



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

**January – March 2013**

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## Foreword

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### AHPNS Update

Under the FAO technical cooperation project (TCP/VIE/3304 (E)) *Emergency assistance to control the spread of an unknown disease affecting shrimp*, this final technical consultation on “Early Mortality Syndrome (EMS) or Acute Hepatopancreatic Necrosis Syndrome (AHPNS) of Cultured Shrimp” was jointly organised by FAO and Vietnam’s Ministry of Agriculture and Rural Development from 25-27 June 2013, Prestige Hotel, Hanoi, Viet Nam.

The consultation presented all relevant project findings and outcomes of the work carried out under the project, and provided updates on EMS situation and experiences in some affected Asian countries, as well as additional technical presentations to assist in further understanding this disease in terms of its aetiology and epidemiology. Nineteen presentations were made over three sessions, while the fourth session drew a number of recommendations and risk management measures pertaining to:

- Disease nomenclature.
- Diagnostics.
- Reporting/notification
- International trade (live shrimp, shrimp commodity, shrimp feed).
- Farm and hatchery facilities.
- Affected and non-affected countries.
- Pharmaceutical and feed companies.
- Training/capacity building needs.
- Outbreak/emergency disease investigation.



A total of 62 participants contributed to a successful technical consultation. The report is being finalised and an announcement will be made on its release from the press. Further information about the consultation can be obtained by writing to [melba.reantaso@fao.org](mailto:melba.reantaso@fao.org) or [rohana.subasinghe@fao.org](mailto:rohana.subasinghe@fao.org) and Dr. Le Van Khoa (MARD).

Most of the presentations made during the consultation/workshop are now available for download at NACA/AFSPAN websites at:

[http://www.enaca.org/modules/news/article.php?article\\_id=1993&title=final-technical-consultation-tcp-ems-ahpns](http://www.enaca.org/modules/news/article.php?article_id=1993&title=final-technical-consultation-tcp-ems-ahpns)  
[http://www.afspan.eu/modules/news/article.php?article\\_id=21&title=final-technical-consultation-tcp-ems-ahpns](http://www.afspan.eu/modules/news/article.php?article_id=21&title=final-technical-consultation-tcp-ems-ahpns)

On the side note, I would like to acknowledge updates and appointment of new NC's for some member governments as follows (2012-2013):

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

Country: AUSTRALIAPeriod: January - March 2013

Item	Disease status <sup>u/</sup>			Level of diagnosis	Epidemiological comment numbers
	Month				
<b>DISEASES PREVALENT IN THE REGION</b>	January	February	March		
<b>FINFISH DISEASES</b>					
<b>OIE-listed diseases</b>					
1. Epizootic haematopoietic necrosis	-(2012)	-(2012)	-(2012)		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	-(2012)	-(2012)	-(2012)		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	-(2012)	-(2012)	+	III	3
10. Enteric septicaemia of catfish	(2011)	(2011)	(2011)		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>	-(2011)	-(2011)	-(2011)		5
3. Infection with abalone herpes-like virus	-(2011)	-(2011)	-(2011)		6
4. Infection with <i>Xenohaliotis californiensis</i>	0000	0000	0000		
<b>Non OIE-listed diseases</b>					
5. Infection with <i>Marteilioides chungmuensis</i>	0000	0000	0000		
6. Acute viral necrosis (in scallops)	***	***	***		
7. 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
7. Necrotising hepatopancreatitis	0000	0000	0000		
<b>Non OIE-listed diseases</b>					
8. Milky haemolymph disease of spiny lobster ( <i>Panulirus</i> spp.)	0000	0000	0000		
9. <i>Monodon</i> slow growth syndrome	0000	0000	0000		
10. Acute hepatopancreatic necrosis syndrome (AHPNS)	***	***	***		
<b>AMPHIBIAN DISEASES</b>					
<b>OIE-listed diseases</b>					
1. Infection with Ranavirus	-(2008)	-(2008)	-(2008)		9
2. Infection with <i>Batrachochytrium dendrobatidis</i>	-(2012)	-(2012)	-(2012)		10
<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; Infection with *Gyrodactylus salaris*.

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

**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	<b>Epizootic haematopoietic necrosis</b> was not reported this period despite passive surveillance in Victoria (last reported 2012), the Australian Capital Territory (last reported 2011), New South Wales (last reported 2009) and South Australia (last reported 1992). Passive surveillance and never reported in the Northern Territory, Queensland, Tasmania and Western Australia.
2	<b>Epizootic ulcerative syndrome</b> was not reported this period despite passive surveillance in New South Wales (last reported 2012), the Northern Territory (last reported 2012), Queensland (last reported 2012), Victoria (last reported 2012), Western Australia (last reported 2012) and South Australia (last reported 2008). Passive surveillance and never reported in Tasmania. No information available in the Australian Capital Territory.
3	<p><b>Viral encephalopathy and retinopathy</b></p> <ol style="list-style-type: none"> <li><b>Reported in the Northern Territory</b> in March, active surveillance;</li> <li><b>Species affected</b> – Barramundi (<i>Lates calcarifer</i>) fingerlings (21 d old);</li> <li><b>Clinical signs</b> – No clinical signs observed, sub-clinical infection was diagnosed in two contained tanks of susceptible fish through routine pre-translocation health certification testing;</li> <li><b>Pathogen</b> – <i>Betanodavirus</i>;</li> <li><b>Mortality rate</b> – Nil, prevalence of sub-clinical infection estimated at 5-10%;</li> <li><b>Economic loss</b> – Nil;</li> <li><b>Geographic extent</b> – Limited to two tanks within a partial recirculation system on a single property;</li> <li><b>Containment measures</b> – Not applicable, limited translocation is only permitted within known nodavirus endemic zones (Barramundi Disease Control Zone 1) and following thorough decontamination of relevant tanks and equipment;</li> <li><b>Laboratory confirmation</b> – Nodavirus qPCR;</li> <li><b>Publications</b> – None.</li> </ol>



3	<p><b>Viral encephalopathy and retinopathy (continued....)</b></p> <ol style="list-style-type: none"> <li>1. <b>Reported in the Queensland</b> in March, passive surveillance;</li> <li>2. <b>Species affected</b> – Barramundi (<i>Lates calcarifer</i>) fingerlings (35 mm; 50 d old);</li> <li>3. <b>Clinical signs</b> – Anorexia, dark body colour and lethargy;</li> <li>4. <b>Pathogen</b> – <i>Betanodavirus</i>;</li> <li>5. <b>Mortality rate</b> –10%;</li> <li>6. <b>Economic loss</b> – Information not available;</li> <li>7. <b>Geographic extent</b> – 50 nursery tanks over two sites owned by the same company;</li> <li>8. <b>Containment measures</b> – Not applicable;</li> <li>9. <b>Laboratory confirmation</b> – Histopathology and nodavirus qPCR;</li> <li>10. <b>Publications</b> – None.</li> </ol> <p>Viral encephalopathy and retinopathy is known to have occurred previously in the New South Wales (last reported 2010), South Australia (last reported 2010), Western Australia (last reported 2005) and Tasmania (last reported 2000). Passive surveillance and never reported in Victoria. No information available this period in the Australian Capital Territory.</p>
4	<p><b>Enteric septicaemia of catfish</b> was not reported this period and has never been reported from wild fish in Australia. Passive surveillance and reported previously in the Northern Territory [in a closed aquarium facility also holding imported ornamental fish] (last reported 2011), Queensland (last reported 2008) and Tasmania (last reported 2001) in zebrafish (<i>Brachydanio rerio</i>) held in PC2 containment facilities. Passive surveillance and never reported in New South Wales, South Australia, Victoria or Western Australia. No information available this period in the Australian Capital Territory.</p>
5	<p><b>Infection with <i>Perkinsus olseni</i></b> was not reported this period despite passive surveillance in South Australia (last reported in 2011) and New South Wales (last reported 2005). Not reported despite targeted surveillance in Western Australia (last reported 2003). Passive surveillance and never reported in the Northern Territory, Queensland, Tasmania and Victoria. No information available for the Australian Capital Territory (no marine water responsibility).</p>
6	<p><b>Infection with abalone herpesvirus (abalone viral ganglioneuritis)</b> was not reported this period despite targeted surveillance in Tasmania (last reported 2011) and passive surveillance in New South Wales (last reported 2011 and eradicated following detection in contained commercial live-holding facilities), and Victoria (last reported 2010). Passive surveillance and never reported in the Northern Territory, Queensland, South Australia and Western Australia. No information available this period for the Australian Capital Territory (no marine water responsibility).</p>
7	<p><b>Infectious hypodermal and haematopoietic necrosis virus</b> was not reported this period despite passive surveillance in Queensland (last reported 2008) and Northern Territory (last reported 2003). Passive surveillance and never reported in New South Wales, South Australia, Victoria and Western Australia. No information available this period in the Australian Capital Territory (no marine responsibility) and Tasmania (susceptible species not present).</p>
8	<p><b>White tail disease</b> was not reported this period despite passive surveillance in Queensland (last reported 2008). Passive surveillance and never reported from the Australian Capital Territory, New South Wales, the Northern Territory, South Australia, Victoria and Western Australia. No information available this period in Tasmania, Victoria.</p>

9	<p><b>Infection with ranavirus</b> was not reported this period despite passive surveillance in the Northern Territory (last reported 2008, prior to official reporting for ranavirus). Suspected but not confirmed through 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.</p>
10	<p><b>Infection with <i>Batrachochytrium dendrobatidis</i></b> was not reported this period despite targeted surveillance in Tasmania (last reported 2012) and passive surveillance in Victoria (last reported 2011) and Western Australia (last reported 2008). Suspected but not confirmed through passive surveillance in Queensland. No information available this period in the Australian Capital Territory, New South Wales, the Northern Territory, and South Australia.</p>

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

- a) The Australian Government Department of Agriculture, Fisheries and Forestry (DAFF) released a new AQUAVETPLAN disease strategy manual for Piscirickettsiosis in January 2013. AQUAVETPLAN is the Australian Aquatic Veterinary Emergency Plan and comprises a series of technical response plans that describe the proposed Australian approach to the occurrence of an emergency aquatic animal disease. The new manual can be accessed on the Australian Government DAFF website: <http://www.daff.gov.au/animal-plant-health/aquatic/aquavetplan/pisirickettsiosis>.

Country: **CHINA, P.R.**

Period: **January - March 2013**

Item	Disease status <sup>a/</sup>			Level of diagnosis	Epidemiological comment numbers
	January	February	March		
<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	***	***	***		
3. Spring viraemia of carp	***	***	***		
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	***	***	***		
<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. Infection with abalone herpes-like virus	0000	0000	0000		
4. Infection with <i>Xenohalotis californiensis</i>	0000	0000	0000		
<b>Non OIE-listed diseases</b>					
5. Infection with <i>Marteilioides chungmuensis</i>	0000	0000	0000		
6. Acute viral necrosis (in scallops)	0000	0000	0000		
7. Akoya oyster disease	0000	0000	0000		
<b>CRUSTACEAN DISEASES</b>					
<b>OIE-listed diseases</b>					
1. Taura syndrome	***	***	***		
2. White spot disease	+( )	+( )	+( )	II, III	
3. Yellowhead disease	0000	0000	0000		
4. Infectious hypodermal and haematopoietic necrosis	0000	0000	0000		
5. Infectious myonecrosis	0000	0000	0000		
6. White tail disease (MrNV)	0000	0000	0000		
7. Necrotising hepatopancreatitis	0000	0000	0000		
<b>Non OIE-listed diseases</b>					
8. Milky haemolymph disease of spiny lobster ( <i>Panulirus</i> spp.)	0000	0000	0000		
9. <i>Monodon</i> slow growth syndrome	0000	0000	0000		
10. Acute hepatopancreatic necrosis syndrome (AHPNS)	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.					

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

**LISTED BY THE OIE**

**Finfish:** Infectious salmon anaemia; Infection with *Gyrodactylus salaris*.

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

**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	White spot disease was detected in shrimp aquaculture in Guangdong province during this reporting period. The average mortality rate reached up to 15%. Some farms culled their stocks as preventive measures.
2	
3	

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

Country: **HONG KONG SAR**

 Period: **January - March 2013**

Item	Disease status <sup>a/</sup>			Level of diagnosis	Epidemiological comment numbers
	January	February	March		
<b>DISEASES PREVALENT IN THE REGION</b>					
<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	III	
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. Infection with abalone herpes-like virus	0000	0000	0000	II	
4. Infection with <i>Xenohalotis californiensis</i>					
<b>Non OIE-listed diseases</b>					
5. Infection with <i>Marteilioides chungmuensis</i>	0000	0000	0000	II	
6. Acute viral necrosis (in scallops)	0000	0000	0000	II	
7. 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	
3. Yellowhead disease	0000	0000	0000	III	
4. Infectious hypodermal and haematopoietic necrosis	0000	0000	0000	II	
5. Infectious myonecrosis	0000	0000	0000	II	
6. White tail disease (MrNV)	0000	0000	0000	II	
7. Necrotising hepatopancreatitis	0000	0000	0000	II	
<b>Non OIE-listed diseases</b>					
8. Milky haemolymph disease of spiny lobster ( <i>Panulirus</i> spp.)	0000	0000	0000	II	
9. <i>Monodon</i> slow growth syndrome	0000	0000	0000	II	
10. Acute hepatopancreatic necrosis syndrome (AHPNS)					
<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.					

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

**LISTED BY THE OIE**

**Finfish:** Infectious salmon anaemia; Infection with *Gyrodactylus salaris*.

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

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

**NOT LISTED BY THE OIE**

**Finfish:** Channel catfish virus disease

a/ Please use the following symbols:

<p>+ Disease reported or known to be present</p> <p>+? Serological evidence and/or isolation of causative agent but no clinical diseases</p> <p>? Suspected by reporting officer but presence not confirmed</p>	<p>+ ( ) Occurrence limited to certain zones</p> <p>*** No information available</p> <p>0000 Never reported</p> <p>- Not reported (but disease is known to occur)</p> <p>(year) Year of last occurrence</p>
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b/ If there is suspicion or confirmation of any of these diseases, they must be reported immediately, because the region is considered free of these diseases

**1. Epidemiological comments:**

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

Comment No.	
1	Koi herpesvirus disease was detected from a group of assorted kois that has been submitted for health certification.
2	
3	

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

Country: **INDIA**

 Period: **January - March 2013**

Item	Disease status <sup>a/</sup>			Level of diagnosis	Epidemiological comment numbers
	January	February	March		
<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	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>	-	-	-		
3. Infection with abalone herpes-like virus	0000	0000	0000		
4. Infection with <i>Xenohalotis californiensis</i>	0000	0000	0000		
<b>Non OIE-listed diseases</b>					
5. Infection with <i>Marteilioides chungmuensis</i>	0000	0000	0000		
6. Acute viral necrosis (in scallops)	0000	0000	0000		
7. 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	1,2
3. Yellowhead disease	***	***	***		
4. Infectious hypodermal and haematopoietic necrosis	***	***	***		
5. Infectious myonecrosis	0000	0000	0000		
6. White tail disease (MrNV)	-	-	-		
7. Necrotising hepatopancreatitis	0000	0000	0000		
<b>Non OIE-listed diseases</b>					
8. Milky haemolymph disease of spiny lobster ( <i>Panulirus</i> spp.)	0000	0000	0000		
9. <i>Monodon</i> slow growth syndrome	-	-	-		
10. Acute hepatopancreatic necrosis syndrome (AHPNS)	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.					

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

**LISTED BY THE OIE**

**Finfish:** Infectious salmon anaemia; Infection with *Gyrodactylus salaris*.

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

**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	<b>White spot disease (WSD):</b> Reported from very limited areas in Nellore and Bhimawaram districts of Andhra Pradesh, Udupi district of Karnataka, Kannur district of Kerala, and Nagapattinam, Ramanathapuram and Pudukkottai districts of Tamil Nadu during different months under the reporting period.
2	<i>P. monodon</i> and <i>L. vannamei</i> were affected by WSD
3	

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



Country: **INDONESIA**

 Period: **January - March 2013**

Item	Disease status <sup>a/</sup>			Level of diagnosis	Epidemiological comment numbers
	Month				
DISEASES PREVALENT IN THE REGION	January	February	March		
<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	***	***	***		
7. Koi herpesvirus disease	+()	+()	***	III	1
<b>Non OIE-listed diseases</b>					
8. Grouper iridoviral disease	+()	+()	+()	II	2
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>	0000	0000	0000		
2. Infection with <i>Perkinsus olseni</i>	0000	0000	0000		
3. Infection with abalone herpes-like virus	0000	0000	0000		
4. Infection with <i>Xenohalotis californiensis</i>					
<b>Non OIE-listed diseases</b>					
5. Infection with <i>Marteilioides chungmuensis</i>	0000	0000	0000		
6. Acute viral necrosis (in scallops)	0000	0000	0000		
7. Akoya oyster disease	0000	0000	0000		
<b>CRUSTACEAN DISEASES</b>					
<b>OIE-listed diseases</b>					
1. Taura syndrome	+()	***	+()	III	3
2. White spot disease	+()	+()	+()	III	4
3. Yellowhead disease	***	***	***		
4. Infectious hypodermal and haematopoietic necrosis	+()	+()	+()	III	5
5. Infectious myonecrosis	+()	+()	+()	III	6
6. White tail disease (MrNV)	0000	0000	0000		
7. Necrotising hepatopancreatitis	0000	0000	0000		
<b>Non OIE-listed diseases</b>					
8. Milky haemolymph disease of spiny lobster ( <i>Panulirus</i> spp.)	0000	0000	0000		
9. <i>Monodon</i> slow growth syndrome	0000	0000	0000		
10. Acute hepatopancreatic necrosis syndrome (AHPNS)					
<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.					

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

**LISTED BY THE OIE**

**Finfish:** Infectious salmon anaemia; Infection with *Gyrodactylus salaris*.

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

**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><b>Origin of the disease/pathogen:</b> South Kalimantan</li> <li><b>Species affected:</b> <i>Cyprinus carpio</i> (common carp and koi)</li> <li><b>Clinical signs:</b> haemorrhage, gill rot, pale gills, damaged gills, ulcers in the gills, scales off, lethargy, red spots on body surface.</li> <li><b>Pathogen:</b> Koi herpesvirus</li> <li><b>Mortality rate:</b> low to high (West Java), 50-70% (South Kalimantan)</li> <li><b>Economic loss:</b> 8750 kg (South Kalimantan)</li> <li><b>Names of infected areas:</b> West Java, South Kalimantan.</li> <li><b>Preventive/control measures:</b> eradication of infected fish and quarantine of non-infected fish (moved to another pond. Use of vitamin and immunostimulant, temperature control (&gt;26°C; West Java), and emergency harvest (South Kalimantan).</li> <li><b>Laboratory confirmation:</b> Freshwater Aquaculture Development Mandiangin Laboratory, Main Center Freshwater Aquaculture Development Development Sukabumi Laboratory.</li> <li><b>Publications :</b> not published.</li> </ol>
2	<p><b>GIV</b></p> <ol style="list-style-type: none"> <li><b>Origin of the disease/pathogen:</b> Batam (Kepulauan Riau Province), Teluk Harun (Lampung Province)</li> <li><b>Species affected:</b> <i>Trachinotus blochii</i>, <i>Cromileptes altivelis</i>, <i>Rachycentron canadum</i></li> <li><b>Clinical signs:</b> swirling swimming, blackening at the base of caudal area, reduced appetite, melanosis, pale liver, affected fish settle at the tank bottom.</li> <li><b>Pathogen:</b> Iridovirus</li> <li><b>Mortality rate:</b> 60% (Batam), 20% (Lampung);</li> <li><b>Economic loss:</b> -</li> <li><b>Names of infected areas:</b> Batam (Kepulauan Riau Province)</li> <li><b>Preventive/control measures:</b> immunostimulant (Vitamin C), water quality management;</li> <li><b>Laboratory confirmation:</b> Mariculture Development Center Batam Laboratory, Main Center Mariculture Development Lampung Laboratory;</li> <li><b>Publications:</b> not published.</li> </ol>

3	<p><b>TSV</b></p> <ol style="list-style-type: none"> <li><b>Origin of the disease/pathogen:</b> Karawang (West Java), Lampung (Lampung Province);</li> <li><b>Species affected:</b> <i>Litopenaeus vannamei</i></li> <li><b>Clinical signs:</b> reduced appetite;</li> <li><b>Pathogen:</b> Taura syndrome virus (co-infection with WSSV);</li> <li><b>Mortality rate:</b> 100%</li> <li><b>Economic loss:</b> -</li> <li><b>Names of infected areas:</b> Karawang (West Java), Lampung (Lampung Province);</li> <li><b>Preventive/control measures:</b> Eradication of stocks;</li> <li><b>Laboratory confirmation:</b> Aquaculture Business Development Center Karawang Laboratory, Main Center Mariculture Development Lampung Laboratory;</li> <li><b>Publications:</b> not published.</li> </ol>
4	<p><b>WSSV</b></p> <ol style="list-style-type: none"> <li><b>Origin of the disease/pathogen:</b> Kota Baru (South Kalimantan), South Sulawesi, Cirebon, Indramayu and Kerawang (West Java), Serang and Pandeglang (Banten Province), Semarang (Central Java), Bandar Lampung and Kalianda (Lampung Province)</li> <li><b>Species affected:</b> <i>Litopenaeus vannamei</i>, <i>Penaeus monodon</i></li> <li><b>Clinical signs:</b> - decreased appetite, shrimps become weak, and white spots on the carapace. Some shrimps did not show clinical signs;</li> <li><b>Pathogen:</b> White spot syndrome virus, white spot baculovirus complex</li> <li><b>Mortality rate:</b> 15% (South Kalimantan), 10% (South Sulawesi), 50-70% (West Java), 100% (Karawang), &lt;30% (Banten Province);</li> <li><b>Economic loss:</b> high: &gt;60% (West Java), 70,000 pcs (South Kalimantan)</li> <li><b>Names of infected areas:</b> Cirebon, Kerawang, Serang, Kota Baru, Pangkep, Semarang, Bandar Lampung;</li> <li><b>Preventive/control measures:</b> disinfection of water supply and washing to prevent vertical transmission (West Java); eradication and biosecurity measures;</li> <li><b>Laboratory confirmation:</b> Freshwater Aquaculture Development Center Mandiangin Laboratory, Brackishwater Aquaculture Development Center Takalaar Laboratory, Main Center Mariculture Development Lampung Laboratory, Main Center Brackishwater Aquaculture Development Laboratory Jepara, Aquaculture Business Development Center Karawang Laboratory, Center of Fish Disease and Environment Investigation Serang Laboratory;</li> <li><b>Publications:</b> not published.</li> </ol>
5	<p><b>IHHNV</b></p> <ol style="list-style-type: none"> <li><b>Origin of the disease/pathogen:</b> Kota Baru (South Kalimantan), Barru (South Sulawesi), Tarakan (East Kalimantan), Bandar Lampung (Lampung Province)</li> <li><b>Species affected:</b> <i>Penaeus monodon</i>, <i>Litopenaeus vannamei</i></li> <li><b>Clinical signs:</b> weak shrimps;</li> <li><b>Pathogen:</b> Infectious hypodermal and haematopoietic necrosis virus;</li> <li><b>Mortality rate:</b> 15% (South Kalimantan), low (South Sulawesi), &lt;30% (Tarakan);</li> <li><b>Economic loss:</b> 70,000 pcs (South Kalimantan);</li> <li><b>Names of infected areas:</b> Kolaka (Southeast Sulawesi province), Carita (West Java province)</li> <li><b>Preventive/control measures:</b> -;</li> <li><b>Laboratory confirmation:</b> Brackishwater Aquaculture Development Center Takalaar Laboratory, Main Center Brackishwater Aquaculture Development Jepara Laboratory, Center of Fish Disease and Environmental Investigation Serang Laboratory;</li> <li><b>Publications:</b> not published.</li> </ol>

6	<p><b>IMNV</b></p> <ol style="list-style-type: none"> <li>1. <b>Origin of the disease/pathogen:</b> Traditional farm in Terakan (East Kalimantan), Serang (Banten Province), Pandeglang (West Java), Bandar Lampung (Lampung Province), Banyuwangi (East Java), Gondol (Bali);</li> <li>2. <b>Species affected:</b> <i>Litopenaeus vannamei</i>, <i>P. monodon</i></li> <li>3. <b>Clinical signs:</b> reddish color, damaged body (Central Java), reduced appetite, changes in behavior, whitish abdominal muscle (Central Java, Banten Province)</li> <li>4. <b>Pathogen:</b> Infectious myonecrosis virus</li> <li>5. <b>Mortality rate:</b> 60-80% (Semarang), 50% (Jepara), 20% (Indramayu), &lt;30% (Pandeglang);</li> <li>6. <b>Economic loss:</b> approximately 30,000,000 pcs in Kerawang</li> <li>7. <b>Names of infected areas:</b> Semarang (Central java), Tarakan (East Kalimantan), Pandeglang (Banten Province), Banyuwangi (East Java);</li> <li>8. <b>Preventive/control measures:</b> stress avoidance, use of immunostimulant (Vitamin C) and probiotics, eradication, water quality management;</li> <li>9. <b>Laboratory confirmation:</b> Main Center Brackishwater Aquaculture Development Jepara Laboratory, Main Center Mariculture Development Lampung, Brackishwater Aquaculture Development Center Situbondo Laboratory, Center of Fish Disease and Environmental Investigation Serang Laboratory;</li> <li>10. <b>Publications:</b> not published.</li> </ol>
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**2. New aquatic animal health regulations introduced within past six months (with effective date):**

Country: **IRAN**

 Period: **July - September 2012**

Item	Disease status <sup>a/</sup>			Level of diagnosis	Epidemiological comment numbers
	Month				
DISEASES PREVALENT IN THE REGION	July	August	September		
<b>FINFISH DISEASES</b>					
<b>OIE-listed diseases</b>					
1. Epizootic haematopoietic necrosis	0000	0000	0000		
2. Infectious haematopoietic necrosis	-	-	-		
3. Spring viraemia of carp	-	-	-		
4. Viral haemorrhagic septicaemia	-	-	-		
5. Epizootic ulcerative syndrome	0000	0000	0000		
6. Red seabream iridoviral disease	***	***	***		
7. Koi herpesvirus disease	0000	0000	0000		
<b>Non OIE-listed diseases</b>					
8. Grouper iridoviral disease	***	***	***		
9. Viral encephalopathy and retinopathy	0000	0000	0000		
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. Infection with abalone herpes-like virus	***	***	***		
<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	0000	0000	0000		
2. White spot disease	+	+	-	III	1
3. Yellowhead disease	0000	0000	0000		
4. Infectious hypodermal and haematopoietic necrosis	0000	0000	0000		
5. Infectious myonecrosis	***	***	***		
6. White tail disease (MrNV)	***	***	***		
7. Necrotising hepatopancreatitis	***	***	***		
<b>Non OIE-listed diseases</b>					
8. Milky haemolymph disease of spiny lobster ( <i>Panulirus</i> spp.)	***	***	***		
9. <i>Monodon</i> slow growth syndrome	***	***	***		
<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; Infection with *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:

<p>+ Disease reported or known to be present</p> <p>+? Serological evidence and/or isolation of causative agent but no clinical diseases</p> <p>? Suspected by reporting officer but presence not confirmed</p>	<p>+ ( ) Occurrence limited to certain zones</p> <p>*** No information available</p> <p>0000 Never reported</p> <p>- Not reported (but disease is known to occur)</p> <p>(year) Year of last occurrence</p>
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b/ If there is suspicion or confirmation of any of these diseases, they must be reported immediately, because the region is considered free of these diseases

**1. Epidemiological comments:**

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

Comment No.	
1	<p><b>WSD</b></p> <p>Occurred in one of the shrimp culture farms in Goatr (Chabahar):</p> <ol style="list-style-type: none"> <li>1. Origin of the disease was unknown;</li> <li>2. Affected species: <i>L. vannamei</i>;</li> <li>3. The disease occurred in August 2012;</li> <li>4. Name of infected area: Sistan and Balochastan provinces (Chabahar, Goatr);</li> <li>5. Clinical signs: sudden decrease in feeding, swimming near the pond edges, reddish body and white spot on the cephalothorax;</li> <li>6. Pathogen was detected by nested-PCR;</li> <li>7. Morbidity rate: not determined;</li> <li>8. Forty ponds were disinfected with 40 ppm calcium chloride; emergency harvest on the rest of the ponds.</li> </ol>

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

Country: **IRAN**

 Period: **October - December 2012**

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	-	-	-		
3. Spring viraemia of carp	-	-	-		
4. Viral haemorrhagic septicaemia	-	-	-		
5. Epizootic ulcerative syndrome	0000	0000	0000		
6. Red seabream iridoviral disease	***	***	***		
7. Koi herpesvirus disease	0000	0000	0000		
<b>Non OIE-listed diseases</b>					
8. Grouper iridoviral disease	***	***	***		
9. Viral encephalopathy and retinopathy	0000	0000	0000		
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. Infection with abalone herpes-like virus	***	***	***		
<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	0000	0000	0000		
2. White spot disease	-	-	-		
3. Yellowhead disease	0000	0000	0000		
4. Infectious hypodermal and haematopoietic necrosis	0000	0000	0000		
5. Infectious myonecrosis	***	***	***		
6. White tail disease (MrNV)	***	***	***		
7. Necrotising hepatopancreatitis	***	***	***		
<b>Non OIE-listed diseases</b>					
8. Milky haemolymph disease of spiny lobster ( <i>Panulirus</i> spp.)	***	***	***		
9. <i>Monodon</i> slow growth syndrome	***	***	***		
<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; Infection with *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.	

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



Country: **IRAN**

Period: **January - March 2013**

Item	Disease status <sup>a/</sup>			Level of diagnosis	Epidemiological comment numbers
	January	February	March		
<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	-	-	-		
3. Spring viraemia of carp	-	-	-		
4. Viral haemorrhagic septicaemia	-	-	-		
5. Epizootic ulcerative syndrome	0000	0000	0000		
6. Red seabream iridoviral disease	***	***	***		
7. Koi herpesvirus disease	0000	0000	0000		
<b>Non OIE-listed diseases</b>					
8. Grouper iridoviral disease	***	***	***		
9. Viral encephalopathy and retinopathy	0000	0000	0000		
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. Infection with abalone herpes-like virus	***	***	***		
4. Infection with <i>Xenohalotis californiensis</i>	***	***	***		
<b>Non OIE-listed diseases</b>					
5. Infection with <i>Marteilioides chungmuensis</i>	***	***	***		
6. Acute viral necrosis (in scallops)	***	***	***		
7. Akoya oyster disease	***	***	***		
<b>CRUSTACEAN DISEASES</b>					
<b>OIE-listed diseases</b>					
1. Taura syndrome	0000	0000	0000		
2. White spot disease	-	-	-		
3. Yellowhead disease	0000	0000	0000		
4. Infectious hypodermal and haematopoietic necrosis	0000	0000	0000		
5. Infectious myonecrosis	***	***	***		
6. White tail disease (MrNV)	***	***	***		
7. Necrotising hepatopancreatitis	***	***	***		
<b>Non OIE-listed diseases</b>					
8. Milky haemolymph disease of spiny lobster ( <i>Panulirus</i> spp.)	***	***	***		
9. <i>Monodon</i> slow growth syndrome	***	***	***		
10. Acute hepatopancreatic necrosis syndrome (AHPNS)	***	***	***		
<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.					

<p><b>DISEASES PRESUMED EXOTIC TO THE REGION<sup>b</sup></b>  <b>LISTED BY THE OIE</b>  <b>Finfish:</b> Infectious salmon anaemia; Infection with <i>Gyrodactylus salaris</i>.  <b>Molluscs:</b> Infection with <i>Bonamia ostreae</i>; <i>Marteilia refringens</i>; <i>Perkinsus marinus</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>			
		+( )	Occurrence limited to certain zones
+	Disease reported or known to be present	***	No information available
+?	Serological evidence and/or isolation of causative agent but no clinical diseases	0000	Never reported
?	Suspected by reporting officer but presence not confirmed	-	Not reported (but disease is known to occur)
		(year)	Year of last occurrence
<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.	

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

Country: **JAPAN**

 Period: **January - March 2013**

Item	Disease status <sup>a/</sup>			Level of diagnosis	Epidemiological comment numbers
	January	February	March		
<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	+	+	+	III	
5. Epizootic ulcerative syndrome	-	-	-	I	
6. Red seabream iridoviral disease	-	-	-	I	
7. Koi herpesvirus disease	-	+	-	III	
<b>Non OIE-listed diseases</b>					
8. Grouper iridoviral disease	0000	0000	0000	I	
9. Viral encephalopathy and retinopathy	-	-	-	I	
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. Infection with abalone herpes-like virus	0000	0000	0000	I	
4. Infection with <i>Xenohalotis californiensis</i>	-	-	-	I	
<b>Non OIE-listed diseases</b>					
5. Infection with <i>Marteilioides chungmuensis</i>	-	+	-	III	
6. Acute viral necrosis (in scallops)	0000	0000	0000	I	
7. Akoya oyster disease	-	-	-	I	
<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	
7. Necrotising hepatopancreatitis	0000	0000	0000	I	
<b>Non OIE-listed diseases</b>					
8. Milky haemolymph disease of spiny lobster ( <i>Panulirus</i> spp.)	0000	0000	0000	I	
9. <i>Monodon</i> slow growth syndrome	0000	0000	0000	I	
10. Acute hepatopancreatic necrosis syndrome (AHPNS)					
<b>AMPHIBIAN DISEASES</b>					
<b>OIE-listed diseases</b>					
1. Infection with Ranavirus	-	-	-	I	
2. Infection with <i>Batrachochytrium dendrobatidis</i>	-	-	-	I	
<b>ANY OTHER DISEASES OF IMPORTANCE</b>					

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

**LISTED BY THE OIE**

**Finfish:** Infectious salmon anaemia; Infection with *Gyrodactylus salaris*.

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

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

**NOT LISTED BY THE OIE**

**Finfish:** Channel catfish virus disease

a/ Please use the following symbols:

<p>+</p> <p>+?</p> <p>?</p>	<p>Disease reported or known to be present</p> <p>Serological evidence and/or isolation of causative agent but no clinical diseases</p> <p>Suspected by reporting officer but presence not confirmed</p>	<p>+( )</p> <p>***</p> <p>0000</p> <p>-</p> <p>(year)</p>	<p>Occurrence limited to certain zones</p> <p>No information available</p> <p>Never reported</p> <p>Not reported (but disease is known to occur)</p> <p>Year of last occurrence</p>
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b/ If there is suspicion or confirmation of any of these diseases, they must be reported immediately, because the region is considered free of these diseases

**1. Epidemiological comments:**

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

Comment No.	
1	
2	
3	

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

Country: **KOREA, REPUBLIC OF**

 Period: **January - March 2013**

Item	Disease status <sup>a/</sup>			Level of diagnosis	Epidemiological comment numbers
	January	February	March		
<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	-	-	-	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. Infection with abalone herpes-like virus	0000	0000	0000		
4. Infection with <i>Xenohalotis californiensis</i>					
<b>Non OIE-listed diseases</b>					
5. Infection with <i>Marteilioides chungmuensis</i>	-	-	-	III	
6. Acute viral necrosis (in scallops)	0000	0000	0000		
7. 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		
7. Necrotising hepatopancreatitis	0000	0000	0000		
<b>Non OIE-listed diseases</b>					
8. Milky haemolymph disease of spiny lobster ( <i>Panulirus</i> spp.)	0000	0000	0000		
9. <i>Monodon</i> slow growth syndrome	0000	0000	0000		
10. Acute hepatopancreatic necrosis syndrome (AHPNS)					
<b>AMPHIBIAN DISEASES</b>					
<b>OIE-listed diseases</b>					
1. Infection with Ranavirus	0000	0000	0000		
2. Infection with <i>Batrachochytrium dendrobatidis</i>	?	?	?		
<b>ANY OTHER DISEASES OF IMPORTANCE</b>					
1.					

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

**LISTED BY THE OIE**

**Finfish:** Infectious salmon anaemia; Infection with *Gyrodactylus salaris*.

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

**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 virus (VHSV) was detected from olive flounder ( <i>Paralichthys olivaceus</i> ) from a culture facility in Pohang. The confirmative diagnosis was performed by the National Fisheries Research and Development Institute, Aqua-life Disease Control Division. The standstill of VHSV-detected fish was declared for control.
2	
3	

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

Country: **MALAYSIA**

 Period: **January - March 2013**

Item	Disease status <sup>a/</sup>			Level of diagnosis	Epidemiological comment numbers
	January	February	March		
<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	I,II,III	
3. Spring viraemia of carp	0000	0000	0000	I,II,III	1
4. Viral haemorrhagic septicaemia	0000	0000	0000	I,II,III	
5. Epizootic ulcerative syndrome	(1986)	(1986)	(1986)	I,II	
6. Red seabream iridoviral disease	-	-	-	I,II,III	
7. Koi herpesvirus disease	-	-	-	I,II,III	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	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	III	
3. Infection with abalone herpes-like virus	0000	0000	0000		
4. Infection with <i>Xenohalotis californiensis</i>					
<b>Non OIE-listed diseases</b>					
5. Infection with <i>Marteilioides chungmuensis</i>	0000	0000	0000		
6. Acute viral necrosis (in scallops)	0000	0000	0000		
7. Akoya oyster disease	0000	0000	0000		
<b>CRUSTACEAN DISEASES</b>					
<b>OIE-listed diseases</b>					
1. Taura syndrome	-	-	-	I,III	5
2. White spot disease	-	+	+	I,III	6
3. Yellowhead disease	-	-	-	I,III	7
4. Infectious hypodermal and haematopoietic necrosis	+	+	-	I,III	8
5. Infectious myonecrosis	-	-	-	III	9
6. White tail disease (MrNV)	-	-	-	III	10
7. Necrotising hepatopancreatitis	-	-	-	III	11
<b>Non OIE-listed diseases</b>					
8. Milky haemolymph disease of spiny lobster ( <i>Panulirus</i> spp.)	0000	0000	0000		
9. <i>Monodon</i> slow growth syndrome	-	-	-		
10. Acute hepatopancreatic necrosis syndrome (AHPNS)					
<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. Hepatopancreatic parvo virus disease	-	+	+	III	12

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

**Finfish:** Infectious salmon anaemia; Infection with *Gyrodactylus salaris*.

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

**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	<b>Spring viraemia of carp</b> 1. No positive cases detected (PCR) during DoF active surveillance programme
2	<b>Koi herpesvirus disease</b> 1. No positive cases detected (PCR) during DoF active surveillance programme
3	<b>Grouper Iridoviral disease (GIV)</b> 1. Grouper samples from Kedah were negative for GIV tested in Fisheries Research Institute (FRI) Pulau Sayak, Kedah for diagnostic cases. 2. Baramundi samples from Penang were negative for GIV tested in National Fish Disease Research Station (NaFisH) Penang for diagnostic cases.
4	<b>Viral encephalopathy and retinopathy</b> 1. All fish samples from Kedah were negative for VNN, tested in NaFisH for diagnostic cases.
5	<b>Taura syndrome virus (TSV) (<i>Penaeus monodon</i>, <i>Litopenaeus vannamei</i>)</b> 1. TSV was not detected in all the 26 samples of postlarvae sent to Lab Industrial Resources laboratory (LIR) for routine and monitoring purposes. 2. No positive on reported cases detected by PCR although active surveillance was conducted by DoF in West and East Malaysia.



6	<p><b>White Spot Syndrome Virus (WSSV)</b></p> <ol style="list-style-type: none"> <li>Eight (8) cases of WSSV were detected in the samples sent to private laboratory for routine and monitoring purposes. It involved seven (7) juvenile <i>Penaeus monodon</i> and one (1) postlarval <i>Litopenaeus vannamei</i>.</li> </ol>
7	<p><b>Yellow head disease (YHV) (<i>P. monodon</i>, <i>Litopenaeus vannamei</i>)</b></p> <ol style="list-style-type: none"> <li>YHV was not detected in all the nine (9) samples sent to private laboratory for routine and monitoring purposes.</li> <li>No positive cases detected (PCR) although active surveillance was conducted by DoF in East Malaysia</li> </ol>
8	<p><b>Infectious hypodermal and haematopoietic necrosis virus (IHHNV) (<i>P. monodon</i>, <i>Litopenaeus vannamei</i>)</b></p> <ol style="list-style-type: none"> <li>IHHNV was detected in three (3) <i>L. vannamei</i> postlarval samples sent to private laboratory for routine and monitoring purposes.</li> <li>No positive cases detected by PCR although active surveillance was conducted by DoF in West and East Malaysia.</li> </ol>
9	<p><b>Infectious Myonecrosis (IMNV)</b></p> <ol style="list-style-type: none"> <li>IMNV was not detected in all fourteen (14) samples of <i>Penaeus monodon</i> and <i>Litopenaeus vannamei</i> postlarvae and juveniles sent to private laboratory for routine and monitoring purposes.</li> <li>No positive on reported cases detected by PCR, although active surveillance was conducted by DoF in West and East Malaysia.</li> </ol>
10	<p><b><i>Macrobrachium rosenbergii</i> Nodavirus (MrNV)</b></p> <ol style="list-style-type: none"> <li>No samples were tested for MrNV.</li> </ol>
11	<p><b>Necrotising hepatopancreatitis (NHPB)</b></p> <ol style="list-style-type: none"> <li>No samples were tested for NHPB.</li> </ol>
12	<p><b>Hepatopancreatic parvo virus disease (HPV) (<i>P. monodon</i>, <i>Litopenaeus vannamei</i>)</b></p> <ol style="list-style-type: none"> <li>18 out of 46 postlarval samples were tested positive for HPV by private laboratory for routine and monitoring purposes.</li> </ol>

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

Country: **MYANMAR**

 Period: **January - March 2013**

Item	Disease status <sup>a/</sup>			Level of diagnosis	Epidemiological comment numbers
	January	February	March		
<b>DISEASES PREVALENT IN THE REGION</b>					
<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	***	***	***		
5. Epizootic ulcerative syndrome	***	***	***		
6. Red seabream iridoviral disease	***	***	***		
7. Koi herpesvirus disease					
<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. Infection with abalone herpes-like virus	/	/	/		
4. Infection with <i>Xenohalotis californiensis</i>	/	/	/		
<b>Non OIE-listed diseases</b>					
5. Infection with <i>Marteilioides chungmuensis</i>	/	/	/		
6. Acute viral necrosis (in scallops)	/	/	/		
7. Akoya oyster disease					
<b>CRUSTACEAN DISEASES</b>					
<b>OIE-listed diseases</b>					
1. Taura syndrome	-	-	-	III	1
2. White spot disease	-	-	-	III	1
3. Yellowhead disease	-	-	-	III	
4. Infectious hypodermal and haematopoietic necrosis	-	-	-	III	1
5. Infectious myonecrosis	***	***	***		
6. White tail disease (MrNV)	***	***	***		
7. Necrotising hepatopancreatitis	***	***	***		
<b>Non OIE-listed diseases</b>					
8. Milky haemolymph disease of spiny lobster ( <i>Panulirus</i> spp.)	***	***	***		
9. <i>Monodon</i> slow growth syndrome	***	***	***		
10. Acute hepatopancreatic necrosis syndrome (AHPNS)					
<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.					

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

**LISTED BY THE OIE**

**Finfish:** Infectious salmon anaemia; Infection with *Gyrodactylus salaris*.

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

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

**NOT LISTED BY THE OIE**

**Finfish:** Channel catfish virus disease

a/ Please use the following symbols:

<p>+ Disease reported or known to be present</p> <p>+? Serological evidence and/or isolation of causative agent but no clinical diseases</p> <p>? Suspected by reporting officer but presence not confirmed</p>	<p>+ ( ) Occurrence limited to certain zones</p> <p>*** No information available</p> <p>0000 Never reported</p> <p>- Not reported (but disease is known to occur)</p> <p>(year) Year of last occurrence</p>
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b/ If there is suspicion or confirmation of any of these diseases, they must be reported immediately, because the region is considered free of these diseases

**1. Epidemiological comments:**

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

Comment No.	
1	During this period, we have received 4 samples of shrimps (2 frozen and 2 live shrimps for export) for testing for TSV, WSSV and IHHNV. All samples were found negative for the viruses.
2	Additional Note: Visited some fish farms in Yangon, Ayeyarwaddy and Bago regions during this period. Parasitic diseases were observed in some farms due to water quality problems.
3	

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

Country: **NEPAL**

Period: **January - March 2013**

Item	Disease status <sup>a/</sup>			Level of diagnosis	Epidemiological comment numbers
	Month				
	January	February	March		
<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					
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. Infection with abalone herpes-like virus	***	***	***		
4. Infection with <i>Xenohalotis californiensis</i>					
<b>Non OIE-listed diseases</b>					
5. Infection with <i>Marteilioides chungmuensis</i>	***	***	***		
6. Acute viral necrosis (in scallops)	***	***	***		
7. 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)	***	***	***		
7. Necrotising hepatopancreatitis	***	***	***		
<b>Non OIE-listed diseases</b>					
8. Milky haemolymph disease of spiny lobster ( <i>Panulirus</i> spp.)	***	***	***		
9. <i>Monodon</i> slow growth syndrome	***	***	***		
10. Acute hepatopancreatic necrosis syndrome (AHPNS)					
<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.					

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

**LISTED BY THE OIE**

**Finfish:** Infectious salmon anaemia; Infection with *Gyrodactylus salaris*.

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

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

**NOT LISTED BY THE OIE**

**Finfish:** Channel catfish virus disease

a/ Please use the following symbols:

<p>+ Disease reported or known to be present</p> <p>+? Serological evidence and/or isolation of causative agent but no clinical diseases</p> <p>? Suspected by reporting officer but presence not confirmed</p>	<p>+ ( ) Occurrence limited to certain zones</p> <p>*** No information available</p> <p>0000 Never reported</p> <p>- Not reported (but disease is known to occur)</p> <p>(year) Year of last occurrence</p>
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b/ If there is suspicion or confirmation of any of these diseases, they must be reported immediately, because the region is considered free of these diseases

**1. Epidemiological comments:**

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

Comment No.	
1	
2	
3	

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

Country: **PHILIPPINES**

 Period: **January - March 2013**

Item	Disease status <sup>a/</sup>			Level of diagnosis	Epidemiological comment numbers
	Month				
DISEASES PREVALENT IN THE REGION	January	February	March		
<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	- (2002)	- (2002)	- (2002)	I	
6. Red seabream iridoviral disease	***	***	***		
7. Koi herpesvirus disease	0000	0000	0000		
<b>Non OIE-listed diseases</b>					
8. Grouper iridoviral disease	- (2008)	- (2008)	- (2008)	III	
9. Viral encephalopathy and retinopathy	- (2007)	- (2007)	- (2007)	III	
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. Infection with abalone herpes-like virus	***	***	***		
4. Infection with <i>Xenohalotis californiensis</i>	***	***	***		
<b>Non OIE-listed diseases</b>					
5. Infection with <i>Marteilioides chungmuensis</i>	0000	0000	0000		
6. Acute viral necrosis (in scallops)	***	***	***		
7. Akoya oyster disease	***	***	***		
<b>CRUSTACEAN DISEASES</b>					
<b>OIE-listed diseases</b>					
1. Taura syndrome	0000	0000	0000	III	1
2. White spot disease	+	+	+	III	2
3. Yellowhead disease	- (1999)	- (1999)	- (1999)	III	3
4. Infectious hypodermal and haematopoietic necrosis	-	+	+	III	4
5. Infectious myonecrosis	0000	0000	0000	III	5
6. White tail disease (MrNV)	0000	0000	0000	III	
7. Necrotising hepatopancreatitis	0000	0000	0000	III	6
<b>Non OIE-listed diseases</b>					
8. Milky haemolymph disease of spiny lobster ( <i>Panulirus</i> spp.)	***	***	***		
9. <i>Monodon</i> slow growth syndrome	***	***	***		
10. Acute hepatopancreatic necrosis syndrome (AHPNS)	***	***	***		
<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.					

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

**LISTED BY THE OIE**

**Finfish:** Infectious salmon anaemia; Infection with *Gyrodactylus salaris*.

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

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

**NOT LISTED BY THE OIE**

**Finfish:** Channel catfish virus disease

a/ Please use the following symbols:

<p>+ Disease reported or known to be present</p> <p>+? Serological evidence and/or isolation of causative agent but no clinical diseases</p> <p>? Suspected by reporting officer but presence not confirmed</p>	<p>+ ( ) Occurrence limited to certain zones</p> <p>*** No information available</p> <p>0000 Never reported</p> <p>- Not reported (but disease is known to occur)</p> <p>(year) Year of last occurrence</p>
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b/ If there is suspicion or confirmation of any of these diseases, they must be reported immediately, because the region is considered free of these diseases

**1. Epidemiological comments:**

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

Comment No.	
1	<p><b>Taura Syndrome</b> was never reported despite surveillance. Forty six (46) <i>Penaeus vannamei</i>, Eleven (11) <i>Penaeus monodon</i> and one (1) <i>M.rosenbergii</i> of different stages (brood stock, adult, fry, juvenile) were analyzed using PCR test. All 58 samples showed negative results. The samples were collected from Cebu City, General Santos City, Sarangani Province, Binangonan Rizal, Davao del Sur, Pangasinan, Occidental Mindoro, Pagbilao Quezon, Sorsogon, Camarines Sur, Calaca Batangas, Lemery Batangas, Camarines Norte, Tagkawayan Quezon, Antipolo Rizal. Other samples tested were imported from Singapore, Thailand, Hawaii and USA. Examinations/Tests were conducted by the Bureau of Fisheries and Aquatic Resources (BFAR) Central Office Fish Health Laboratory.</p>
2	<p>Three hundred twenty-four (324) samples of <i>P.vannamei</i>, <i>P.monodon</i>, <i>M.rosenbergii</i>, crabs and shells of different stages (fry, juvenile, adult and brood stock) were tested using PCR. Forty five (16 <i>P.vannamei</i>, 3 <i>P.monodon</i> , 26 crabs) were positive for <b>White Spot Syndrome Virus</b>. The positive samples were from Sarangani province, General Santos City, Davao Oriental, Pagbilao Quezon, Camarines Sur, Sorsogon, Palawan and Cebu City. Examinations/Tests were conducted by the Bureau of Fisheries and Aquatic Resources (BFAR) Central Office Fish Health Laboratory and Negros Prawn Producers Cooperative.</p>
3	<p><b>Yellowhead Disease</b> was not reported at this period despite surveillance. Forty five (45) <i>P.vannamei</i>, Three (3) <i>P.monodon</i> and one (1) <i>M.rosenbergii</i> of different stages (fry, juvenile, grow out, adult and brood stock) were tested using PCR. All 49 samples showed negative results. The samples were collected from Cebu City, General Santos City, Zambales, Binangonan Rizal, Davao del Sur, Pangasinan, Occidental Mindoro, Pagbilao Quezon, Magallanes Sorsogon, Batangas. Other samples were imported from Singapore, Thailand, Hawaii and USA. . Examinations/Tests were conducted by the Bureau of Fisheries and Aquatic Resources (BFAR) Central Office Fish Health Laboratory.</p>

4	<p>Eighty-six (86) samples (12 <i>P.monodon</i>, 73 <i>P.vannamei</i>, 1 <i>M.roenbergii</i>) of different stages (fry, juvenile, adult, brood stock) were analyzed using the PCR Test. Five (5) showed positive result for <b>Infectious Hypodermal and Haematopoietic Necrosis Virus</b>. The positive samples were collected from Pagbilao Quezon, Palawan, Tagkawayan Quezon and Antipolo Rizal. . Examinations/Tests were conducted by the Bureau of Fisheries and Aquatic Resources (BFAR) Central Office Fish Health Laboratory.</p>
5	<p><b>Infectious Myonecrosis</b> was not reported despite surveillance. Forty five (45) <i>P.vannamei</i>, Two (2) <i>P.monodon</i> and one (1) <i>M.rosenbergii</i> of different stages (fry, juvenile, adult and bloodstock) were tested using PCR. All 48 samples showed negative results. The samples were collected from Cebu City, Zambales, General Santos City, Binangonan Rizal, Davao del Sur, Pagbilao Quezon and Occidental Mindoro. Other samples were imported from Singapore, Thailand and Hawaii. Examinations/Tests were conducted by the Bureau of Fisheries and Aquatic Resources (BFAR) Central Office Fish Health Laboratory.</p>
6	<p><b>Necrotising Hepatopancreatitis</b> was not reported despite surveillance. Fifty four (54)<i>P.vannamei</i>, Eleven (11) <i>P.monodon</i> and one (1) <i>M.reosenbergii</i> of various stages (fry, juvenile, adult and brood stock) were tested using PCR. All 66 samples showed negative results. The samples were collected from Cebu City, Zambales, General Santos City, Binangonan Rizal, Davao del Sur, Occidental Mindoro, Davao Oriental, Sarangani Province, Bulacan, Batangas, Camarines Norte and Tagkawayan Quezon. Other samples were imported from Singapore, Thailand and Hawaii. Examinations/Tests were conducted by the Bureau of Fisheries and Aquatic Resources (BFAR) Central Office Fish Health Laboratory.</p>

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



Country: **SINGAPORE**

 Period: **January - March 2013**

Item	Disease status <sup>a/</sup>			Level of diagnosis	Epidemiological comment numbers
	January	February	March		
<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	0000	0000	0000		
6. Red seabream iridoviral disease	(2012)	(2012)	(2012)	III	1
7. Koi herpesvirus disease	(2012 )	(2012)	(2012)	III	2
<b>Non OIE-listed diseases</b>					
8. Grouper iridoviral disease	(2012)	(2012)	+	III	1
9. Viral encephalopathy and retinopathy	(2012)	(2012)	+	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>	***	***	***		
2. Infection with <i>Perkinsus olseni</i>	***	***	***		
3. Infection with abalone herpes-like virus	***	***	***		
4. Infection with <i>Xenohalotis californiensis</i>	***	***	***		
<b>Non OIE-listed diseases</b>					
5. Infection with <i>Marteilioides chungmuensis</i>	***	***	***		
6. Acute viral necrosis (in scallops)	***	***	***		
7. Akoya oyster disease	***	***	***		
<b>CRUSTACEAN DISEASES</b>					
<b>OIE-listed diseases</b>					
1. Taura syndrome	0000	0000	0000		
2. White spot disease	(2012)	(2012)	(2012)	III	4
3. Yellowhead disease	0000	0000	0000		
4. Infectious hypodermal and haematopoietic necrosis	0000	0000	0000		
5. Infectious myonecrosis	0000	0000	0000		
6. White tail disease (MrNV)	***	***	***		
7. Necrotising hepatopancreatitis	0000	0000	0000		
<b>Non OIE-listed diseases</b>					
8. Milky haemolymph disease of spiny lobster ( <i>Panulirus</i> spp.)	***	***	***		
9. <i>Monodon</i> slow growth syndrome	***	***	***		
10. Acute hepatopancreatic necrosis syndrome (AHPNS)	0000	0000	0000		
<b>AMPHIBIAN DISEASES</b>					
<b>OIE-listed diseases</b>					
1. Infection with Ranavirus	***	***	***		
2. Infection with <i>Batrachochytrium dendrobatidis</i>	(2011)	(2011)	(2011)	III	5

ANY OTHER DISEASES OF IMPORTANCE					
1. Infectious spleen and kidney necrosis virus (ISKNV) (marine and ornamental fish)	(2012)	(2012)	+	III	1
2. <i>Aeromonas salmonicida</i> (in goldfish)	0000	0000	0000	III	6

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

**LISTED BY THE OIE**

**Finfish:** Infectious salmon anaemia; Infection with *Gyrodactylus salaris*.

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

**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	Red seabream iridovirus (RSIV) was not detected in 17 batches of marine food fish this quarter. Infectious spleen and kidney necrosis virus (ISKNV) was detected in a batch of hybrid grouper from a coastal netcage farm on 5 March 2013. Skin ulcers from a leech infestation, and protozoan parasite were seen in these fish.
2	Koi herpesvirus (KHV) was not detected in 29 batches of ornamental koi this quarter by real-time PCR. Fish tested were from surveillance programs on imported and locally farmed ornamental fish, and voluntary submissions.
3	Viral nervous necrosis virus (VNNV) was detected in a batch of diseased, imported black grouper fingerlings from a land-based nursery using a recirculating aquaculture system. The farmer was advised to remove moribund fish from the tanks. VNNV was also detected in a batch of diseased hybrid grouper juveniles from a coastal netcage farm. Multi-focal to coalescing, reddened, raised masses and blisters observed in the oral cavity and tongue of these fish were shown to be associated with an arthropod-like organism. The farmer was advised to treat the fish, to remove oral parasites, and to remove all moribund fish so as to control the spread of the disease.
4	There were no positive detections of white spot syndrome virus (WSSV) in 32 batches of crustaceans submitted this quarter, from targeted surveillance and voluntary submissions.

5	<p>A study carried out by the Wildlife Conservation Society and the National University of Singapore detected <i>Batrachochytrium dendrobatidis</i> in 4 species of frogs from aquarium shops and ponds at the Upper Pierce Road and Windsor-Venus Drive in 2011. A second survey was conducted from 2011-2012 with 494 frogs collected from the wild, nature reserves and parks, tested negative for the fungus and Ranavirus. Validation of the diagnostic assay for <i>B. dendrobatidis</i> by the Animal Health Laboratory Department is currently underway. Surveillance of <i>B. dendrobatidis</i> in farmed and ornamental frogs will be included in the National Aquatic Animal Health Surveillance Programs by end of 2013.</p>
6	<p><i>Aeromonas salmonicida</i> was not detected this quarter in all 12 batches of goldfish submitted under a targeted surveillance program for goldfish exported to Australia.</p>

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

Country: **SRI LANKA**

 Period: **January - March 2012**

Item	Disease status <sup>a/</sup>			Level of diagnosis	Epidemiological comment numbers
	Month				
DISEASES PREVALENT IN THE REGION	January	February	March		
<b>FINFISH DISEASES</b>					
<b>OIE-listed diseases</b>					
1. Epizootic haematopoietic necrosis	***	***	***	III	1
2. Infectious haematopoietic necrosis	***	***	***		
3. Spring viraemia of carp	0000	0000	0000	III	2
4. Viral haemorrhagic septicaemia	0000	0000	0000	III	3
5. Epizootic ulcerative syndrome	***	***	***		
6. Red seabream iridoviral disease	***	***	***		
7. Koi herpesvirus disease					4
<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. Infection with abalone herpes-like virus	***	***	***		
4. Infection with <i>Xenohalotis californiensis</i>					
<b>Non OIE-listed diseases</b>					
5. Infection with <i>Marteilioides chungmuensis</i>	***	***	***		
6. Acute viral necrosis (in scallops)	***	***	***		
7. Akoya oyster disease	***	***	***		
<b>CRUSTACEAN DISEASES</b>					
<b>OIE-listed diseases</b>					
1. Taura syndrome	***	***	***		
2. White spot disease	+( )	+( )	+( )	III	5
3. Yellowhead disease	?( )	?( )	?( )	III	6
4. Infectious hypodermal and haematopoietic necrosis	?( )	?( )	?( )	III	6
5. Infectious myonecrosis	***	***	***		
6. White tail disease (MrNV)	***	***	***		
7. Necrotising hepatopancreatitis	***	***	***		
<b>Non OIE-listed diseases</b>					
8. Milky haemolymph disease of spiny lobster ( <i>Panulirus</i> spp.)	***	***	***		
9. <i>Monodon</i> slow growth syndrome	***	***	***		
10. Acute hepatopancreatic necrosis syndrome (AHPNS)					
<b>AMPHIBIAN DISEASES</b>					
<b>OIE-listed diseases</b>					
1. Infection with Ranavirus	***	***	***		
2. Infection with <i>Batrachochytrium dendrobatidis</i>	***	***	***		

ANY OTHER DISEASES OF IMPORTANCE					
1. Laem Singh virus (LSV)	?	?	?	III	
2. Monodon Baculovirus (MBV)	?	?	?	III	

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

**LISTED BY THE OIE**

**Finfish:** Infectious salmon anaemia; Infection with *Gyrodactylus salaris*.

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

**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	A central Veterinary Investigation Centre (CVIC) PCR has been developed for EHN. Samples were not tested.
2	22 samples of guppy and 16 samples of carp were tested by PCR for SVC and CVIC. All the samples gave negative result. The samples were taken from aquarium from western, central and north western provinces, and these were from export samples.
3	PCR has been developed for VHS at CVIC, and no samples were tested during this reporting period.
4	A total of 56 samples from 15 batches have been tested for koi herpesvirus by PCR method at the Centre for Aquatic Disease Diagnosis and Research (CADDAR). These samples were received from the quarantine station and all the samples were negative. The samples include 45 pcs of carp, 8 pcs of guppy and 3 pcs of goldfish.
5	470 samples of <i>P. monodon</i> were tested by PCR for WSSV, and 230 samples were found positive. The testing has been carried out in the Laboratories of National Aquatic Research Agency (NARA) and National Aquatic Development Authority (NAQDA).
6	Testing of 19 samples for YHV and IHNV has been carried out by PCR method in the Laboratory of NAQDA, none of the samples gave positive result.

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

Country: **THAILAND**

 Period: **January - March 2013**

Item	Disease status <sup>a/</sup>			Level of diagnosis	Epidemiological comment numbers
	January	February	March		
<b>DISEASES PREVALENT IN THE REGION</b>					
<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	
6. Red seabream iridoviral disease	0000	0000	0000	III	
7. Koi herpesvirus disease	(2011)	(2011)	(2011)	III	
<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. Infection with abalone herpes-like virus	0000	0000	0000	II	
4. Infection with <i>Xenohalotis californiensis</i>	0000	0000	0000	II	
<b>Non OIE-listed diseases</b>					
5. Infection with <i>Marteilioides chungmuensis</i>	0000	0000	0000	II	
6. Acute viral necrosis (in scallops)	***	***	***		
7. Akoya oyster disease	***	***	***		
<b>CRUSTACEAN DISEASES</b>					
<b>OIE-listed diseases</b>					
1. Taura syndrome	-	-	-	III	
2. White spot disease	+()	+()	+()	III	1
3. Yellowhead disease	+()	+()	+()	III	2
4. Infectious hypodermal and haematopoietic necrosis	+()	+()	+()	III	3
5. Infectious myonecrosis	000	000	000	III	
6. White tail disease (MrNV)	+()	000	+()	III	4
7. Necrotising hepatopancreatitis	***	***	***		
<b>Non OIE-listed diseases</b>					
8. Milky haemolymph disease of spiny lobster ( <i>Panulirus</i> spp.)	***	***	***		
9. <i>Monodon</i> slow growth syndrome	***	***	***		
10. Acute hepatopancreatic necrosis syndrome (AHPNS)	?	+()	+()	II	5
<b>AMPHIBIAN DISEASES</b>					
<b>OIE-listed diseases</b>					
1. Infection with Ranavirus	(2011)	(2011)	(2011)	III	
2. Infection with <i>Batrachochytrium dendrobatidis</i>	0000	0000	0000	II	
<b>ANY OTHER DISEASES OF IMPORTANCE</b>					
1.					

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

**LISTED BY THE OIE**

**Finfish:** Infectious salmon anaemia; Infection with *Gyrodactylus salaris*.

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

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

**NOT LISTED BY THE OIE**

**Finfish:** Channel catfish virus disease

a/ Please use the following symbols:

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

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

**1. Epidemiological comments:**

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

Comment No.	
1	A total of 2,169 shrimp samples from shrimp farms had been tested at PCR Laboratories of the DOF under active surveillance. 52 specimens or 2.39 % recorded as PCR positive or carrying WSSV genes. Shrimp farm with positive testing results is subjected to health improvement, movement control, eradication and/or farm disinfection.
2	A total of 2,169 shrimp samples from shrimp farms had been tested at PCR Laboratories of the DOF under active surveillance. 71 specimens or 3.27 % recorded as RT-PCR positive or carrying YHV genes. Shrimp farms with positive testing results are subjected to health improvement, movement control, eradication and/or farm disinfection.
3	A total of 2,232 shrimp samples from shrimp farms had been tested at PCR Laboratories of the DOF under active surveillance. 65 specimens or 2.91 % 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.
4	A total of 450 shrimp samples from shrimp farms had been tested at PCR Laboratories of the DOF under active surveillance. 15 specimens or 3.33 % recorded as PCR positive or carrying MrNV genes. Shrimp farms with positive testing results will subject to health improvement, movement control, eradication and/or farm disinfection.
5	A total of 647 shrimp samples from shrimp farms had been tested at Histopathology Laboratories of the DOF under passive surveillance. 23 specimens or 3.55 % recorded AHPNS positives. Shrimp farms with positive testing results will subject to health improvement, movement control, eradication and/or farm disinfection

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

Country: **VIETNAM**

 Period: **January - March 2013**

Item	Disease status <sup>a/</sup>			Level of diagnosis	Epidemiological comment numbers
	January	February	March		
<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	-	-	-		
<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. Infection with abalone herpes-like virus	-	-	-		
4. Infection with <i>Xenohalotis californiensis</i>	0000	0000	0000		
<b>Non OIE-listed diseases</b>					
5. Infection with <i>Marteilioides chungmuensis</i>	0000	0000	0000		
6. Acute viral necrosis (in scallops)	0000	0000	0000		
7. 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	1
3. Yellowhead disease	-	-	-		2
4. Infectious hypodermal and haematopoietic necrosis	0000	0000	0000		
5. Infectious myonecrosis	0000	0000	0000		
6. White tail disease (MrNV)	-	-	-		
7. Necrotising hepatopancreatitis	0000	0000	0000		
<b>Non OIE-listed diseases</b>					
8. Milky haemolymph disease of spiny lobster ( <i>Panulirus</i> spp.)	-	-	-		
9. <i>Monodon</i> slow growth syndrome	-	-	-		
10. Acute hepatopancreatic necrosis syndrome (AHPNS)	+	+	+	I,II,III	3
<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>					



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

**LISTED BY THE OIE**

**Finfish:** Infectious salmon anaemia; Infection with *Gyrodactylus salaris*.

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

**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>White Spot Disease (WSD)</b></p> <p><b>Pathogen:</b> White spot syndrome virus (WSSV)  <b>Species affected:</b> <i>Penaeus monodon</i> and <i>Litopenaeus vannamei</i>  <b>Name of affected area:</b> reported in 14 provinces including Ha Tinh, Quang Tri, Quang Binh, Binh Dinh, Phu Yen, Khanh Hoa, Ninh Thuan, Ho Chi Minh City, Long An, Ben Tre, Kien Giang, Soc Trang, Bac Lieu and Ca Mau.  <b>Mortality rate:</b> medium to high  <b>Clinical signs:</b> lethargic or moribund shrimps accumulated at pond surface and edges, slow to erratic swimming behavior, overall body color often reddish, minute to large (0.5-2.0 mm diameter) white inclusions embedded in the cuticle, especially in the removed carapace held to light after scraping off attached tissue (not always seen)  <b>Control measures:</b> early harvest, strict isolation of infected ponds with movement and transport controls, disinfection of infected ponds using Calcium hypochlorite (chlorine).</p>
2	The disease was not reported in this period.

5	<p><b>Acute hepatopancreatic necrosis syndrome (AHPNS)</b></p> <p><b>Pathogen:</b> <i>Vibrio parahaemolyticus</i></p> <p><b>Name of affected area:</b> The disease is still affecting the Mekong Delta area particularly in the following provinces: Tien Giang (1.12 ha), Long An (0.9 ha) and Ca Mau 133.75 ha). The disease is also reported in two South Central coastal provinces: Phu Yen (6.1 ha) and Nin Thuan (24.74 ha).</p> <p><b>Mortality rate:</b> Mortality recorded at 20-80 days post stocking in both <i>P. monodon</i> and <i>L. vannamei</i> in intensive and semi-intensive farming systems was as high as 95%.</p> <p><b>Clinical signs:</b> lethargy, soft and darkened shells, and mottling of the carapace; pathology appears to be limited to the hepatopancreas.</p> <p><b>Control measures:</b> strict isolation of infected ponds; movement/transportation controls; use of calcium hypochlorite (Chlorine) to disinfect ponds.</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 2013)*

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. Infection with abalone herpes-like virus	3. Acute viral necrosis (in scallops)
4. Infection with <i>Xenohalotis californiensis</i>	
<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	2. Milky haemolymph disease of spiny lobster
3. Yellowhead disease	( <i>Panulirus</i> spp.)
4. Infectious hypodermal and haematopoietic necrosis	3. Acute hepatopancreatic necrosis syndrome
5. Infectious myonecrosis	(AHPNS)
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. Infection with <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>	
<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, 15<sup>th</sup> Edition, 2012.** The OIE Aquatic Animal Health Code (the Aquatic Code) sets out standards for the improvement of aquatic animal health and welfare and veterinary public health worldwide, including through standards for safe international trade in aquatic animals (amphibians, crustaceans, fish and molluscs) and their products. The health measures in the Aquatic Code should be used by the veterinary authorities of importing and exporting countries to provide for early detection, reporting and control of agents pathogenic to aquatic animals and, in the case of zoonotic diseases, for humans, and to prevent their transfer via international trade in aquatic animals and aquatic animal products, while avoiding unjustified sanitary barriers to trade. The health measures in the Aquatic Code have been formally adopted by the World Assembly of OIE Delegates, which constitutes the organisation's highest decision-making body. This 15th edition incorporates modifications to the Aquatic Code agreed at the 80th General Session in May 2012. The 2012 edition includes revised information on the following subjects: glossary; notification of diseases and epidemiological information; criteria for listing aquatic animal diseases; diseases listed by the OIE; import risk analysis; welfare of farmed fish during transport; welfare aspects of stunning and killing of farmed fish for human consumption; and disinfection of salmonid eggs for infectious haematopoietic necrosis, infectious salmon anaemia and viral haemorrhagic septicaemia. This edition includes four new chapters on communication; monitoring of the quantities and usage patterns of antimicrobial agents used in aquatic animals; development and harmonisation of national antimicrobial resistance surveillance and monitoring programmes for aquatic animals; and killing of farmed fish for disease control purposes. The Aquatic Animal Health Code is available for free download <http://www.oie.int/en/international-standard-setting/aquatic-code/access-online/>

**OIE Manual of Diagnostic Tests for Aquatic Animals, 2013.** 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/>.

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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>.

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## List of National Coordinators\*

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<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>
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\* 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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<b>Lao PDR</b>	<p>Mrs. Thongphoun Theungphachanh                  Quality Control Animal Product                  Department of Livestock and Fisheries                  DLF PO Box 811, Lao PDR                  Fax : +856 21 216380; Tel: +856 21 216380 or Mobile: +856 20 772 1115                  Email: <a href="mailto:theungphachan@yahoo.com">theungphachan@yahoo.com</a></p> <p>Dr. Bounthong Saphakdy                  Director of Fisheries Division                  Department of Livestock and Fisheries                  DLF P.O. Box 811, Lao PDR                  E-mail: <a href="mailto:saphakdy@yahoo.com">saphakdy@yahoo.com</a></p>
<b>Malaysia</b>	<p>Dr. Siti Zahrah Abdullah                  National Fish Health Research Centre                  11960 Batu Maung                  Penang, Malaysia                  Fax: +60 4 6263977; Tel: +60 4 6263922                  E-mail: <a href="mailto:siti.zahrah.abd@gmail.com">siti.zahrah.abd@gmail.com</a></p>
<b>Myanmar</b>	<p>Mr. U Saw Lah Pah Wah                  Department of Fisheries, Ministry of Livestock and Fisheries                  Sin Minn Road, Alone Township, Yangon, Myanmar                  Fax: +95 01 228-253; Tel: +95 01 283-304/705-547                  E-mail: <a href="mailto:dof@mptmail.net.mm">dof@mptmail.net.mm</a></p>



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**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.

+?() These symbols mean that confirmed infection/infestation is limited to one of more zones of the country, but no clinical disease.

?() These symbols mean the presence of the disease suspected but not confirmed in a zone.

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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

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The University of Tokyo  
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Tokyo, 113-8657, Japan  
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#### NACA

P. O. Box 1040, Kasetsart Post Office, Bangkok 10903, Thailand  
Tel: 66-2-561-1728/9 (ext. 117); Fax: 66-2-561-1727  
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#### FAO

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**Notes**

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Website: <http://www.enaca.org>

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