



QUARTERLY AQUATIC ANIMAL DISEASE REPORT (Asia and Pacific Region)

October-December 2009

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Foreword

Important Emerging Diseases in the Region

In this foreword, a focus is made on the emerging diseases in the region, as presented and discussed during the 8th Meeting of the Regional Advisory Group Meeting on Aquatic Animal Health (December, 2009). These diseases include infections among crustaceans, finfishes and molluscs.

Crustaceans:

Yellowhead virus (YHV) and White spot syndrome virus (WSSV) are still considered lethal to all cultivated shrimps in the region, although the former is a problem specifically occurring in Thailand. The most recent threat recognized is the Infectious myonecrosis virus (IMNV) which was initially reported in Indonesia (June 2006). Its close similarity (99.6%) with the Brazilian strain appears to have been associated with the movement of crustaceans from Brazil to the region. The disease is now reported to infect *Penaeus vannamei* in shrimp farms in Java and Sumatra islands. So far, it has not been reported from other leading *P. vannamei*-producing countries like China, India, Thailand and Vietnam. PCR kits are now available in the region for screening of shrimp PLs for IMMNV.

Another disease that is becoming important in cultured shrimps is the *Macrobrachium rosenbergii* nodavirus (MrNV), a serious problem in freshwater prawn farming but is capable of infecting *P. monodon*. Although no evidence of any disease caused by MrNV is available at present, there have been unconfirmed reports of MrNV and extra small virus (XSV) causing mortality in *P. indicus* and *P. monodon*.

Abdominal segment deformity disease (ASDD) was reported in cultured *P. monodon* in Thailand and Indonesia. The disease is similar in appearance with that of Infectious hypodermal and haematopoietic virus (IHHNV) except that there is no growth retardation or presence of bent rostra. Although PCR and RT-PCR tests for IHHNV, IMNV, *Penaeus vannamei* nodavirus (PvNV) and Laem Singh necrosis virus (LSNV) were negative, many viral-like particles are present in the muscle and ventral nerve cord. As such, this disease appears to be caused by a new pathogen originating from natural Asian carrier species. The disease doesn't cause any significant mortality but its occurrence in *P. vannamei* farms in Thailand and Indonesia is associated with deformities that lead to reduction in market prices, therefore leading to significant financial losses.

Another important and one of the most serious problems in *P. monodon* is the Monodon slow growth syndrome (MSGs), a significant problem in Thailand and probably in India. Affected (small) shrimps exhibit retinopathy and are positive by RT-PCR for LSNV. Large shrimps within the affected ponds are also positive for LSNV but show no sign of retinopathy. It, therefore, appears that LSNV is associated with MSGS but the possibility of involvement of other factors (including other pathogens) is being studied. As such, LSNV should be added to the exclusion list for broodstock and PL in rearing of *P. monodon*. In countries where *P. vannamei* has already been introduced, *P. monodon* and *P. vannamei* should be reared separately, particularly at the maturation and hatchery phases.

Finfishes:

There are three finfish diseases considered as emerging problems in the region. These are *Streptococcus agalactiae* infection in tilapia, and *Nocardia* spp. and *Tenacibaculum maritimum* infections in marine fishes.

Streptococcus agalactiae infection is a serious disease of farmed tilapia. Affected fish show abnormal swimming behaviors, eye lesions, abscesses, skin haemorrhages, and ascites. Outbreaks usually take place when fish have been exposed to stress, such as an increase in water temperature, suboptimal oxygen levels in the water or overcrowding for a long period of time. The disease is considered important to the region because of the following reasons:

- It is the most common streptococcal disease of tilapia in many countries, and the disease appears to be much more complex;
- There is geographical repartition of biotypes;
- No cross protection through preventive treatment (e.g. vaccination);
- There is a risk of spreading from one zone to another; due to transportation of tilapia between countries;
- Capacity of diagnostics is extremely important; and,
- There is a need to identify some regional mechanisms to prevent the spread of the disease in the region.

Marine nocardiosis (caused by *Nocardia* spp.) is a long term and problematic infection in warm-water fishes. External signs vary but include skin lesions, opercular erosions, and presence of white masses at the base of gill filaments. It is considered important in the region as the disease is chronic and very difficult to treat and can cause significant damage to the industry. Infection shows poor response to antibiotic treatments, while vaccine development is extremely complex. Although the disease causes low mortality, skin lesions of infected fish cause depreciation in commercial value. Some marine species (e.g. pompano and snappers) are more susceptible to infection and the disease can become more important when these species are mixed with less susceptible species.

Tenacibaculum maritimum infection affects a large number of marine fishes and is of considerable economic significance to aquaculture producers. It is a highly devastating disease of marine fishes, which can cause up to 100% mortality at farm condition. There is no effective and authorized antibiotic treatment available. It is also considered as multi-factorial disease that requires deeper understanding of the triggering factors.

Molluscs:

Aside from the OIE listed molluscan diseases (infections with *Bonamia exitiosa* and *Perkinsus olseni*; abalone viral mortality), important diseases present in the region are:

- *Marteiliodes chungmuensis* infection;
- Haplosporidiosis;
- Vibriosis;
- Fungal disease of abalone (caused by *Haliphthoros milfordensis*);
- Trematode (*Gymnophalloides tokiensis*) infestation in oysters;
- Cryptobia sp. infection;
- Swollen feeding siphon disease of Babylon snail (*Babylonia aerolata*); and,
- Acute viral necrotic disease (AVND) in scallops.

The lack of scientists and fish pathologists working on molluscan diseases in the region can indicate some of the risks related to the growing numbers of disease problems among cultured species. Since molluscs are generally considered as species with low export value, they received less research attention until recently when there has been more focus on oysters, scallops and abalone because of their higher export value.

As a last note, the new QAAD list of diseases is now included in this report (refer to page___). The list was in accordance with the listing and delisting of OIE (Aquatic Animal Health Code 2009) and with other diseases that are considered important in the region. The list will be used for the quarterly disease report effective January 2010.

Reports Received by the NACA Secretariat

Country: **AUSTRALIA**Period: **October-December 2009**

Item	Disease status ^{al}			Level of diagnosis	Epidemiological comment numbers
	Month				
DISEASES PREVALENT IN THE REGION	October	November	December		
FINFISH DISEASES					
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	-(2008)	-(2008)	-(2008)		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	+	-(2009)	-(2009)	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	-(2008)	-(2008)	-(2008)		4
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with <i>Bonamia exitiosa</i>	0000	0000	0000		
2. Infection with <i>Perkinsus olseni</i>	-(2009)	-(2009)	-(2009)		5
3. Abalone viral mortality	0000	0000	0000		
Non OIE-listed diseases					
4. Infection with <i>Marteilioides chungmuensis</i>	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. Spherical baculovirus (<i>Penaeus monodon</i> -type baculovirus)	-(2008)	-(2008)	-(2008)		6
5. Infectious hypodermal and haematopoietic necrosis	-(2008)	-(2008)	-(2008)		7
6. Tetrahedral baculovirus (<i>Baculovirus penaei</i>)	0000	0000	0000		
7. Infectious myonecrosis	0000	0000	0000		
8. White tail disease (MrNV)	-(2008)	-(2008)	-(2008)		8
9. Necrotising hepatopancreatitis	***	***	***		
10. Hepatopancreatic parvo virus disease	***	***	***		
11. Mourilyan disease	***	***	***		
Non OIE-listed diseases					
12. <i>Monodon</i> slow growth syndrome	0000	0000	0000		
13. Milky lobster disease	0000	0000	0000		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	-(2008)	-(2008)	-(2008)		9
2. Infection with <i>Batrachochytrium dendrobatidis</i>	+	+	+	III	10

ANY OTHER DISEASES OF IMPORTANCE																													
1. Abalone viral ganglioneuritis	-(2009)	-(2009)	+	I	11																								
2.																													
<p>DISEASES PRESUMED EXOTIC TO THE REGION^b LISTED BY THE OIE Finfish: Infectious salmon anaemia; Gyrodactylosis (<i>Gyrodactylus salaris</i>). Molluscs: Infection with <i>Bonamia ostreae</i>; <i>Marteilia refringens</i>; <i>Perkinsus marinus</i>; <i>Xenohaliotis californiensis</i>. Crustaceans: Crayfish plague (<i>Aphanomyces astaci</i>). NOT LISTED BY THE OIE Finfish: Channel catfish virus disease</p>																													
<p>a/ Please use the following symbols:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 15%;"></td> <td style="width: 45%;"></td> <td style="width: 15%;"></td> <td style="width: 25%;"></td> </tr> <tr> <td>+</td> <td>Disease reported or known to be present</td> <td>+()</td> <td>Occurrence limited to certain zones</td> </tr> <tr> <td>+?</td> <td>Serological evidence and/or isolation of causative agent but no clinical diseases</td> <td>***</td> <td>No information available</td> </tr> <tr> <td>?</td> <td>Suspected by reporting officer but presence not confirmed</td> <td>0000</td> <td>Never reported</td> </tr> <tr> <td></td> <td></td> <td>-</td> <td>Not reported (but disease is known to occur)</td> </tr> <tr> <td></td> <td></td> <td>(year)</td> <td>Year of last occurrence</td> </tr> </table>										+	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	?	Suspected by reporting officer but presence not confirmed	0000	Never reported			-	Not reported (but disease is known to occur)			(year)	Year of last occurrence
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?	Suspected by reporting officer but presence not confirmed	0000	Never reported																										
		-	Not reported (but disease is known to occur)																										
		(year)	Year of last occurrence																										
<p>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</p>																													

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	<p>Epizootic haematopoietic necrosis was not reported this period, but is known to occur annually in the Australian Capital Territory (last year reported 2008). Not reported this period despite passive surveillance, but known to have occurred previously in Victoria (last year reported 2004), New South Wales (last year reported 2003) and South Australia (last year reported 1992). Targeted surveillance and never reported in Tasmania. Passive surveillance and never reported in the Northern Territory, Queensland or Western Australia.</p>
2	<p>Epizootic Ulcerative Syndrome</p> <ol style="list-style-type: none"> 1. Reported in Western Australia in October 2009. Passive surveillance; 2. In –adult black bream (<i>Acanthopagrus butcheri</i>); 3. Clinical signs- skin lesions; 4. Pathogen- <i>Aphanomyces invadans</i>; 5. Mortality rate- not reported; 6. Economic loss- unknown; 7. Geographic extent- 1 fish from Hardy Inlet, 20 fish from Canning River; 8. Containment measures- not applicable, considered endemic; 9. Laboratory confirmation- diagnosed by histology and PCR; 10. Publications- unpublished. <p>Epizootic ulcerative syndrome was not reported during 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, but is known to have occurred previously in Queensland (last reported 3rd quarter 2009), New South Wales (last reported 2nd quarter 2009), Northern Territory (last year reported 2006) and Victoria (last year reported 2002). Passive surveillance and never reported in Tasmania. No information available in the Australian Capital Territory.</p>

<p>3</p>	<p>Viral Encephalopathy and Retinopathy</p> <ol style="list-style-type: none"> 1. Reported in Northern Territory in a) October and b) November 2009. Passive surveillance; 2. In- a) 18 day and b) 34 to 54 day old barramundi (<i>Lates calcarifer</i>); 3. Clinical signs- not reported; 4. Pathogen- Nodavirus; 5. Mortality rate- a) 20% mortality 4 days post clinical signs, b) 23% over 20 days; 6. Economic loss- a) 1 million 22 day old larvae, b) 126,500 34-54 day old fingerlings; 7. Geographic extent- a) 2 x 5000L culture tanks, b) 8 x 1000L nursery raceway tanks; 8. Containment measures- UV treatment of discharge water, a) remaining stock destroyed, culture tanks chlorinated, b) clinically affected fish destroyed; 9. Laboratory confirmation- diagnosed by histopathology and RT-PCR; 10. Publications- unpublished. <ol style="list-style-type: none"> 1. Reported in Queensland in a) October, b) November and c) December 2009. Passive surveillance; 2. In- a) i. 13 day old and ii. 24 day old barramundi (<i>Lates calcarifer</i>) fry, b) 5 month old flowery cod (<i>Epinephelus fuscoguttatus</i>) juveniles, c) i. 5 month old flowery cod (<i>Epinephelus fuscoguttatus</i>) juveniles and ii. adult Queensland grouper (<i>Epinephelus lanceolatus</i>), iii. 50 day old gold spot cod (<i>Epinephelus coioides</i>); 3. Clinical signs-a) i. and ii. collecting at pond edge, weak swimming and mortality, b) low mortality, c) i. increasing mortality, ii. mortality, lethargy, loss of balance, lying still on side at surface and bottom of tank, iii. mortality; 4. Pathogen- Betanodavirus; 5. Mortality rate- a) i. and ii. minor, b) 21 / 5,500, c) i. 202 / 5,500, ii. 5/9, iii. not reported; 6. Economic loss- not reported; 7. Geographic extent- a) i. and ii. 2 separate farms (single larval rearing pond on each), b) and c) i. single pond, ii. 3 quarantine tanks in research facility (but fish sourced from the wild), iii. 10 hatchery nursery tanks; 8. Containment measures- not reported – endemic; 9. Laboratory confirmation- diagnosed by a) i. histopathology, ii. histopathology and immunohistochemistry (IHC), b) histopathology and IHC and c) i. histopathology and IHC, c) ii. bacteriology, histopathology and IHC, iii. histopathology; 10. Publications- unpublished. <p>Viral encephalopathy and retinopathy was not reported this quarter despite passive surveillance from South Australia (last reported 3rd quarter 2009), New South Wales (last year reported 2008), Western Australia (last year reported 2005) and Tasmania (last year reported 2000). Never reported from Victoria despite passive surveillance. No information available this period in the Australian Capital Territory.</p>
<p>4</p>	<p>Enteric septicaemia of catfish was not reported this quarter despite passive surveillance but is known to have occurred previously in Queensland (last year reported 2008) and in Tasmania in zebrafish (<i>Brachydanio rerio</i>) in PC2 containment (last year reported 2001). Never reported in New South Wales, Northern Territory, South Australia and Victoria despite passive surveillance. No information available this period in the Australian Capital Territory and Western Australia.</p>
<p>5</p>	<p>Infection with <i>Perkinsus olseni</i> was not reported this quarter from Western Australia despite targeted surveillance (last year reported 2003). Not reported this period despite passive surveillance from South Australia (last reported 1st quarter 2009), New South Wales (last year reported 2005). Passive surveillance and never reported in the Northern Territory, Queensland, Tasmania and Victoria. No information available in the Australian Capital Territory (no marine water responsibility).</p>
<p>6</p>	<p>Spherical baculovirus was not reported this period despite passive surveillance but is known to have occurred previously in Queensland (last year reported 2008), New South Wales and Western Australia (last year reported 2002). Never reported despite passive surveillance in the Northern Territory, South Australia and Victoria. No information available in the Australian Capital Territory (no marine water responsibility) and Tasmania (susceptible species not present).</p>

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). Never reported in Western Australia despite targeted surveillance. Passive surveillance and never reported in New South Wales, South Australia and Victoria. 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 suspected but not confirmed despite passive surveillance in Queensland. Not reported this period but known to have occurred previously in the Northern Territory (reported to have occurred in 2008). 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	<p>Infection with <i>Batrachochytrium dendrobatidis</i></p> <ol style="list-style-type: none"> 1. Reported in Tasmania in October, November and December 2009. Targeted surveillance; 2. In- tadpole <i>Litoria ewingi</i>, <i>L. burrowsae</i>, <i>Limnodynastes dumerili</i>, <i>L. peroni</i> and <i>Crinia signifera</i>; adult <i>Litoria raniformi</i> and <i>Limnodynastes dumerili</i>. 3. Clinical signs-none; 4. Pathogen- <i>Batrachochytrium dendrobatidis</i>; 5. Mortality rate-unknown; 6. Economic loss- unknown; 7. Geographic extent- widely distributed through Tasmania but largely absent from Wilderness World Heritage Area; 8. Containment measures- nil; 9. Laboratory confirmation- diagnosed by histopathology and PCR; 10. Publications-unpublished. <p>Infection with <i>Batrachochytrium dendrobatidis</i> was not reported this period despite passive surveillance but is known to have occurred previously in Western Australia (reported to have occurred in 2008). Suspected but not confirmed this period despite passive surveillance in Queensland. No information available this period in the Australian Capital Territory, New South Wales, Northern Territory, South Australia and Victoria.</p>
11	Abalone viral ganglioneuritis was detected in Victoria by divers in wild stock only, approximately 18 km east of that previously detected in 2 nd quarter 2009. All farms remain clear of the disease despite active surveillance. Not reported this period despite passive surveillance in wild abalone and targeted surveillance on farms, but known to have occurred previously in Tasmania (last reported 1 st quarter 2009). Passive surveillance and never reported in Queensland, New South Wales, South Australia and Western Australia. No information available in the Australian Capital Territory (no marine water responsibility) and Northern Territory.

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

Country: **BANGLADESH**Period: **October-December 2009**

Item	Disease status ^{a/}			Level of diagnosis	Epidemiological comment numbers
	Month				
DISEASES PREVALENT IN THE REGION	October	November	December		
FINFISH DISEASES					
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,II	1
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 <i>Bonamia exitiosa</i>	0000	0000	0000		
2. Infection with <i>Perkinsus olseni</i>	0000	0000	0000		
3. Abalone viral mortality	0000	0000	0000		
Non OIE-listed diseases					
4. Infection with <i>Marteilioides chungmuensis</i>	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	-	-	-		
3. Yellowhead disease	0000	0000	0000		
4. Spherical baculovirus (<i>Penaeus monodon</i> -type baculovirus)	0000	0000	0000		
5. Infectious hypodermal and haematopoietic necrosis	0000	0000	0000		
6. Tetrahedral baculovirus (<i>Baculovirus penaei</i>)	0000	0000	0000		
7. Infectious myonecrosis	0000	0000	0000		
8. White tail disease (MrNV)	0000	0000	0000		
9. Necrotising hepatopancreatitis	0000	0000	0000		
10. Hepatopancreatic parvo virus disease	0000	0000	0000		
11. Mourilyan disease	0000	0000	0000		
Non OIE-listed diseases					
12. <i>Monodon</i> slow growth syndrome	0000	0000	0000		
13. Milky lobster disease	0000	0000	0000		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	0000	0000	0000		
2. Infection with <i>Batrachochytrium dendrobatidis</i>	0000	0000	0000		

ANY OTHER DISEASES OF IMPORTANCE																													
1. Unknown infection in <i>Oreochromis niloticus</i>	-	+	+	I	2																								
2.																													
DISEASES PRESUMED EXOTIC TO THE REGION^b LISTED BY THE OIE Finfish: Infectious salmon anaemia; Gyrodactylosis (<i>Gyrodactylus salaris</i>). Molluscs: Infection with <i>Bonamia ostreae</i> ; <i>Marteilia refringens</i> ; <i>Perkinsus marinus</i> ; <i>Xenohaliotis californiensis</i> . Crustaceans: Crayfish plague (<i>Aphanomyces astaci</i>). NOT LISTED BY THE OIE Finfish: Channel catfish virus disease																													
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+	Disease reported or known to be present	+()	Occurrence limited to certain zones																										
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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 Ulcerative Syndrome 1. Affected fish: <i>Labeo rohita</i> and <i>Heteropneustes fossilis</i> ; 2. Signs of the disease: loss of appetite, slow and erratic movement, several prominent deep lesions all over the body surface, infections at fin base and tail; 3. Mortality: a) 20-40% 4. Size/name of affected areas: Greater Mymensingh district; 5. Preventive/Control Measures: a) Liming, water exchange, provision of aeration, treatment with chemicals and drugs;
2	<i>Oreochromis niloticus</i> infection 1. Causative agent: Unknown 2. Affected fish: <i>Oreochromis niloticus</i> ; 3. Signs of the disease: ulcer-type lesion on caudal region, infection at fin base, and swollen belly; some doesn't show any external signs. 4. Mortality: 50-80% 5. Size/name of affected areas: cages in the Dakatia river in the eastern part of the country; 6. Preventive/Control Measures: none

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

Country: **HONG KONG**Period: **October-December 2009**

Item	Disease status ^{a/}			Level of diagnosis	Epidemiological comment numbers
	Month				
DISEASES PREVALENT IN THE REGION	October	November	December		
FINFISH DISEASES					
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	
7. Koi herpesvirus disease	-	-	-	III	
Non OIE-listed diseases					
8. Grouper iridoviral disease	-	-	-	III	
9. Viral encephalopathy and retinopathy	+	-	-	III	1
10. Enteric septicaemia of catfish	0000	0000	0000	II	
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with <i>Bonamia exitiosa</i>	0000	0000	0000	II	
2. Infection with <i>Perkinsus olseni</i>	0000	0000	0000	II	
3. Abalone viral mortality	0000	0000	0000	II	
Non OIE-listed diseases					
4. Infection with <i>Marteilioides chungmuensis</i>	0000	0000	0000	II	
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	III	
2. White spot disease	-	-	+	III	2
3. Yellowhead disease	0000	0000	0000	III	
4. Spherical baculovirus (<i>Penaeus monodon</i> -type baculovirus)	0000	0000	0000	II	
5. Infectious hypodermal and haematopoietic necrosis	0000	0000	0000	II	
6. Tetrahedral baculovirus (<i>Baculovirus penaei</i>)	0000	0000	0000	II	
7. Infectious myonecrosis	0000	0000	0000	II	
8. White tail disease (MrNV)	0000	0000	0000	II	
9. Necrotising hepatopancreatitis	0000	0000	0000		
10. Hepatopancreatic parvo virus disease	0000	0000	0000		
11. Mourilyan disease	0000	0000	0000		
Non OIE-listed diseases					
12. <i>Monodon</i> slow growth syndrome	0000	0000	0000	II	
13. Milky lobster disease	0000	0000	0000	II	
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	0000	0000	0000		
2. Infection with <i>Batrachochytrium dendrobatidis</i>	0000	0000	0000		

ANY OTHER DISEASES OF IMPORTANCE																									
1.																									
2.																									
<p>DISEASES PRESUMED EXOTIC TO THE REGION^b LISTED BY THE OIE Finfish: Infectious salmon anaemia; Gyrodactylosis (<i>Gyrodactylus salaris</i>). Molluscs: Infection with <i>Bonamia ostreae</i>; <i>Marteilia refringens</i>; <i>Perkinsus marinus</i>; <i>Xenohaliotis californiensis</i>. Crustaceans: Crayfish plague (<i>Aphanomyces astaci</i>). NOT LISTED BY THE OIE Finfish: Channel catfish virus disease</p>																									
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+?	Serological evidence and/or isolation of causative agent but no clinical diseases	***	No information available																						
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		-	Not reported (but disease is known to occur)																						
		(year)	Year of last occurrence																						
<p>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</p>																									

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	Nodavirus (Viral Encephalopathy and Retinopathy) was detected in a group of Green groupers which were observed to be “sleepy” and with darkened body coloration. Mortality of 30% and morbidity of 60% were reported. Histological findings (vacuolation of nervous tissues) were confirmed by PCR test.
2	White spot syndrome virus was detected from a group of green lobster (<i>Panulirus stimpsoni</i>) submitted for health certification.

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

Country: **INDIA**

 Period: **October-December 2009**

Item	Disease status ^{a/}			Level of diagnosis	Epidemiological comment numbers
	Month				
DISEASES PREVALENT IN THE REGION	October	November	December		
FINFISH DISEASES					
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 <i>Bonamia exitiosa</i>	0000	0000	0000		
2. Infection with <i>Perkinsus olseni</i>	0000	0000	0000		
3. Abalone viral mortality	0000	0000	0000		
Non OIE-listed diseases					
4. Infection with <i>Marteilioides chungmuensis</i>	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. Spherical baculovirus (<i>Penaeus monodon</i> -type baculovirus)	-	-	-		
5. Infectious hypodermal and haematopoietic necrosis	***	***	***		
6. Tetrahedral baculovirus (<i>Baculovirus penaei</i>)	0000	0000	0000		
7. Infectious myonecrosis	0000	0000	0000		
8. White tail disease (MrNV)	-	-	-		
9. Necrotising hepatopancreatitis	0000	0000	0000		
10. Hepatopancreatic parvo virus disease	0000	0000	0000		
11. Mourilyan disease	0000	0000	0000		
Non OIE-listed diseases					
12. <i>Monodon</i> slow growth syndrome	0000	0000	0000		
13. Milky lobster disease	0000	0000	0000		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	0000	0000	0000		
2. Infection with <i>Batrachochytrium dendrobatidis</i>	0000	0000	0000		

ANY OTHER DISEASES OF IMPORTANCE																													
1.																													
2.																													
<p>DISEASES PRESUMED EXOTIC TO THE REGION^b LISTED BY THE OIE Finfish: Infectious salmon anaemia; Gyrodactylosis (<i>Gyrodactylus salaris</i>). Molluscs: Infection with <i>Bonamia ostreae</i>; <i>Marteilia refringens</i>; <i>Perkinsus marinus</i>; <i>Xenohaliotis californiensis</i>. Crustaceans: Crayfish plague (<i>Aphanomyces astaci</i>). NOT LISTED BY THE OIE Finfish: Channel catfish virus disease</p>																													
<p>a/ Please use the following symbols:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 15%;"></td> <td style="width: 45%;"></td> <td style="width: 15%;"></td> <td style="width: 25%;"></td> </tr> <tr> <td>+</td> <td>Disease reported or known to be present</td> <td>+()</td> <td>Occurrence limited to certain zones</td> </tr> <tr> <td>+?</td> <td>Serological evidence and/or isolation of causative agent but no clinical diseases</td> <td>***</td> <td>No information available</td> </tr> <tr> <td>?</td> <td>Suspected by reporting officer but presence not confirmed</td> <td>0000</td> <td>Never reported</td> </tr> <tr> <td></td> <td></td> <td>-</td> <td>Not reported (but disease is known to occur)</td> </tr> <tr> <td></td> <td></td> <td>(year)</td> <td>Year of last occurrence</td> </tr> </table>										+	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	?	Suspected by reporting officer but presence not confirmed	0000	Never reported			-	Not reported (but disease is known to occur)			(year)	Year of last occurrence
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<p>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</p>																													

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	Incidence of white spot disease reported from Guntur and Visakhapatnam districts in Andhra Pradesh during the quarter under report. Very limited occurrence reported from Uttar Kannada and Udupi districts in Karnataka in November-December, 2009.

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

Country: INDONESIA

 Period: October-December 2009

Item	Disease status ^{a/}			Level of diagnosis	Epidemiological comment numbers
	Month				
DISEASES PREVALENT IN THE REGION	October	November	December		
FINFISH DISEASES					
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	+	+	-	III	1
Non OIE-listed diseases					
8. Grouper iridoviral disease	+	+	+	III	2
9. Viral encephalopathy and retinopathy	+	+	+	III	3
10. Enteric septicaemia of catfish	***	***	***		
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with <i>Bonamia exitiosa</i>	0000	0000	0000		
2. Infection with <i>Perkinsus olseni</i>	0000	0000	0000		
3. Abalone viral mortality	***	***	***		
Non OIE-listed diseases					
4. Infection with <i>Marteilioides chungmuensis</i>	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	+	+	+	III	4
2. White spot disease	+	+	+	III	5
3. Yellowhead disease	***	***	***		
4. Spherical baculovirus (<i>Penaeus monodon</i> -type baculovirus)	***	***	***		
5. Infectious hypodermal and haematopoietic necrosis	+	+	+	III	6
6. Tetrahedral baculovirus (<i>Baculovirus penaei</i>)	***	***	***		
7. Infectious myonecrosis	+	+	+	III	7
8. White tail disease (MrNV)	***	***	***		
9. Necrotising hepatopancreatitis	***	***	***		
10. Hepatopancreatic parvo virus disease	***	***	***		
11. Mourilyan disease	0000	0000	0000		
Non OIE-listed diseases					
12. <i>Monodon</i> slow growth syndrome	***	***	***		
13. Milky lobster disease	***	***	***		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	0000	0000	0000		
2. Infection with <i>Batrachochytrium dendrobatidis</i>	0000	0000	0000		

ANY OTHER DISEASES OF IMPORTANCE					
1. <i>Edwardsiella ictaluri</i>					
	+	+	-	II	8
DISEASES PRESUMED EXOTIC TO THE REGION^b LISTED BY THE OIE Finfish: Infectious salmon anaemia; Gyrodactylosis (<i>Gyrodactylus salaris</i>). Molluscs: Infection with <i>Bonamia ostreae</i> ; <i>Marteilia refringens</i> ; <i>Perkinsus marinus</i> ; <i>Xenohaliotis californiensis</i> . Crustaceans: Crayfish plague (<i>Aphanomyces astaci</i>). 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	
?	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.)

1	KHV 1) - 2) Species affected: Common carp (<i>Cyprinus carpio</i>); 3) Clinical sign: low irritation on gill, fin and other parts of body, haemorrhage; no clinical sign on some samples 4) Pathogen: Koi herpesvirus; 5) Mortality rate: low to high (30 to >70%) 6) Economic loss: - 7) Names of infected areas: Cianjur - West Java; Samarinda – East Kalimantan 8) Preventive/control measures: Adding immunostimulan on fish feed (Vit. C, Chromium yeast) 9) Laboratory confirmation: samples were diagnosed by PCR at Laboratories of DGA Technical Implementing Unit 10) Publications: Not published
2	GIV 1) - 2) Species affected: Polka-dot grouper (<i>Cromileptes altivelis</i>), <i>Ephinephilus fuscoguttatus</i> and Snubnose pompano (<i>Trachinotus blochii</i>) 3) Clinical signs: abnormally swim at water surface, no response, irritation at some parts of body, presence the giant cell at kidney, no clinical sign on some samples; 4) Pathogen: grouper iridovirus; 5) Mortality rate: low to moderate (20 to 50%); 6) Economic loss: low to high; 7) Names of infected areas: South Lampung District (Lampung), Pesawaran District (Lampung), Ambon District (Maluku) 8) Preventive/control measures: 9) Laboratory confirmation: all samples were diagnosed by PCR at Laboratories of DGA Technical Implementing Unit 10) Publications: Not published
3	VNN 1) Diseases were found in seed phase 2) Species affected: tiger grouper (<i>Ephinephenelus fuscoguttatus</i>), Polkadot grouper (<i>Cromileptes altivelis</i>), 3) Clinical signs: abnormally swim at surface (spiral, whirling or belly – up rest), bad response 4) Pathogen: Viral Nervous Necrosis Virus 5) Mortality rate: high (+ 80%)

	<p>6) Economic loss: low to high 7) Names of infected areas: Situbondo East Java, 8) Preventive/control measures: 9) Laboratory confirmation: samples were diagnosed by PCR at Laboratories of DGA Technical Implementing Unit 10) Publications: Not published</p>
4	<p>TSV 1) - 2) Species affected : White shrimp (<i>Litopenaeus vannamei</i>) 3) Clinical signs: mass mortality at the moulting shrimp 4) Pathogen : Taura Syndrome Virus 5) Economic loss: - 6) Mortality rate: - 7) Name of infected area: Situbondo – East Java; Jembrana – Bali; Bima – West Nusa Tenggara; 8) Preventive/control measures: Early harvest; 9) Laboratory confirmation: samples were diagnosed by PCR at Laboratories of DGA Technical Implementing Unit; 10) Publications: Not published</p>
5	<p>WSSV 1) - 2) Species affected : Tiger shrimp (<i>Penaeus monodon</i>), White shrimp (<i>Litopenaeus vannamei</i>); 3) Clinical sign: White spot on carapace, shrimp becoming weak and swimming on the water surface and along pond dikes; 4) Pathogen: White Spot Syndrome Virus (Whispovirus) 5) Mortality rate: high (100%) 6) Economic loss: - 7) Infected area: Jepara, Kendal, Semarang (Central java); Banten and South Sulawesi 8) Preventive/control measures: - 9) Laboratory confirmation: samples were diagnosed by PCR at Laboratories of DGA Technical Implementing Unit 10) Publications: Not published</p>
6	<p>IHHNV 1) - 2) Species affected: White shrimp (<i>Litopenaeus vannamei</i>) 3) Clinical sign: Slow growth (very small size/dwarf) 4) Pathogen: Infectious Hypodermal and Haematopoietic Necrosis Virus (Perpovirus) 5) Mortality rate: low 6) Economic loss: - 7) Preventive / control measures: - 8) Name of infected area: Situbondo - East Java; Jepara – Central Java; 9) Laboratory confirmation: samples were diagnosed by PCR at Laboratories of DGA Technical Implementing Unit 10) Publications: Not published</p>
7	<p>IMNV 1) - 2) Species affected: White shrimp (<i>Litopenaeus vannamei</i>) 3) Clinical sign: broken shrimp meat with white sign, specially at abdomen and telson; 4) Pathogen: Infectious Myonecrosis Virus 5) Mortality rate: high ($\pm 70\%$) 6) Economic loss: - 7) Preventive/control measures: - 8) Name of infected area: Situbondo - East Java; Jepara, Blora, Kendal, Rembang – Central Java; 9) Laboratory confirmation: samples were diagnosed by PCR at Laboratories of DGA Technical Implementing Unit 10) Publications: Not published</p>
8	<p>Edwardsiella ictaluri Infection 1) - 2) Species affected: <i>Tilapia niloticus</i>, <i>Clarias batrachus</i>, <i>Cyprinus carpio</i> 3) Clinical sign: irritation, body hemorrhage and tail necrosis 4) Pathogen: <i>Edwardsiella ictaluri</i> 5) Mortality rate: low to moderate (30 – 60%) 6) Economic loss: -</p>

	<p>7) Prevetive/Control measures: NACl bath, treatment with Potassium permanganate/Methylene blue, eradication of infected fish;</p> <p>8) Name of infected area: Skabumi – West Jawa, Lebak - Banten</p> <p>9) Laboratory confirmation: sampels were detected with PCR by Laboratories of DGA Technical Implementing Unit;</p> <p>10) Publications: not published</p>
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2. New aquatic animal health regulations introduced within past six months (with effective date):

Country: **IR IRAN**Period: **October-December 2009**

Item	Disease status ^{a/}			Level of diagnosis	Epidemiological comment numbers
	Month				
DISEASES PREVALENT IN THE REGION	October	November	December		
FINFISH DISEASES					
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	0000	0000	0000		
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	0000	0000	0000		
Non OIE-listed diseases					
8. Grouper iridoviral disease	***	***	***		
9. Viral encephalopathy and retinopathy	0000	0000	0000		
10. Enteric septicaemia of catfish	***	***	***		
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with <i>Bonamia exitiosa</i>	***	***	***		
2. Infection with <i>Perkinsus olseni</i>	***	***	***		
3. Abalone viral mortality	***	***	***		
Non OIE-listed diseases					
4. Infection with <i>Marteilioides chungmuensis</i>	***	***	***		
5. Acute viral necrosis (in scallops)	***	***	***		
6. Akoya oyster disease	***	***	***		
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Taura syndrome	0000	0000	0000		
2. White spot disease	-	-	-		
3. Yellowhead disease	0000	0000	0000		
4. Spherical baculovirus (<i>Penaeus monodon</i> -type baculovirus)	0000	0000	0000		
5. Infectious hypodermal and haematopoietic necrosis	-	-	-		
6. Tetrahedral baculovirus (<i>Baculovirus penaei</i>)	0000	0000	0000		
7. Infectious myonecrosis	0000	0000	0000		
8. White tail disease (MrNV)	***	***	***		
9. Necrotising hepatopancreatitis	***	***	***		
10. Hepatopancreatic parvo virus disease	0000	0000	0000		
11. Mourilyan disease	***	***	***		
Non OIE-listed diseases					
12. <i>Monodon</i> slow growth syndrome	***	***	***		
13. Milky lobster disease	***	***	***		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	***	***	***		
2. Infection with <i>Batrachochytrium dendrobatidis</i>	***	***	***		

ANY OTHER DISEASES OF IMPORTANCE																									
1.																									
2.																									
<p>DISEASES PRESUMED EXOTIC TO THE REGION^b LISTED BY THE OIE Finfish: Infectious salmon anaemia; Gyrodactylosis (<i>Gyrodactylus salaris</i>). Molluscs: Infection with <i>Bonamia ostreae</i>; <i>Marteilia refringens</i>; <i>Perkinsus marinus</i>; <i>Xenohaliotis californiensis</i>. Crustaceans: Crayfish plague (<i>Aphanomyces astaci</i>). NOT LISTED BY THE OIE Finfish: Channel catfish virus disease</p>																									
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+	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																						
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1. Epidemiological comments:

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

Comment No.	
1	
2	
3	
4	

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

Country: JAPAN Period: October-December 2009

Item	Disease status ^{a/}			Level of diagnosis	Epidemiological comment numbers
	Month				
DISEASES PREVALENT IN THE REGION	October	November	December		
FINFISH DISEASES					
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	-	-	-	I	
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	-	+	-	III	
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with <i>Bonamia exitiosa</i>	0000	0000	0000	I	
2. Infection with <i>Perkinsus olseni</i>	-	-	-	I	
3. Abalone viral mortality	0000	0000	0000	I	
Non OIE-listed diseases					
4. Infection with <i>Marteilioides chungmuensis</i>	+	+	+	II	
5. Acute viral necrosis (in scallops)	0000	0000	0000	I	
6. Akoya oyster disease	-	+	-	III	
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. Spherical baculovirus (<i>Penaeus monodon</i> -type baculovirus)	0000	0000	0000	I	
5. Infectious hypodermal and haematopoietic necrosis	0000	0000	0000	I	
6. Tetrahedral baculovirus (<i>Baculovirus penaei</i>)	0000	0000	0000	I	
7. Infectious myonecrosis	0000	0000	0000	I	
8. White tail disease (MrNV)	0000	0000	0000	I	
9. Necrotising hepatopancreatitis	0000	0000	0000	I	
10. Hepatopancreatic parvo virus disease	0000	0000	0000	I	
11. Mourilyan disease	0000	0000	0000	I	
Non OIE-listed diseases					
12. <i>Monodon</i> slow growth syndrome	0000	0000	0000	I	
13. Milky lobster disease	0000	0000	0000	I	
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	+	?	?	III	
2. Infection with <i>Batrachochytrium dendrobatidis</i>	+?	-	-	III	

ANY OTHER DISEASES OF IMPORTANCE																													
1.																													
2.																													
<p>DISEASES PRESUMED EXOTIC TO THE REGION^b LISTED BY THE OIE Finfish: Infectious salmon anaemia; Gyrodactylosis (<i>Gyrodactylus salaris</i>). Molluscs: Infection with <i>Bonamia ostreae</i>; <i>Marteilia refringens</i>; <i>Perkinsus marinus</i>; <i>Xenohaliotis californiensis</i>. Crustaceans: Crayfish plague (<i>Aphanomyces astaci</i>). NOT LISTED BY THE OIE Finfish: Channel catfish virus disease</p>																													
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<p>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</p>																													

1. Epidemiological comments:

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

Comment No.	
1	
2	
3	
4	

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

Country: **REPUBLIC OF KOREA** Period: **October-December 2009**

Item	Disease status ^{a/}			Level of diagnosis	Epidemiological comment numbers
	Month				
DISEASES PREVALENT IN THE REGION	October	November	December		
FINFISH DISEASES					
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	-	-	-		
5. Epizootic ulcerative syndrome	0000	0000	0000		
6. Red seabream iridoviral disease	+	+	-	III	1
7. Koi herpesvirus disease	-	-	-		
Non OIE-listed diseases					
8. Grouper iridoviral disease	0000	0000	0000		
9. Viral encephalopathy and retinopathy	?	?	?		
10. Enteric septicaemia of catfish	0000	0000	0000		
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with <i>Bonamia exitiosa</i>	0000	0000	0000		
2. Infection with <i>Perkinsus olseni</i>	0000	0000	0000		
3. Abalone viral mortality	0000	0000	0000		
Non OIE-listed diseases					
4. Infection with <i>Marteilioides chungmuensis</i>	-	-	-		
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	-	-	-		
3. Yellowhead disease	0000	0000	0000		
4. Spherical baculovirus (<i>Penaeus monodon</i> -type baculovirus)	0000	0000	0000		
5. Infectious hypodermal and haematopoietic necrosis	0000	0000	0000		
6. Tetrahedral baculovirus (<i>Baculovirus penaei</i>)	0000	0000	0000		
7. Infectious myonecrosis	0000	0000	0000		
8. White tail disease (MrNV)	0000	0000	0000		
9. Necrotising hepatopancreatitis	0000	0000	0000		
10. Hepatopancreatic parvo virus disease	0000	0000	0000		
11. Mourilyan disease	0000	0000	0000		
Non OIE-listed diseases					
12. <i>Monodon</i> slow growth syndrome	0000	0000	0000		
13. Milky lobster disease	0000	0000	0000		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	0000	0000	0000		
2. Infection with <i>Batrachochytrium dendrobatidis</i>	0000	0000	0000		

ANY OTHER DISEASES OF IMPORTANCE																									
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<p>DISEASES PRESUMED EXOTIC TO THE REGION^b LISTED BY THE OIE Finfish: Infectious salmon anaemia; Gyrodactylosis (<i>Gyrodactylus salaris</i>). Molluscs: Infection with <i>Bonamia ostreae</i>; <i>Marteilia refringens</i>; <i>Perkinsus marinus</i>; <i>Xenohaliotis californiensis</i>. Crustaceans: Crayfish plague (<i>Aphanomyces astaci</i>). NOT LISTED BY THE OIE Finfish: Channel catfish virus disease</p>																									
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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	RSIV was detected from juvenile red seabream (<i>Pagrus major</i>) in one hatchery and juvenile striped beakperch (<i>Oplegnathus fasciatus</i>) in one hatchery on October, and from juvenile brown croaker (<i>Miichthys miiuy</i>) in one hatchery on November. The RSIV infected fish were slaughtered as preventive/control measure.
2	
3	
4	

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

Country: **MALAYSIA**

 Period: **October-December 2009**

Item	Disease status ^{a/}			Level of diagnosis	Epidemiological comment numbers
	Month				
DISEASES PREVALENT IN THE REGION	October	November	December		
FINFISH DISEASES					
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	(1986)	(1986)	(1986)		
6. Red seabream iridoviral disease	-	-	-		
7. Koi herpesvirus disease	-	-	-	I,II, III	1
Non OIE-listed diseases					
8. Grouper iridoviral disease	-	-	-	I,II,III	2
9. Viral encephalopathy and retinopathy	-	-	-	I,II,III	
10. Enteric septicaemia of catfish	0000	0000	0000		
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with <i>Bonamia exitiosa</i>	0000	0000	0000		
2. Infection with <i>Perkinsus olseni</i>	0000	0000	0000		
3. Abalone viral mortality	0000	0000	0000		
Non OIE-listed diseases					
4. Infection with <i>Marteilioides chungmuensis</i>	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	3
2. White spot disease	+	+	+	I,III	4
3. Yellowhead disease	-	-	-	I,III	5
4. Spherical baculovirus (<i>Penaeus monodon</i> -type baculovirus)	0000	0000	0000	III	
5. Infectious hypodermal and haematopoietic necrosis	+	+	-	I,III	6
6. Tetrahedral baculovirus (<i>Baculovirus penaei</i>)	0000	0000	0000		
7. Infectious myonecrosis	0000	0000	0000		
8. White tail disease (MrNV)	0000	0000	0000		
9. Necrotising hepatopancreatitis	0000	0000	0000		
10. Hepatopancreatic parvo virus disease	0000	0000	0000		
11. Mourilyan disease	0000	0000	0000		
Non OIE-listed diseases					
12. <i>Monodon</i> slow growth syndrome	?	?	?		
13. Milky lobster disease	0000	0000	0000		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	0000	0000	0000		
2. Infection with <i>Batrachochytrium dendrobatidis</i>	0000	0000	0000		

ANY OTHER DISEASES OF IMPORTANCE																													
1. Steptococcal infection	+	+	+	I, II	7																								
2.																													
<p>DISEASES PRESUMED EXOTIC TO THE REGION^b LISTED BY THE OIE Finfish: Infectious salmon anaemia; Gyrodactylosis (<i>Gyrodactylus salaris</i>). Molluscs: Infection with <i>Bonamia ostreae</i>; <i>Marteilia refringens</i>; <i>Perkinsus marinus</i>; <i>Xenohaliotis californiensis</i>. Crustaceans: Crayfish plague (<i>Aphanomyces astaci</i>). NOT LISTED BY THE OIE Finfish: Channel catfish virus disease</p>																													
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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	<p>Koi herpesvirus disease No reported cases</p>
2	<p>Grouper iridoviral diseases GIV was not detected in our surveillance study sites at Kedah and Sabah, as well as no reported cases during this period</p>
3	<p>Taura Syndrome Virus</p> <ol style="list-style-type: none"> TSV was not detected in all the samples sent to the Lab Industrial Resources (LIR) laboratory for routine and monitoring purposes. No cases or reported PCR positive being detected, although active surveillance was conducted by DOF in East Malaysia
4	<p>White Spot Syndrome Virus</p> <ol style="list-style-type: none"> 10 out of the total 181 samples sent by farmers to LIR laboratory in October, November and December were detected positive by PCR. Most of the samples were from Perak State, and few from Johor, Pahang, Selangor and Sabah. The positive samples were detected in juvenile to adult stages. However, disease outbreak was not observed or reported. WSSV positive was detected by KLIA Biosecurity Division laboratory, DOF Malaysia. Samples were taken from ponds reported having moribund shrimps at Selangor. No clinical signs observed but PCR tested positive in one sample. The owner was informed to abort culture. No cases or PCR positive detected or reported despite active surveillance done by DOF in East Malaysia.
5	<p>Yellow Head Disease</p> <ol style="list-style-type: none"> YHV was not detected in all the samples sent to LIR laboratory for routine and monitoring purposes. No cases or PCR positive detected or reported despite active surveillance done by DOF in East Malaysia

6	<p>Infectious Hypodermal and Haematopoietic Necrosis Virus</p> <ol style="list-style-type: none"> 1. IHHNV was detected in 14 of 20 samples sent to the LIR laboratory. Samples were tested using IHHNV IQ2000 detection kit. No clinical signs or mortality observed. The samples were from Kedah, perak, Sabah and Penang. Positive samples were detected in eggs and/or PL stages. 3. No cases or PCR positive detected or reported despite active surveillance done by DOF in East Malaysia
7	<p>Streptococcal Infection in Tilapia</p> <p>Disease outbreak and reports of mortality were obtained from Kuala Kangsar, Perak West Malaysia. Samples were collected and examined by NaFish, FRI, Batu Maung.</p> <ol style="list-style-type: none"> 1. Clinical signs-erratic swimming, exophthalmia or other abnormal clinical signs of the eye and inflamed body region 2. Pathogen-<i>Streptococcus agalactiae</i> 3. Mortality rate - ±45% 4. Economic loss - more than RM 11,000/farm 5. Geographic extent-in floating cages at Sg. Perak (river) 6. Laboratory confirmation- API 20E STREP 7. Publications-lab reports made to farms

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

Country: **MYANMAR**

 Period: **October-December 2009**

Item	Disease status ^{a/}			Level of diagnosis	Epidemiological comment numbers
	Month				
DISEASES PREVALENT IN THE REGION	October	November	December		
FINFISH DISEASES					
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 <i>Bonamia exitiosa</i>					
2. Infection with <i>Perkinsus olseni</i>					
3. Abalone viral mortality					
Non OIE-listed diseases					
4. Infection with <i>Marteilioides chungmuensis</i>					
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	2
3. Yellowhead disease	-	-	-	III	
4. Spherical baculovirus (<i>Penaeus monodon</i> -type baculovirus)	***	***	***		
5. Infectious hypodermal and haematopoietic necrosis	-	-	-	III	
6. Tetrahedral baculovirus (<i>Baculovirus penaei</i>)	***	***	***		
7. Infectious myonecrosis	***	***	***		
8. White tail disease (MrNV)	***	***	***		
9. Necrotising hepatopancreatitis	***	***	***		
10. Hepatopancreatic parvo virus disease	***	***	***		
11. Mourilyan disease	***	***	***		
Non OIE-listed diseases					
12. <i>Monodon</i> slow growth syndrome	***	***	***		
13. Milky lobster disease	***	***	***		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus					
2. Infection with <i>Batrachochytrium dendrobatidis</i>					

ANY OTHER DISEASES OF IMPORTANCE																									
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1. Epidemiological comments:

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

Comment No.	
1	A total of 58 samples of <i>P. monodon</i> have been tested at PCR Lab of Department of Fisheries (DOF), of which 5 samples (8.62%) were recorded as TSV positive.
2	A total of 58 samples of <i>P. monodon</i> have been tested at PCR lab of Department of Fisheries (DOF), of which 5 samples (8.62%) were recorded as WSSV positive

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

Country: NEPAL

 Period: October-December 2009

Item	Disease status ^{a/}			Level of diagnosis	Epidemiological comment numbers
	Month				
DISEASES PREVALENT IN THE REGION	October	November	December		
FINFISH DISEASES					
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 <i>Bonamia exitiosa</i>	0000	0000	0000		
2. Infection with <i>Perkinsus olseni</i>	0000	0000	0000		
3. Abalone viral mortality	0000	0000	0000		
Non OIE-listed diseases					
4. Infection with <i>Marteilioides chungmuensis</i>	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	0000	0000	0000		
3. Yellowhead disease	0000	0000	0000		
4. Spherical baculovirus (<i>Penaeus monodon</i> -type baculovirus)	0000	0000	0000		
5. Infectious hypodermal and haematopoietic necrosis	0000	0000	0000		
6. Tetrahedral baculovirus (<i>Baculovirus penaei</i>)	0000	0000	0000		
7. Infectious myonecrosis	0000	0000	0000		
8. White tail disease (MrNV)	0000	0000	0000		
9. Necrotising hepatopancreatitis	0000	0000	0000		
10. Hepatopancreatic parvo virus disease	0000	0000	0000		
11. Mourilyan disease	0000	0000	0000		
Non OIE-listed diseases					
12. <i>Monodon</i> slow growth syndrome	0000	0000	0000		
13. Milky lobster disease	0000	0000	0000		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	0000	0000	0000		
2. Infection with <i>Batrachochytrium dendrobatidis</i>	0000	0000	0000		

ANY OTHER DISEASES OF IMPORTANCE																									
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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): None

Country: **PHILIPPINES**

 Period: **October-December 2009**

Item	Disease status ^{a/}			Level of diagnosis	Epidemiological comment numbers
	Month				
DISEASES PREVALENT IN THE REGION	October	November	December		
FINFISH DISEASES					
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	***	***	***		
7. Koi herpesvirus disease	0000	0000	0000	III	1
Non OIE-listed diseases					
8. Grouper iridoviral disease	-	-	-	III	2
9. Viral encephalopathy and retinopathy	-	-	-	III	3
10. Enteric septicaemia of catfish	***	***	***		
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with <i>Bonamia exitiosa</i>	0000	0000	0000		
2. Infection with <i>Perkinsus olseni</i>	0000	0000	0000		
3. Abalone viral mortality	***	***	***		
Non OIE-listed diseases					
4. Infection with <i>Marteilioides chungmuensis</i>	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	4
2. White spot disease	+	+	+	III	5
3. Yellowhead disease	-	-	-	III	6
4. Spherical baculovirus (<i>Penaeus monodon</i> -type baculovirus)	-	-	-		
5. Infectious hypodermal and haematopoietic necrosis	+	+	-	III	7
6. Tetrahedral baculovirus (<i>Baculovirus penaei</i>)	0000	0000	0000		
7. Infectious myonecrosis	0000	0000	0000	III	8
8. White tail disease (MrNV)	***	***	***		
9. Necrotising hepatopancreatitis	0000	0000	0000	III	9
10. Hepatopancreatic parvo virus disease	-	-	-		
11. Mourilyan disease	***	***	***		
Non OIE-listed diseases					
12. <i>Monodon</i> slow growth syndrome	***	***	***		
13. Milky lobster disease	***	***	***		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	***	***	***		
2. Infection with <i>Batrachochytrium dendrobatidis</i>	***	***	***		

ANY OTHER DISEASES OF IMPORTANCE																									
1.																									
2.																									
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1. Epidemiological comments:

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

Comment No.	
1	A total of one hundred ninety-five (195) pieces of koi carp (<i>Cyprinus carpio koi</i>) were collected for analysis during the fourth quarter of 2009 and all samples showed a negative result for Koi Herpesvirus through PCR test. One hundred and sixty (160) gill samples were collected from the National Fisheries Biological Center (NFBC) of the National Fisheries Research and Development Institute (NFRDI) in Botong, Lemery, Batangas; and thirty-five (35) gill samples were collected from the Freshwater Ornamental Fish Aquaculture Park (FOFAP) in Santo Domingo, Bay, Laguna. Examinations/tests were conducted by the BFAR Central Office Fish Health Laboratory.
2	Three (3) samples of grouper (<i>Epinephelus spp.</i>) collected from the Silot Bay in Poblacion, Liloan, Cebu were analyzed using the PCR test and all showed a negative result for Grouper Iridovirus. Examinations/tests were conducted by the BFAR Central Office Fish Health Laboratory.
3	All three (3) samples of grouper (<i>Epinephelus spp.</i>) collected from the Silot Bay in Poblacion, Liloan, Cebu showed a negative result for Viral Encephalopathy and Retinopathy using PCR test. Examinations/tests were conducted by the BFAR Central Office Fish Health Laboratory.
4	All the forty-nine (49) samples collected from Batangas, Cebu, Davao City, Davao del Sur, Dapitan City, Iloilo, Lanao del Norte, Quezon Province, and Tacloban City showed negative result for Taura Syndrome Virus. There were forty-three (43) samples of <i>Peneaus vannamei</i> and six (6) samples of <i>Peneaus monodon</i> of different stages (post-larval, broodstock, fry, juvenile and adult) that were examined through PCR test. Examinations/tests were conducted by the BFAR Central Office Fish Health Laboratory.

5	<p>There were seventy (70) samples (25 <i>Peneaus monodon</i>, 44 <i>Peneaus vannamei</i>, and 1 <i>Metapeneaus ensis</i>) of different stages (post-larval, broodstock, fry, juvenile and adult) that were analyzed using the PCR test. The different samples was collected from Batangas, Bohol, Cagayan, Camarines Sur, Cebu, Davao City, Davao del Sur, Davao Oriental, Dapitan City, Iloilo, Lanao del Norte, Leyte, Quezon Province, Sorsogon and Zamboanga Sibugay. Eight (8) out of the seventy (70) collected samples showed a positive result for White Spot Syndrome Virus (1 <i>Metapeneaus ensis</i> from Sorsogon; 2 <i>Peneaus vannamei</i> from Batangas; and 5 <i>Peneaus monodon</i> from Sorsogon [1] and Lanao del Norte [4]). Examinations/tests were conducted by the BFAR Central Office Fish Health Laboratory.</p>
6	<p>Fifty seven (57) samples (15 <i>Peneaus monodon</i>, 41 <i>Peneaus vannamei</i>, 1 <i>Metapeneaus ensis</i>) of different stages (broodstock, post-larval, fry, juvenile and adult) were analyzed using PCR. All samples showed negative result for Yellowhead virus. The samples were collected from Batangas, Bohol, Cebu, Davao City, Davao del Sur, Dapitan City, Iloilo, Lanao del Norte, Leyte, Quezon Province, Sorsogon and Zamboanga Sibugay. Examinations/tests were conducted by the BFAR Central Office Fish Health Laboratory.</p>
7	<p>Seventy (70) samples (20 <i>Peneaus monodon</i>, 49 <i>Peneaus vannamei</i>, 1 <i>Metapeneaus ensis</i>) of different stages (broodstock, post-larval, fry, juvenile and adult) were analyzed using PCR test. The samples were collected from Batangas, Bohol, Cebu, Dapitan City, Davao City, Davao Oriental, Davao del Sur, Iloilo, Lanao del Norte, Leyte, Quezon Province, Sorsogon, Tacloban City and Zamboanga Sibugay. Only 10 of the 70 samples (8 <i>P. vannamei</i> from Batangas[1], Davao City [2] and Davao del sur [5]; and 2 <i>P. monodon</i> from Batangas [1] and Tacloban City [1]) showed positive result for Infectious Hypodermal and Haematopoietic Necrosis Virus. Examinations/tests were conducted by the BFAR Central Office Fish Health Laboratory.</p>
8	<p>There were a total of forty-nine (49) samples (6 <i>Peneaus monodon</i> and 43 <i>Peneaus vannamei</i>) of different stages (broodstock, post-larval, fry, juvenile and adult) collected from Batangas, Cebu, Dapitan City, Davao City, Davao del Sur, Davao Oriental, Iloilo, Lanao del Norte and Tacloban City. All samples showed a negative result for Infectious Myonecrosis Virus through PCR test. Examinations/tests were conducted by the BFAR Central Office Fish Health Laboratory.</p>
9	<p>All forty eight (48) collected samples (42 <i>Peneaus vannamei</i> and 6 <i>Peneaus monodon</i>) of different stages (broodstock, post-larval, fry, juvenile and adult) showed a negative result for Necrotising Hepatopancreatitis Virus using PCR test. The samples were collected from Batangas, Cebu, Davao City, Davao del Sur, Dapitan City, Iloilo, Lanao del Norte and Tacloban City. Examinations/tests were conducted by the BFAR Central Office Fish Health Laboratory.</p>

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

Country: **SINGAPORE**

 Period: **October-December 2009**

Item	Disease status ^{a/}			Level of diagnosis	Epidemiological comment numbers
	Month				
DISEASES PREVALENT IN THE REGION	October	November	December		
FINFISH DISEASES					
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	(2007)	(2007)	(2007)		
Non OIE-listed diseases					
8. Grouper iridoviral disease	-	-	-		
9. Viral encephalopathy and retinopathy	-	-	-		
10. Enteric septicaemia of catfish	0000	0000	0000		
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with <i>Bonamia exitiosa</i>	***	***	***		
2. Infection with <i>Perkinsus olseni</i>	***	***	***		
3. Abalone viral mortality	***	***	***		
Non OIE-listed diseases					
4. Infection with <i>Marteilioides chungmuensis</i>	***	***	***		
5. Acute viral necrosis (in scallops)	***	***	***		
6. Akoya oyster disease	***	***	***		
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Taura syndrome	***	***	***		
2. White spot disease	(2004)	(2004)	(2004)		
3. Yellowhead disease	***	***	***		
4. Spherical baculovirus (<i>Penaeus monodon</i> -type baculovirus)	-	-	-		
5. Infectious hypodermal and haematopoietic necrosis	***	***	***		
6. Tetrahedral baculovirus (<i>Baculovirus penaei</i>)	***	***	***		
7. Infectious myonecrosis	***	***	***		
8. White tail disease (MrNV)	***	***	***		
9. Necrotising hepatopancreatitis	***	***	***		
10. Hepatopancreatic parvo virus disease	***	***	***		
11. Mourilyan disease	***	***	***		
Non OIE-listed diseases					
12. <i>Monodon</i> slow growth syndrome	***	***	***		
13. Milky lobster disease	***	***	***		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	***	***	***		
2. Infection with <i>Batrachochytrium dendrobatidis</i>	***	***	***		

ANY OTHER DISEASES OF IMPORTANCE																									
1. Mullet systemic iridoviral disease	(2008)	(2008)	(2008)																						
2.																									
<p>DISEASES PRESUMED EXOTIC TO THE REGION^b LISTED BY THE OIE Finfish: Infectious salmon anaemia; Gyrodactylosis (<i>Gyrodactylus salaris</i>). Molluscs: Infection with <i>Bonamia ostreae</i>; <i>Marteilia refringens</i>; <i>Perkinsus marinus</i>; <i>Xenohaliotis californiensis</i>. Crustaceans: Crayfish plague (<i>Aphanomyces astaci</i>). NOT LISTED BY THE OIE Finfish: Channel catfish virus disease</p>																									
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+	Disease reported or known to be present	+()	Occurrence limited to certain zones																						
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1. Epidemiological comments:

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

Comment No.	
1	
2	
3	
4	

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

Country: **SRI LANKA**

 Period: **October-December 2009**

Item	Disease status ^{a/}			Level of diagnosis	Epidemiological comment numbers
	Month				
DISEASES PREVALENT IN THE REGION	October	November	December		
FINFISH DISEASES					
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 <i>Bonamia exitiosa</i>	***	***	***		
2. Infection with <i>Perkinsus olseni</i>	***	***	***		
3. Abalone viral mortality	0000	0000	0000		
Non OIE-listed diseases					
4. Infection with <i>Marteilioides chungmuensis</i>	***	***	***		
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	***	***	***	III	
4. Spherical baculovirus (<i>Penaeus monodon</i> -type baculovirus)	+	+	+	I,III	2
5. Infectious hypodermal and haematopoietic necrosis	?	?	?	III	3
6. Tetrahedral baculovirus (<i>Baculovirus penaei</i>)	***	***	***		
7. Infectious myonecrosis	***	***	***		
8. White tail disease (MrNV)	***	***	***		
9. Necrotising hepatopancreatitis	***	***	***		
10. Hepatopancreatic parvo virus disease	***	***	***		
11. Mourilyan disease	***	***	***		
Non OIE-listed diseases					
12. <i>Monodon</i> slow growth syndrome	***	***	***		
13. Milky lobster disease	***	***	***		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	***	***	***		
2. Infection with <i>Batrachochytrium dendrobatidis</i>	***	***	***		

ANY OTHER DISEASES OF IMPORTANCE																									
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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	<p>WSSV- A total of 200 <i>P. monodon</i> wild brooder samples were tested using the IQ2000 two-step PCR method for the presence of WSSV, the prevalence was 18%. In sub-adults, prevalence of WSSV was 65%, and it was 12% in postlarvae.</p> <p>In the past culture cycle there were outbreaks of WSSV in Muthupanthiya, Udappuwa, Ambakadawila, Iranawila and Arachchikattuwa in the North Western Province. Total area infected was approximately 30% of the cultured area. The shrimps infected weighed approximately 6-15 grams.</p> <p>The above data were obtained from private laboratories located in North Western Province, from the National Aquatic Resources Research and Development Agency (NARA) and from the Shrimp Farm Extension and Monitoring Unit at Buththuluoya (NAQDA).</p>
2	<p>MBV- Prevalence of MBV was investigated using the stained wet mount observations and also with 2-step nested PCR. The prevalence of MBV in <i>P. monodon</i> post larvae was 46% and 10% in subadults.</p> <p>The above data were obtained from private laboratories located in North Western Province and from the National Aquatic Resources Research and Development Agency (NARA) and from the Shrimp Farm Extension and Monitoring Unit at Buththuluoya (NAQDA).</p>
3	<p>IHHNV (using 2-step nested PCR) - 12 samples were positive for IHHNV, however, these primers are not capable differentiating the actual infectious strain of IHHNV. The prevalence of IHHNV was 21% in sub adults obtained from grow-out ponds and 27% in post larvae obtained from shrimp hatcheries.</p> <p>The data were obtained from National Aquatic Resources Research and Development Agency (NARA).</p>

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

Country: **THAILAND**

 Period: **October-December 2009**

Item	Disease status ^{a/}			Level of diagnosis	Epidemiological comment numbers
	Month				
DISEASES PREVALENT IN THE REGION	October	November	December		
FINFISH DISEASES					
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	0000	0000	0000	III	
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	-	-	-	II	
6. Red seabream iridoviral disease	0000	0000	0000	III	
7. Koi herpesvirus disease	-	-	+	III	1
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 <i>Bonamia exitiosa</i>	0000	0000	0000	II	
2. Infection with <i>Perkinsus olseni</i>	0000	0000	0000	II	
3. Abalone viral mortality	***	***	***		
Non OIE-listed diseases					
4. Infection with <i>Marteilioides chungmuensis</i>	***	***	***		
5. Acute viral necrosis (in scallops)	***	***	***		
6. Akoya oyster disease	***	***	***		
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Taura syndrome	-	-	-	III	2
2. White spot disease	-	-	-	III	3
3. Yellowhead disease	+	-	-	III	4
4. Spherical baculovirus (<i>Penaeus monodon</i> -type baculovirus)	***	***	***		
5. Infectious hypodermal and haematopoietic necrosis	-	+	+	III	5
6. Tetrahedral baculovirus (<i>Baculovirus penaei</i>)	***	***	***		
7. Infectious myonecrosis	0000	0000	0000	I	
8. White tail disease (MrNV)	+	+	+	III	6
9. Necrotising hepatopancreatitis	***	***	***		
10. Hepatopancreatic parvo virus disease	***	***	***		
11. Mourilyan disease	***	***	***		
Non OIE-listed diseases					
12. <i>Monodon</i> slow growth syndrome	***	***	***		
13. Milky lobster disease	0000	0000	0000	I	
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	(2007)	(2007)	(2007)	III	
2. Infection with <i>Batrachochytrium dendrobatidis</i>	0000	0000	0000	II	

ANY OTHER DISEASES OF IMPORTANCE																									
1.																									
2.																									
<p>DISEASES PRESUMED EXOTIC TO THE REGION^b LISTED BY THE OIE Finfish: Infectious salmon anaemia; Gyrodactylosis (<i>Gyrodactylus salaris</i>). Molluscs: Infection with <i>Bonamia ostreae</i>; <i>Marteilia refringens</i>; <i>Perkinsus marinus</i>; <i>Xenohaliotis californiensis</i>. Crustaceans: Crayfish plague (<i>Aphanomyces astaci</i>). NOT LISTED BY THE OIE Finfish: Channel catfish virus disease</p>																									
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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	<p>KHV was found in one koi (fancy carp) production farm, <i>Cyprinus carpio</i>, during the routine surveillance system. The kois were maintained in concrete tanks and showed no disease signs. The KHV was detected using PCR at the Inland Aquatic Animal Health Research Institute (AAHRI), Department of Fisheries. The kois in the KHV positive zone were destroyed and all tanks were disinfected.</p> <p>The KHV disease occurred in a private house that kept the kois as pet. The 2 year-old kois exhibited classic clinical signs of the KHVD and their PCR tests were positive. Two fish died while the other 28 diseased kois were destroyed and the pond and water were disinfected and cleaned.</p>
2	A total of 346 shrimp samples from shrimp farms had been tested at PCR Laboratories of the DOF under active surveillance. All samples were RT-PCR-tested and results were all negative for TSV.
3	A total of 346 shrimp samples from shrimp farms had been tested at PCR Laboratories of the DOF under active surveillance. All samples were RT-PCR-tested and results were all negative for WSSV.
4	A total of 346 shrimp samples from shrimp farms had been tested at PCR Laboratories of the DOF under active surveillance. One specimen or 0.3 % was recorded as RT-PCR positive or carrying YHV genes. Shrimp farms with positive testing results will be subjected to health improvement, movement control, eradication and/or farm disinfection.
5	A total of 270 shrimp samples from shrimp farms had been tested at PCR Laboratories of the DOF under active surveillance. 9 specimens or 3.3 % were recorded as PCR positive or carrying IHNV genes. Shrimp farms with positive testing results will be subjected to health improvement, movement control, eradication and/or farm disinfection.

6	115 healthy giant prawn specimens from wild stock and hatchery brooders were sampled under the MrNV surveillance program using RT-PCR technique. 29 specimens or 25% were recorded as PCR positive or carrying MrNV gene. However, all brooder specimens appeared normal. Concepts in bio-security for disease prevention had been advised to hatchery owners or operators.
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2. New aquatic animal health regulations introduced within past six months (with effective date):

Country: **VIETNAM**Period: **October-December 2009**

Item	Disease status ^{a/}			Level of diagnosis	Epidemiological comment numbers
	Month				
DISEASES PREVALENT IN THE REGION	October	November	December		
FINFISH DISEASES					
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 <i>Bonamia exitiosa</i>	0000	0000	0000		
2. Infection with <i>Perkinsus olseni</i>	0000	0000	0000		
3. Abalone viral mortality	0000	0000	0000		
Non OIE-listed diseases					
4. Infection with <i>Marteilioides chungmuensis</i>	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	2
3. Yellowhead disease	***	***	***		
4. Spherical baculovirus (<i>Penaeus monodon</i> -type baculovirus)	0000	0000	0000		
5. Infectious hypodermal and haematopoietic necrosis	0000	0000	0000		
6. Tetrahedral baculovirus (<i>Baculovirus penaei</i>)	0000	0000	0000		
7. Infectious myonecrosis	0000	0000	0000		
8. White tail disease (MrNV)	***	***	***		
9. Necrotising hepatopancreatitis					
10. Hepatopancreatic parvo virus disease					
11. Mourilyan disease					
Non OIE-listed diseases					
12. <i>Monodon</i> slow growth syndrome	+	+	+	I, III	3
13. Milky lobster disease	+	+	+	I	4
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	0000	0000	0000		
2. Infection with <i>Batrachochytrium dendrobatidis</i>	0000	0000	0000		

ANY OTHER DISEASES OF IMPORTANCE																													
1.																													
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<p>DISEASES PRESUMED EXOTIC TO THE REGION^b LISTED BY THE OIE Finfish: Infectious salmon anaemia; Gyrodactylosis (<i>Gyrodactylus salaris</i>). Molluscs: Infection with <i>Bonamia ostreae</i>; <i>Marteilia refringens</i>; <i>Perkinsus marinus</i>; <i>Xenohaliotis californiensis</i>. Crustaceans: Crayfish plague (<i>Aphanomyces astaci</i>). NOT LISTED BY THE OIE Finfish: Channel catfish virus disease</p>																													
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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	<p>Enteric Septicaemia of Catfish Pathogen: <i>Edwardsiella ictaluri</i> Infection found in intensive catfish (<i>Pangasius micronema</i>, <i>P. hypophthalmus</i>) farms. This disease occurred in An Giang and Dong Thap provinces</p>
2	<p>White Spot Disease Pathogen: White Spot Syndrome Virus (WSSV) Disease found in black tiger shrimp (<i>Penaeus monodon</i>) and white leg shrimp (<i>P. vannamei</i>). The disease occurred in Nghe An, Hà Tĩnh, Binh Dinh, Ba Ria-Vung Tau, Long An, Tien Giang, Tra Vinh, Ben Tre, Soc Trang, Bac Lieu and Ca Mau provinces</p>
3	<p>Monodon Slow Growth Syndrome Pathogen: Baculovirus Infection found in black tiger shrimp (<i>Penaeus monodon</i>). Disease characteristic: body color darken, loss of appetite, stunted growth; The disease was reported in Ba Ria-Vung Tau and Ca Mau provinces</p>
4	<p>Milky Lobster Disease Pathogen: Rickettsia-like Bacteria Infection found in Lobsters <i>Panulirus ornatus</i>, <i>P. homarus</i> cultured in floating sea cages in the grow-out stage. Disease characteristic: 1 lobsters showed black gills, exposed head, and traces of milky colored abdomen; The disease occurred in Binh Thuan province</p>

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 2010)

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 <i>Bonamia exitiosa</i>	1. Infection with <i>Marteilioides chungmuensis</i>
2. Infection with <i>Perkinsus olseni</i>	2. Akoya oyster disease
3. Abalone viral mortality	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	2. Necrotising hepatopancreatitis
3. Yellowhead disease	3. Milky haemolymph disease of spiny lobster
4. Infectious hypodermal and haematopoietic necrosis	
5. Infectious myonecrosis	
6. White tail disease (MrNV)	
1.4 AMPHIBIAN DISEASES	
OIE-listed diseases	Non OIE-listed diseases
1. Infection with Ranavirus	
2. Infection with <i>Bachtracochytrium dendrobatidis</i>	
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 (<i>Gyrodactylus salaris</i>)	
2.2 Molluscs	
OIE-listed diseases	Non OIE-listed diseases
1. Infection with <i>Bonamia ostreae</i>	
2. Infection with <i>Marteilia refringens</i>	
3. Infection with <i>Perkinsus marinus</i>	
4. Infection with <i>Xenohaliotis californiensis</i>	
2.3 Crustaceans	
OIE-listed diseases	Non OIE-listed diseases
1. Crayfish plague (<i>Aphanomyces astaci</i>)	

Recent Aquatic Animal Health Related Publications

OIE Aquatic Animal Health Code, 12th Edition, 2009. The aim of the *Aquatic Code* is to assure the sanitary safety of international trade in aquatic animals (fish, molluscs, crustaceans and amphibians) and their products. This is achieved through the detailing of health measures to be used by the veterinary 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, guidelines and recommendations) have been formally adopted by the OIE International Committee. The 12th edition incorporates the modifications to the *Aquatic Code* agreed during the 77th General Session in May 2009. The Aquatic Animal Health Code is available on http://www.oie.int/eng/normes/fcode/en_sommaire.htm. 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, 2009. 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 at http://www.oie.int/eng/normes/fmanual/A_summry.htm and can be ordered at <http://www.oie.int/boutique/index.php?lang=en>.

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. 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

Color Atlas of Fish Histopathology, Volume 2 (2007) by Teruo Miyazaki. The only book on fish histopathology. Highly recommended for private library, institutional libraries, laboratories for studies and education on fish disease. The volume contains 13 RNA viruses, 16 DNA viruses, 7 fungal diseases and 50 parasitic diseases. Downloadable at URL <http://briefcase.yahoo.co.jp/yappon1978>. Further details from miyazaki@bio.mie-u.ac.jp

Arthur, J.R. & Te, B.Q. 2006. **Checklist of the parasites of fishes of Viet Nam**. FAO Fisheries Technical Paper No. 369/2. Rome, FAO. 133 pp.

Aquaculture Biosecurity: Prevention, Control and Eradication of Aquatic Animal Disease. 2006. A. David Scarfe, Cheng-Sheng Lee and Patricia O'Bryen (editors). Blackwell Publishing. 182 pp.

Regional Workshop on Preparedness and Response to Aquatic Animal Health Emergencies in Asia, Jakarta, Indonesia, 21-23 September 2004. Subasinghe, R.P. and JR Arthur (editors). FAO Fisheries Proceedings No. 4, Rome, FAO. 2005. 178p.

Responsible use of antibiotics in aquaculture. Hernandez Serrano, P. 2005. FAO Fisheries Technical Paper. No. 469. Rome, FAO. 2005. 97p.

Pathogen and ecological risk analysis for the introduction of blue shrimp, *Litopenaeus stylirostris*, from Brunei Darussalam to Fiji. Bondad-Reantaso, M.G., Lovell, E.R., Arthur, J.R., Hurwood, D. & Mather, P.B. 2005. Secretariat of the Pacific Community, New Caledonia. 80 pp.
http://www.spc.org.nc/aquaculture/site/publications/documents/Stylirostris_BruneiFiji.pdf

Pathogen and ecological risk analysis for the introduction of giant river prawn, *Macrobrachium rosenbergii* from Fiji to the Cooks Islands. Arthur, J.R., Hurwood, D., Lovell, E.R., Bondad-Reantaso, M.G., & Mather, P.B. 2005. Secretariat of the Pacific Community, New Caledonia.
<http://www.biosecurity.govt.nz/files/pests-diseases/plants/risk/prawns-ra.pdf>

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

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

Surveillance and Zoning for Aquatic Animal Diseases.

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

List of National Coordinators*

Country	Name and Address
Australia	<p>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</p> <p>Mr. Alistair Herfort Aquatic Animal Health Unit , Office of the Chief Veterinary Officer Department of Agriculture, Fisheries and Forestry GPO Box 858, Canberra ACT 2601, Australia Fax: +61 2 6272 3150; tel: +61 2 6272 4009 E-mail: Alistair.Herfort@affa.gov.au</p>
Bangladesh	<p>Dr. M. G.Hussain Director General, Bangladesh Fisheries Research Institute (BFRI) Mymensingh 2201, Bangladesh Fax: 880-2-55259, Tel: 880-2-54874 E-mail: dgbfri@bdonline.com, bfri@gmail.com</p> <p>Dr. A.N.Hasna Banu Bangladesh Fisheries Research Institute(BFRI) Mymensingh - 2201 Bangladesh Fax: 880-2-55259, Tel: 880-2-54874 E-mail: hasnabanu69@gmail.com</p>
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China	<p>Mr. Zhuzewen Disease Prevention and Control Division National Fisheries Technique Extension Center (NFTEC) Ministry of Agriculture Mai Zi Dian Street No 18 Chanyang District, Beijing 100026, China Fax: 86-10-65074250; Tel: 86-010-64195073 E-mail: zewenzhu@sina.com</p>
DPR Korea	<p>Mr. Chong Yong Ho Director of Fish Farming Technical Department, Bureau of Freshwater Culture Sochangdong Central District, P.O.Box. 95 , Pyongyang, DPR Korea Fax- 850-2-814416; Tel- 3816001, 3816121</p>
Hong Kong China	<p>Dr. Siu Ho Lim Fisheries Officer (Mariculture Development) Agriculture, Fisheries and Conservation Department Aberdeen Fisheries Office, 100 A, Shek Pai Wan Road Hong Kong Tel: 852-2150 7081; Fax: 852-2152 0383 E-Mail: holim_siu@afcd.gov.hk</p>

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

(Revised during the Provisional Meeting of the AG¹, 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:

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Notes

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