohaliotis californiensis*.
Crustaceans: Crayfish plague (*Aphanomyces astaci*).
NOT LISTED BY THE OIE
Finfish: Channel catfish virus disease

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/ 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	Infectious spleen and kidney necrosis virus (Red seabream iridoviral disease) was detected in a group of green groupers which were observed to be lethargic and have skin lesions. There was 10% mortality reported.
2	White spot syndrome virus was detected in a group of giant tiger prawns with increased surface fouling organisms observed. 3% mortality and 10% morbidity were reported.
3	

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

Country: INDIA **Period: April - June 2011**

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	April	May	June		
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	0000	0000	0000		
2. Infectious haematopoietic necrosis	0000	0000	0000		
3. Spring viraemia of carp	0000	0000	0000		
4. Viral haemorrhagic septicaemia	0000	0000	0000		
5. Epizootic ulcerative syndrome	-	-	-		
6. Red seabream iridoviral disease	0000	0000	0000		
7. Koi herpesvirus disease	0000	0000	0000		
Non OIE-listed diseases					
8. Grouper iridoviral disease	0000	0000	0000		
9. Viral encephalopathy and retinopathy	0000	0000	0000		
10.Enteric septicaemia of catfish	0000	0000	0000		
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with *Bonamia exitiosa*	0000	0000	0000		
2. Infection with *Perkinsus olseni*	0000	0000	0000		
3. Infection with abalone herpes-like virus	0000	0000	0000		
Non OIE-listed diseases					
4. Infection with *Marteilioides chungmuensis*	0000	0000	0000		
5. Acute viral necrosis (in scallops)	0000	0000	0000		
6. Akoya oyster disease	0000	0000	0000		
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Taura syndrome	0000	0000	0000		
2. White spot disease	+( )	+( )	+( )	I	1
3. Yellowhead disease	***	***	***		
4. Infectious hypodermal and haematopoietic necrosis	***	***	***		
5. Infectious myonecrosis	0000	0000	0000		
6.White tail disease (MrNV)	-	-	-		
7. Necrotising hepatopancreatitis	0000	0000	0000		
Non OIE-listed diseases					
8. *Monodon* slow growth syndrome	0000	0000	0000		
9. Milky haemolymph disease of spiny lobster (*Panulirus* spp.)	0000	0000	0000		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	0000	0000	0000		
2. Infection with *Batrachochytrium dendrobatidis*	0000	0000	0000		
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*; *Perkinsus marinus*; *Xenohaliotis californiensis*.
Crustaceans: Crayfish plague (*Aphanomyces astaci*).
NOT LISTED BY THE OIE
Finfish: Channel catfish virus disease

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

1. Epidemiological comments:

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

Comment No.	
1	Reported from very limited areas in the states of Andhra Pradesh, Karnataka and Tamil Nadu as follows: 1) Andhra Pradesh: Kaikaluru Taluk (Krishna District) 2) Karnataka: Haldipur Taluk (Uttar Kannada District); Kundapur Taluk (Udupi District); 3) Tamil Nadu: Chidambaram Taluk (Kanchipram District)
2	
3	

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

Country: INDONESIA **Period: April - June 2011**

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	April	May	June		
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	0000	0000	0000		
2. Infectious haematopoietic necrosis	0000	0000	0000		
3. Spring viraemia of carp	0000	0000	0000		
4. Viral haemorrhagic septicaemia	0000	0000	0000		
5. Epizootic ulcerative syndrome	***	***	***		
6. Red seabream iridoviral disease	0000	0000	0000		
7. Koi herpesvirus disease	+	-	-	II	1
Non OIE-listed diseases					
8. Grouper iridoviral disease	+	+	+	III	2
9. Viral encephalopathy and retinopathy	+	+	0000	III	3
10.Enteric septicaemia of catfish	***	***	***		
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with *Bonamia exitiosa*	0000	0000	0000		
2. Infection with *Perkinsus olseni*	0000	0000	0000		
3. Infection with abalone herpes-like virus	***	***	***		
Non OIE-listed diseases					
4. Infection with *Marteilioides chungmuensis*	0000	0000	0000		
5. Acute viral necrosis (in scallops)	0000	0000	0000		
6. Akoya oyster disease	0000	0000	0000		
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Taura syndrome	-	-	-		
2. White spot disease	+	+	+	III	4
3. Yellowhead disease	***	***	***		
4. Infectious hypodermal and haematopoietic necrosis	+	+	+	III	5
5. Infectious myonecrosis	-	+	+	III	6
6.White tail disease (MrNV)	0000	0000	0000		
7. Necrotising hepatopancreatitis	0000	0000	0000		
Non OIE-listed diseases					
8. *Monodon* slow growth syndrome	0000	0000	0000		
9. Milky haemolymph disease of spiny lobster (*Panulirus* spp.)	0000	0000	0000		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	0000	0000	0000		
2. Infection with *Batrachochytrium dendrobatidis*	0000	0000	0000		
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*; *Perkinsus marinus*; *Xenohaliotis californiensis*.
Crustaceans: Crayfish plague (*Aphanomyces astaci*).
NOT LISTED BY THE OIE
Finfish: Channel catfish virus disease

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/ 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	**KHV** 1. Occurred mostly at stagnant water (ponds) such as in Central Kalimantan (Katingan); 2. **Species affected:** common carp (*Cyprinus carpio*); 3. **Clinical signs:** 4. **Pathogen:** Koi herpes virus; 5. **Mortality rate:** 50%; 6. **Economic loss:** low; 7. **Names of infected areas:** Central Kalimantan (Katingan); 8. **Preventive/control measures:** 9. **Laboratory confirmation:** DGA Technical Implementing Unit Laboratory by PCR, Center of Freshwater Aquaculture Developement (CFAD), Mandiangin, South Kalimantan; 10. **Publications :** not published.
2	**GIV** 1. - 2. **Species affected:** polkadot grouper (*Cromileptes altivelis*), tiger grouper (*Epinephelus fuscoguttatus*); 3. **Clinical signs:** abnormal surface swimming, lack or response, irritation at some parts of the body, giant cell on kidney observed, no clinical sign on some samples; 4. **Pathogen:** Grouper iridovirus; 5. **Mortality rate:** 6. **Economic loss:** not significant; 7. **Names of infected areas:** Lampung; 8. **Preventive/control measures:** 9. **Laboratory confirmation:** DGA Technical Implementing Unit Laboratory by PCR, Main Center of Marine Aquaculture Development (MCMAD), Lampung, South Sumatra; 10. **Publications :** not published.

3	**VNN** 1. Diseases were found in seed phase; 2. **Species affected:** polkadot grouper (*Cromileptes altivelis*), tiger grouper (*Epinephelus fuscoguttatus*); 3. **Clinical signs:** abnormal surface swimming (spiral, whirling or belly-up), bad response 4. **Pathogen:** Viral nervous necrosis virus; 5. **Mortality rate:** 6. **Economic loss:** low to high; 7. **Names of infected areas:** Lampung; 8. **Preventive/control measures:** 9. **Laboratory confirmation:** DGA Technical Implementing Unit Laboratory by PCR, Main Center of Marine Aquaculture Development (MCMAD), Lampung, South Sumatra; 10. **Publications :** not published.
4	**WSSV** 1. - 2. **Species affected:** Tiger shrimp (*Penaeus monodon*), white shrimp (*Litopenaeus vannamei*); 3. **Clinical signs:** white spot on carapace, shrimp becoming weak and swimming on the surface and pond edges; 4. **Pathogen:** Whte spot syndrome virus (Whispovirus); 5. **Mortality rate:** high (100%) 6. **Economic loss:** high; 7. **Names of infected areas:** Central Java (Jepara); East Java (Gresik, Tuban); 8. **Preventive/control measures:** early havest, use of probiotics 9. **Laboratory confirmation:** DGA Technical Implementing Unit Laboratory by PCR; 10. **Publications :** not published.
5	**IHHNV** 1. - 2. **Species affected:** white shrimp (*Litopenaeus vannamei*); 3. **Clinical signs:** slow growth (very small size/dwarf); 4. **Pathogen:** Infectious hypodermal and haematopoietic necrosis virus (Parvovirus); 5. **Mortality rate:** low 6. **Economic loss:** quite high; 7. **Names of infected areas:** Central Java (Jepara); East Java (Gresik), West Nusa Tenggara (Bima); 8. **Preventive/control measures:** 9. **Laboratory confirmation:** DGA Technical Implementing Unit Laboratory by PCR; 10. **Publications :** not published.
6	**IMNV** 1. - 2. **Species affected:** white shrimp (*Litopenaeus vannamei*); 3. **Clinical signs:** broken at shrimp meat with white sign, especially at abdomen and telson, positive detection by PCR; 4. **Pathogen:** Infectious myonecrosis virus; 5. **Mortality rate:** high 6. **Economic loss:** quite high; 7. **Names of infected areas:** Central Java (Jepara); East Java (Banyuangi); 8. **Preventive/control measures:** 9. **Laboratory confirmation:** DGA Technical Implementing Unit Laboratory by PCR; 10. **Publications :** not published.

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

Country: JAPAN **Period: January - March 2011**

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	January	February	March		
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	0000	0000	0000	I	
2. Infectious haematopoietic necrosis	+	+	+	III	
3. Spring viraemia of carp	0000	0000	0000	I	
4. Viral haemorrhagic septicaemia	-	+	+	III	
5. Epizootic ulcerative syndrome	-	-	-	I	
6. Red seabream iridoviral disease	-	-	-	I	
7. Koi herpesvirus disease	+	+	-	III	
Non OIE-listed diseases					
8. Grouper iridoviral disease	0000	0000	0000	I	
9. Viral encephalopathy and retinopathy	-	-	-	I	
10.Enteric septicaemia of catfish	-	-	-	I	
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with *Bonamia exitiosa*	0000	0000	0000	I	
2. Infection with *Perkinsus olseni*	-	-	-	I	
3. Infection with abalone herpes-like virus	0000	0000	0000	I	
Non OIE-listed diseases					
4. Infection with *Marteilioides chungmuensis*	-	-	-	I	
5. Acute viral necrosis (in scallops)	0000	0000	0000	I	
6. Akoya oyster disease	-	-	-	I	
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Taura syndrome	0000	0000	0000	I	
2. White spot disease	-	-	-	I	
3. Yellowhead disease	0000	0000	0000	I	
4. Infectious hypodermal and haematopoietic necrosis	0000	0000	0000	I	
5. Infectious myonecrosis	0000	0000	0000	I	
6.White tail disease (MrNV)	0000	0000	0000	I	
7. Necrotising hepatopancreatitis					
Non OIE-listed diseases	0000	0000	0000	I	
8. *Monodon* slow growth syndrome	0000	0000	0000	I	
9. Milky haemolymph disease of spiny lobster (*Panulirus* spp.)	0000	0000	0000	I	
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	-	-	-	I	
2. Infection with *Batrachochytrium dendrobatidis*	-	-	-	I	
ANY OTHER DISEASES OF IMPORTANCE					
1. Infection with Candidatus Xenohalioris californiensis	-	-	+	III	
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*; *Perkinsus marinus*; *Xenohaliotis californiensis*.
Crustaceans: Crayfish plague (*Aphanomyces astaci*).
NOT LISTED BY THE OIE
Finfish: Channel catfish virus disease

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/ 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	

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

Country: JAPAN **Period: April - June 2011**

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	April	May	June		
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	0000	0000	0000	I	
2. Infectious haematopoietic necrosis	+	+	+	III	
3. Spring viraemia of carp	0000	0000	0000	I	
4. Viral haemorrhagic septicaemia	+	+	-	III	
5. Epizootic ulcerative syndrome	-	-	-	I	
6. Red seabream iridoviral disease	+	+	+	III	
7. Koi herpesvirus disease	-	+	+	III	
Non OIE-listed diseases					
8. Grouper iridoviral disease	0000	0000	0000	I	
9. Viral encephalopathy and retinopathy	-	+	-	III	
10.Enteric septicaemia of catfish	-	-	-	I	
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with *Bonamia exitiosa*	0000	0000	0000	I	
2. Infection with *Perkinsus olseni*	-	-	-	I	
3. Infection with abalone herpes-like virus	0000	0000	0000	I	
Non OIE-listed diseases					
4. Infection with *Marteilioides chungmuensis*	-	-	-	I	
5. Acute viral necrosis (in scallops)	0000	0000	0000	I	
6. Akoya oyster disease	-	-	-	I	
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Taura syndrome	0000	0000	0000	I	
2. White spot disease	-	-	+	III	
3. Yellowhead disease	0000	0000	0000	I	
4. Infectious hypodermal and haematopoietic necrosis	0000	0000	0000	I	
5. Infectious myonecrosis	0000	0000	0000	I	
6.White tail disease (MrNV)	0000	0000	0000	I	
7. Necrotising hepatopancreatitis					
Non OIE-listed diseases	0000	0000	0000	I	
8. *Monodon* slow growth syndrome	0000	0000	0000	I	
9. Milky haemolymph disease of spiny lobster (*Panulirus* spp.)	0000	0000	0000	I	
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	-	-	+( )	III	
2. Infection with *Batrachochytrium dendrobatidis*	-	-	-	I	
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*; *Perkinsus marinus*; *Xenohaliotis californiensis*.
Crustaceans: Crayfish plague (*Aphanomyces astaci*).
NOT LISTED BY THE OIE
Finfish: Channel catfish virus disease

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/ 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	

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

Country: LAO PDR **Period: October - December 2010**

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	October	November	December		
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	***	***	***		
2. Infectious haematopoietic necrosis	***	***	***		
3. Spring viraemia of carp	***	***	***		
4. Viral haemorrhagic septicaemia	***	***	***		
5. Epizootic ulcerative syndrome	***	***	***		
6. Red seabream iridoviral disease	***	***	***		
7. Koi herpesvirus disease	***	***	***		
Non OIE-listed diseases					
8. Grouper iridoviral disease	***	***	***		
9. Viral encephalopathy and retinopathy	***	***	***		
10.Enteric septicaemia of catfish	***	***	***		
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with *Bonamia exitiosa*	***	***	***		
2. Infection with *Perkinsus olseni*	***	***	***		
3. Infection with abalone herpes-like virus	***	***	***		
Non OIE-listed diseases					
4. Infection with *Marteilioides chungmuensis*	***	***	***		
5. Acute viral necrosis (in scallops)	***	***	***		
6. Akoya oyster disease	***	***	***		
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Taura syndrome	***	***	***		
2. White spot disease	***	***	***		
3. Yellowhead disease	***	***	***		
4. Infectious hypodermal and haematopoietic necrosis	***	***	***		
5. Infectious myonecrosis	***	***	***		
6.White tail disease (MrNV)	***	***	***		
7. Necrotising hepatopancreatitis	***	***	***		
Non OIE-listed diseases					
8. *Monodon* slow growth syndrome	***	***	***		
9. Milky haemolymph disease of spiny lobster (*Panulirus* spp.)	***	***	***		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	***	***	***		
2. Infection with *Batrachochytrium dendrobatidis*	***	***	***		
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*; *Perkinsus marinus*; *Xenohaliotis californiensis*.
Crustaceans: Crayfish plague (*Aphanomyces astaci*).
NOT LISTED BY THE OIE
Finfish: Channel catfish virus disease

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/ 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	

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

Country: LAO PDR **Period: January - March 2011**

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	January	February	March		
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	***	***	***		
2. Infectious haematopoietic necrosis	***	***	***		
3. Spring viraemia of carp	***	***	***		
4. Viral haemorrhagic septicaemia	***	***	***		
5. Epizootic ulcerative syndrome	***	***	***		
6. Red seabream iridoviral disease	***	***	***		
7. Koi herpesvirus disease	***	***	***		
Non OIE-listed diseases					
8. Grouper iridoviral disease	***	***	***		
9. Viral encephalopathy and retinopathy	***	***	***		
10.Enteric septicaemia of catfish	***	***	***		
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with *Bonamia exitiosa*	***	***	***		
2. Infection with *Perkinsus olseni*	***	***	***		
3. Infection with abalone herpes-like virus	***	***	***		
Non OIE-listed diseases					
4. Infection with *Marteilioides chungmuensis*	***	***	***		
5. Acute viral necrosis (in scallops)	***	***	***		
6. Akoya oyster disease	***	***	***		
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Taura syndrome	***	***	***		
2. White spot disease	***	***	***		
3. Yellowhead disease	***	***	***		
4. Infectious hypodermal and haematopoietic necrosis	***	***	***		
5. Infectious myonecrosis	***	***	***		
6.White tail disease (MrNV)	***	***	***		
7. Necrotising hepatopancreatitis	***	***	***		
Non OIE-listed diseases					
8. *Monodon* slow growth syndrome	***	***	***		
9. Milky haemolymph disease of spiny lobster (*Panulirus* spp.)	***	***	***		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	***	***	***		
2. Infection with *Batrachochytrium dendrobatidis*	***	***	***		
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*; *Perkinsus marinus*; *Xenohaliotis californiensis*.
Crustaceans: Crayfish plague (*Aphanomyces astaci*).
NOT LISTED BY THE OIE
Finfish: Channel catfish virus disease

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/ 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	

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

Country: LAO PDR **Period: April - June 2011**

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	April	May	June		
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	***	***	***		
2. Infectious haematopoietic necrosis	***	***	***		
3. Spring viraemia of carp	***	***	***		
4. Viral haemorrhagic septicaemia	***	***	***		
5. Epizootic ulcerative syndrome	***	***	***		
6. Red seabream iridoviral disease	***	***	***		
7. Koi herpesvirus disease	***	***	***		
Non OIE-listed diseases					
8. Grouper iridoviral disease	***	***	***		
9. Viral encephalopathy and retinopathy	***	***	***		
10.Enteric septicaemia of catfish	***	***	***		
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with *Bonamia exitiosa*	***	***	***		
2. Infection with *Perkinsus olseni*	***	***	***		
3. Infection with abalone herpes-like virus	***	***	***		
Non OIE-listed diseases					
4. Infection with *Marteilioides chungmuensis*	***	***	***		
5. Acute viral necrosis (in scallops)	***	***	***		
6. Akoya oyster disease	***	***	***		
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Taura syndrome	***	***	***		
2. White spot disease	***	***	***		
3. Yellowhead disease	***	***	***		
4. Infectious hypodermal and haematopoietic necrosis	***	***	***		
5. Infectious myonecrosis	***	***	***		
6.White tail disease (MrNV)	***	***	***		
7. Necrotising hepatopancreatitis	***	***	***		
Non OIE-listed diseases					
8. *Monodon* slow growth syndrome	***	***	***		
9. Milky haemolymph disease of spiny lobster (*Panulirus* spp.)	***	***	***		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	***	***	***		
2. Infection with *Batrachochytrium dendrobatidis*	***	***	***		
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*; *Perkinsus marinus*; *Xenohaliotis californiensis*.
Crustaceans: Crayfish plague (*Aphanomyces astaci*).
NOT LISTED BY THE OIE
Finfish: Channel catfish virus disease

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/ 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	

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

Country: MALAYSIA **Period: April - June 2011**

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	April	May	June		
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	0000	0000	0000		
2. Infectious haematopoietic necrosis	0000	0000	0000	I,II,III	
3. Spring viraemia of carp	0000	0000	0000	I,II,III	
4. Viral haemorrhagic septicaemia	0000	0000	0000	I,II,III	
5. Epizootic ulcerative syndrome	(1986)	(1986)	(1986)	I.II	
6. Red seabream iridoviral disease	-	-	-	I,II,III	
7. Koi herpesvirus disease	-	+	+	I,II,III	1
Non OIE-listed diseases					
8. Grouper iridoviral disease	-	-	-	III	2
9. Viral encephalopathy and retinopathy	-	-	-	III	3
10.Enteric septicaemia of catfish	0000	0000	0000		
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with *Bonamia exitiosa*	0000	0000	0000		
2. Infection with *Perkinsus olseni*	0000	0000	0000		
3. Infection with abalone herpes-like virus	0000	0000	0000		
Non OIE-listed diseases					
4. Infection with *Marteilioides chungmuensis*	0000	0000	0000		
5. Acute viral necrosis (in scallops)	0000	0000	0000		
6. Akoya oyster disease					
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Taura syndrome	-	-	-	I,III	4
2. White spot disease	+	+	+	I,III	5
3. Yellowhead disease	-	-	-	I,III	6
4. Infectious hypodermal and haematopoietic necrosis	+	-	+	I,III	7
5. Infectious myonecrosis	-	-	-	III	8
6.White tail disease (MrNV)	-	-	-	III	9
7. Necrotising hepatopancreatitis	-	-	-	III	10
Non OIE-listed diseases					
8. *Monodon* slow growth syndrome	-	-	-		
9. Milky haemolymph disease of spiny lobster (*Panulirus* spp.)	?	?	?		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	-	-	-		
2. Infection with *Batrachochytrium dendrobatidis*	0000	0000	0000		

ANY OTHER DISEASES OF IMPORTANCE					
1. Streptococcal infection	-	-	+	I,II	11
2. Hepatopancreatic parvo virus disease	-	-	-	III	12
3. Cyprinid herpesvirus 2(CyHV-2, GFHNV)	-	-	+	III	13
4. Chanel catfish virus (CCV)	0000	+	-	III	14

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*; *Perkinsus marinus*; *Xenohaliotis californiensis*.
Crustaceans: Crayfish plague (*Aphanomyces astaci*).
NOT LISTED BY THE OIE
Finfish: Channel catfish virus disease

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/ 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	**Koi herpesvirus disease** 1. 8 of 20 total samples of *Cyprinus carpio* (common carp) from Perak tested by DOF were positive for KHV.
2	**Grouper iridoviral disease (GIV)** Diagnostic cases: • PCR was done using IQ2000 kit on grouper and arowana from Kedah and Perak, respectively. Both were found negative.
3	**Viral encephalopathy and retinopathy** 1. All fish samples from Kedah and Penang were negative for VNN tested in NaFisH.

4	**Taura syndrome virus (TSV)** 1. TSV was not detected in all the samples sent to Lab Industrial Resources laboratory (LIR) for routine and monitoring purpuses. 2. No PCR positive on reported cases were detected although active surveillance was conducted by DOF in East Malaysia.
5	**White spot syndrome virus (WSSV)** Egg-PL 1. Only 1 sample in April was positive for WSSV from 156 total samples tested from April-June in the state of Selangor by LIR laboratory for routine monitoring purposes. 2. No positive cases detected (PCR) although active surveillance was conducted by DOF in East Malaysia. Juvenile-adult 1. 16 of 152 total samples from April to June were tested positive to WSSV in the states of Penang, Perak and Johor, by LIR laboratory for routine monitoring purposes; 2. No positive cases detected (PCR) although active surveillance was conducted by DOF in East Malaysia.
6	**Yellowhead disease (YHV)** 1. YHV was not detected in all the samples sent to LIR laboratory for routine and monitoring purposes; 2. No positive cases detected (PCR) although active surveillance was conducted by DOF in East Malaysia.
7	**Infectious hypodermal and haematopoietic necrosis virus (IHHNV)** Egg-PL 1. 2 of 81 total samples were positive for IHHNV in April and June in the state of Terengganu, tested by LIR laboratory for routine and monitoring purposes; 2. No positive cases detected (PCR) although active surveillance was conducted by DOF in East Malaysia. Juvenile-adult 1. IHHNV was not detected in all samples sent to LIR laboratory for routine and monitoring purposes; 2. No positive cases detected (PCR) although active surveillance was conducted by DOF in East Malaysia.
8	**Infectious myonecrosis (IMNV)** 1. IMNV was not detected in all samples sent to LIR laboratory for routine and monitoring purposes.
9	***Macrobrachium rosenbergii* nodavirus (MrNV)** 1. All samples tested by NaFisH were negative for MrNV.

10	**Necrotising hepatopancreatitis (NHP)** 1. All captured samples of frozen prawns tested by LIR laboratory were found negative.
11	**Streptococcal infection in Tilapia Merah (*Oreochromis* sp.)** Diagnostic case in Tasik Pedu, Kedah. 1. **Clinical signs:** erratic swimming, exophthalmus and lethary 2. **Pathogen:** Streptococcus agalactiae 3. **Mortality rate:** 60% 4. **Economic loss:** n/a 5. **Sources of fry:** Kedah 6. **Laboratory confirmation:** API 20E STREP 7. **Publications:** Lab reports made available to farms.
12	**Hepatopancreatic parvo virus disease (HPV)** 1. IMNV was not detected in all samples sent to LIR laboratory for routine and monitoring purposes.
13	**Cyprinid herpesvirus 2 (CyHV-2, GFHNV)** 1. 7 out of 41 total samples of *Carrasius auratus* from Perak and tested by DOF were found positive for GFNHV.
14	**Channel catfish virus (CCV)** 1. CCV was detected in *Pangasius* sp. cultured in cage at Sungai Pahang, Temerloh through active surveillance; 2. **Clinical signs:** inflammation at all fins and mandible; 3. **Pathogen:** Channel catfish virus 4. **Mortality:** not recored; 5. **Economic loss:** n/a 6. **Sources of fry:** hatcheries in states of Perak and Pahang; 7. **Laboratory confirmation:** API 20E STREP 8. **Publications:** reported and presented at Malaysian Association of Veterinary Pathology Seminar in 13-15 May 2011 at Kuantan, Pahang.

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

Country: MYANMAR **Period: April - June 2011**

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	April	May	June		
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	***	***	***		
2. Infectious haematopoietic necrosis	***	***	***		
3. Spring viraemia of carp	***	***	***		
4. Viral haemorrhagic septicaemia	***	***	***		
5. Epizootic ulcerative syndrome	***	***	***		
6. Red seabream iridoviral disease	***	***	***		
7. Koi herpesvirus disease					
Non OIE-listed diseases					
8. Grouper iridoviral disease	***	***	***		
9. Viral encephalopathy and retinopathy	***	***	***		
10.Enteric septicaemia of catfish	***	***	***		
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with *Bonamia exitiosa*					
2. Infection with *Perkinsus olseni*					
3. Infection with abalone herpes-like virus					
Non OIE-listed diseases					
4. Infection with *Marteilioides chungmuensis*					
5. Acute viral necrosis (in scallops)					
6. Akoya oyster disease					
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Taura syndrome	-	-	-	III	1
2. White spot disease	-	-	-	III	1
3. Yellowhead disease	-	-	-	III	
4. Infectious hypodermal and haematopoietic necrosis	-	-	-	III	1
5. Infectious myonecrosis	***	***	***		
6.White tail disease (MrNV)	***	***	***		
7. Necrotising hepatopancreatitis	***	***	***		
Non OIE-listed diseases					
8. *Monodon* slow growth syndrome	***	***	***		
9. Milky haemolymph disease of spiny lobster (*Panulirus* spp.)	***	***	***		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus					
2. Infection with *Batrachochytrium dendrobatidis*					
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*; *Perkinsus marinus*; *Xenohaliotis californiensis*.
Crustaceans: Crayfish plague (*Aphanomyces astaci*).
NOT LISTED BY THE OIE
Finfish: Channel catfish virus disease

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/ 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	During this period, we have received 7 samples of live shrimps for export. These samples were tested for the presence of WSSV, IHHNV and TSV and were found negative.
2	
3	

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

Country: NEPAL **Period: April - June 2011**

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	April	May	June		
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	0000	0000	0000		
2. Infectious haematopoietic necrosis	0000	0000	0000		
3. Spring viraemia of carp	0000	0000	0000		
4. Viral haemorrhagic septicaemia	0000	0000	0000		
5. Epizootic ulcerative syndrome	-	-	-	I	
6. Red seabream iridoviral disease	0000	0000	0000		
7. Koi herpesvirus disease	0000	0000	0000		
Non OIE-listed diseases					
8.Grouper iridoviral disease					
9.Viral encephalopathy and retinopathy					
10.Enteric septicaemia of catfish					
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with *Bonamia exitiosa*	***	***	***		
2. Infection with *Perkinsus olseni*	***	***	***		
3. Infection with abalone herpes-like virus	***	***	***		
Non OIE-listed diseases					
4. Infection with *Marteilioides chungmuensis*	***	***	***		
5. Acute viral necrosis (in scallops)	***	***	***		
6.Akoya oyster disease	***	***	***		
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Taura syndrome	***	***	***		
2. White spot disease	***	***	***		
3. Yellowhead disease	***	***	***		
4. Infectious hypodermal and haematopoietic necrosis	***	***	***		
5. Infectious myonecrosis	***	***	***		
6.White tail disease (MrNV)	***	***	***		
7. Necrotising hepatopancreatitis	***	***	***		
Non OIE-listed diseases					
8. *Monodon* slow growth syndrome	***	***	***		
9. Milky haemolymph disease of spiny lobster (*Panulirus* spp.)	***	***	***		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	***	***	***		
2. Infection with *Batrachochytrium dendrobatidis*	***	***	***		
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*; *Perkinsus marinus*; *Xenohaliotis californiensis*.
Crustaceans: Crayfish plague (*Aphanomyces astaci*).
NOT LISTED BY THE OIE
Finfish: Channel catfish virus disease

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/ 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	

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

Country: PHILIPPINES **Period: April - June 2011**

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	April	May	June		
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	0000	0000	0000		
2. Infectious haematopoietic necrosis	0000	0000	0000		
3. Spring viraemia of carp	0000	0000	0000		
4. Viral haemorrhagic septicaemia	0000	0000	0000		
5. Epizootic ulcerative syndrome	- (2002)	- (2002)	- (2002)		
6. Red seabream iridoviral disease	***	***	***		
7. Koi herpesvirus disease	0000	0000	0000	III	1
Non OIE-listed diseases					
8. Grouper iridoviral disease	-	-	-		
9. Viral encephalopathy and retinopathy	-	-	-	III	2
10.Enteric septicaemia of catfish	***	***	***		
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with *Bonamia exitiosa*	0000	0000	0000		
2. Infection with *Perkinsus olseni*	0000	0000	0000		
3. Infection with abalone herpes-like virus	***	***	***		
Non OIE-listed diseases					
4. Infection with *Marteilioides chungmuensis*	0000	0000	0000		
5. Acute viral necrosis (in scallops)	***	***	***		
6. Akoya oyster disease	***	***	***		
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Taura syndrome	0000	0000	0000	III	3
2. White spot disease	-	-	-	III	4
3. Yellowhead disease	- (1999)	- (1999)	- (1999)		
4. Infectious hypodermal and haematopoietic necrosis	+	-	-	III	5
5. Infectious myonecrosis	0000	0000	0000	III	6
6.White tail disease (MrNV)	0000	0000	0000		
7. Necrotising hepatopancreatitis	0000	0000	0000	III	7
Non OIE-listed diseases					
8. *Monodon* slow growth syndrome	***	***	***		
9. Milky haemolymph disease of spiny lobster (*Panulirus* spp.)	***	***	***		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	***	***	***		
2. Infection with *Batrachochytrium dendrobatidis*	***	***	***		
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*; *Perkinsus marinus*; *Xenohaliotis californiensis*.
Crustaceans: Crayfish plague (*Aphanomyces astaci*).
NOT LISTED BY THE OIE
Finfish: Channel catfish virus disease

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/ 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	Five (5) samples of adult koi carp (*Cyprinus carpio koi*) collected from Quezon City were analyzed using PCR test. All 5 samples showed a negative result for Koi Herpesvirus. Examinations/tests were conducted by the BFAR Central Office Fish Health Laboratory.
2	Ten (10) samples of cage-cultured grouper (*Epinephelus spp.*) collected from Padre Burgos, Quezon Province were analyzed using PCR test. All 10 samples showed a negative result for Viral Encephalopathy and Retinopathy. Examinations/tests were conducted by the BFAR Central Office Fish Health Laboratory.
3	Forty-eight (48) samples (44 *Penaeus vannamei* and 4 *Penaeus monodon*) of different stages (fry, broodstock and adult) were analyzed using the PCR test. All 48 samples showed a negative result for Taura Syndrome Virus. The samples were collected from Bohol, Iloilo City, Zambales, Batangas, Occidental Mindoro, Negros Oriental, Bulacan, Cebu City and Region III. Examinations/tests were conducted by the BFAR Central Office Fish Health Laboratory.
4	Sixty-six (66) samples (39 *Penaeus vannamei*; 21 *Penaeus monodon*; and 1 *Macrobrachium rosenbergii* of different stages [fry, broodstock and adult]; 1 *Scylla serrata* and 4 hermit crabs) were analyzed using the PCR test. All 66 samples showed a negative result for White Spot Virus. The samples were collected from Zambales, Iloilo City, Tacloban City, Aklan, Batangas, Zamboanga Sibugay, Zamboanga del Norte, Ormoc City, Davao City, Occidental Mindoro, Bohol, Cebu, Negros Oriental, Bulacan and Rizal. Examinations/tests were conducted by the BFAR Central Office Fish Health Laboratory.
5	Sixteen (16) samples of *Penaeus vannamei* of different stages (fry and broodstock) were analyzed using PCR test. Out of the sixteen (16) samples, two (2) fry samples from Region III showed a positive result for Infectious Hypodermal and Haematopoietic Necrosis Virus through PCR test. The samples were collected from Iloilo City, Zambales, Batangas and Region III. Examinations/tests were conducted by the BFAR Central Office Fish Health Laboratory.

6	Twenty-four (24) samples of *Penaeus vannamei* of different stages (fry, broodstock and adult) were analyzed using the PCR test. All the samples showed a negative result for Infectious Myonecrosis Virus. The samples were collected from Bohol, Iloilo City, Zambales, Batangas, Occidental Mindoro and Region III. Examinations/tests were conducted by the BFAR Central Office Fish Health Laboratory.
7	Sixteen (16) samples of *Penaeus vannamei* of different stages (fry and broodstock) were analyzed using the PCR test and all samples showed a negative result for Necrotising Hepatopancreatitis. The samples were collected from Iloilo City, Zambales, Batangas and Region III. Examinations/tests were conducted by the BFAR Central Office Fish Health Laboratory.

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

Country: SINGAPORE **Period: April - June 2011**

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	April	May	June		
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	0000	0000	0000		
2. Infectious haematopoietic necrosis	0000	0000	0000		
3. Spring viraemia of carp	0000	0000	0000		
4. Viral haemorrhagic septicaemia	0000	0000	0000		
5. Epizootic ulcerative syndrome	0000	0000	0000		
6. Red seabream iridoviral disease	0000	0000	0000		
7. Koi herpesvirus disease	(2010)	(2010)	(2010)	III	
Non OIE-listed diseases					
8. Grouper iridoviral disease	-	-	+	I,II,III	1
9. Viral encephalopathy and retinopathy	-	-	-		
10.Enteric septicaemia of catfish	0000	0000	0000		
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with *Bonamia exitiosa*	***	***	***		
2. Infection with *Perkinsus olseni*	***	***	***		
3. Infection with abalone herpes-like virus	***	***	***		
Non OIE-listed diseases					
4. Infection with *Marteilioides chungmuensis*	***	***	***		
5. Acute viral necrosis (in scallops)	***	***	***		
6. Akoya oyster disease	***	***	***		
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Taura syndrome	***	***	***		
2. White spot disease	(2010)	(2010)	(2010)		
3. Yellowhead disease	***	***	***		
4. Infectious hypodermal and haematopoietic necrosis	***	***	***		
5. Infectious myonecrosis	***	***	***		
6.White tail disease (MrNV)	***	***	***		
7. Necrotising hepatopancreatitis	***	***	***		
Non OIE-listed diseases					
8. *Monodon* slow growth syndrome	***	***	***		
9. Milky haemolymph disease of spiny lobster (*Panulirus* spp.)	***	***	***		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	***	***	***		
2. Infection with *Batrachochytrium dendrobatidis*	***	***	***		
ANY OTHER DISEASES OF IMPORTANCE					
1. Mullet systemic iridoviral disease	+	(2010)	(2010)	I,II,III	2
2. Seabass iridovirus	(2010)	(2010)	(2010)		

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*; *Perkinsus marinus*; *Xenohaliotis californiensis*.
Crustaceans: Crayfish plague (*Aphanomyces astaci*).
NOT LISTED BY THE OIE
Finfish: Channel catfish virus disease

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/ 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	Infectious spleen and kidney necrosis virus (ISKNV) was detected by PCR in a batch of tiger grouper submitted by a land-based food fish farm. Post-mortem and histopathological findings were strongly suggestive of Grouper Iridoviral Disease. This virus had been detected in previous batches of grouper and seabass submitted by this farm in February and March this year. The farmer was advised to control mortality by culling diseased fish and disinfecting tanks and equipment before introducing new fish.
2	ISKNV was detected by PCR in mullet submitted from a floating netcage farm. Histopathological findings revealed viral inclusion bodies in liver, choroid of the eye, spleen, kidney, heart, gills and blood vessel lumen, which was confirmatory for Mullet Systemic Iridoviral Disease. The farmer was advised to remove affected and dead fish from the water, and reduce stress and handling of the fish.
3	

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

Country: SRI LANKA **Period: January - March 2011**

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	January	February	March		
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	***	***	***		
2. Infectious haematopoietic necrosis	***	***	***		
3. Spring viraemia of carp	?	?	?		
4. Viral haemorrhagic septicaemia	0000	0000	0000		
5. Epizootic ulcerative syndrome	?	?	?		
6. Red seabream iridoviral disease	0000	0000	0000		
7. Koi herpesvirus disease	0000	0000	0000		
Non OIE-listed diseases					
8. Grouper iridoviral disease	***	***	***		
9. Viral encephalopathy and retinopathy	***	***	***		
10.Enteric septicaemia of catfish	***	***	***		
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with *Bonamia exitiosa*	***	***	***		
2. Infection with *Perkinsus olseni*	***	***	***		
3. Infection with abalone herpes-like virus	0000	0000	0000		
Non OIE-listed diseases					
4. Infection with *Marteilioides chungmuensis*	***	***	***		
5. Acute viral necrosis (in scallops)	***	***	***		
6. Akoya oyster disease	0000	0000	0000		
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Taura syndrome	0000	0000	0000		
2. White spot disease	+	+	+	III	1
3. Yellowhead disease	***	***	***		
4. Infectious hypodermal and haematopoietic necrosis	+	+	+	III	2
5. Infectious myonecrosis	***	***	***		
6.White tail disease (MrNV)	***	***	***		
7. Necrotising hepatopancreatitis					
Non OIE-listed diseases	***	***	***		
8. *Monodon* slow growth syndrome	+	+	+	III	3
9. Milky haemolymph disease of spiny lobster (*Panulirus* spp.)	***	***	***		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	0000	0000	0000		
2. Infection with *Batrachochytrium dendrobatidis*	0000	0000	0000		
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*; *Perkinsus marinus*; *Xenohaliotis californiensis*.
Crustaceans: Crayfish plague (*Aphanomyces astaci*).
NOT LISTED BY THE OIE
Finfish: Channel catfish virus disease

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/ 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	**WSSV** *P. monodon* wild brooder, post larvae and sub-adult samples were tested using IQ2000 two-step PCR method. A total of 151 samples were found positive for the infectious strain of WSSV. The above data were obtained from National Aquatic Resources Research and Development Agency (NARA) and the Shrimp Farm Extension and Monitoring Unity at Baththuluoya (National Aquaculture Development Authority of Sri Lanka – NAQDA).
2	**IHHNV** A total of 15 *P. monodon* samples were tested for IHHNV using IQ2000 PCR method. None of the samples were found positive for infectious strain of IHHNV. Data were obtained from NARA Laboratory at the Head Office, Colombo 15.
3	**LSNV (MrNV)** The virus was detected and confirmed using nested RT-PCR. A total of 8 P. monodon samples were tested from January-March 2011, 2 samples were found positive for infectious strain of LSNV. Data were obtained from NARA Laboratory at the Head Office, Colombo 15.

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

Country: VIETNAM **Period: April - June 2011**

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	April	May	June		
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	0000	0000	0000		
2. Infectious haematopoietic necrosis	0000	0000	0000		
3. Spring viraemia of carp	0000	0000	0000		
4. Viral haemorrhagic septicaemia	0000	0000	0000		
5. Epizootic ulcerative syndrome	***	***	***		
6. Red seabream iridoviral disease	0000	0000	0000		
7. Koi herpesvirus disease	0000	0000	0000		
Non OIE-listed diseases					
8. Grouper iridoviral disease	0000	0000	0000		
9. Viral encephalopathy and retinopathy	0000	0000	0000		
10.Enteric septicaemia of catfish	+	+	+	I,II	1
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with *Bonamia exitiosa*	0000	0000	0000		
2. Infection with *Perkinsus olseni*	+	+	+	I,II	2
3. Infection with abalone herpes-like virus	0000	0000	0000		
Non OIE-listed diseases					
4. Infection with *Marteilioides chungmuensis*	0000	0000	0000		
5. Acute viral necrosis (in scallops)	0000	0000	0000		
6. Akoya oyster disease	0000	0000	0000		
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Taura syndrome	0000	0000	0000		
2. White spot disease	+	+	+	I,II,III	3
3. Yellowhead disease	***	***	***		
4. Infectious hypodermal and haematopoietic necrosis	0000	0000	0000		
5. Infectious myonecrosis	0000	0000	0000		
6.White tail disease (MrNV)	***	***	***		
7. Necrotising hepatopancreatitis	0000	0000	0000		
Non OIE-listed diseases					
8. *Monodon* slow growth syndrome	-	-	-		
9. Milky haemolymph disease of spiny lobster (*Panulirus* spp.)	-	-	-		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	0000	0000	0000		
2. Infection with *Batrachochytrium dendrobatidis*	0000	0000	0000		
ANY OTHER DISEASES OF IMPORTANCE					
1. Unknown disease (*P. monodon* and *P. vannamei*)					4
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*; *Perkinsus marinus*; *Xenohaliotis californiensis*.
Crustaceans: Crayfish plague (*Aphanomyces astaci*).
NOT LISTED BY THE OIE
Finfish: Channel catfish virus disease

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/ 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	Pathogen: *Edwardsiella ictaluri* Species affected: catfish (*Pangasius hypophthalmus*) under intensive culture system; Clinical signs: loss of appetite, swollen abdomen, bulging and opaque eyes (blindness), petechiae and haemorrhages around the mouth, abdominal region and fin bases. Internally, haemorrhages and white necrotic foci in the liver, kidney and other organs, enteritis, systemic oedema, accumulation of yellow or basitic fluid in the body cavity, enlargement of spleen, and swollen bladder; Mortality rate: high, 50-80% This disease was reported in Dong Thap province Control measures: water change, use of antibiotics (e.g. Florfenicol, Enrofloxacin) mixed in feeds, water treatment with chlorine and BKC.
2	Origin of the disease: unknown Species affected: *Meretrix lyrata* Pathogen: *Perkinsus* sp. Mortality rate: 15-90% Affected area: around 2,054 has in the following districts: Can Gio District (Ho Chi Minh City); Go Cong District (Tien Giang province); Binh Dai and Ba Tri Districts (Ben Tre province); Ngoc Hien District (Ca Mau province); Bac Liue City (Bac Lieu province)

2	Contd….. Samples sent to national laboratories for confirmation: 5 samples collected from affected areas in Ca Mau and Bac Lieu provinces were tested by laboratory of National Centre for Veterinary Diagnosis (NCVD) and found all samples positive for the disease. The disease was reported to OIE via WAHIS by the Department of Animal Health of Vietnam.
3	Pathogen: White spot syndrome virus (WSSV) Species affected: black tiger shrimp (*Penaeus monodon*) and white leg shrimp (*Litopenaeus vannamei*); Clinical signs: lethargic or moribund shrimp accumulated at pond surface and edges, slow to erratic swimming behavior. Overall body color often reddish. Minute to large (0.5-2.0 mm diameter) white inclusions embedded in the cuticle, especially in the removed carapace held to the light after scraping off attached tissues (not always seen). Moratlity rate: mediumto high, 100% within 10 days in some cases; The disease occurred in 14 provinces including Thai Binh, Nghe An, Ha Tinh, Quang Binh, Thua Thien Hue, Quang Nam, Quang ngai, Binh Dinh, Ninh Thuan, Tien Giang, Ho Chi Minh City, Ben Tre, Kien Giang, and Ca mau; Control measures: early harvest, strict isolation of outbreak ponds with movement controls and control of transportation. Disinfection of outbreak ponds using Calcium hypochlorite (Chlorine).
4	Unknown disease: Delta River, South Vietnam. shrimps (including *P.monodon* and *L. vannamei*) cultured under intensive and semi-intensive systems had massive mortalities (up to 90%) due to disease outbreak at 20-30 days post stocking since March 2011. The disease outbreak occurred in the main shrimp production areas of Tien Giang, Ben Tre, Kien Giang, Soc Trang, Bac Lieu and Ca Mau provinces, with total affected area of 27,037 ha. Clinically affected shrimps: At the early stage of the disease, clinical sign is almost non-specific. Mortalities in *P.monodon* were observed at 30-45 days while for *L. vannamei* at 35-50 days. Clinical signs observed include slow growth, corkscrew swimming, swollen and soft liver, loose shells, as well as pale coloration. There are few cases of diseased shrimps having atrophied heaptopancreas, occasionally white spots on the shells combined with signs of hepatopancreatic disorder. In ponds, the diseased shrimps excrete long strings of white feces that floats on the water surface. Most farmers consider the syndrome as atrophied hepatitis. Pathogen(s) have not been identified. However, some studies suggested that the primary cause of death might be due to accumulated toxicity from various chemicals used in aquaculture. The presence of some microorganisms including *Vibrio*, microsporidians and nematode (gregarine) was also observed in some samples.

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

List of Diseases in the Asia-Pacific
Quarterly Aquatic Animal Disease Report (Beginning 2011)

1. DISEASES PREVALENT IN THE REGION	
1.1 FINFISH DISEASES	
OIE-listed diseases	**Non OIE-listed diseases**
1. Epizootic haematopoietic necrosis	1.Grouper iridoviral disease
2. Infectious haematopoietic necrosis	2.Viral encephalopathy and retinopathy
3. Spring viraemia of carp	3.Enteric septicaemia of catfish
4. Viral haemorrhagic septicaemia	
5. Epizootic ulcerative syndrome	
6. Red seabream iridoviral disease	
7. Infection with koi herpesvirus	
1.2 MOLLUSC DISEASES	
OIE-listed diseases	**Non OIE-listed diseases**
1. Infection with *Bonamia exitiosa*	1. Infection with *Marteilioides chungmuensis*
2. Infection with *Perkinsus olseni*	2. Akoya oyster disease
3. Infection with abalone herpes-like virus	3. Acute viral necrosis (in scallops)
1.3 CRUSTACEAN DISEASES	
OIE-listed diseases	**Non OIE-listed diseases**
1. Taura syndrome	1. Monodon slow growth syndrome
2. White spot disease	3. Milky haemolymph disease of spiny lobster (*Panulirus* spp.)
3. Yellowhead disease	
4. Infectious hypodermal and haematopoietic necrosis	
5. Infectious myonecrosis	
6. White tail disease (MrNV)	
7. Necrotising hepatopancreatitis	
1.4 AMPHIBIAN DISEASES	
OIE-listed diseases	**Non OIE-listed diseases**
1. Infection with Ranavirus	
2. Infection with *Bachtracochytrium dendrobatidis*	
2. DISEASES PRESUMED EXOTIC TO THE REGION	
2.1 Finfish	
OIE-listed diseases	**Non OIE-listed diseases**
1. Infectious salmon anaemia	1. Channel catfish virus disease
2. Gyrodactylosis (*Gyrodactylus salaris*)	
2.2 Molluscs	
OIE-listed diseases	**Non OIE-listed diseases**
1. Infection with *Bonamia ostreae*	
2. Infection with *Marteilia refringens*	
3. Infection with *Perkinsus marinus*	
4. Infection with *Xenohaliotis californiensis*	
2.3 Crustaceans	
OIE-listed diseases	**Non OIE-listed diseases**
1. Crayfish plague (*Aphanomyces astaci*)	

Recent Aquatic Animal Health Related Publications

OIE Aquatic Animal Health Code, 13th Edition, 2010. The aim of the Aquatic Animal Health Code (hereafter referred to as the 'Aquatic Code') is to assure the sanitary safety of international trade in aquatic animals (amphibians, crustaceans, fish and molluscs) and their products. This is achieved through the detailing of health measures to be used by 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 Code (in the form of standards and recommendations) have been formally adopted by the World Assembly of OIE Delegates which constitutes the organisation's highest decision-making body. This 13th edition incorporates the modifications to the Aquatic Code agreed by the World Assembly during the 78th General Session in May 2010. The Aquatic Animal Health Code is available for free download at http://www.oie.int/en/international-standard-setting/aquatic-code/access-online/. The book may be also be ordered from OIE online bookshop at http://www.oie.int/boutique/index.php?lang=en.

OIE Manual of Diagnostic Tests for Aquatic Animals, 2010. The purpose of this manual is to provide a uniform approach to the detection of the diseases listed in the OIE *Aquatic Animal Health Code*, so that the requirements for health certification in connection with trade in aquatic animals and aquatic animal products can be met. It includes bibliographical references and a list of the OIE Reference Laboratories for amphibian, crustacean, fish and mollusc diseases. The manual is available for free download at http://www.oie.int/en/international-standard-setting/aquatic-manual/access-online/ and can be ordered at http://www.oie.int/boutique/index.php?lang=en.

Senapin, S., Phiwsaiya, K., Gangnonngiw, W., Flegel, T., 2011. **False rumours of disease outbreaks caused by infectious myonecrosis virus (IMNV) in the whiteleg shrimp in Asia.** Journal of Negative Results in BioMedicine, 10:10.

Rodgers, C.J., Mohan, C.V., Peeler, E.J., 2011. **The spread of pathogens through trade in aquatic animals and their products.** Rev. Sci. Tech, Off. Int. Epiz., 30: 241-256.

Jithendran, K.P., Shekar, M.S., Kannapan, S., Azad, I.S., 2011. **Nodavirus infection in freshwater ornamental fishes in India: diagnostic histopathology and nested PCR.** Asian Fisheries Science, 24:12-19.

Alday-Sanz, V., 2010. Chapter 24: **Designing a biosecurity plan at the facility level: criteria, steps and obstacles.** In: V. Alday-Sanz (ed), The Shrimp Book, Nottingham University Press. p. 655-678.

Benitez, J., Juarez, L., 2010. Chapter 30: **The State Committees for Aquaculture Health: a success story from Mexico.** In: V. Alday-Sanz (ed), The Shrimp Book, Nottingham University Press. p. 821-833

Chen, S., Santos, M.D., Cowley, J., 2010. Chapter 28: **What will PCR bring to shrimp farming: contribution, compromise or conflict.** In: V. Alday-Sanz (ed), The Shrimp Book, Nottingham University Press. p. 751-772.

Corsin, F., de Blas, N., 2010. Chapter 27: **Shrimp epidemiology: applying population-based methods to shrimp health management.** In: V. Alday-Sanz (ed), The Shrimp Book, Nottingham University Press. p. 713-749.

Cuellar-Anjel, J., Corteel, M., Galli, L., Alday-Sanz, V., Hasson, K.W., 2010. Chapter 22: **Principal shrimp infectious diseases, diagnosis and management**. In: V. Alday-Sanz (ed), The Shrimp Book, Nottingham University Press. p. 517-621

Flegel, T.W., 2010. Chapter 23: **Importance of host-viral interactions in the control of shrimp disease outbreaks.** In: V. Alday-Sanz (ed), The Shrimp Book, Nottingham University Press. p. 623-654.

Karunasagar, In., Karunasagar, Id., Alday-Sanz, V., 2010. Chapter 26: **Immunostimulants, probiotics and phage therapy: alternatives to antibiotics.** In: V. Alday-Sanz (ed), The Shrimp Book, Nottingham University Press. p. 695-711.

Lotz, J.M., 2010. Chapter 25: **Evolutionary principles applied to disease control and health management in shrimp aquaculture.** In: V. Alday-Sanz (ed), The Shrimp Book, Nottingham University Press. p. 679-694.

Smith, P., 2010. Chapter 29: **An economic framework for discussing antimicrobial agent use in shrimp farming.** In: V. Alday-Sanz (ed), The Shrimp Book, Nottingham University Press. p. 773-820.

Lightner, D.V., Redman, R.M., 2010. **The global status of significant infectious diseases of farmed shrimp.** Asian Fisheries Science, 23:383-426.

Kono, T., Fall, J., Korenaga, H., Takayama, H., Iizasa, T., Mekata, T., Itami, T., Sakai, M., 2010. **Immunomodulation by DNA vaccination against white spot syndrome virus (WSSV).** Asian Fisheries Science, 23:435-446.

Sudhakaran, R., Mekata, T., Inada, M., Okugawa, S., Kono, T., Supamattaya, K., Yoshida, T., Sakai, M., Itami, T., 2010. **Development of rapid, simple and sensitive real-time reverse transcriptase loop-mediated isothermal amplification method (RT-LAMP) to detect viral diseases (PRDV, YHV, IHHNV and TSV) of penaeid shrimp.** Asian Fisheries Science, 23:561-575.

SEAFDEC AQD, 2010. **Prevention and Control of Parasites in Groupers** (Flyer). SEAFDEC Aquaculture Department, Tigbauan, Iloilo, Philippines. Available for free download at http://www.seafdec.org.ph/publications_downloadable.html

Corsin, F., Georgiadis, M., Larry Hammel, K. and Hill, B., 2009. **Guide for Aquatic Animal Health Surveillance**. World Organization for Animal Health (OIE), Paris, France. 114 pp. Efficient and reliable surveillance systems generate sound evidence for disease incidence, prevalence and distribution, or for demonstrating disease absence. Science-based decisions regarding the health of aquatic animals rely on the information generated by surveillance programs. This practical handbook about surveillance is intended to be used mainly by Veterinary Services or other Competent Authorities, their staff and experts, for designing, implementing, and evaluating surveillance systems for diseases of relevance for aquatic animals in their country. The book can be ordered at http://www.oie.int/boutique/index.php?lang=en.

WHO-FAO Food Hygiene (Basic Texts), 4th Edition, 2009. World Health Organization and Food and Agriculture Organization of the United Nation, Rome, Italy. The Codex basic texts on food hygiene promote understanding of how rules and regulations on food hygiene are developed and applied. The General Principles of food hygiene cover hygiene practices from primary production through to final consumption, highlighting the key hygiene controls at each stage. This publication also contains the most internationally used description of the Hazard Analysis and Critical Control Point (HACCP) system and guidelines for its application. This fourth edition includes texts adopted by the Codex Alimentarius Commission up to 2009. The texts will be of use to government authorities, food industries, food handlers and consumers, as well as teachers and students of food hygiene.

Bondad-Reantaso, M.G., Arthur, J.R., Subasinghe, R.P. (eds), 2009. **Strengthening Aquaculture Health Management in Bosnia and Herzegovina**. FAO Fisheries and Aquaculture Technical Paper No. 524, Food an Agriculture Organization of the United Nation, Rome, Italy. 83 pp.

FAO, 2009. **Report of the International Disease Investigation Task Force on a Serious Finfish Disease in Southern Africa**. Food and Agriculture Organization of the United Nations, Rome, Italy. 70 pp.

FAO, 2009. **What You Need to Know about Epizootic Ulcerative Syndrome: An Extension Brochure**. Food and Agriculture Organization of the United Nations, Rome, Italy. 33 pp.

RECOFI. 2009. Proposal for a Regional Programme for Improving Aquatic Animal Health in RECOFI Member Countries. FAO Fisheries and Aquaculture Report No. 876, Food and Agriculture Organization of the United Nations, Rome, Italy. p. 101-118

Bondad-Reantaso, M.G., Arthur, J.R. and Subasinghe, R.P. (eds.). 2008. **Understanding and applying risk analysis in aquaculture.** *FAO Fisheries and Aquaculture Technical Paper. No. 519.* Rome, FAO. 2008. 304p. Risk analysis is an objective, systematic, standardized and defensible method of assessing the likelihood of negative consequences occurring due to a proposed action or activity and the likely magnitude of those consequences, or, simply put, it is "science-based decision-making"

FAO. Report of FAO **Workshop on Information Requirements for Maintaining Aquatic Animal Biosecurity.** Cebu City, Philippines, 15−17 February 2007. *FAO Fisheries and Aquaculture Report*. No. 877. Rome, FAO. 2008. 27p.

FAO Regional Commission for Fisheries. **Report of the Regional Technical Workshop on Aquatic Animal Health.** Jeddah. Kingdom of Saudi Arabia, 6-10 April 2008. FAO Fisheries and Aquaculture Report. No. 831. Rome, FAO. 2008. 120 pp**.**

FAO. 2009. **Report of the International Emergency Disease Investigation Task Force on a Serious Finfish Disease in Southern Africa, 18-26 May 2007.** Rome, FAO. 2009.

Arthur, J.R., Bondad-Reantaso, M.G. and Subasinghe, R.P. 2008. **Procedures for the quarantine of live aquatic animals: a manual**. FAO Fisheries Technical Paper No. 502. Rome, FAO. 2008. 74p.

Bondad-Reantaso, M.G., Mohan, C.V., Crumlish, M. and Subasinghe, R.P. (eds.) 2008. **Proceedings of the Sixth Symposium on Diseases in Asian Aquaculture (DAA VI)**. 25-28 October 2005, Colombo, Sri Lanka. Fish Health Section. 505 pp.

Bernoth, E.-M. (Coordinator). 2008. **Changing Trends in Managing Aquatic Animal Disease Emergencies.** OIE Scientific and Technical Review, Volume 27(1), April 2008. 281p.

Bondad-Reantaso, M.G., McGladdery, S.E. and Berthe, F.C.J. 2007. **Pearl oyster health management: a manual.** FAO Fisheries Technical Paper. No. 503. Rome, FAO. 2007. 120p.

Kirjusina, M. and Vismanis, K. 2007. **Checklist of the parasites of fishes of Latvia. FAO Fisheries Technical Paper. 369/3.** Rome, FAO. 113p.

Dodet, B., the OIE Scientific and Technical Department (eds.). **The OIE Global Conference on Aquatic Animal Health.** Dev Biol (Basel), Basel, Karger, Volume 29. 193p.

Aquatic Animal Diseases Significant to Asia-Pacific: Identification Field Guide: NACA and the Australian Government Department of Agriculture, Fisheries and Forestry (DAFF) have recently produced this field guide to support aquatic animal health surveillance, early response and reporting in the region. The field guide drew extensively from the experiences and previous and ongoing research activities in health management in Australia and other countries in Asia and thus joins the growing body of practical knowledge published for Asia-Pacific aquaculture and fisheries. The regional field guide covers all diseases listed in the Quarterly Aquatic Animal Disease (QAAD) reporting system, which includes all OIE listed diseases plus diseases of regional concern. The field guide is available for free download at http://www.enaca.org/modules/news/article.php?storyid=1003

FAO. 2007. Aquaculture development 2. **Health management for the responsible movement of live aquatic animals**. FAO Technical Guidelines for Responsible Fisheries. No. 5, Suppl. 2. Rome, FAO. 2007. 31p. Further information: Rohana.Subasinghe@fao.org

List of National Coordinators*

Country	Name and Address
Australia	Dr. Ingo Ernst 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: ingo.ernst@daff.gov.au Dr. Herbert Brett 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: brett.herbert@daff.gov.au
Bangladesh	Dr. M. G. Hussain Director General, Bangladesh Fisheries Research Institute (BFRI) Mymensingh 2201, Bangladesh Fax: +880-91-66559, Tel: +880-91-65874 E-mail: hussain.bfri@gmail.com; dg@fri.gov.bd; dgbfri@gmail.com
Cambodia	Dr. So Nam Deputy Director Inland Fisheries Research and Development Institute (IFReDI) 186, Norodom Blvd, Phnom Penh, Cambodia Telephone +855 23 220 417 Fax. +855 23 220 417 E-mail: so_nam@hotmail.com
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: +86-10-64195073 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	Ms. Situ Ying-yi Fisheries Officer (Aquaculture Management) 2 Agriculture, Fisheries and Conservation Department 8/F, Cheung Sha Wan Government Offices 303 Cheung Sha Wan Road, Kowloon, Hong Kong SAR Fax: +852 21520383; Tel: +852 21526808 E-mail: anna_yy_situ@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. Intisar Anees Siddiqui Fisheries Research & Investigation Officer Department of Animal Husbandry, Dairying and Fisheries Ministry of Agriculture, Krishi Bhawan, New Delhi 110114, India Tel: +91-11-23389419/23097013 Fax: +91-11-23070370/23384030 E-mail: intisarsiddiqui@yahoo.co.in
Indonesia	Dr. Muhammad Murdjani Director, Fish Health and Environment Ministry of Marine Affairs and Fisheries Directorate General of Aquaculture Jl. Harsono RM No. 3, Gedung Ps. Minggu Jakarta Selatan Indonesia 12550 Fax: +62-21-78835853; Tel: +62-21-7890552 E-mail: anna_murdjani@yahoo.com.id
Iran	Dr. Mohammad Azizzadeh 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: +98 21 88957007; Fax: +98 21 88957252 E-mail: ivoaquatichealth@ivo.org.ir Dr. Kazem Abdi Khazineh Jadid Director General, Aquatic Animal Health Department Iran Veterinary Organization Ministry of Jihad-E-Agriculture Seyed Jamaledin Asad-Abadi St., Vali-Asr Ave. P.O.Box 14155-6349, Tehran, Iran Tel: +98-21-88966877; Fax: +98-21-88957252 E-mail: ivoquarantin@ivo.org.ir
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	Mrs. Thongphoun Theungphachanh Quality Control Animal Product Department of Livestock and Fisheries DLF PO Box 811, Lao PDR Fax : +856 21 216380; Tel: +856 21 216380 or Mobile: +856 20 772 1115 Email: theungphachan@yahoo.com Dr. Bounthong Saphakdy Director of Fisheries Division Department of Livestock and Fisheries DLF P.O. Box 811, Lao PDR E-mail: saphakdy@yahoo.com

Malaysia	Dr. Siti Zahrah Abdullah National Fish Health Research Centre 11960 Batu Maung Penang, Malaysia Fax: +60 4 6263977; Tel: +60 4 6263922 E-mail: siti.zahrah.abd@gmail.com
Myanmar	Mr. U Saw Lah Pah Wah 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. Jay Kishore Mandal Senior Fisheries Development Officer Central Fisheries Laboratory Central Fisheries Building, Balaju, Kathmandu. Nepal. E-mail: mandaljaykishore@yahoo.com
Pakistan	Mr. Anser Mahmood Chatta Deputy Fisheries Development Commissioner Livestock Division, Ministry of Food, Agriculture and Livestock 10th Floor, Shaheed-e-Millat Secretariat (Livestock Wing) I Islamabad, Pakistan Fax: +9251 9212630; Tel: +9251 9208267, ansermchatta@yahoo.com
Philippines	Dr. Joselito R. Somga Aquaculturist II, Fish Health Section, BFAR 860 Arcadia Building, Quezon Avenue, Quezon City 1003 Fax: +63 2 3725055/4109987; Tel: +63 2 3723878 loc206 or 4109988 to 89 E-mail: jsomga@bfar.da.gov.ph
Republic of Korea	Dr. Myoung Ae Park Director, Pathology Division National Fisheries Research and Development Institute 152-1, Haeanro, Gijang-up Gijang-gun, Busan 619-705 Korea Tel: +82-51-7202470 E-mail: mapark@nfrdi.go.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 Fax: +65 63257677; Tel: +65 63257636; Email: loo_jang_jing@ava.gov.sg Ms. Diana Chee Aquatic Animal Health Branch Animal and Plant Health Laboratories 6 Perahu Road, Singapore 718827 Fax: +65 63161090; Tel: +65 63165140 E-mail: Diana_Chee@AVA.gov.sg
Sri Lanka	Dr. Rajapaksa Arachilage Geetha Ramani Veterinary Investigation Officer Veterinary Investigation Center Department of Animal Production and Health Welisara, Sri Lanka Tel: +94-112-9258213; +94-714-932169 E-mail – vic_welisara@yahoo.com

Thailand	Dr. Somkiat Kanchanakhan Fish Virologist, Aquatic Animal Health Research Institute (AAHRI) Department of Fisheries , Kasetsart University Campus Jatujak, Bangkok 10900, Thailand Fax: +66 2 5613993; Tel: +66 2 5794122, 5796977 E-mail: somkiatkc@fisheries.go.th
Vietnam	Dr. Le Van Khoa Deputy Chief Aquatic Animal Health Unit Department of Animal Health (DAH) 15/78 Giai Phong Street, Dpng Da Hanoi, Vietnam Fax: +84 4 38685961; Tel: +84 4 38693605 E-mail: lvkhoa@dah.gov.vn

New Instructions on how to fill in the
QUARTERLY AQUATIC ANIMAL DISEASE REPORT
(Revised during the Provisional Meeting of the AG[1], 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.

[1] 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 Regional Representation for Asia and the Pacific
Food Science Building 5F
The University of Tokyo
1-1-1 Yayoi, Bunkyo-ku
Tokyo, 113-8657, Japan
Tel. +81 3 5805 1931; Fax +81 3 5805 1934
E-Mail: rr.asiapacific@oie.int

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: eduardo@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

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NACA, P.O. Box 1040, Kasetsart P.O. , Bangkok 10903, Thailand; Tel. (662) 561- 1728 to 9; Fax: (662) 561-1727;
e-mail: **info@enaca.org or eduardo@enaca.org.**
Website: **http://www.enaca.org**

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