



# **QUARTERLY AQUATIC ANIMAL DISEASE REPORT (Asia and Pacific Region)**

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## Foreword

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### Food Safety and Biosecurity

During the recently held 9<sup>th</sup> Meeting of the Asia Regional Advisory Group on Aquatic Animal Health (AG), one issue that have been discussed is to broaden the scope of AG to address emerging issues related to aquatic animal health such as food safety, certification and biosecurity. There is an ongoing need to strengthen aquatic animal health management in the Asia-Pacific region driven by increasing production and trade in aquatic animal commodities, the need to meet sanitary requirements for international trade, the importance of preventing the spread of trans-boundary diseases, and recognition of the significance of aquatic animal production for food security. Effective coordination and communication of capacity building initiatives across the region is important to ensure that, wherever possible, available resources are applied for maximum benefit

According to World Organisation for Animal Health (OIE), food safety and quality are best assured by an integrated, multidisciplinary approach, considering the whole of the food chain. Eliminating or controlling food hazards at source, i.e. a preventive approach, is more effective in reducing or eliminating the risk of unwanted health effects than relying on control of the final product, traditionally applied via a final ‘quality check’ approach. Approaches to food safety have evolved in recent decades, from traditional controls based on good practices (Good Aquaculture Practices [GAPs] and Best Management Practices [BMPs]), via more targeted food safety systems based on hazard analysis and critical control points (HACCP) to risk-based approaches using food safety risk analysis.

To ensure food safety of animal products, action is needed at the farm level during the production cycle, where many sanitary risks may be present and can be avoided through proper disease prevention policies and good practices recommended international organizations (e.g. NACA, OIE, SEAFDEC AQD, FAO and Codex Alimentarius Commission). Globalisation in aquaculture should ensure healthy and hazard-free food products for international trade.

Concerns on drug and chemical residues among internationally traded aquatic products have resulted in a more strict standards imposed by many importing countries around the world. In the Asia-Pacific region, the use of chemicals in aquaculture still needs to be standardized and several projects/workshops have been implemented in this regard many years back. These include withdrawal periods of antibiotics among aquacultured species, surveillance of chemical contaminants in aquaculture products and feeds, status of antibiotics/chemicals usage and regulations in aquaculture, and dissemination of food safety awareness. Despite of these activities, however, harmonized guidelines on responsible use of chemicals in aquaculture, especially in less-developed countries in the region, still needs to be formulated.

Food safety of aquaculture in the Asia-Pacific region needs proper implementation of the following (Azuma 2010):

- Establishment of guidelines for the proper usage of antibiotics and other drugs in aquaculture;

- Clarification of chemical contaminants in aquaculture products and feeds;
- Investigations on the status of antibiotics/chemicals usage and regulation in aquaculture; and,
- Promotion of food safety awareness from farm to fork following the established guidelines.

On the other hand, biosecurity in aquaculture, as discussed during the Global Conference on Aquaculture 2010 (Phuket, Thailand), is taking a broader perspective to include aquatic animal health, invasive species, genetic risks, public health and climate change impacts. The following messages were conveyed after the discussion by panel experts:

- International and national efforts to promote biosecurity need to better reach the grassroots levels of the industry and the community stakeholders;
- Biosecurity frameworks need to keep pace with the unprecedented level of aquaculture development in terms of species, systems and technology;
- Standards on aquatic animal health for known pathogens, aquatic pests and food safety are already available, but greater commitment by governments is needed to implement these standards;
- International standards need to be developed to address the high incidence of emerging diseases of aquatic animals and aquatic pests compared to the terrestrial scenario – there is a need to complement the pathogen/pest specific approach to biosecurity with standards that deter high risk practices.

On the different certification schemes which are creating confusion for many stakeholders, globally accepted guidelines are needed, which can serve as basis for a more harmonized and acceptable certification. At present, the proposed FAO aquaculture certification guidelines have been approved in the recent COFI (Committee on Fisheries) meeting. A range of issues relevant to certification schemes in aquaculture has been included in the certification guidelines including: animal health and welfare; food safety; environmental integrity; and, socio-economic aspects.

By and large, food safety and biosecurity in aquaculture still need to be strengthened, and awareness programmes should be implemented and proper information disseminated especially for small-scale aquafarmers which are common in the region.

As a last note, the updated list of diseases for QAAD reporting starting January 2011 is enclosed in this report. This was revised by the 9<sup>th</sup> AG based on current OIE list and other diseases of importance to the region.



## **Reports Received by the NACA Secretariat**

Country: AUSTRALIAPeriod: October - December 2010

Item	Disease status <sup>al</sup>			Level of diagnosis	Epidemiological comment numbers
	Month				
DISEASES PREVALENT IN THE REGION	October	November	December		
<b>FINFISH DISEASES</b>					
<b>OIE-listed diseases</b>					
1. Epizootic haematopoietic necrosis	-(2009)	-(2009)	-(2009)		1
2. Infectious haematopoietic necrosis	0000	0000	0000		
3. Spring viraemia of carp	0000	0000	0000		
4. Viral haemorrhagic septicaemia	0000	0000	0000		
5. Epizootic ulcerative syndrome	-(2010)	-(2010)	+	II	2
6. Red seabream iridoviral disease	0000	0000	0000		
7. Koi herpesvirus disease	0000	0000	0000		
<b>Non OIE-listed diseases</b>					
8. Grouper iridoviral disease	0000	0000	0000		
9. Viral encephalopathy and retinopathy	+?	-(2010)	-(2010)	III	3
10. Enteric septicaemia of catfish	-(2010)	-(2010)	-(2010)		4
<b>MOLLUSC DISEASES</b>					
<b>OIE-listed diseases</b>					
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	-(2010)	-(2010)	+	III	6
<b>Non OIE-listed diseases</b>					
4. Infection with <i>Marteilioides chungmuensis</i>	0000	0000	0000		
5. Acute viral necrosis (in scallops)	***	***	***		
6. Akoya oyster disease	0000	0000	0000		
<b>CRUSTACEAN DISEASES</b>					
<b>OIE-listed diseases</b>					
1. Taura syndrome	0000	0000	0000		
2. White spot disease	0000	0000	0000		
3. Yellowhead disease	0000	0000	0000		
4. Infectious hypodermal and haematopoietic necrosis	-(2008)	-(2008)	-(2008)		7
5. Infectious myonecrosis	0000	0000	0000		
6. White tail disease (MrNV)	-(2008)	-(2008)	-(2008)		8
<b>Non OIE-listed diseases</b>					
7. Necrotising hepatopancreatitis	***	***	***		
8. <i>Monodon</i> slow growth syndrome	0000	0000	0000		
9. Milky haemolymph disease of spiny lobster ( <i>Panulirus</i> spp.)	0000	0000	0000		
<b>AMPHIBIAN DISEASES</b>					
<b>OIE-listed diseases</b>					
1. Infection with Ranavirus	-(2008)	-(2008)	-(2008)		9
2. Infection with <i>Batrachochytrium dendrobatidis</i>	-(2010)	-(2010)	-(2010)		10
<b>ANY OTHER DISEASES OF IMPORTANCE</b>					
1.					
2.					

<p><b>DISEASES PRESUMED EXOTIC TO THE REGION<sup>b</sup></b>  <b>LISTED BY THE OIE</b>  <b>Finfish:</b> Infectious salmon anaemia; Gyrodactylosis (<i>Gyrodactylus salaris</i>).  <b>Molluscs:</b> Infection with <i>Bonamia ostreae</i>; <i>Marteilia refringens</i>; <i>Perkinsus marinus</i>; <i>Xenohaliotis californiensis</i>.  <b>Crustaceans:</b> Crayfish plague (<i>Aphanomyces astaci</i>).  <b>NOT LISTED BY THE OIE</b>  <b>Finfish:</b> Channel catfish virus disease</p>			
<p>a/ Please use the following symbols:</p>			
+	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
<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 during this period despite passive surveillance, but is known to have occurred previously in New South Wales (last year reported 2009), Victoria (last year reported 2004) and South Australia (last year reported 1992). Targeted surveillance and never reported in Tasmania. Passive surveillance and never reported in the Northern Territory, Queensland or Western Australia. No information available this period, but known to occur in the Australian Capital Territory (last year reported 2008).</p>
2	<p><b>Epizootic ulcerative syndrome</b></p> <ol style="list-style-type: none"> <li>1. <b>Reported in Queensland</b> in December 2010. Passive surveillance;</li> <li>2. <b>In</b> Barcoo gunter (<i>Scortium barcoo</i>) and Welch’s grunter (<i>Bidyanus welchi</i>);</li> <li>3. <b>Clinical signs-</b> skin ulcerations;</li> <li>4. <b>Pathogen-</b> <i>Aphanomyces invadans</i>;</li> <li>5. <b>Mortality rate-</b> unknown but considered minimal;</li> <li>6. <b>Economic loss-</b> n/a;</li> <li>7. <b>Geographic extent-</b> single waterhole on the Etabuka-Mulligan River;</li> <li>8. <b>Containment measures-</b> not applicable;</li> <li>9. <b>Laboratory confirmation-</b> diagnosed histopathology;</li> <li>10. <b>Publications-</b> unpublished.</li> </ol>

3	<p><b>Viral Encephalopathy and Retinopathy</b></p> <ol style="list-style-type: none"> <li>1. <b>Reported in New South Wales</b> in October 2010. Targeted surveillance;</li> <li>2. <b>In</b> 35 day old Australian seabass (<i>Macquaria novemaculeata</i>);</li> <li>3. <b>Clinical signs-</b> no clinical signs of disease;</li> <li>4. <b>Pathogen-</b> nodavirus;</li> <li>5. <b>Mortality rate-</b> nil;</li> <li>6. <b>Economic loss-</b> n/a;</li> <li>7. <b>Geographic extent-</b> 10 ponds in one location;</li> <li>8. <b>Containment measures-</b> not applicable;</li> <li>9. <b>Laboratory confirmation-</b> diagnosed by i. PCR; ii. virus isolation;</li> <li>10. <b>Publications-</b> unpublished.</li> </ol>
4	<p>Enteric septicaemia of catfish was not reported this period despite passive surveillance but is known to have occurred previously in the Northern Territory (last reported 1<sup>st</sup> quarter 2010), 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, South Australia Victoria and Western Australia despite passive surveillance. No information available this period in the Australian Capital Territory.</p>
5	<p>Infection with <i>Perkinsus olseni</i> was not reported this period despite passive surveillance but is known to have occurred previously in South Australia (last reported 1<sup>st</sup> quarter 2009), New South Wales (last year reported 2005) and Western Australia (last year reported 2003). Passive surveillance and never reported in the Northern Territory, Queensland, Tasmania and Victoria. No information available in the Australian Capital Territory (no marine water responsibility).</p>
6	<p><b>Infection with abalone herpes-like virus (Abalone viral ganglioneuritis)</b></p> <ol style="list-style-type: none"> <li>1. <b>Reported in Tasmania</b> in December 2010. Passive surveillance;</li> <li>2. <b>In</b> blacklip abalone (<i>Haliotis rubra</i>);</li> <li>3. <b>Clinical signs-</b> no clinical signs of disease;</li> <li>4. <b>Pathogen-</b> abalone herpes-live virus;</li> <li>5. <b>Mortality rate-</b> unconfirmed;</li> <li>6. <b>Economic loss-</b> n/a;</li> <li>7. <b>Geographic extent-</b> one commercial live holding facility;</li> <li>8. <b>Containment measures-</b> quarantine with full containment, destocking and decontamination;</li> <li>9. <b>Laboratory confirmation-</b> diagnosed by i. PCR; ii. histopathology; iii. gross signs;</li> <li>10. <b>Publications-</b> unpublished.</li> </ol> <p>Abalone viral ganglioneuritis is known to have occurred previously in Victoria (last reported 1<sup>st</sup> quarter 2010). 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.</p>
7	<p>Infectious hypodermal and haematopoietic necrosis virus was not reported this period despite passive surveillance but is known to have occurred previously in Queensland (last year reported 2008) and Northern Territory (last year reported 2003). Passive surveillance and never reported in New South Wales, South Australia, Victoria and Western Australia. No information available in Australian Capital Territory (no marine water responsibility) and Tasmania (susceptible species not present).</p>

8	White tail disease was not reported this period from Queensland despite passive surveillance (last year reported 2008). Passive surveillance and never reported from New South Wales and South Australia. No information available this period in the Australian Capital Territory, Northern Territory, Tasmania, Victoria and Western Australia.
9	Infection with ranavirus was not reported this period despite passive surveillance but is known to have occurred previously in the Northern Territory (reported to have occurred in 2008). Suspected but not confirmed despite passive surveillance in Queensland. Passive surveillance and never reported in Tasmania. No information available this period in the Australian Capital Territory, New South Wales, South Australia, Victoria and Western Australia.
10	Infection with <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. No information available this period, but known to occur in Tasmania (last reported 1 <sup>st</sup> quarter 2010).

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

Country: **HONG KONG SAR**

 Period: **October - December 2010**

Item	Disease status <sup>a/</sup>			Level of diagnosis	Epidemiological comment numbers
	Month				
DISEASES PREVALENT IN THE REGION	October	November	December		
<b>FINFISH DISEASES</b>					
<b>OIE-listed diseases</b>					
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	1
<b>Non OIE-listed diseases</b>					
8. Grouper iridoviral disease	-	-	-	III	
9. Viral encephalopathy and retinopathy	-	-	-	III	
10. Enteric septicaemia of catfish	0000	0000	0000	II	
<b>MOLLUSC DISEASES</b>					
<b>OIE-listed diseases</b>					
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	
<b>Non OIE-listed diseases</b>					
4. Infection with <i>Marteilioides chungmuensis</i>	0000	0000	0000	II	
5. Acute viral necrosis (in scallops)	0000	0000	0000	II	
6. Akoya oyster disease	0000	0000	0000	II	
<b>CRUSTACEAN DISEASES</b>					
<b>OIE-listed diseases</b>					
1. Taura syndrome	0000	0000	0000	III	
2. White spot disease	-	-	+	III	2
3. Yellowhead disease	0000	0000	0000	III	
4. Infectious hypodermal and haematopoietic necrosis	0000	0000	0000	II	
5. Infectious myonecrosis	0000	0000	0000	II	
6. White tail disease (MrNV)	0000	0000	0000	II	
<b>Non OIE-listed diseases</b>					
7. Necrotising hepatopancreatitis	0000	0000	0000	II	
8. <i>Monodon</i> slow growth syndrome	0000	0000	0000	II	
9. Milky haemolymph disease of spiny lobster ( <i>Panulirus</i> spp.)	0000	0000	0000	II	
<b>AMPHIBIAN DISEASES</b>					
<b>OIE-listed diseases</b>					
1. Infection with Ranavirus	0000	0000	0000	II	
2. Infection with <i>Batrachochytrium dendrobatidis</i>	0000	0000	0000	II	
<b>ANY OTHER DISEASES OF IMPORTANCE</b>					
1.					
2.					

**DISEASES PRESUMED EXOTIC TO THE REGION<sup>b</sup>  
LISTED BY THE OIE**

**Finfish:** Infectious salmon anaemia; Gyrodactylosis (*Gyrodactylus salaris*).

**Molluscs:** Infection with *Bonamia ostreae*; *Marteilia refringens*; *Perkinsus marinus*; *Xenohaliotis californiensis*.

**Crustaceans:** Crayfish plague (*Aphanomyces astaci*).

**NOT LISTED BY THE OIE**

**Finfish:** Channel catfish virus disease

a/ Please use the following symbols:

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

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

**1. Epidemiological comments:**

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

Comment No.	
1	Koi herpes virus was detected from a group of koi carps that had been submitted for health certification.
2	White spot syndrome virus was detected from a group of red claw crayfish that had been submitted for health certification.
3	

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

Country: **INDIA**

 Period: **October - December 2010**

Item	Disease status <sup>a/</sup>			Level of diagnosis	Epidemiological comment numbers
	Month				
DISEASES PREVALENT IN THE REGION	October	November	December		
<b>FINFISH DISEASES</b>					
<b>OIE-listed diseases</b>					
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		
<b>Non OIE-listed diseases</b>					
8. Grouper iridoviral disease	0000	0000	0000		
9. Viral encephalopathy and retinopathy	0000	0000	0000		
10. Enteric septicaemia of catfish	0000	0000	0000		
<b>MOLLUSC DISEASES</b>					
<b>OIE-listed diseases</b>					
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		
<b>Non OIE-listed diseases</b>					
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		
<b>CRUSTACEAN DISEASES</b>					
<b>OIE-listed diseases</b>					
1. Taura syndrome	0000	0000	0000		
2. White spot disease	-	-	+( )	I	1
3. Yellowhead disease	***	***	***		
4. Infectious hypodermal and haematopoietic necrosis	***	***	***		
5. Infectious myonecrosis	0000	0000	0000		
6. White tail disease (MrNV)	-	-	-		
<b>Non OIE-listed diseases</b>					
7. Necrotising hepatopancreatitis	0000	0000	0000		
8. <i>Monodon</i> slow growth syndrome	0000	0000	0000		
9. Milky haemolymph disease of spiny lobster ( <i>Panulirus</i> spp.)	0000	0000	0000		
<b>AMPHIBIAN DISEASES</b>					
<b>OIE-listed diseases</b>					
1. Infection with Ranavirus	0000	0000	0000		
2. Infection with <i>Batrachochytrium dendrobatidis</i>	0000	0000	0000		
<b>ANY OTHER DISEASES OF IMPORTANCE</b>					
1.					
2.					

**DISEASES PRESUMED EXOTIC TO THE REGION<sup>b</sup>  
LISTED BY THE OIE**

**Finfish:** Infectious salmon anaemia; Gyrodactylosis (*Gyrodactylus salaris*).

**Molluscs:** Infection with *Bonamia ostreae*; *Marteilia refringens*; *Perkinsus marinus*; *Xenohaliotis californiensis*.

**Crustaceans:** Crayfish plague (*Aphanomyces astaci*).

**NOT LISTED BY THE OIE**

**Finfish:** Channel catfish virus disease

a/ Please use the following symbols:

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

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

**1. Epidemiological comments:**

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

Comment No.	
1	Reported from very limited area of Udupi District in Karnataka.
2	
3	

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

Country: **INDONESIA**

 Period: **October - December 2010**

Item	Disease status <sup>a/</sup>			Level of diagnosis	Epidemiological comment numbers
	Month				
DISEASES PREVALENT IN THE REGION	October	November	December		
<b>FINFISH DISEASES</b>					
<b>OIE-listed diseases</b>					
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	+	+	+	III	1
<b>Non OIE-listed diseases</b>					
8. Grouper iridoviral disease	+	+	+	III	2
9. Viral encephalopathy and retinopathy	+	+	+	III	3
10. Enteric septicaemia of catfish	0000	0000	0000		
<b>MOLLUSC DISEASES</b>					
<b>OIE-listed diseases</b>					
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		
<b>Non OIE-listed diseases</b>					
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		
<b>CRUSTACEAN DISEASES</b>					
<b>OIE-listed diseases</b>					
1. Taura syndrome	+	+	+	III	4
2. White spot disease	+	+	+	III	5
3. Yellowhead disease	0000	0000	0000		
4. Infectious hypodermal and haematopoietic necrosis	+	+	+	III	6
5. Infectious myonecrosis	+	+	+	III	7
6. White tail disease (MrNV)	0000	0000	0000		
<b>Non OIE-listed diseases</b>					
7. Necrotising hepatopancreatitis	0000	0000	0000		
8. <i>Monodon</i> slow growth syndrome	0000	0000	0000		
9. Milky haemolymph disease of spiny lobster ( <i>Panulirus</i> spp.)	0000	0000	0000		
<b>AMPHIBIAN DISEASES</b>					
<b>OIE-listed diseases</b>					
1. Infection with Ranavirus	0000	0000	0000		
2. Infection with <i>Batrachochytrium dendrobatidis</i>	0000	0000	0000		
<b>ANY OTHER DISEASES OF IMPORTANCE</b>					
1.					
2.					

**DISEASES PRESUMED EXOTIC TO THE REGION<sup>b</sup>**

**LISTED BY THE OIE**

**Finfish:** Infectious salmon anaemia; Gyrodactylosis (*Gyrodactylus salaris*).

**Molluscs:** Infection with *Bonamia ostreae*; *Marteilia refringens*; *Perkinsus marinus*; *Xenohaliotis californiensis*.

**Crustaceans:** Crayfish plague (*Aphanomyces astaci*).

**NOT LISTED BY THE OIE**

**Finfish:** Channel catfish virus disease

a/ Please use the following symbols:

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

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

**1. Epidemiological comments:**

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

Comment No.	
1	<p><b>KHV</b></p> <ol style="list-style-type: none"> <li>-</li> <li>Species affected: Common carp (<i>Cyprinus carpio</i>)</li> <li>Clinical sign: low irritation on gill, fins and other parts of the body; haemorrhage; low appetite</li> <li>Pathogen: Koi herpes virus</li> <li>Mortality rate: low to high (30-70%)</li> <li>Economic loss:</li> <li>Names of infected areas: West Java (Sukabumi, Cianjur, Garut), West Sumatra (Pesisir Selatan), South Kalimantan (Tanah Laut, Banjar), Central Kalimantan (Katingan)</li> <li>Preventive/control measures: eradication of infected fish; quarantine procedures for non-infected fish (transferred to another pond)</li> <li>Laboratory confirmation: DGA Technical Implementing Unit Laboratory, Provincial Fisheries Laboratory by PCR</li> <li>Not published</li> </ol>
2	<p><b>GIV</b></p> <ol style="list-style-type: none"> <li>Infests mostly larval stages, except in Karimunjawa where marketable-size fishes were found infected;</li> <li>Species affected: Polkadot grouper (<i>Cromileptes altivelis</i>), Tiger grouper (<i>Ephinephelus fuscoguttatus</i>), Clown fish (<i>Entacmaea quadricolor</i>), Silver pompano (<i>Trachionotus blochii</i>) and Red snapper (<i>Lutjanus argentimaculatus</i>)</li> <li>Clinical sign : abnormally swim at surface, no response, irritation at part of body, presence of giant cell at kidney, no clinical sign on some samples;</li> <li>Pathogen : Grouper iridovirus;</li> <li>Mortality rate: low to moderate (1-30%)</li> <li>Economic loss: not significant</li> </ol>

2	<p><b>GIV (continued)...</b></p> <ol style="list-style-type: none"> <li>7. Names of infected areas: Lampung (Hurun Bay, Tanjung Putus and Puhawang Island);</li> <li>8. Preventive/control measures: -</li> <li>9. Laboratory confirmation: DGA Technical Implementing Unit Laboratory by PCR</li> <li>10. Not published</li> </ol>
3	<p><b>VER/VNN</b></p> <ol style="list-style-type: none"> <li>1. Diseases were found in hatchery (larval stage)</li> <li>2. Species affected: Tiger grouper (<i>Ephinephelus fuscoguttatus</i>), Polkadot grouper (<i>Cromileptes altivelis</i>), White snapper (<i>Lates calcarifer</i>) and Silver pompano (<i>Trachinotus blochi</i>)</li> <li>3. Clinical sign: surface swimming (spiral, whirling or belly – up rest), black body, bad response, gill haemorrhage, sleepy at bottom of the tank</li> <li>4. Pathogen: Viral encephalopathy and retinopathy virus/Viral nervous necrosis virus</li> <li>5. Mortality rate: low (less than 5%)</li> <li>6. Economic loss: not significant</li> <li>7. Names of infected areas: East Java (Situbondo), West Nusa Tenggara (Sumbawa), Lampung (Hurun Bay);</li> <li>8. Preventive/control measures: -</li> <li>9. Laboratory confirmation: DGA Technical Implementing Unit Laboratory by PCR</li> <li>10. Not published</li> </ol>
4	<p><b>TSV</b></p> <ol style="list-style-type: none"> <li>1. -</li> <li>2. Species affected : White shrimp (<i>Litopenaeus vanamei</i>)</li> <li>3. Clinical signs: mass mortality among moulting shrimp</li> <li>4. Pathogen : Taura Syndrome Virus</li> <li>5. Economic loss : -</li> <li>6. Mortality rate: medium to high (30-70%)</li> <li>7. Name of infected area: East Java (Situbondo, Banyuwangi), North Sumatra (Medan);</li> <li>8. Preventive/control measures: Early harvest</li> <li>9. Laboratory confirmation: DGA Technical Implementing Unit Laboratory by PCR</li> <li>10. Not published</li> </ol>
5	<p><b>WSSV</b></p> <ol style="list-style-type: none"> <li>1. -</li> <li>2. Species affected: Tiger shrimp (<i>Penaeus monodon</i>), White shrimp (<i>Litopenaeus vanamei</i>)</li> <li>3. Clinical sign: White spot on carapace, shrimp becoming weak and swimming on the surface and near pond dikes</li> <li>4. Pathogen: White Spot Syndrome Virus (Whispovirus)</li> <li>5. Mortality rate : medium to high (&gt;70%)</li> <li>6. Economis loss : -</li> <li>7. Infected area: East Java (Situbondo, Banyunwangi, Lamongan, Tuban, Gresik, Pasuruan, probolinggo), Lampung, South Sulawesi (Maros, Barru, Pangkep, Tekalar), Central Java (Jepara);</li> <li>8. Preventive/Control measures: Early harvest, application of probiotics, intensified water exchange</li> <li>9. Laboratory confirmation: DGA Technical Implementing Unit Laboratory by PCR</li> <li>10. Not published</li> </ol>

<p>6</p>	<p><b>IHHNV</b></p> <ol style="list-style-type: none"> <li>1. -</li> <li>2. Species affected: White shrimp (<i>Litopenaeus vannamei</i>)</li> <li>3. Clinical sign: slow growth (very small size/dwarf); abnormal morphology; non-uniform size of shrimps;</li> <li>4. Pathogen: Infectious Hypodermal and Haematophatic Necrosis Virus (Perpovirus)</li> <li>5. Mortality rate: medium to high (40-70%)</li> <li>6. Economic loss : -</li> <li>7. Name of infected area: Lampung, Central Java (Kendal, Jepara), East Java (Bangil, Situbondo, Pasuruan), Bali (Negara, Karangasem, Jembrana);</li> <li>8. Preventive/Control measures:</li> <li>9. Laboratory confirmation: DGA Technical Implementing Unit Laboratory by PCR</li> <li>10. Not published</li> </ol>
<p>7</p>	<p><b>IMNV</b></p> <ol style="list-style-type: none"> <li>1. -</li> <li>2. Species affected: White shrimp (<i>Litopenaeus vanamei</i>)</li> <li>3. Clinical sign: broken shrimp meat with white sign, especially at abdomen and telson, positive detection by PCR</li> <li>4. Pathogen: Infectious Myonecrosis Virus</li> <li>5. Mortality rate: high (<math>\pm</math> 70%)</li> <li>6. Economic loss:</li> <li>7. Prevetive/Control measures taken: Early harvest if possible</li> <li>8. Infected area: Lampung, Central Java (Kendal, Jepara), East Java (Situbondo, Bangil, Pasuruan, Banyuwangi), South Kalimantan (Mandiingin)</li> <li>9. Laboratory confirmation: DGA Technical Implementing Unit Laboratory by PCR</li> <li>10. Not published</li> </ol>

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

Country: JAPANPeriod: October - December 2010

Item	Disease status <sup>a/</sup>			Level of diagnosis	Epidemiological comment numbers
	Month				
	October	November	December		
<b>DISEASES PREVALENT IN THE REGION</b>					
<b>FINFISH DISEASES</b>					
<b>OIE-listed diseases</b>					
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	
<b>Non OIE-listed diseases</b>					
8. Grouper iridoviral disease	0000	0000	0000	I	
9. Viral encephalopathy and retinopathy	+	-	-	III	
10. Enteric septicaemia of catfish	-	-	-	I	
<b>MOLLUSC DISEASES</b>					
<b>OIE-listed diseases</b>					
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	
<b>Non OIE-listed diseases</b>					
4. Infection with <i>Marteilioides chungmuensis</i>	-	-	-	I	
5. Acute viral necrosis (in scallops)	0000	0000	0000	I	
6. Akoya oyster disease	-	+	-	II	
<b>CRUSTACEAN DISEASES</b>					
<b>OIE-listed diseases</b>					
1. Taura syndrome	0000	0000	0000	I	
2. White spot disease	+	-	-	I	
3. Yellowhead disease	0000	0000	0000	I	
4. Infectious hypodermal and haematopoietic necrosis	0000	0000	0000	I	
5. Infectious myonecrosis	0000	0000	0000	I	
6. White tail disease (MrNV)	0000	0000	0000	I	
<b>Non OIE-listed diseases</b>					
7. Necrotising hepatopancreatitis	0000	0000	0000	I	
8. <i>Monodon</i> slow growth syndrome	0000	0000	0000	I	
9. Milky haemolymph disease of spiny lobster ( <i>Panulirus</i> spp.)	0000	0000	0000	I	
<b>AMPHIBIAN DISEASES</b>					
<b>OIE-listed diseases</b>					
1. Infection with Ranavirus	+( )	+( )	+( )	III	
2. Infection with <i>Batrachochytrium dendrobatidis</i>	-	-	-	I	
<b>ANY OTHER DISEASES OF IMPORTANCE</b>					
1.					
2.					

<p><b>DISEASES PRESUMED EXOTIC TO THE REGION<sup>b</sup></b>  <b>LISTED BY THE OIE</b>  <b>Finfish:</b> Infectious salmon anaemia; Gyrodactylosis (<i>Gyrodactylus salaris</i>).  <b>Molluscs:</b> Infection with <i>Bonamia ostreae</i>; <i>Marteilia refringens</i>; <i>Perkinsus marinus</i>; <i>Xenohaliotis californiensis</i>.  <b>Crustaceans:</b> Crayfish plague (<i>Aphanomyces astaci</i>).  <b>NOT LISTED BY THE OIE</b>  <b>Finfish:</b> Channel catfish virus disease</p>			
<p>a/ Please use the following symbols:</p>			
+	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
<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	

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

Country: **KOREA, REPUBLIC OF**

 Period: **October - December 2010**

Item	Disease status <sup>a/</sup>			Level of diagnosis	Epidemiological comment numbers
	Month				
DISEASES PREVALENT IN THE REGION	October	November	December		
<b>FINFISH DISEASES</b>					
<b>OIE-listed diseases</b>					
1. Epizootic haematopoietic necrosis	0000	0000	0000		
2. Infectious haematopoietic necrosis	-	-	-	III	
3. Spring viraemia of carp	0000	0000	0000		
4. Viral haemorrhagic septicaemia	-	-	+	III	1
5. Epizootic ulcerative syndrome	0000	0000	0000		
6. Red seabream iridoviral disease	-	-	-	III	
7. Koi herpesvirus disease	-	-	-	III	
<b>Non OIE-listed diseases</b>					
8. Grouper iridoviral disease	0000	0000	0000		
9. Viral encephalopathy and retinopathy	-	-	-	III	
10. Enteric septicaemia of catfish	0000	0000	0000		
<b>MOLLUSC DISEASES</b>					
<b>OIE-listed diseases</b>					
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		
<b>Non OIE-listed diseases</b>					
4. Infection with <i>Marteilioides chungmuensis</i>	-	-	-	III	
5. Acute viral necrosis (in scallops)	0000	0000	0000		
6. Akoya oyster disease	0000	0000	0000		
<b>CRUSTACEAN DISEASES</b>					
<b>OIE-listed diseases</b>					
1. Taura syndrome	0000	0000	0000		
2. White spot disease	-	-	-	III	
3. Yellowhead disease	0000	0000	0000		
4. Infectious hypodermal and haematopoietic necrosis	-	-	-	III	
5. Infectious myonecrosis	0000	0000	0000		
6. White tail disease (MrNV)	0000	0000	0000		
<b>Non OIE-listed diseases</b>					
7. Necrotising hepatopancreatitis	0000	0000	0000		
8. <i>Monodon</i> slow growth syndrome	0000	0000	0000		
9. Milky haemolymph disease of spiny lobster ( <i>Panulirus</i> spp.)	0000	0000	0000		
<b>AMPHIBIAN DISEASES</b>					
<b>OIE-listed diseases</b>					
1. Infection with Ranavirus	0000	0000	0000		
2. Infection with <i>Batrachochytrium dendrobatidis</i>	0000	0000	0000		
<b>ANY OTHER DISEASES OF IMPORTANCE</b>					
1.					
2.					

**DISEASES PRESUMED EXOTIC TO THE REGION<sup>b</sup>  
LISTED BY THE OIE**

**Finfish:** Infectious salmon anaemia; Gyrodactylosis (*Gyrodactylus salaris*).

**Molluscs:** Infection with *Bonamia ostreae*; *Marteilia refringens*; *Perkinsus marinus*; *Xenohaliotis californiensis*.

**Crustaceans:** Crayfish plague (*Aphanomyces astaci*).

**NOT LISTED BY THE OIE**

**Finfish:** Channel catfish virus disease

a/ Please use the following symbols:

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

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

**1. Epidemiological comments:**

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

Comment No.	
1	Viral haemorrhagic septicaemia was detected from juvenile flounder ( <i>Paralichthys olivaceus</i> ) from a hatchery in Tong Young (Gyeongsangnam-do province) in December. No clinical signs and mortality were shown. The confirmative diagnosis was performed by National Fisheries Research Development Institute, Aqua-life Disease Control Division. The VHS-detected fish were slaughtered for control.
2	
3	

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

Country: **MALAYSIA**

 Period: **October - December 2010**

Item	Disease status <sup>a/</sup>			Level of diagnosis	Epidemiological comment numbers
	Month				
DISEASES PREVALENT IN THE REGION	October	November	December		
<b>FINFISH DISEASES</b>					
<b>OIE-listed diseases</b>					
1. Epizootic haematopoietic necrosis	0000	0000	0000		
2. Infectious haematopoietic necrosis	0000	0000	0000	I,II,III	
3. Spring viraemia of carp	0000	0000	0000	I,II,III	
4. Viral haemorrhagic septicaemia	0000	0000	0000	I,II,III	
5. Epizootic ulcerative syndrome	(1986)	(1986)	(1986)		
6. Red seabream iridoviral disease	-	-	-		
7. Koi herpesvirus disease	0000	0000	0000	I,II,III	
<b>Non OIE-listed diseases</b>					
8. Grouper iridoviral disease	-	-	-	I,II,III	1
9. Viral encephalopathy and retinopathy	-	-	-		
10. Enteric septicaemia of catfish	0000	0000	0000		
<b>MOLLUSC DISEASES</b>					
<b>OIE-listed diseases</b>					
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		
<b>Non OIE-listed diseases</b>					
4. Infection with <i>Marteilioides chungmuensis</i>	0000	0000	0000		
5. Acute viral necrosis (in scallops)	0000	0000	0000		
6. Akoya oyster disease					
<b>CRUSTACEAN DISEASES</b>					
<b>OIE-listed diseases</b>					
1. Taura syndrome	-	-	-	I,II,III	2
2. White spot disease	+	+	+	I,II,III	3
3. Yellowhead disease	-	-	-	I,II,III	4
4. Infectious hypodermal and haematopoietic necrosis	+	-	+	I,II,III	5
5. Infectious myonecrosis	-	-	-	I,II,III	6
6. White tail disease (MrNV)	+	-	+	III	7
<b>Non OIE-listed diseases</b>					
7. Necrotising hepatopancreatitis	0000	0000	0000		
8. <i>Monodon</i> slow growth syndrome	?	?	?		
9. Milky haemolymph disease of spiny lobster ( <i>Panulirus</i> spp.)	0000	0000	0000		
<b>AMPHIBIAN DISEASES</b>					
<b>OIE-listed diseases</b>					
1. Infection with Ranavirus	-	?	-		
2. Infection with <i>Batrachochytrium dendrobatidis</i>	0000	0000	0000		
<b>ANY OTHER DISEASES OF IMPORTANCE</b>					
1. <i>Streptococcus agalactiae</i> (Tilapia)	+	-	+	I,II,III	8
2. <i>Streptococcus cohnii</i> (Tilapia)	-	-	-	I,II	

**DISEASES PRESUMED EXOTIC TO THE REGION<sup>b</sup>  
LISTED BY THE OIE**

**Finfish:** Infectious salmon anaemia; Gyrodactylosis (*Gyrodactylus salaris*).

**Molluscs:** Infection with *Bonamia ostreae*; *Marteilia refringens*; *Perkinsus marinus*; *Xenohaliotis californiensis*.

**Crustaceans:** Crayfish plague (*Aphanomyces astaci*).

**NOT LISTED BY THE OIE**

**Finfish:** Channel catfish virus disease

a/ Please use the following symbols:

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

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

**1. Epidemiological comments:**

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

Comment No.	
1	<p><b>GIV</b></p> <p>Diagnostic cases:</p> <ol style="list-style-type: none"> <li>1. PCR testing for GIV was done using IQ2000 kit (in NaFish) among the following fish: <ul style="list-style-type: none"> <li>• Grouper</li> <li>• Snapper</li> <li>• Golden pompano</li> </ul> </li> <li>2. All samples were negative for GIV. The fish samples were from Perak and Penang</li> </ol>
2	<p><b>TSV</b></p> <ol style="list-style-type: none"> <li>1. TSV was not detected in all samples sent to Lab Industrial Resources laboratory (LIR) for routine and monitoring purposes. All samples were from sea-catch frozen prawns.</li> <li>2. No cases on reported PCR positive being detected, although active surveillance was conducted by DOF in Sarawak, East Malaysia.</li> </ol>
3	<p><b>WSSV</b></p> <p>Egg-PL</p> <ol style="list-style-type: none"> <li>1. 3 of 72 samples in October to December were tested positive to WSSV in the states of Johor, Perak and Kedah by LIR laboratory for routine and monitoring purposes.</li> </ol> <p>Juvenile-adults</p> <ol style="list-style-type: none"> <li>1. 15 of 150 samples in October to December were tested positive to WSSV in the states of Pahang, Penang, Selangor, Perak and Kedah by LIR laboratory for routine and monitoring purposes.</li> <li>2. No cases with reported PCR positive being detected although active surveillance was conducted by DOF in Sarawak, East Malaysia.</li> </ol>

4	<p><b>YHV</b></p> <ol style="list-style-type: none"> <li>1. YHV was not detected in all samples sent to LIR laboratory for routine and monitoring purposes.</li> <li>2. No cases with reported PCR positive being detected although active surveillance was conducted by DOF in Sarawak, East Malaysia.</li> </ol>
5	<p><b>IHHNV</b></p> <ol style="list-style-type: none"> <li>1. Juvenile-adults samples: frozen black tiger shrimp (<i>Penaeus monodon</i>). Five of six samples were found positive to IHHNV. Source: Pekan, Pahang</li> <li>2. 8 of 46 samples in October to December were tested positive for IHHNV in the states of Penang, Kedah and Sarawak by LIR Laboratories for routine and monitoring purposes.</li> </ol>
6	<p><b>IMNV</b></p> <ol style="list-style-type: none"> <li>1. IMNV was not detected in all the samples sent to LIR laboratory for routine and monitoring purposes.</li> </ol>
7	<p><b>MrNV</b></p> <p>Egg - PL</p> <ol style="list-style-type: none"> <li>1. 3 out of 4 samples in October to December were tested positive for MrNV in Penang and Pahang by LIR Laboratory for routine and monitoring purposes.</li> </ol> <p>Juvenile-adults</p> <ol style="list-style-type: none"> <li>2. 1 sample in December was tested positive for MrNV in Pahang by LIR Laboratory for routine and monitoring purposes.</li> </ol>
8	<p><b>Streptococcal infection in Golden Pompano</b></p> <ol style="list-style-type: none"> <li>1. Clinical Signs – exophthalmus, haemorrhagic fins, excessive body mucus;</li> <li>2. Pathogen – <i>Streptococcus agalactiae</i>, <i>Vibrio vulnificus</i>;</li> <li>3. Other Pathogens – leech and <i>Caligus</i> sp.;</li> <li>4. Mortality rate – 30% (fish size of 24-27 cm)</li> <li>5. Economic loss – RM45,600.00 for the farm (RM19/kg; 2,400 kg of dead fish);</li> <li>6. Source of fry – private farms in Bukit Tambun</li> <li>7. Laboratory confirmation – API 20E STREP and STREP PCR test kit;</li> <li>8. Publication – Laboratory report made available to farm and advised the farm to use Terramycin at 0.5g/kg. First reported case in Malaysia.</li> </ol> <p><b><i>Streptococcus agalactiae</i></b></p> <p>Isolates identified using BBL Crystal kit. Bacteria were isolated from tilapia samples of various ages from floating cages in Tasik Banding, Perak (freshwater), intended for local and export (US) market.</p>

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

Country: NEPAL

 Period: October - December 2010

Item	Disease status <sup>a/</sup>			Level of diagnosis	Epidemiological comment numbers
	Month				
	October	November	December		
<b>DISEASES PREVALENT IN THE REGION</b>					
<b>FINFISH DISEASES</b>					
<b>OIE-listed diseases</b>					
1. Epizootic haematopoietic necrosis	0000	0000	0000		
2. Infectious haematopoietic necrosis	0000	0000	0000		
3. Spring viraemia of carp	0000	0000	0000		
4. Viral haemorrhagic septicaemia	0000	0000	0000		
5. Epizootic ulcerative syndrome	-	-	-	I	
6. Red seabream iridoviral disease	0000	0000	0000		
7. Koi herpesvirus disease	0000	0000	0000		
<b>Non OIE-listed diseases</b>					
8. Grouper iridoviral disease					
9. Viral encephalopathy and retinopathy					
10. Enteric septicaemia of catfish					
<b>MOLLUSC DISEASES</b>					
<b>OIE-listed diseases</b>					
1. Infection with <i>Bonamia exitiosa</i>	***	***	***		
2. Infection with <i>Perkinsus olseni</i>	***	***	***		
3. Abalone viral mortality	***	***	***		
<b>Non OIE-listed diseases</b>					
4. Infection with <i>Marteilioides chungmuensis</i>	***	***	***		
5. Acute viral necrosis (in scallops)	***	***	***		
6. Akoya oyster disease	***	***	***		
<b>CRUSTACEAN DISEASES</b>					
<b>OIE-listed diseases</b>					
1. Taura syndrome	***	***	***		
2. White spot disease	***	***	***		
3. Yellowhead disease	***	***	***		
4. Infectious hypodermal and haematopoietic necrosis	***	***	***		
5. Infectious myonecrosis	***	***	***		
6. White tail disease (MrNV)	***	***	***		
<b>Non OIE-listed diseases</b>					
7. Necrotising hepatopancreatitis	***	***	***		
8. <i>Monodon</i> slow growth syndrome	***	***	***		
9. Milky haemolymph disease of spiny lobster ( <i>Panulirus</i> spp.)	***	***	***		
<b>AMPHIBIAN DISEASES</b>					
<b>OIE-listed diseases</b>					
1. Infection with Ranavirus	***	***	***		
2. Infection with <i>Batrachochytrium dendrobatidis</i>	***	***	***		
<b>ANY OTHER DISEASES OF IMPORTANCE</b>					
1.					
2.					

**DISEASES PRESUMED EXOTIC TO THE REGION<sup>b</sup>  
LISTED BY THE OIE**

**Finfish:** Infectious salmon anaemia; Gyrodactylosis (*Gyrodactylus salaris*).

**Molluscs:** Infection with *Bonamia ostreae*; *Marteilia refringens*; *Perkinsus marinus*; *Xenohaliotis californiensis*.

**Crustaceans:** Crayfish plague (*Aphanomyces astaci*).

**NOT LISTED BY THE OIE**

**Finfish:** Channel catfish virus disease

a/ Please use the following symbols:

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

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

**1. Epidemiological comments:**

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

Comment No.	
1	
2	
3	

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

Country: **PHILIPPINES**

 Period: **October - December 2010**

Item	Disease status <sup>a/</sup>			Level of diagnosis	Epidemiological comment numbers
	Month				
	October	November	December		
<b>DISEASES PREVALENT IN THE REGION</b>					
<b>FINFISH DISEASES</b>					
<b>OIE-listed diseases</b>					
1. Epizootic haematopoietic necrosis	0000	0000	0000		
2. Infectious haematopoietic necrosis	0000	0000	0000		
3. Spring viraemia of carp	0000	0000	0000	III	1
4. Viral haemorrhagic septicaemia	0000	0000	0000		
5. Epizootic ulcerative syndrome	-	-	-		
6. Red seabream iridoviral disease	***	***	***		
7. Koi herpesvirus disease	0000	0000	0000	III	2
<b>Non OIE-listed diseases</b>					
8. Grouper iridoviral disease	-	+	-	III	3
9. Viral encephalopathy and retinopathy	-	-	-	III	4
10. Enteric septicaemia of catfish	***	***	***		
<b>MOLLUSC DISEASES</b>					
<b>OIE-listed diseases</b>					
1. Infection with <i>Bonamia exitiosa</i>	0000	0000	0000		
2. Infection with <i>Perkinsus olseni</i>	0000	0000	0000		
3. Abalone viral mortality	***	***	***		
<b>Non OIE-listed diseases</b>					
4. Infection with <i>Marteilioides chungmuensis</i>	0000	0000	0000		
5. Acute viral necrosis (in scallops)	***	***	***		
6. Akoya oyster disease	***	***	***		
<b>CRUSTACEAN DISEASES</b>					
<b>OIE-listed diseases</b>					
1. Taura syndrome	0000	0000	0000	III	5
2. White spot disease	-	-	-	III	6
3. Yellowhead disease	-	-	-	III	7
4. Infectious hypodermal and haematopoietic necrosis	-	+	-	III	8
5. Infectious myonecrosis	0000	0000	0000	III	9
6. White tail disease (MrNV)	0000	0000	0000	III	10
<b>Non OIE-listed diseases</b>					
7. Necrotising hepatopancreatitis	0000	0000	0000	III	11
8. <i>Monodon</i> slow growth syndrome	***	***	***		
9. Milky haemolymph disease of spiny lobster ( <i>Panulirus</i> spp.)	***	***	***		
<b>AMPHIBIAN DISEASES</b>					
<b>OIE-listed diseases</b>					
1. Infection with Ranavirus	***	***	***		
2. Infection with <i>Batrachochytrium dendrobatidis</i>	***	***	***		
<b>ANY OTHER DISEASES OF IMPORTANCE</b>					
1.					
2.					

**DISEASES PRESUMED EXOTIC TO THE REGION<sup>b</sup>  
LISTED BY THE OIE**

**Finfish:** Infectious salmon anaemia; Gyrodactylosis (*Gyrodactylus salaris*).

**Molluscs:** Infection with *Bonamia ostreae*; *Marteilia refringens*; *Perkinsus marinus*; *Xenohaliotis californiensis*.

**Crustaceans:** Crayfish plague (*Aphanomyces astaci*).

**NOT LISTED BY THE OIE**

**Finfish:** Channel catfish virus disease

a/ Please use the following symbols:

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

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

**1. Epidemiological comments:**

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

Comment No.	
1	Two hundred twenty (220) pieces of koi carp, <i>Cyprinus carpio</i> (120 pieces from Freshwater Ornamental Fish Aquaculture Park (FOFAP) in Bay, Laguna and 100 pieces from National Fisheries Biological Center (NFBC) in Butong, Batangas collected on July 2010) and four hundred (400) pieces of koi carp (200 pieces from FOFAP and 200 pieces from NFBC collected on October 2010) were analyzed and all samples showed a negative result for SVCV through cell culture isolation technique in FHM cells. Examinations/tests were conducted by the SEAFDEC Fish Health Laboratory.
2	One hundred sixty-two (162) pieces of koi carp were collected for analysis and all samples showed a negative result for <i>Koi Herpesvirus</i> through Polymerase Chain Reaction (PCR) test. The samples were collected from Quezon City and FOFAP, Bay, Laguna. Examinations/tests were conducted by the BFAR Central Office Fish Health Laboratory.
3	A single (1) sample of grouper ( <i>Epinephelus spp.</i> ) collected from the CURFRDC Satellite Station, Calape, Bohol was analyzed using PCR test. The sample showed a positive result for Grouper Iridovirus. Examinations/tests were conducted by the BFAR Central Office Fish Health Laboratory.
4	One (1) sample of grouper ( <i>Epinephelus spp.</i> ) collected from the CURFRDC Satellite Station, Calape, Bohol was analyzed using PCR test. The sample showed a negative result for Viral Encephalopathy and Retinopathy. Examinations/tests were conducted by the BFAR Central Office Fish Health Laboratory.
5	Thirty-three (33) samples of <i>Penaeus vannamei</i> of different stages (broodstock, post-larvae, and grow-out) were analyzed using PCR test and all showed a negative result for Taura Syndrome Virus. The samples were collected from Zambales, Iloilo City, Cebu and Batangas. Examinations/tests were conducted by the BFAR Central Office Fish Health Laboratory.

6	Sixty-five (65) samples (21 <i>Penaeus monodon</i> ; 39 <i>P. vannamei</i> ; 1 <i>Macrobrachium rosenbergii</i> ) of different stages (broodstock, post-larva, larvae and grow-out) and 4 <i>Scylla serrata</i> ) were analyzed using the PCR test and all showed a negative result for White Spot Virus. The samples were collected from Iloilo City, General Santos City, Zambales, Tacloban City, Cebu, Ormoc City, Agusan del Norte, Butuan City, Surigao del Sur, Batangas and Samar. Examinations/tests were conducted by the BFAR Central Office Fish Health Laboratory.
7	Forty-six (46) samples (33 <i>P. vannamei</i> and 13 <i>P. monodon</i> ) of different stages (broodstock, post-larvae, and grow-out) were analyzed using the PCR test and all showed a negative result for Yellowhead Virus. The samples were collected from Iloilo City, Batangas, Zambales, Surigao del Sur, Agusan del Norte, Butuan City, and Cebu. Examinations/tests were conducted by the BFAR Central Office Fish Health Laboratory.
8	Fifty-six (56) samples (34 <i>P. vannamei</i> ; 21 <i>P. monodon</i> ) of different stages (broodstock, post-larvae and grow-out) and 1 <i>Scylla serrata</i> were analyzed. Out of 56 samples, nine samples (8 <i>P. monodon</i> and 1 <i>P. vannamei</i> ) showed a positive result for Infectious Hypodermal and Haematopoietic Necrosis using PCR test. The samples were collected from Iloilo City, Tacloban City, Batangas, Zambales, Surigao del Sur, Agusan del Norte, Butuan City, Cebu and Ormoc City. Examinations/tests were conducted by the BFAR Central Office Fish Health Laboratory.
9	Thirty-three (33) samples of <i>P. vannamei</i> of different stages (broodstock, post-larvae and grow-out) were analyzed and all showed a negative result for Infectious Myonecrosis through PCR test. The samples were collected from Zambales, Iloilo City, Cebu and Batangas. Examinations/tests were conducted by the BFAR Central Office Fish Health Laboratory.
10	A single sample of a <i>M. rosenbergii</i> larvae from NFBC Butong, Batangas was examined using PCR test. The sample showed a negative result for White Tail Disease (MrNV). Examinations/tests were conducted by the BFAR Central Office Fish Health Laboratory.
11	Thirty-one (31) samples of <i>P. vannamei</i> of different stages (broodstock, post-larvae, and grow-out) were analyzed using the PCR test and all samples showed a negative result for Necrotising Hepatopancreatitis. The samples were collected from Iloilo City, Cebu, Zambales, and Batangas. Examinations/tests were conducted by the BFAR Central Office Fish Health Laboratory.

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

Country: SINGAPORE

Period: October - December 2010

Item	Disease status <sup>a/</sup>			Level of diagnosis	Epidemiological comment numbers
	Month				
DISEASES PREVALENT IN THE REGION	October	November	December		
<b>FINFISH DISEASES</b>					
<b>OIE-listed diseases</b>					
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	+	(2010)	(2010)	I,II,III	1
7. Koi herpesvirus disease	(2010)	(2010)	(2010)		
<b>Non OIE-listed diseases</b>					
8. Grouper iridoviral disease	(2010)	(2010)	(2010)		
9. Viral encephalopathy and retinopathy	+	+	+	I,II,III	2-3
10. Enteric septicaemia of catfish	0000	0000	0000		
<b>MOLLUSC DISEASES</b>					
<b>OIE-listed diseases</b>					
1. Infection with <i>Bonamia exitiosa</i>	***	***	***		
2. Infection with <i>Perkinsus olseni</i>	***	***	***		
3. Abalone viral mortality	***	***	***		
<b>Non OIE-listed diseases</b>					
4. Infection with <i>Marteilioides chungmuensis</i>	***	***	***		
5. Acute viral necrosis (in scallops)	***	***	***		
6. Akoya oyster disease	***	***	***		
<b>CRUSTACEAN DISEASES</b>					
<b>OIE-listed diseases</b>					
1. Taura syndrome	***	***	***		
2. White spot disease	(2010)	(2010)	(2010)		
3. Yellowhead disease	***	***	***		
4. Infectious hypodermal and haematopoietic necrosis	***	***	***		
5. Infectious myonecrosis	***	***	***		
6. White tail disease (MrNV)	***	***	***		
<b>Non OIE-listed diseases</b>					
7. Necrotising hepatopancreatitis	***	***	***		
8. <i>Monodon</i> slow growth syndrome	***	***	***		
9. Milky haemolymph disease of spiny lobster ( <i>Panulirus</i> spp.)	***	***	***		
<b>AMPHIBIAN DISEASES</b>					
<b>OIE-listed diseases</b>					
1. Infection with Ranavirus	***	***	***		
2. Infection with <i>Batrachochytrium dendrobatidis</i>	***	***	***		
<b>ANY OTHER DISEASES OF IMPORTANCE</b>					
1. Mullet systemic iridoviral disease	(2010)	(2010)	(2010)	I, II, III	
2. Sea Bass Iridovirus	(2010)	(2010)	(2010)		

<p><b>DISEASES PRESUMED EXOTIC TO THE REGION<sup>b</sup></b>  <b>LISTED BY THE OIE</b>  <b>Finfish:</b> Infectious salmon anaemia; Gyrodactylosis (<i>Gyrodactylus salaris</i>).  <b>Molluscs:</b> Infection with <i>Bonamia ostreae</i>; <i>Marteilia refringens</i>; <i>Perkinsus marinus</i>; <i>Xenohaliotis californiensis</i>.  <b>Crustaceans:</b> Crayfish plague (<i>Aphanomyces astaci</i>).  <b>NOT LISTED BY THE OIE</b>  <b>Finfish:</b> Channel catfish virus disease</p>			
<p>a/ Please use the following symbols:</p>			
+	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
<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>One batch of diseased juvenile giant grouper sampled from a floating netcage farm in a disease investigation tested positive for RSIV by PCR using primer set 1 and 4, and subsequently confirmed by sequencing. It was not isolated on GF cells. The disease was also confirmed on a batch of diseased giant grouper re-sampled from the farm. Inspectors noted increased mortality (~30%) and clinical signs on the body such as darkening and lethargy. All clinically diseased fish were culled. Emergency harvest if all remaining clinically healthy giant groupers, approximately 800 pcs, was employed.</p> <p>Subsequent sampling of susceptible species in the follow-up investigation from the source farm and neighboring farm did not yield any RSIV detections in 2 batches of groupers, 2 batches of giant grouper and 1 batch of seabass.</p> <p>Tiger grouper iridovirus was previously detected in Singapore in 2000 and 2002 before RSIV was listed under diseases notifiable to the OIE.</p>
2	<p>One batch of diseased juvenile giant groupers sampled from a floating netcage farm in a disease investigation tested positive for VNNV by PCR. Inspectors noted belly-up floating behavior with inability to control buoyancy in a step-up surveillance for earlier RSIV detections. Histopathology revealed prominent vacuolations in the nuclear layers of the retina supporting the diagnosis. Tracing forward and back were conducted to monitor affected farms. The farmer was also advised to purchase his fish from alternative source farm.</p>

3	<p>VNNV was detected in two batches of diseased hybrid (tiger x giant) grouper fingerlings submitted from a land-based farm for disease diagnosis by PCR and virus isolation in SB cell culture. Histopathology revealed prominent vacuolations in the nuclear layers of the retina and brain supporting the diagnosis. Both batches were imported from Sabah, Malaysia in December. The farmer culled both batches voluntarily due to high mortality observed.</p>
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**2. New aquatic animal health regulations introduced within past six months (with effective date):**

1. From 15 July 2010, import health certification issued by Competent Authorities of exporting countries is required for import of ornamental aquatic animals into Singapore. The requirement is applicable to ornamental species which are susceptible to the diseases including: spring viremia of carp (SVC), koi herpesvirus disease (KHV), epizootic ulcerative syndrome (EUS), epizootic haematopoietic necrosis (EHN), white spot disease (WSD), furunculosis (*Aeromonas salmonicida*) and gold fish haematopoietic necrosis virus (GFHNV). For marine ornamental fish imported to Singapore for re-export to Australia, the Competent Authority is also required to assure the disease status of the fish, and that they are wild-caught only from areas at least 5 kilometers from any finfish aquaculture operations, and have not come into contact with water, equipment or fish associated with farmed food fish. A WTO notification was issued by AVA on 12 May 2010, which was published on 19 May 2010.
2. The import conditions imposed on koi carp imported from Malaysia was extended to koi carp imported from all countries on 1 July 2010. Every batch of koi imported into Singapore would be subjected to one month compulsory quarantine in the designated quarantine area. During the quarantine period, sampling would be done for KHV testing.

*(The new regulations above have been reported in QAAD Report for July-September)*

Country: **SRI LANKA**

 Period: **October - December 2010**

Item	Disease status <sup>al</sup>			Level of diagnosis	Epidemiological comment numbers
	Month				
DISEASES PREVALENT IN THE REGION	October	November	December		
<b>FINFISH DISEASES</b>					
<b>OIE-listed diseases</b>					
1. Epizootic haematopoietic necrosis	***	***	***		
2. Infectious haematopoietic necrosis	***	***	***		
3. Spring viraemia of carp	?	?	?		
4. Viral haemorrhagic septicaemia	0000	0000	0000		
5. Epizootic ulcerative syndrome	?	?	?	I	1
6. Red seabream iridoviral disease	0000	0000	0000		
7. Koi herpesvirus disease	0000	0000	0000	III	
<b>Non OIE-listed diseases</b>					
8. Grouper iridoviral disease	***	***	***		
9. Viral encephalopathy and retinopathy	***	***	***		
10. Enteric septicaemia of catfish	***	***	***		
<b>MOLLUSC DISEASES</b>					
<b>OIE-listed diseases</b>					
1. Infection with <i>Bonamia exitiosa</i>	***	***	***		
2. Infection with <i>Perkinsus olseni</i>	***	***	***		
3. Abalone viral mortality	0000	0000	0000		
<b>Non OIE-listed diseases</b>					
4. Infection with <i>Marteilioides chungmuensis</i>	***	***	***		
5. Acute viral necrosis (in scallops)	***	***	***		
6. Akoya oyster disease	0000	0000	0000		
<b>CRUSTACEAN DISEASES</b>					
<b>OIE-listed diseases</b>					
1. Taura syndrome	0000	0000	0000		
2. White spot disease	+	+	+	III	2
3. Yellowhead disease	***	***	***	III	3
4. Infectious hypodermal and haematopoietic necrosis	+	+	+	III	4
5. Infectious myonecrosis	***	***	***		
6. White tail disease (MrNV)	***	***	***		
<b>Non OIE-listed diseases</b>					
7. Necrotising hepatopancreatitis	***	***	***		
8. <i>Monodon</i> slow growth syndrome	+	+	+	III	5
9. Milky haemolymph disease of spiny lobster ( <i>Panulirus</i> spp.)	***	***	***		
<b>AMPHIBIAN DISEASES</b>					
<b>OIE-listed diseases</b>					
1. Infection with Ranavirus	0000	0000	0000		
2. Infection with <i>Batrachochytrium dendrobatidis</i>	0000	0000	0000		
<b>ANY OTHER DISEASES OF IMPORTANCE</b>					
1.					
2.					

**DISEASES PRESUMED EXOTIC TO THE REGION<sup>b</sup>  
LISTED BY THE OIE**

**Finfish:** Infectious salmon anaemia; Gyrodactylosis (*Gyrodactylus salaris*).

**Molluscs:** Infection with *Bonamia ostreae*; *Marteilia refringens*; *Perkinsus marinus*; *Xenohaliotis californiensis*.

**Crustaceans:** Crayfish plague (*Aphanomyces astaci*).

**NOT LISTED BY THE OIE**

**Finfish:** Channel catfish virus disease

a/ Please use the following symbols:

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

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

**1. Epidemiological comments:**

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

Comment No.	
1	<p><b>Epizootic Ulcerative Syndrome</b></p> <p>Similar disease signs were observed in December 2010 during a fish kill in a localized area of the eastern region (Battcoloa Lagoon) of Sri Lanka. The observations were only based on gross signs which were similar to EUS. Except for tilapia, other fish species in the lagoon such as <i>Etroplus</i>, <i>Chanos chanos</i> and catfish were found infected. Data obtained from the Department of Fisheries Battcoloa.</p>
2	<p><b>WSSV</b></p> <p>A total of 124 <i>P. monodon</i> wild brooder samples were tested using the IQ2000 two-step PCR method with prevalence of ~11%. The prevalence of WSSV among <i>P. monodon</i> post larvae was 23%. 45 <i>P. monodon</i> sub-adults collected from grow-out ponds showed 43% prevalence for WSSV.</p> <p>The total operated area was 250.14 ha which include 105 farms in the north western province. The total affected area was 64 ha which showed an increase compared to the previous quarter.</p> <p>There were 66 shrimp farms reported to be infected with WSSV which include 133 grow-out ponds.</p> <p>The above data were obtained from the National Aquatic Resources Research and Development Agency (NARA) and from the Shrimp Farm Extension and Monitoring Unit at Bathtuluoya (National Aquaculture Development Authority of Sri Lanka).</p>

3	<p><b>IHHNV</b></p> <p>35% of 70 wild <i>P. monodon</i> brooder samples tested for IHHNV were found positive for infectious strain of IHHNV. Out of 21 postlarvae samples, prevalence of IHHNV was 42%. 45 sub-adults tested indicated 66% prevalence of IHHNV infectious strain. Data were obtained from NARA Laboratory at the Head Office Colombo 15.</p>
4	<p><b>YHV</b></p> <p>All the 10 <i>P. monodon</i> samples tested for YHV using OIE recommended 2-step RT-PCR for consensus detection of YHV genotypes were found negative for the virus. Data derived from NARA Laboratory at the Head Office Colombo 15.</p>
5	<p><b>LSNV</b></p> <p>LSNV was reported for the first time in Sri Lanka in October 2010. The virus was detected and confirmed using nested RT-PCR. Out of the 40 <i>P. monodon</i> samples tested from October-December 2010, 4 samples (1 brooder and 3 postlarvae) were found positive for LSNV. The brooder was obtained from northeast part of the island while the postlarvae were from the hatcheries located in the northwestern province. The PCR products are to be sequenced to obtain the genetic relationships to other isolates obtained from different geographical locations. Data derived from NARA Laboratory at the Head Office Colombo 15.</p>

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

None

Country: **THAILAND**

 Period: **October - December 2010**

Item	Disease status <sup>a/</sup>			Level of diagnosis	Epidemiological comment numbers
	Month				
DISEASES PREVALENT IN THE REGION	October	November	December		
<b>FINFISH DISEASES</b>					
<b>OIE-listed diseases</b>					
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	(2009)	(2009)	(2009)	II	1
6. Red seabream iridoviral disease	0000	0000	0000	III	
7. Koi herpesvirus disease	-	-	-	III	2
<b>Non OIE-listed diseases</b>					
8. Grouper iridoviral disease	-	-	-	III	
9. Viral encephalopathy and retinopathy	-	-	-	III	
10. Enteric septicaemia of catfish	0000	0000	0000	II	
<b>MOLLUSC DISEASES</b>					
<b>OIE-listed diseases</b>					
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	
<b>Non OIE-listed diseases</b>					
4. Infection with <i>Marteilioides chungmuensis</i>	0000	0000	0000	II	
5. Acute viral necrosis (in scallops)	***	***	***		
6. Akoya oyster disease	***	***	***		
<b>CRUSTACEAN DISEASES</b>					
<b>OIE-listed diseases</b>					
1. Taura syndrome	+	+	-	III	3
2. White spot disease	+	+	+	III	4
3. Yellowhead disease	-	+	+	III	5
4. Infectious hypodermal and haematopoietic necrosis	-	+	+	III	6
5. Infectious myonecrosis	0000	0000	0000	III	
6. White tail disease (MrNV)	-	+( )	-		7
<b>Non OIE-listed diseases</b>					
7. Necrotising hepatopancreatitis	***	***	***		
8. <i>Monodon</i> slow growth syndrome	0000	0000	0000	II	
9. Milky haemolymph disease of spiny lobster ( <i>Panulirus</i> spp.)	***	***	***		
<b>AMPHIBIAN DISEASES</b>					
<b>OIE-listed diseases</b>					
1. Infection with Ranavirus	(2007)	(2007)	(2007)	III	
2. Infection with <i>Batrachochytrium dendrobatidis</i>	0000	0000	0000	II	
<b>ANY OTHER DISEASES OF IMPORTANCE</b>					
1.					
2.					

<p><b>DISEASES PRESUMED EXOTIC TO THE REGION<sup>b</sup></b>  <b>LISTED BY THE OIE</b>  <b>Finfish:</b> Infectious salmon anaemia; Gyrodactylosis (<i>Gyrodactylus salaris</i>).  <b>Molluscs:</b> Infection with <i>Bonamia ostreae</i>; <i>Marteilia refringens</i>; <i>Perkinsus marinus</i>; <i>Xenohaliotis californiensis</i>.  <b>Crustaceans:</b> Crayfish plague (<i>Aphanomyces astaci</i>).  <b>NOT LISTED BY THE OIE</b>  <b>Finfish:</b> Channel catfish virus disease</p>			
<p>a/ Please use the following symbols:</p>			
+	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
<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	Under active and passive surveillance programs in aquaculture establishment farms or premises and in the wild fish population, there was no EUS occurrence since February 2009.
2	Last occurrence of KHV was reported in January 2010. 11 koi shipments were imported from Japan. However one koi carp shipment (6,510 kois) exhibited KHV disease. 30% of the imported kois exhibited classic clinical signs. The KHV confirmation was obtained from Inland Aquatic Animal Health Research Institute (AAHRI, DOF). All imported kois in a quarantine house were destroyed in December 2010. The quarantine house was disinfected and cleaned. The KHV case found in the import quarantine house will not be recorded in the national disease situation.
3	A total of 230 shrimp samples from shrimp farms had been tested at PCR Laboratories of the DOF under active surveillance. 8 specimens or 3.48 % recorded as PCR positive or carrying TSV genes. Shrimp farms with positive testing results will subject to health improvement, movement control, eradication and/or farm disinfection.
4	A total of 230 shrimp samples from shrimp farms had been tested at PCR Laboratories of the DOF under active surveillance. 26 specimen or 11.30% recorded as PCR positive or carrying WSSV genes. Shrimp farms with positive testing results will subject to health improvement, movement control, eradication and/or farm disinfection.
5	A total of 230 shrimp samples from shrimp farms had been tested at PCR Laboratories of the DOF under active surveillance. 2 specimens or 0.87% recorded as RT-PCR positive or carrying YHV genes. Shrimp farms with positive testing results will subject to health improvement, movement control, eradication and/or farm disinfection.

6	A total of 194 shrimp samples from shrimp farms had been tested at PCR Laboratories of the DOF under active surveillance. 3 specimens or 1.55 % recorded as PCR positive or carrying IHNV genes. Shrimp farms with positive testing results will subject to health improvement, movement control, eradication and/or farm disinfection.
7	Giant freshwater prawn post larvae specimens from hatcheries were submitted for <i>MtNV</i> testing under a passive surveillance program. 2 out of 3 specimens showed PCR positive for <i>MtNV</i> . The prawn larvae of 2 positive specimens showed chronic clinical signs. The disease prawns and their population were destroyed. Concepts in bio-security for disease prevention had been advised to farm operators.

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

Country: **VIETNAM**

 Period: **October - December 2010**

Item	Disease status <sup>a/</sup>			Level of diagnosis	Epidemiological comment numbers
	Month				
	October	November	December		
<b>DISEASES PREVALENT IN THE REGION</b>					
<b>FINFISH DISEASES</b>					
<b>OIE-listed diseases</b>					
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		
<b>Non OIE-listed diseases</b>					
8. Grouper iridoviral disease	0000	0000	0000		
9. Viral encephalopathy and retinopathy	0000	0000	0000		
10. Enteric septicaemia of catfish	+	+	+	I,II	1
<b>MOLLUSC DISEASES</b>					
<b>OIE-listed diseases</b>					
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		
<b>Non OIE-listed diseases</b>					
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		
<b>CRUSTACEAN DISEASES</b>					
<b>OIE-listed diseases</b>					
1. Taura syndrome	0000	0000	0000		
2. White spot disease	+	+	+	I,II,III	2
3. Yellowhead disease	***	***	***		
4. Infectious hypodermal and haematopoietic necrosis	0000	0000	0000		
5. Infectious myonecrosis	0000	0000	0000		
6. White tail disease (MrNV)	***	***	***		
<b>Non OIE-listed diseases</b>					
7. Necrotising hepatopancreatitis	0000	0000	0000		
8. <i>Monodon</i> slow growth syndrome	-	-	-		
9. Milky haemolymph disease of spiny lobster ( <i>Panulirus</i> spp.)	-	-	-		
<b>AMPHIBIAN DISEASES</b>					
<b>OIE-listed diseases</b>					
1. Infection with Ranavirus	0000	0000	0000		
2. Infection with <i>Batrachochytrium dendrobatidis</i>	0000	0000	0000		
<b>ANY OTHER DISEASES OF IMPORTANCE</b>					
1.					
2.					

<p><b>DISEASES PRESUMED EXOTIC TO THE REGION<sup>b</sup></b>  <b>LISTED BY THE OIE</b>  <b>Finfish:</b> Infectious salmon anaemia; Gyrodactylosis (<i>Gyrodactylus salaris</i>).  <b>Molluscs:</b> Infection with <i>Bonamia ostreae</i>; <i>Marteilia refringens</i>; <i>Perkinsus marinus</i>; <i>Xenohaliotis californiensis</i>.  <b>Crustaceans:</b> Crayfish plague (<i>Aphanomyces astaci</i>).  <b>NOT LISTED BY THE OIE</b>  <b>Finfish:</b> Channel catfish virus disease</p>			
<p>a/ Please use the following symbols:</p>			
+	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
<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>Pathogen: <i>Edwardsiella ictaluri</i>.</p> <p>Infection found in intensive catfish (<i>Pangasius hypophthalmus</i>) farms.</p> <p>This disease occurred in An Giang and Dong Thap provinces (02).</p> <p>Clinical Signs: loss of appetite, swollen abdomen, bulging and opaque eyes (blindness), petechiae and haemorrhages around the mouth, abdominal region and fin bases. Internally, haemorrhages and white necrotic foci in the liver, kidney and other organs. Enteritis, systemic oedema, accumulation of yellow or bascitic fluid in the body cavity, enlarged spleen and swollen bladder.</p> <p>Control measures: water change, antibiotic treatments (e.g. florfenicol, enrofloxacin) mixed with feeds, water treatment with chlorine and BKC.</p>

2	<p>Pathogen: White Spot Syndrome Virus (WSSV)</p> <p>Disease found in black tiger shrimp (<i>Penaeus monodon</i>) and white leg shrimp (<i>P. vannamei</i>).</p> <p>The disease occurred in 4 districts of Nghe An (Nghì Loc, Quyhn Luu, Dien Chau and Vinh City), 1 district of Tien Giang (Tan Phu Dong), 3 districts of Ben Tre (Binh Dai, Ba Tri, Tranh Phu), 4 districts of Soc Trang (My Xuyen, Vinh Chau, Tran De and Cu Lao Dung), 5 districts of Ca Mau (Dam Doi, Cai Nuoc, Tran Van Thoi, Phu Tan and Ca Mau City) and Bac Liu provinces (06).</p> <p>Mortality rate: high, 100% in some cases within 10 days.</p> <p>Clinical signs: lethargic or moribund shrimps accumulated at pond surface and near pond dikes, slow to erratic swimming behavior. Overall body color often reddish. Minute to large (0.5-2.0 mm diameter) white inclusions embedded in the cuticle, especially in the removed carapace when viewed against light after scraping-off attached tissues (not always seen).</p> <p>Control Measures: strict isolation of affected ponds with movement controls of affected shrimps. Disinfection of affected ponds with chlorine.</p>
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**2. New aquatic animal health regulations introduced within past six months (with effective date):** None

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

1. DISEASES PREVALENT IN THE REGION	
<b>1.1 FINFISH DISEASES</b>	
<b>OIE-listed diseases</b>	<b>Non OIE-listed diseases</b>
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	
<b>1.2 MOLLUSC DISEASES</b>	
<b>OIE-listed diseases</b>	<b>Non OIE-listed diseases</b>
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)
<b>1.3 CRUSTACEAN DISEASES</b>	
<b>OIE-listed diseases</b>	<b>Non OIE-listed diseases</b>
1. Taura syndrome	1. Monodon slow growth syndrome
2. White spot disease	3. Milky haemolymph disease of spiny lobster ( <i>Panulirus</i> spp.)
3. Yellowhead disease	
4. Infectious hypodermal and haematopoietic necrosis	
5. Infectious myonecrosis	
6. White tail disease (MrNV)	
7. Necrotising hepatopancreatitis	
<b>1.4 AMPHIBIAN DISEASES</b>	
<b>OIE-listed diseases</b>	<b>Non OIE-listed diseases</b>
1. Infection with Ranavirus	
2. Infection with <i>Bachtracochytrium dendrobatidis</i>	
2. DISEASES PRESUMED EXOTIC TO THE REGION	
<b>2.1 Finfish</b>	
<b>OIE-listed diseases</b>	<b>Non OIE-listed diseases</b>
1. Infectious salmon anaemia	1. Channel catfish virus disease
2. Gyrodactylosis ( <i>Gyrodactylus salaris</i> )	
<b>2.2 Molluscs</b>	
<b>OIE-listed diseases</b>	<b>Non OIE-listed diseases</b>
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>	
<b>2.3 Crustaceans</b>	
<b>OIE-listed diseases</b>	<b>Non OIE-listed diseases</b>
1. Crayfish plague ( <i>Aphanomyces astaci</i> )	

## Recent Aquatic Animal Health Related Publications

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

FAO. 2007. Aquaculture development 2. **Health management for the responsible movement of live aquatic animals**. FAO Technical Guidelines for Responsible Fisheries. No. 5, Suppl. 2. Rome, FAO. 2007. 31p. Further information: [Rohana.Subasinghe@fao.org](mailto: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](mailto: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](http://www.spc.org.nc/aquaculture/site/publications/documents/Stylirostris_BruneiFiji.pdf)

## List of National Coordinators\*

Country	Name and Address
<b>Australia</b>	<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: <a href="mailto:ingo.ernst@daff.gov.au">ingo.ernst@daff.gov.au</a></p> <p>Dr. Herbert Brett                      Aquatic Animal Health Unit ,                      Office of the Chief Veterinary Officer                      Department of Agriculture, Fisheries and Forestry                      GPO Box 858, Canberra ACT 2601, Australia                      Fax: +61 2 6272 3150; tel: +61 2 6272 4009                      E-mail: <a href="mailto:brett.herbert@daff.gov.au">brett.herbert@daff.gov.au</a></p>
<b>Bangladesh</b>	<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: <a href="mailto:dgbfri@bdonline.com">dgbfri@bdonline.com</a>, <a href="mailto:bfri@gmail.com">bfri@gmail.com</a></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: <a href="mailto:hasnabanu69@gmail.com">hasnabanu69@gmail.com</a></p>
<b>Cambodia</b>	<p>Dr. So Nam                      Deputy Director                      Inland Fisheries Research and Development Institute (IFReDI)                      186, Norodom Blvd, Phnom Penh, Cambodia                      Telephone +855 23 220 417                      Fax. +855 23 220 417                      E-mail: <a href="mailto:sonammekong2001@yahoo.com">sonammekong2001@yahoo.com</a></p>
<b>China</b>	<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: +86-10-64195073                      E-mail: <a href="mailto:zewenzhu@sina.com">zewenzhu@sina.com</a></p>
<b>DPR Korea</b>	<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>

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

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

(Revised during the Provisional Meeting of the AG<sup>1</sup>, 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.

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<sup>1</sup> Regional Advisory Group on Aquatic Animal Health (AG)

### C. Levels of Diagnosis

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

### D. Subjects to be covered in the Epidemiological Comments

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

### IMPORTANT

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

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

#### OIE Regional Representation for Asia and the Pacific

Sanseido Building, 4F  
2-4-10 Kojimach, Chyoda-Ka  
Tokyo 102-0083, Japan  
Tel: 81-3-5212-3191, Fax: 81-3-5212-3194  
E-Mail: [rr.asiapacific@oie.int](mailto:rr.asiapacific@oie.int)

#### NACA

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

#### FAO

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

## ANNOUNCEMENT

### **Eighth Symposium on Diseases in Asian Aquaculture (DAA VIII) 21-25 November 2011, Mangalore, India**

The Fish Health Section (FHS) of the Asian Fisheries Society proudly announces the “Eighth Symposium on Diseases in Asian Aquaculture - DAA VIII” with the theme **“Fish Health for Food Security”** to be held on 21-25 November, 2011 in Mangalore, India. The 9<sup>th</sup> Triennial General Meeting (TGM-9) of the FHS will also be held in conjunction with DAA VIII. The symposium is being co-hosted by the College of Fisheries, Karnataka Veterinary, Animal and Fisheries Sciences University, Mangalore.

The theme of this symposium has been aptly chosen to address food security concerns through increased fish production to meet the increasing global demand. The dynamic nature of the aquatic environment presents several challenges in aquaculture diseases and their management. To address these challenges the interdisciplinary approaches have become inevitable. The need of the hour is to bring together the conventional practices with molecular approaches to find answers to burning issues and developing strategies to implement science based tools at the field and national levels to ensure sustainability of aquaculture. DAA VIII will provide a forum wherein this theme will be deliberated upon in various sessions.

Intensive aquaculture to meet increasing food demand together with diversity of the species cultured, varying culture methods employed and impact of climate changes has resulted in breakdown of the delicate balance between the host, the pathogen and the environment. This has caused disease problems due to newly emerging and reemerging pathogens resulting in colossal losses to the industry and consequent livelihood issues. Local disease problems have become global in certain instances due to the transportation of live aquatic animal across boundaries.

It is an established fact that aquaculture is expanding rapidly with Asia contributing substantially to the global food security and in turn serving as a major economic activity in several developing countries. Sustainable production calls for adoption of scientific aquaculture practices keeping in mind the environmental impact due to inappropriate management. The indiscriminate use of antibiotics and other chemicals has resulted in problems of antibiotic resistance among bacteria, accumulation of chemicals including antibiotic residues, causing ban on aquaculture products by importing countries. There is an urgent need to look at alternatives to antibiotics and other chemicals by developing ecofriendly technologies. The advent of geographical information systems in providing data on climate changes, water quality and consequent disease prediction will enable to take suitable action plan by the aquaculturists. Risk assessment therefore is of paramount importance. Thus, an interdisciplinary approach is required by scientists and all concerned working in the aquaculture sector to develop appropriate strategies for the sustainable production of aquatic animal food by disease management. To achieve this several levels such as capacity building in diagnostics, increasing the awareness among farmers on good husbandry practices through ecofriendly management measures such as vaccination, probiotics, immunostimulants, bioremediators etc. needs to be constantly developed and implemented.

In a series of scientific sessions across four days, internationally recognised keynote speakers and paper presenters will deliberate on the following tentative issues:

- Global aquaculture – Past, present and future
- Public health and trade impacts
- Environmental approaches to disease management
- Epidemiology of finfish diseases
- Epidemiology of crustacean shellfish diseases

- Epidemiology of molluscan shellfish diseases
- Emerging issues and approaches in aquatic animal health management
- Biosecurity and aquaculture
- Diagnostic development – conventional to molecular
- Immunological approaches to disease management
- Genomics, proteomics and bioinformatics
- Pathogen risk analysis and risk assessment
- Alternatives to antimicrobials

In the spirit of the theme “Fish health for food security”, this conference aims to provide a platform for international biologists, pathologists, fisheries scientists, veterinarians, breeders and policy makers to interact and exchange the latest ideas and techniques in the business of aquaculture, especially with respect to Asia. In addition, there will be sessions that focus on how rapid developments in the fields of genomics and bioinformatics are changing our interpretation of aquatic diseases. These sessions are expected provide a better appreciation of pathogenomics and its impact on the aquatic organisms, and will cover both the fundamental and practical aspects of this multidisciplinary subject area.

Participants will also be offered a wide choice of technical and cultural tours. Mangalore is a coastal city in the state of Karnataka, well known for world famous Belur and Halebeedu temples, Sixty feet monolithic statue of Gomateshwara at Shravanabelgola, Mysore palace and Bangalore, the silicon valley of India. All these places are within 250-300 km from Mangalore.

Please visit the website [www.daa8.org](http://www.daa8.org) for further details.

## Notes

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