



QUARTERLY AQUATIC ANIMAL DISEASE REPORT (Asia and Pacific Region)

April – June 2015

Published by the

**Network of Aquaculture Centres
in Asia-Pacific**

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

**Food and Agriculture
Organization of the United Nations**

Viale delle Terme di Caracalla
Rome 00100
Italy

October 2015

Network of Aquaculture Centres in Asia-Pacific and Food and Agriculture Organization of the United Nations. October, 2015. *Quarterly Aquatic Animal Disease Report (Asia and Pacific Region)*, 2015/2, April – June 2015. NACA: Bangkok, Thailand.

Contents

Foreword	iv
Reports Received by the NACA Secretariat	
Australia	1
China	4
Hong Kong	6
India	8
Iran	10
Japan	13
Korea, Republic of	
1st quarter 2015	17
2nd quarter 2015	19
Malaysia	21
Maldives	24
Myanmar	26
Philippines	28
Singapore	31
Vietnam	34
List of Diseases under the Asia-Pacific Quarterly Aquatic Animal Disease Report	37
Recent related publications	38
List of National Coordinators	41
Instructions on how to fill in the <i>Quarterly Aquatic Animal Disease Report</i>	45

Foreword

Harmonization in ASEAN Aquaculture Certification

Markets in general and consumers in particular are increasingly looking for commodities that are responsibly produced, safe, and meet national and international standards. Production of such commodities should also address various pillars of sustainability and cover broader areas of equity and ethics in both products and production process. Compliance to these requirements has become mandatory for market access, especially in the international trade. ASEAN is one of the global centers for aquaculture production, where it contributes widely to food security, trade, export earnings and rural economies. Asia will be the home for 60% of global middle class in 2030 and ASEAN is expected to be the highest consumer of aquatic products in the world. The most significant feature of the sector is the domination of production by small-scale farmers.

Market forces are being increasingly seen as potential tools to push the aquaculture industry towards sustainability and reward those that comply. It is, therefore, very important that farmers, extension agencies, government and relevant stakeholders are better prepared to meet challenges, both in regional and international markets, where small-scale sectors of the industry often lack the capacity. One of the practical ways for small scale aquaculture farmers to contribute to the sustainability of their sector is to support their capacity building through a bottom-up approach and involve them in the (a) process of identification of risk factors to the sustainability (b) development of interventions in the form of Better Management Practices (BMPs) (c) promoting adoption of BMPs through cluster/group management approach and (d) ensuring market access through participation in aquaculture certification programs

At present, quality assurance programmes of different AMCs are marked by large differences in public and private certification systems. Several AMCs have developed and implemented commodity specific public certification systems (e.g. Thailand's ThaiGAP, Vietnam's VietGAP, Indonesia's IndoGAP, and Malaysia's MyGAP) that cover compliance to various requirements/standards. Aside from these, however, third-party private certification systems were also implemented, widely promoted and adopted by many aquaculture farmers in the region, including (but not limited to) Global GAP, ASC, Organic, ACC, Naturland, Fair Trade. Moreover, harmonized standard for shrimps (ASEAN Shrimp GAP) and food fish (ASEAN GAqP) have been endorsed and are now being implemented in the region. All these systems have good intentions and are catering to the present day market requirements. However, they are creating increasing confusion and duplication both within ASEAN markets, and in international trade partners. Despite the good intentions of these programs and the market opportunities they bring with them, there are several issues and unanswered questions that need to be carefully addressed so that quality assurance programs for aquaculture products and production process are credible, costs/benefits are shared evenly along the supply chain, and the interests of poor and small farmers are protected. Only then certification programs can be seen to contribute to aquaculture sustainability. Certification systems implemented correctly can play a major role in enhancing compliance to WTO SPS agreement and contribute to responsible trading (not trade restriction) and minimize risks associated with food safety, animal and human health.

There are still several issues and concerns with regard to certification of aquaculture products in the region. These include, among others, the need for improved harmonization of standards and the need for benchmarking, mutual recognition and equivalence. The FAO-TG was approved by the 29th session of the COFI in Feb 2011. The guidelines provide advice on developing, organizing and implementing credible aquaculture certification schemes, which are viewed as potential market-based tools for minimizing negative impacts and increasing societal and consumer benefits and confidence in the process of aquaculture production and marketing. As a follow up, FAO with support from EU has developed conformity assessment framework to assess conformity of public and private certification schemes with the FAO Aquaculture Certification Guidelines. In response to the FAO certification guidelines, some public/private certification schemes have taken steps to reorganize their respective schemes to be in conformity with the guidelines. Other initiatives like Sustainable Fisheries Partnership (SFP) and Global Sustainable Seafood Initiative (GSSI) are undertaking benchmarking exercises to promote some degree of harmonization and equivalence among various certification standards. Aquaculture improvement programs (similar to the well-known BMP/GAP programs) are being supported and promoted by some of the certification schemes (e.g. ASC) to encourage small farmers to participate in certification programs. Group certification approaches are being developed and tested across commodities and countries to enable small farmer inclusive certification programs (e.g. Thai GAP, ASC, ACC)

In response to this, NACA has collaborated with several agencies during the past 2 years, and implemented some activities towards harmonization of aquaculture certification in the ASEAN. One of which was the USAID-MARKET (Maximizing Agricultural Revenue through Knowledge, Enterprise, and Trade) project where NACA collaborated with ASEAN Network of Aquatic Animal Health Centers (ANAAHC) and Department of Fisheries Thailand for the implementation of the Aquatic Animal Health Management component. The key output of this project was the development of Standard Operating Procedures for Responsible Movement of Live Aquatic Animals in the ASEAN, which is now officially endorsed by ASEC. Another activity was the Regional Consultation Workshop on Harmonization of Aquaculture Certification in the ASEAN (funded by WTO-STDF). Status of aquaculture certification in the 10 AMCs were discussed, and a proposal is now being developed for a harmonized certification scheme for important aquaculture commodities in the ASEAN.

Reports Received by the NACA Secretariat

Country: AUSTRALIAPeriod: April - June 2015

Item	Disease status ^{al}			Level of diagnosis	Epidemiological comment numbers
	Month				
DISEASES PREVALENT IN THE REGION	April	May	June		
FINFISH DISEASES					
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	-(2012)	-(2012)	-(2012)		1
2. Infectious haematopoietic necrosis	0000	0000	0000		
3. Spring viraemia of carp (SVC)	0000	0000	0000		
4. Viral haemorrhagic septicaemia (VHS)	0000	0000	0000		
5. Infection with <i>Aphanomyces invadans</i> (EUS)	-(2014)	-(2014)	-(2014)		2
6. Red seabream iridoviral disease (RSID)	0000	0000	0000		
7. Koi herpesvirus disease (KHV)	0000	0000	0000		
Non OIE-listed diseases					
8. Grouper iridoviral disease	0000	0000	0000		
9. Viral encephalopathy and retinopathy	-(2015)	+	-(2015)	III	3
10. Enteric septicaemia of catfish	-(2014)	(2014)	(2014)		4
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with <i>Bonamia exitiosa</i>	0000	0000	0000		
2. Infection with <i>Perkinsus olseni</i>	-(2015)	-(2015)	-(2015)		5
3. Infection with abalone herpesvirus	-(2011)	-(2011)	-(2011)		6
4. Infection with <i>Xenohaliotis californiensis</i>	0000	0000	0000		
Non OIE-listed diseases					
5. Infection with <i>Marteilioides chungmuensis</i>	0000	0000	0000		
6. Acute viral necrosis (in scallops)	***	***	***		
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Taura syndrome (TS)	0000	0000	0000		
2. White spot disease (WSD)	0000	0000	0000		
3. Yellowhead disease (YHD)	0000	0000	0000		
4. Infectious hypodermal and haematopoietic necrosis (IHHN)	-(2014)	-(2014)	-(2014)		7
5. Infectious myonecrosis (IMN)	0000	0000	0000		
6. White tail disease (MrNV)	-(2008)	-(2008)	-(2008)		8
7. Necrotising hepatopancreatitis (NHP)	0000	0000	0000		
Non OIE-listed diseases					
8. <i>Monodon</i> slow growth syndrome	0000	0000	0000		
9. Acute hepatopancreatic necrosis disease (AHPND)	0000	0000	0000		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	-(2008)	-(2008)	-(2008)		9
2. Infection with <i>Batrachochytrium dendrobatidis</i>	-(2013)	-(2013)	-(2013)		10
ANY OTHER DISEASES OF IMPORTANCE					
1.					
2.					

**DISEASES PRESUMED EXOTIC TO THE REGION^b
LISTED BY THE OIE**

Finfish: Infection with HPR-deleted of HPR0 salmon anemia virus, Infection with salmon pancreas disease virus; 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	?()	Presence of the disease suspected but not confirmed in a zone
+?	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
+()	Occurrence limited to certain zones	-	Not reported (but disease is known to occur)
+?()	Confirmed infection/infestation limited to one or more zones of the country, but no clinical disease	(year)	Year of last occurrence

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

1. Epidemiological comments:

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

Comment No.	
1	Epizootic haematopoietic necrosis was not reported this period despite passive surveillance 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	Infection with <i>Aphanomyces invadans</i> (EUS) is known to have occurred previously in Queensland (last reported 2014), Western Australia (last reported 2013), New South Wales (last reported 2012), the Northern Territory (last reported 2012), Victoria (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>Viral encephalopathy and retinopathy</p> <ol style="list-style-type: none"> Reported in Queensland in May; passive surveillance; Species affected – juvenile giant grouper (<i>Epinephelus lanceolatus</i>); Clinical signs – not feeding, lethargy and anorexia; Pathogen – <i>Betanodavirus</i>; Mortality rate – minimal; Economic loss – N/A; Geographic extent – N/A; Containment measures – N/A; Laboratory confirmation – histopathology and immunohistochemistry test; Publications – None. <p>VER is known to have occurred previously in the Northern Territory (last reported 2013), Western Australia (last reported 2013), New South Wales (last reported 2010), South Australia (last reported 2010) and Tasmania (last reported 2000). Passive surveillance and never reported in Victoria. No information available in the Australian Capital Territory.</p>

4	<p>Enteric septicaemia of catfish</p> <p><i>Edwardsiella ictaluri</i> was detected in clinically normal fish from a single river in Queensland (October 2014). This is the only occurrence of <i>E. ictaluri</i> in wild fish populations in Australia. Active surveillance throughout Northern Australia has found no evidence of <i>E. ictaluri</i> in any other wild fish populations. <i>E. ictaluri</i> has been detected previously in association with imported ornamental fish including: Northern Territory in closed aquarium (last reported 2011) and in PC2 containment facilities in Tasmania (last reported 2001) and Queensland (last reported 2008). 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>Infection with <i>Perkinsus olseni</i> was not reported this period despite passive surveillance in Victoria (last reported 2015), Queensland (last reported 2014), South Australia (last reported 2013) New South Wales (last reported 2005) and Western Australia (last reported 2003). Passive surveillance and never reported in the Northern Territory and Tasmania. No information available for the Australian Capital Territory (susceptible species not present and no marine water responsibility).</p>
6	<p>Infection with abalone herpesvirus (abalone viral ganglioneuritis) 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>Infectious hypodermal and haematopoietic necrosis virus was not reported this period but is known to have occurred previously in Queensland (last reported 2014) and the 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>White tail disease 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 (susceptible species not present).</p>
9	<p>Infection with ranavirus 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>Infection with <i>Batrachochytrium dendrobatidis</i> was not reported this period despite passive surveillance in Tasmania (last reported 2013), 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):

The Australian Aquatic Veterinary Emergency Plan (AQUAVETPLAN) disease strategy manuals for Viral haemorrhagic septicaemia (January) and Ostereid herpesvirus-1 microvariant (April), and the revised Enterprise Manual (May) were published on the Department of Agriculture website in 2015 (<http://www.agriculture.gov.au/aquavetplan>).

Country: CHINA

Period: April - June 2015

Item	Disease status ^{at}			Level of diagnosis	Epidemiological comment numbers
	Month				
DISEASES PREVALENT IN THE REGION	April	May	June		
FINFISH DISEASES					
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	0000	0000	0000		
2. Infectious haematopoietic necrosis	+?()	***	***		
3. Spring viraemia of carp (SVC)	+?()	***	***		
4. Viral haemorrhagic septicaemia (VHS)	0000	0000	0000		
5. Infection with <i>Aphanomyces invadans</i> (EUS)	0000	0000	0000		
6. Red seabream iridoviral disease (RSID)	0000	0000	0000		
7. Koi herpesvirus disease (KHV)	***	+?()	***		
Non OIE-listed diseases					
8. Grouper iridoviral disease	0000	0000	0000		
9. Viral encephalopathy and retinopathy	0000	0000	0000		
10. Enteric septicaemia of catfish	+?()	***	***		
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with <i>Bonamia exitiosa</i>	0000	0000	0000		
2. Infection with <i>Perkinsus olseni</i>	0000	0000	0000		
3. Infection with abalone herpesvirus	0000	0000	0000		
4. Infection with <i>Xenohaliotis californiensis</i>	0000	0000	0000		
Non OIE-listed diseases					
5. Infection with <i>Marteilioides chungmuensis</i>	0000	0000	0000		
6. Acute viral necrosis (in scallops)	0000	0000	0000		
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Taura syndrome (TS)	***	***	***		
2. White spot disease (WSD)	+ ()	+ ()	+ ()		
3. Yellowhead disease (YHD)	+?()	***	***		
4. Infectious hypodermal and haematopoietic necrosis (IHHN)	***	+?()	+?()		
5. Infectious myonecrosis (IMN)	***	***	***		
6. White tail disease (MrNV)	***	***	***		
7. Necrotising hepatopancreatitis (NHP)	0000	0000	0000		
Non OIE-listed diseases					
8. <i>Monodon</i> slow growth syndrome	0000	0000	0000		
9. Acute hepatopancreatic necrosis disease (AHPND)	***	***	+?()		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	0000	0000	0000		
2. Infection with <i>Batrachochytrium dendrobatidis</i>	0000	0000	0000		
ANY OTHER DISEASES OF IMPORTANCE					
1. CyHV-2	+ ()	+ ()	+ ()		
2.					

**DISEASES PRESUMED EXOTIC TO THE REGION^b
LISTED BY THE OIE**

Finfish: Infection with HPR-deleted of HPR0 salmon anemia virus, Infection with salmon pancreas disease virus; 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	?()	Presence of the disease suspected but not confirmed in a zone
+?	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
+()	Occurrence limited to certain zones	-	Not reported (but disease is known to occur)
+?()	Confirmed infection/infestation limited to one or more zones of the country, but no clinical disease	(year)	Year of last occurrence

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

1. Epidemiological comments:

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

Comment No.	
1	
2	

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

Country: **HONG KONG SAR, CHINA**

 Period: **April - June 2015**

Item	Disease status ^{at}			Level of diagnosis	Epidemiological comment numbers
	Month				
DISEASES PREVALENT IN THE REGION	April	May	June		
FINFISH DISEASES					
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	0000	0000	0000	II	
2. Infectious haematopoietic necrosis	0000	0000	0000	III	
3. Spring viraemia of carp (SVC)	0000	0000	0000	III	
4. Viral haemorrhagic septicaemia (VHS)	0000	0000	0000	III	
5. Infection with <i>Aphanomyces invadans</i> (EUS)	0000	0000	0000	III	
6. Red seabream iridoviral disease (RSID)	-	-	-	III	
7. Koi herpesvirus disease (KHV)	-	-	-	III	
Non OIE-listed diseases					
8. Grouper iridoviral disease	-	-	-	III	
9. Viral encephalopathy and retinopathy	-	-	-	III	
10. Enteric septicaemia of catfish	0000	0000	0000	II	
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with <i>Bonamia exitiosa</i>	0000	0000	0000	II	
2. Infection with <i>Perkinsus olseni</i>	0000	0000	0000	II	
3. Infection with abalone herpesvirus	0000	0000	0000	II	
4. Infection with <i>Xenohaliotis californiensis</i>	0000	0000	0000	II	
Non OIE-listed diseases					
5. Infection with <i>Marteilioides chungmuensis</i>	0000	0000	0000	II	
6. Acute viral necrosis (in scallops)	0000	0000	0000	II	
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Taura syndrome (TS)	0000	0000	0000	III	
2. White spot disease (WSD)	-	-	-	III	
3. Yellowhead disease (YHD)	0000	0000	0000	III	
4. Infectious hypodermal and haematopoietic necrosis (IHHN)	0000	0000	0000	II	
5. Infectious myonecrosis (IMN)	0000	0000	0000	II	
6. White tail disease (MrNV)	0000	0000	0000	II	
7. Necrotising hepatopancreatitis (NHP)	0000	0000	0000	II	
Non OIE-listed diseases					
8. <i>Monodon</i> slow growth syndrome	0000	0000	0000	II	
9. Acute hepatopancreatic necrosis disease (AHPND)	0000	0000	0000	II	
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	0000	0000	0000	II	
2. Infection with <i>Batrachochytrium dendrobatidis</i>	0000	0000	0000	II	
ANY OTHER DISEASES OF IMPORTANCE					
1.					
2.					

**DISEASES PRESUMED EXOTIC TO THE REGION^b
LISTED BY THE OIE**

Finfish: Infection with HPR-deleted of HPR0 salmon anemia virus, Infection with salmon pancreas disease virus; 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	?()	Presence of the disease suspected but not confirmed in a zone
+?	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
+()	Occurrence limited to certain zones	-	Not reported (but disease is known to occur)
+?()	Confirmed infection/infestation limited to one or more zones of the country, but no clinical disease	(year)	Year of last occurrence

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

1. Epidemiological comments:

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

Comment No.	
1	
2	
3	

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

Country: **INDIA**

 Period: **April - June 2015**

Item	Disease status ^{at}			Level of diagnosis	Epidemiological comment numbers
	Month				
DISEASES PREVALENT IN THE REGION	April	May	June		
FINFISH DISEASES					
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	0000	0000	0000		
2. Infectious haematopoietic necrosis	0000	0000	0000		
3. Spring viraemia of carp (SVC)	0000	0000	0000		
4. Viral haemorrhagic septicaemia (VHS)	0000	0000	0000		
5. Infection with <i>Aphanomyces invadans</i> (EUS)	-	-	-		
6. Red seabream iridoviral disease (RSID)	0000	0000	0000		
7. Koi herpesvirus disease (KHV)	0000	0000	0000		
Non OIE-listed diseases					
8. Grouper iridoviral disease	0000	0000	0000		
9. Viral encephalopathy and retinopathy	-	-	-		
10. Enteric septicaemia of catfish	0000	0000	0000		
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with <i>Bonamia exitiosa</i>	0000	0000	0000		
2. Infection with <i>Perkinsus olseni</i>	+	-	-		1
3. Infection with abalone herpesvirus	0000	0000	0000		
4. Infection with <i>Xenohaliotis californiensis</i>	0000	0000	0000		
Non OIE-listed diseases					
5. Infection with <i>Marteilioides chungmuensis</i>	0000	0000	0000		
6. Acute viral necrosis (in scallops)	0000	0000	0000		
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Taura syndrome (TS)	0000	0000	0000		
2. White spot disease (WSD)	+()	+()	+()	III	2
3. Yellowhead disease (YHD)	***	***	***		
4. Infectious hypodermal and haematopoietic necrosis (IHHN)	+()	-	-	III	3
5. Infectious myonecrosis (IMN)	0000	0000	0000		
6. White tail disease (MrNV)	-	-	-		
7. Necrotising hepatopancreatitis (NHP)	0000	0000	0000		
Non OIE-listed diseases	0000	0000	0000		
8. <i>Monodon</i> slow growth syndrome					
9. Acute hepatopancreatic necrosis disease (AHPND)	-	-	-		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	0000	0000	0000		
2. Infection with <i>Batrachochytrium dendrobatidis</i>	0000	0000	0000		
ANY OTHER DISEASES OF IMPORTANCE					
1.					
2.					

**DISEASES PRESUMED EXOTIC TO THE REGION^b
LISTED BY THE OIE**

Finfish: Infection with HPR-deleted of HPR0 salmon anemia virus, Infection with salmon pancreas disease virus; 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	?()	Presence of the disease suspected but not confirmed in a zone
+?	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
+()	Occurrence limited to certain zones	-	Not reported (but disease is known to occur)
+?()	Confirmed infection/infestation limited to one or more zones of the country, but no clinical disease	(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	Infection with <i>Perkinsus olseni</i> was observed in farmed <i>Perna viridis</i> in Kasaragod District of Kerala. <i>P. olseni</i> was also detected in <i>Paphia malabarica</i> in Kasaragod District of Kerala.
2	WSSV was detected in <i>Litopenaeus vannamei</i> from Nellore, Guntur, Krishna, East Godavari and West Godavari districts in Andhra Pradesh; East Medinapur, North 24- and South 24 Pargana districts of West Bengal; Balasore and Bhadrak districts of Odisha; Kanchipuram, Thanjavur, Cuddalore, Villupuram, Ramnad, Pudukkottai and Nagapattinam districts of Tamil Nadu; Uttar Kannada and Udipi districts of Karnataka; Raigad and Palghar districts of Maharashtra; Navsari district of Gujarat, and in <i>Penaeus monodon</i> from Kannur and Thrissur districts of Kerala; Balasore and Bhadrak districts of Odisha; North and South Goa; Uttar Kannada and Udipi districts of Karnataka; East Medinipur, North 24- and South 24 Paraganas districts of West Bengal on basis of level III diagnosis.
3	IHHNV was reported from <i>Penaeus monodon</i> in Uttar Kannada district of Karnataka.

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

The Prevention and Control of Infectious and Contagious Diseases in Animals Act, 2009 has been suitably amended to cover aquatic animal diseases vide the Government of India Notifications No. S.O. 995(E) and No. S.O. 996(E) dated 1st April, 2014.

Country: **I.R. IRAN**Period: **April - June 2015**

Item	Disease status ^{at}			Level of diagnosis	Epidemiological comment numbers
	Month				
DISEASES PREVALENT IN THE REGION	April	May	June		
FINFISH DISEASES					
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	0000	0000	0000		
2. Infectious haematopoietic necrosis	+	+	+	III	1
3. Spring viraemia of carp (SVC)	-	-	-		
4. Viral haemorrhagic septicaemia (VHS)	+	+	+	III	2
5. Infection with <i>Aphanomyces invadans</i> (EUS)	0000	0000	0000		
6. Red seabream iridoviral disease (RSID)	0000	0000	0000		
7. Koi herpesvirus disease (KHV)	0000	0000	0000		
Non OIE-listed diseases					
8. Grouper iridoviral disease	0000	0000	0000		
9. Viral encephalopathy and retinopathy	0000	0000	0000		
10. Enteric septicaemia of catfish	***	***	***		
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with <i>Bonamia exitiosa</i>	0000	0000	0000		
2. Infection with <i>Perkinsus olseni</i>	0000	0000	0000		
3. Infection with abalone herpesvirus	0000	0000	0000		
4. Infection with <i>Xenohaliotis californiensis</i>	0000	0000	0000		
Non OIE-listed diseases					
5. Infection with <i>Marteilioides chungmuensis</i>	0000	0000	0000		
6. Acute viral necrosis (in scallops)	0000	0000	0000		
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Taura syndrome (TS)	0000	0000	0000		
2. White spot disease (WSD)	+	+	+	III	3
3. Yellowhead disease (YHD)	0000	0000	0000		
4. Infectious hypodermal and haematopoietic necrosis (IHHN)	0000	0000	0000		
5. Infectious myonecrosis (IMN)	0000	0000	0000		
6. White tail disease (MrNV)	***	***	***		
7. Necrotising hepatopancreatitis (NHP)	0000	0000	0000		
Non OIE-listed diseases					
8. <i>Monodon</i> slow growth syndrome	***	***	***		
9. Acute hepatopancreatic necrosis disease (AHPND)	***	***	***		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	***	***	***		
2. Infection with <i>Batrachochytrium dendrobatidis</i>	***	***	***		
ANY OTHER DISEASES OF IMPORTANCE					
1.					
2.					

<p>DISEASES PRESUMED EXOTIC TO THE REGION^b LISTED BY THE OIE Finfish: Infection with HPR-deleted of HPR0 salmon anemia virus, Infection with salmon pancreas disease virus; Infection with <i>Gyrodactylus salaris</i>. Molluscs: Infection with <i>Bonamia ostreae</i>; <i>Marteilia refringens</i>; <i>Perkinsus marinus</i>. Crustaceans: Crayfish plague (<i>Aphanomyces astaci</i>). NOT LISTED BY THE OIE Finfish: Channel catfish virus disease</p>			
<p>a/ Please use the following symbols:</p>			
		?()	Presence of the disease suspected but not confirmed in a zone
+	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)
+()	Occurrence limited to certain zones	(year)	Year of last occurrence
+?()	Confirmed infection/infestation limited to one or more zones of the country, but no clinical disease		
<p>b/ If there is suspicion or confirmation of any of these diseases, they must be reported immediately, because the region is considered free of these diseases</p>			

1. Epidemiological comments:

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

Comment No.	
1	<p>IHN was reported in April to June in two provinces: propagation center in Chaharmahal&Bakhtiari; and, propagation center in Khozestan.</p> <ol style="list-style-type: none"> Origin of the disease: still unknown, case is under investigation; Species affected – <i>Onchorrhynchus mykiss</i> (Rainbow trout), 2-5 months old; Clinical signs – mass mortality, lethargic swimming with intermittent bouts of frenzied, abnormal activity, pinpoint haemorrhages in visceral organs, pale gills; Pathogen – IHNV; Mortality rate – 20-30%; Economic loss – not calculated yet Geographic extent – Chaharmahal & Bakhtiari and Khozestan; Control measures – emergency harvest, stamping out of juveniles, following; Laboratory confirmation – histopathology, nested-PCR and cell culture at Centre of Veterinary Laboratory (CVL); Publications – None.
2	<p>VHS reported in April to June in three provinces: 2 fish farms in Kordestan; one farm in Ardabil; and, one farm in Ilam.</p> <ol style="list-style-type: none"> Origin of the disease: still unknown, case is under investigation; Species affected – <i>Onchorrhynchus mykiss</i> (Rainbow trout), 5 months old; Clinical signs –pinpoint haemorrhages in visceral organs, pale gills, ascites, exophthalmia, bleeding under the skin around the base of pectoral and pelvic fins; Pathogen – VHSV; Mortality rate – 10-30%; Economic loss – not calculated yet Geographic extent – Kordestan, Ardabil and Ilam; Control measures – emergency harvest, stamping out of juveniles, following; Laboratory confirmation – Real-time and nested PCR, ELISA, histopathology; confirmed by Centre of Veterinary Laboratory (CVL) and Mashhad PCR Lab; Publications – None.

3	<p>By implementation of active surveillance system in shrimp farms, WSSV was detected in June in two complex farm of Boierat and Helleh (Bushehr Province).</p> <ol style="list-style-type: none"> 1. Origin of the disease: still unknown, under study; 2. Species affected – <i>L. vannamei</i>, 5 months old; 3. Clinical signs – sudden decrease in feeding, swimming near the pond edge, reddish body, white spot on cephalothorax, and sudden death; 4. Pathogen – WSSV; 5. Mortality rate – not determined (morbidity rate was near 51%) 6. Economic loss – - 7. Geographic extent – Bushehr province; 8. Control measures – two ponds were disinfected with 40 ppm Calcium Chloride; all other ponds were immediately harvested; 9. Laboratory confirmation – nested PCR; confirmed by National Shrimp Laboratory in Bushehr; 10. Publications – None.
---	--

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

Country: **JAPAN**

 Period: **April - June 2015**

Item	Disease status ^{at}			Level of diagnosis	Epidemiological comment numbers
	Month				
DISEASES PREVALENT IN THE REGION	January	February	March		
FINFISH DISEASES					
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	0000	0000	0000	I	
2. Infectious haematopoietic necrosis	+	+	+	I,II,III	1
3. Spring viraemia of carp (SVC)	0000	0000	0000	I	
4. Viral haemorrhagic septicaemia (VHS)	+	-(2015)	-(2015)	I,III	2
5. Infection with <i>Aphanomyces invadans</i> (EUS)	-(2014)	-(2014)	-(2014)	I	
6. Red seabream iridoviral disease (RSID)	-(2014)	+()	+	II,III	3
7. Koi herpesvirus disease (KHV)	+()	+	+	III	4
Non OIE-listed diseases					
8. Grouper iridoviral disease	0000	0000	0000	I	
9. Viral encephalopathy and retinopathy	-(2014)	-(2014)	+()	III	5
10. Enteric septicaemia of catfish	-(2010)	-(2010)	-(2010)	I	
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with <i>Bonamia exitiosa</i>	0000	0000	0000	I	
2. Infection with <i>Perkinsus olseni</i>	-(2007)	-(2007)	-(2007)	I	
3. Infection with abalone herpesvirus	0000	0000	0000	I	
4. Infection with <i>Xenohaliotis californiensis</i>	-(2015)	-(2015)	-(2015)	III	
Non OIE-listed diseases					
5. Infection with <i>Marteilioides chungmuensis</i>	-(2014)	-(2014)	-(2014)	I	
6. Acute viral necrosis (in scallops)	0000	0000	0000	I	
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Taura syndrome (TS)	0000	0000	0000	I	
2. White spot disease (WSD)	+()	+?()	-(2015)	III	6
3. Yellowhead disease (YHD)	0000	0000	0000	I	
4. Infectious hypodermal and haematopoietic necrosis (IHHN)	0000	0000	0000	I	
5. Infectious myonecrosis (IMN)	0000	0000	0000	I	
6. White tail disease (MrNV)	0000	0000	0000	I	
7. Necrotising hepatopancreatitis (NHP)	0000	0000	0000	I	
Non OIE-listed diseases					
8. <i>Monodon</i> slow growth syndrome	0000	0000	0000	I	
9. Acute hepatopancreatic necrosis disease (AHPND)	0000	0000	0000	I	
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	-(2012)	-(2012)	-(2012)	I	
2. Infection with <i>Batrachochytrium dendrobatidis</i>	-(2009)	-(2009)	-(2009)	I	
ANY OTHER DISEASES OF IMPORTANCE					
1.					
2.					

**DISEASES PRESUMED EXOTIC TO THE REGION^b
LISTED BY THE OIE**

Finfish: Infection with HPR-deleted of HPR0 salmon anemia virus, Infection with salmon pancreas disease virus; 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	?()	Presence of the disease suspected but not confirmed in a zone
+?	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
+()	Occurrence limited to certain zones	-	Not reported (but disease is known to occur)
+?()	Confirmed infection/infestation limited to one or more zones of the country, but no clinical disease	(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>Infectious haematopoietic necrosis (IHN)</p> <ol style="list-style-type: none"> Reported in 13 prefectures; Species affected – Amago (<i>Onchorynchus rhodorus</i>), masou (<i>O. masou</i>), rainbow trout (<i>O. mykiss</i>), rainbow trout (4n) x brown trout (<i>Salmo trutta</i>); Disease characteristics – mortality; lethargy; pale gills, liver and kidney (anemia); threadbare fins; darkening of the skin; exophthalmia; petechial haemorrhages internally and externally; enlargement of the pancreas; ulcer; Pathogen – Infectious haematopoietic necrosis virus; Mortality rate – 0.7-85%; Economic loss –; Geographic extent – Hokkaido, Honshu; Preventive/control measures – disinfection of equipment and tanks; culling of dead fish; use of disinfected eggs; early harvest; feed restriction Laboratory confirmation – gross clinical observation, histopathology, PCR, RT-PCR and/or isolation of the virus by prefectural research laboratories; Publications – None.
2	<p>Viral haemorrhagic septicaemia (VHS)</p> <ol style="list-style-type: none"> Reported in 2 prefectures; Species affected – Red seabream (<i>Pagrus major</i>); Disease characteristics – mortality; pale gills; petechiae on the gills; Pathogen – VHSV; Mortality rate – 0.03-10.0 %; Economic loss –; Geographic extent – Honshu and Shikoku; Preventive/control measures – feed restriction, removal of dead fish, movement control; Laboratory confirmation – gross clinical observation or PCR by prefectural research laboratories; Publications – None.

<p>3</p>	<p>Red seabream iridoviral disease (RSID)</p> <ol style="list-style-type: none"> 1. Reported in 3 prefectures; 2. Species affected – Greater amberjack (<i>Seriola dumerili</i>); 3. Disease characteristics – mortality; enlargement of spleen; pale gills; petechial haemorrhages in the gills; haemorrhages in internal organs; 4. Pathogen – Red seabream iridovirus; 5. Mortality rate – 25%; 6. Economic loss –; 7. Geographic extent – Shikoku and Kyushu; 8. Preventive/control measures – removal of infected and dead fish, feed restriction; 9. Laboratory confirmation – histopathology or PCR by prefectural or fisheries cooperative research laboratory; 10. Publications – None.
<p>4</p>	<p>Koi herpesvirus disease (KHV)</p> <ol style="list-style-type: none"> 1. Reported in 5 prefectures; 2. Species affected – Koi carp and common carp (<i>Cyprinus carpio</i>); 3. Disease characteristics – mortality, pale gills, exophthalmia, discoloration; 4. Pathogen – Koi herpesvirus; 5. Mortality rate – 11-100%; 6. Economic loss –; 7. Geographic extent – Honshu and Shikoku; 8. Preventive/control measures – movement control, culling of infected fish, disinfection of ponds; 9. Laboratory confirmation – PCR by National Research Institute of Aquaculture, Japan Fisheries Resource Conservation Association and/or prefectural research laboratories; 10. Publications – website of Ministry of Agriculture, Forestry and Fisheries (MAFF) and prefectures.
<p>5</p>	<p>Viral encephalopathy and retinopathy</p> <ol style="list-style-type: none"> 1. Reported in 1 prefecture; 2. Species affected – Kelp grouper (<i>Epinephelus moara</i>); 3. Disease characteristics – mortality; 4. Pathogen – Betanodavirus; 5. Mortality rate – 1.4%; 6. Economic loss –; 7. Geographic extent – Honshu; 8. Preventive/control measures – culling of infected fish; 9. Laboratory confirmation – RT-PCR by prefectural research laboratory; <p>Publications – None.</p>

6	<p>White spot disease (WSD)</p> <ol style="list-style-type: none"> 1. Reported in 2 prefectures; 2. Species affected – Kuruma prawn (<i>Marsupenaeus japonicus</i>); 3. Disease characteristics – none; 4. Pathogen – White spot syndrome virus; 5. Mortality rate – ; 6. Economic loss –; 7. Geographic extent – Honshu and Kyushu; 8. Preventive/control measures – culling of infected eggs and shrimps; disinfection of equipment, ponds and facilities; 9. Laboratory confirmation – PCR by National Research Institute of Aquaculture or prefectural research laboratory; 10. Publications – None.
---	---

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

Country: **KOREA, REPUBLIC OF**Period: **January - March 2015**

Item	Disease status ^{al}			Level of diagnosis	Epidemiological comment numbers
	Month				
DISEASES PREVALENT IN THE REGION	January	February	March		
FINFISH DISEASES					
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	0000	0000	0000		
2. Infectious haematopoietic necrosis	-	-	-	III	
3. Spring viraemia of carp (SVC)	0000	0000	0000		
4. Viral haemorrhagic septicaemia (VHS)	+	-	-	III	1
5. Infection with <i>Aphanomyces invadans</i> (EUS)	0000	0000	0000		
6. Red seabream iridoviral disease (RSID)	-	-	-	III	
7. Koi herpesvirus disease (KHV)	-	-	-	III	
Non OIE-listed diseases					
8. Grouper iridoviral disease	0000	0000	0000		
9. Viral encephalopathy and retinopathy	-	-	-	III	
10. Enteric septicaemia of catfish	0000	0000	0000		
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with <i>Bonamia exitiosa</i>	0000	0000	0000		
2. Infection with <i>Perkinsus olseni</i>	-	-	-	III	
3. Infection with abalone herpes-like virus	0000	0000	0000		
4. Infection with <i>Xenohaliotis californiensis</i>	0000	0000	0000		
Non OIE-listed diseases					
5. Infection with <i>Marteilioides chungmuensis</i>	-	-	-	III	
6. Acute viral necrosis (in scallops)	0000	0000	0000		
CRUSTACEAN DISEASES					
OIE-listed diseases					
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		
Non OIE-listed diseases					
8. <i>Monodon</i> slow growth syndrome	0000	0000	0000		
9. Acute hepatopancreatic necrosis disease (AHPND)	0000	0000	0000		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	0000	0000	0000		
2. Infection with <i>Batrachochytrium dendrobatidis</i>	?	?	?		
ANY OTHER DISEASES OF IMPORTANCE					
1.					

DISEASES PRESUMED EXOTIC TO THE REGION^b

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>
---	---

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>VHS</p> <ol style="list-style-type: none"> 1. Reported in: Seogwipo of Jeju-do in January; 2. Species affected – <i>Paralichthys olivaceus</i> (Olive flounder); 3. Clinical signs –; 4. Pathogen – VHSV; 5. Mortality rate – low ($\leq 1\%$), decreasing, 6. Economic loss – 7. Geographic extent – limited to one farm; 8. Control measures – prohibition of movement, disinfection of equipment and facilities;; 9. Laboratory confirmation – PCR method and sequencing by National Fisheries Research and Development Institute (NFRDI); 10. Publications – None.
2	

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

Country: **KOREA, REPUBLIC OF**

 Period: **April - June 2015**

Item	Disease status ^{at}			Level of diagnosis	Epidemiological comment numbers
	Month				
DISEASES PREVALENT IN THE REGION	April	May	June		
FINFISH DISEASES					
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	0000	0000	0000		
2. Infectious haematopoietic necrosis	-	-	-	III	
3. Spring viraemia of carp (SVC)	0000	0000	0000		
4. Viral haemorrhagic septicaemia (VHS)	+	+	-	III	1
5. Infection with <i>Aphanomyces invadans</i> (EUS)	0000	0000	0000		
6. Red seabream iridoviral disease (RSID)	-	-	-	III	
7. Koi herpesvirus disease (KHV)	-	-	-	III	
Non OIE-listed diseases					
8. Grouper iridoviral disease	0000	0000	0000		
9. Viral encephalopathy and retinopathy	-	-	-	III	
10. Enteric septicaemia of catfish	0000	0000	0000		
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with <i>Bonamia exitiosa</i>	0000	0000	0000		
2. Infection with <i>Perkinsus olseni</i>	-	-	-	III	
3. Infection with abalone herpes-like virus	0000	0000	0000		
4. Infection with <i>Xenohaliotis californiensis</i>	0000	0000	0000		
Non OIE-listed diseases					
5. Infection with <i>Marteilioides chungmuensis</i>	-	-	-	III	
6. Acute viral necrosis (in scallops)	0000	0000	0000		
CRUSTACEAN DISEASES					
OIE-listed diseases					
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	+	-	III	2
6. White tail disease (MrNV)	0000	0000	0000		
7. Necrotising hepatopancreatitis	0000	0000	0000		
Non OIE-listed diseases					
8. <i>Monodon</i> slow growth syndrome	0000	0000	0000		
9. Acute hepatopancreatic necrosis disease (AHPND)	0000	0000	0000		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	0000	0000	0000		
2. Infection with <i>Batrachochytrium dendrobatidis</i>	?	?	?		
ANY OTHER DISEASES OF IMPORTANCE					
1.					

DISEASES PRESUMED EXOTIC TO THE REGION^b

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>
---	---

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>VHS</p> <ol style="list-style-type: none"> 1. Reported in: Pohang-si of Gyeongsangbuk-do in April, and in Seogwipo-si of Jeju-do from April to May; 2. Species affected – <i>Paralichthys olivaceus</i> (Olive flounder); 3. Clinical signs – darkening of body, ascites; 4. Pathogen – VHSV; 5. Mortality rate – low ($\leq 1\%$) ~12,000 fishes/farm; total death of $\leq 17,000$ fishes, 6. Economic loss – 7. Geographic extent – limited to two areas (Gyeongsangbuk-do and Jeju-do); 8. Control measures – prohibition of movement, disinfection of equipment and facilities;; 9. Laboratory confirmation – PCR method and sequencing by National Fisheries Reserch and Development Institute (NFRDI); 10. Publications – None.
2	<p>IMN</p> <ol style="list-style-type: none"> 1. Reported in: Taeon-gun of Chungcheongnam-do in May; 2. Species affected – whiteleg shrimp (<i>Litopenaeus vannamei</i>) 3. Clinical signs – - 4. Pathogen – IMNV; 5. Mortality rate – high (40%); total death – 200,000 subadults (3-4 cm)/farm 6. Economic loss – 7. Geographic extent – limited to one farm; 8. Control measures – destruction, prohibition of movement, disinfection of equipment and facilities; 9. Laboratory confirmation – PCR method and sequencing by NFRDI; 10. Publications – None.

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

Country: MALAYSIA
Period: April - June 2015

Item	Disease status ^{at}			Level of diagnosis	Epidemiological comment numbers
	Month				
DISEASES PREVALENT IN THE REGION	April	May	June		
FINFISH DISEASES					
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	0000	0000	0000		
2. Infectious haematopoietic necrosis	0000	0000	0000	I,II,III	
3. Spring viraemia of carp (SVC)	0000	0000	0000	I,II,III	1
4. Viral haemorrhagic septicaemia (VHS)	0000	0000	0000	I,II,III	
5. Infection with <i>Aphanomyces invadans</i> (EUS)	(1986)	(1986)	(1986)	I,II	
6. Red seabream iridoviral disease (RSID)	+	-	-	I,II,III	2
7. Koi herpesvirus disease (KHV)	-	+	-	I,II,III	3
Non OIE-listed diseases					
8. Grouper iridoviral disease	-	-	-	III	4
9. Viral encephalopathy and retinopathy	-	-	-	III	5
10. Enteric septicaemia of catfish	0000	0000	0000		
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with <i>Bonamia exitiosa</i>	0000	0000	0000		
2. Infection with <i>Perkinsus olseni</i>	0000	0000	0000	III	
3. Infection with abalone herpes-like virus	0000	0000	0000		
4. Infection with <i>Xenohaliotis californiensis</i>					
Non OIE-listed diseases					
5. Infection with <i>Marteilioides chungmuensis</i>	0000	0000	0000		
5. Acute viral necrosis (in scallops)	0000	0000	0000		
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Taura syndrome (TS)	-	-	-	I,III	6
2. White spot disease (WSD)	+	-	-	I,III	7
3. Yellowhead disease (YHD)	-	-	-	I,III	8
4. Infectious hypodermal and haematopoietic necrosis (IHHN)	-	+	-	I,III	9
5. Infectious myonecrosis (IMN)	-	-	-	III	10
6. White tail disease (MrNV)	-	-	-	III	11
7. Necrotising hepatopancreatitis (NHP)	-	-	-	III	12
Non OIE-listed diseases					
8. <i>Monodon</i> slow growth syndrome	0000	0000	0000		
9. Acute hepatopancreatic necrosis disease (AHPND)	0000	0000	0000		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	-	-	-		
2. Infection with <i>Batrachochytrium dendrobatidis</i>	0000	0000	0000		
ANY OTHER DISEASES OF IMPORTANCE					

**DISEASES PRESUMED EXOTIC TO THE REGION^b
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.	
1	Spring viraemia of carp 1. No positive cases detected (PCR) during DoF active surveillance programme
2	Red seabream iridoviral disease 1. One positive case detected (PCR) on April at P. Pinang in <i>Lutjanus campechanus</i> , during DoF active surveillance programme
3	Koi herpesvirus disease 2. One positive case detected (PCR) on May at Perak, during DoF active surveillance programme
4	Grouper iridoviral disease (GIV) 1. No positive cases detected (PCR) during DoF active surveillance programme
5	Viral encephalopathy and retinopathy 1. No positive cases detected (PCR) during DoF active surveillance programme
6	Taura syndrome virus (TSV) (<i>Penaeus monodon</i> , <i>Litopenaeus vannamei</i>) 1. No positive cases detected (PCR) during DoF active surveillance programme

7	<p>White Spot Syndrome Virus (WSSV)</p> <p>1. One (1) case of WSSV was detected in April from Perak in <i>Penaeus monodon</i> samples sent to Private Laboratory for routine and monitoring purposes;</p>
8	<p>Yellow head disease (YHV) (<i>P. monodon</i>, <i>Litopenaeus vannamei</i>)</p> <p>1. No positive cases detected (PCR) during DoF active surveillance programme</p>
9	<p>Infectious hypodermal and haematopoietic necrosis virus (IHHNV) (<i>Macrobrachium rosenbergii</i>, <i>P. monodon</i>, <i>L. vannamei</i>)</p> <p>1. Five (5) cases of IHHNV were detected on May from 2 farms in Selangor (2 cases), in Terengganu (2 cases; <i>L. vannamei</i>) and in Perak (1 case; <i>P. monodon</i>) sent to Private Laboratory for routine and monitoring purposes.</p>
10	<p>Infectious Myonecrosis (IMNV)</p> <p>1. No positive cases detected (PCR) during DoF active surveillance programme</p>
11	<p><i>Macrobrachium rosenbergii</i> Nodavirus (MrNV)</p> <p>No samples were tested for MrNV</p>
12	<p>Necrotising hepatopancreatitis (NHPB)</p> <p>No samples were tested for NHPB.</p>

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

Country: **MALDIVES**

 Period: **April - June 2015**

Item	Disease status ^{al}			Level of diagnosis	Epidemiological comment numbers
	Month				
DISEASES PREVALENT IN THE REGION	April	May	June		
FINFISH DISEASES					
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	***	***	***		
2. Infectious haematopoietic necrosis	***	***	***		
3. Spring viraemia of carp (SVC)	***	***	***		
4. Viral haemorrhagic septicaemia (VHS)	***	***	***		
5. Infection with <i>Aphanomyces invadans</i> (EUS)	***	***	***		
6. Red seabream iridoviral disease (RSID)	***	***	***		
7. Koi herpesvirus disease (KHV)					
Non OIE-listed diseases					
8. Grouper iridoviral disease	***	***	***		
9. Viral encephalopathy and retinopathy	***	***	***		
10. Enteric septicaemia of catfish	***	***	***		
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with <i>Bonamia exitiosa</i>	***	***	***		
2. Infection with <i>Perkinsus olseni</i>	***	***	***		
3. Infection with abalone herpesvirus	***	***	***		
4. Infection with <i>Xenohaliotis californiensis</i>	***	***	***		
Non OIE-listed diseases	***	***	***		
5. Infection with <i>Marteilioides chungmuensis</i>	***	***	***		
6. Acute viral necrosis (in scallops)	***	***	***		
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Taura syndrome (TS)	***	***	***		
2. White spot disease (WSD)	***	***	***		
3. Yellowhead disease (YHD)	***	***	***		
4. Infectious hypodermal and haematopoietic necrosis (IHHN)	***	***	***		
5. Infectious myonecrosis (IMN)	***	***	***		
6. White tail disease (MrNV)	***	***	***		
7. Necrotising hepatopancreatitis (NHP)	***	***	***		
Non OIE-listed diseases					
8. <i>Monodon</i> slow growth syndrome	***	***	***		
9. Acute hepatopancreatic necrosis disease (AHPND)	***	***	***		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	***	***	***		
2. Infection with <i>Batrachochytrium dendrobatidis</i>	***	***	***		
ANY OTHER DISEASES OF IMPORTANCE					
1.					
2.					

<p>DISEASES PRESUMED EXOTIC TO THE REGION^b LISTED BY THE OIE Finfish: Infection with HPR-deleted of HPR0 salmon anemia virus, Infection with salmon pancreas disease virus; Infection with <i>Gyrodactylus salaris</i>. Molluscs: Infection with <i>Bonamia ostreae</i>; <i>Marteilia refringens</i>; <i>Perkinsus marinus</i>. Crustaceans: Crayfish plague (<i>Aphanomyces astaci</i>). NOT LISTED BY THE OIE Finfish: Channel catfish virus disease</p>			
<p>a/ Please use the following symbols:</p>			
+	Disease reported or known to be present	?()	Presence of the disease suspected but not confirmed in a zone
+?	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
+()	Occurrence limited to certain zones	-	Not reported (but disease is known to occur)
+?()	Confirmed infection/infestation limited to one or more zones of the country, but no clinical disease	(year)	Year of last occurrence
<p>b/ If there is suspicion or confirmation of any of these diseases, they must be reported immediately, because the region is considered free of these diseases</p>			

1. Epidemiological comments:

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

Comment No.	
1	
2	
3	

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

Country: MYANMAR

 Period: January - March 2015

Item	Disease status ^{a/}			Level of diagnosis	Epidemiological comment numbers
	Month				
DISEASES PREVALENT IN THE REGION	January	February	March		
FINFISH DISEASES					
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	***	***	***		
2. Infectious haematopoietic necrosis	***	***	***		
3. Spring viraemia of carp (SVC)	***	***	***		
4. Viral haemorrhagic septicaemia (VHS)	***	***	***		
5. Infection with <i>Aphanomyces invadans</i> (EUS)	***	***	***		
6. Red seabream iridoviral disease (RSID)	***	***	***		
7. Koi herpesvirus disease (KHV)					
Non OIE-listed diseases					
8. Grouper iridoviral disease	***	***	***		
9. Viral encephalopathy and retinopathy	***	***	***		
10. Enteric septicaemia of catfish	***	***	***		
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with <i>Bonamia exitiosa</i>	/	/	/		
2. Infection with <i>Perkinsus olseni</i>	/	/	/		
3. Infection with abalone herpesvirus	/	/	/		
4. Infection with <i>Xenohaliotis californiensis</i>	/	/	/		
Non OIE-listed diseases					
5. Infection with <i>Marteilioides chungmuensis</i>	/	/	/		
6. Acute viral necrosis (in scallops)	/	/	/		
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Taura syndrome (TS)	-	-	-	III	1
2. White spot disease (WSD)	-	-	-	III	
3. Yellowhead disease (YHD)	-	-	-	III	
4. Infectious hypodermal and haematopoietic necrosis (IHNN)	-	-	-	III	
5. Infectious myonecrosis (IMN)	***	***	***		
6. White tail disease (MrNV)	***	***	***		
7. Necrotising hepatopancreatitis (NHP)	***	***	***		
Non OIE-listed diseases					
8. <i>Monodon</i> slow growth syndrome	***	***	***		
9. Acute hepatopancreatic necrosis disease (AHPND)	***	***	***		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	/	/	/		
2. Infection with <i>Batrachochytrium dendrobatidis</i>	/	/	/		
ANY OTHER DISEASES OF IMPORTANCE					
1. Parasitic disease					2
2. Bacterial disease					2

<p>DISEASES PRESUMED EXOTIC TO THE REGION^b LISTED BY THE OIE Finfish: Infection with HPR-deleted of HPR0 salmon anemia virus, Infection with salmon pancreas disease virus; Infection with <i>Gyrodactylus salaris</i>. Molluscs: Infection with <i>Bonamia ostreae</i>; <i>Marteilia refringens</i>; <i>Perkinsus marinus</i>. Crustaceans: Crayfish plague (<i>Aphanomyces astaci</i>). NOT LISTED BY THE OIE Finfish: Channel catfish virus disease</p>			
<p>a/ Please use the following symbols:</p>			
+	Disease reported or known to be present	?()	Presence of the disease suspected but not confirmed in a zone
+?	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
+()	Occurrence limited to certain zones	-	Not reported (but disease is known to occur)
+?()	Confirmed infection/infestation limited to one or more zones of the country, but no clinical disease	(year)	Year of last occurrence
<p>b/ If there is suspicion or confirmation of any of these diseases, they must be reported immediately, because the region is considered free of these diseases</p>			

1. Epidemiological comments:

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

Comment No.	
1	During this period, we have received 8 samples of crustaceans (3 frozen shrimp, 2 soft shell crab, and 3 live shrimps for export and import) for testing, and found that all samples were negative for WSSV, YHV and TSV.
2	Visited some fish farms in Yangon, Mandalay and Ayeyarwaddy regions during this period. Parasitic infestations (<i>Dactylogyrus</i> spp.) and bacterial disease (<i>Streptococcus</i> sp.) were found in some farms due to poor water quality.
3	

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

Country: PHILIPPINES
Period: April - June 2015

Item	Disease status ^{at}			Level of diagnosis	Epidemiological comment numbers
	Month				
DISEASES PREVALENT IN THE REGION	April	May	June		
FINFISH DISEASES					
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	0	0	0		
2. Infectious haematopoietic necrosis	0	0	0		
3. Spring viraemia of carp (SVC)	0	0	0	III	
4. Viral haemorrhagic septicaemia (VHS)	0	0	0		
5. Infection with <i>Aphanomyces invadans</i> (EUS)	-(2002)	-(2002)	-(2002)	I	1
6. Red seabream iridoviral disease (RSID)	0	0	0	III	2
7. Koi herpesvirus disease (KHV)	0	0	0	III	
Non OIE-listed diseases					
8. Grouper iridoviral disease	-(2008)	-(2008)	-(2008)	III	
9. Viral encephalopathy and retinopathy	-	-	+	III	3
10. Enteric septicaemia of catfish	***	***	***		
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with <i>Bonamia exitiosa</i>	0	0	0		
2. Infection with <i>Perkinsus olseni</i>	0	0	0		
3. Infection with abalone herpesvirus	***	***	***		
4. Infection with <i>Xenohaliotis californiensis</i>	***	***	***		
Non OIE-listed diseases	0	0	0		
5. Infection with <i>Marteilioides chungmuensis</i>					
6. Acute viral necrosis (in scallops)	0	0	0		
CRUSTACEAN DISEASES	***	***	***		
OIE-listed diseases					
1. Taura syndrome (TS)					
2. White spot disease (WSD)	0	0	0	III	4
3. Yellowhead disease (YHD)	+	+	-	III	5
4. Infectious hypodermal and haematopoietic necrosis (IHHN)	-(1999)	-(1999)	-(1999)	III	6
5. Infectious myonecrosis (IMN)	+	+	+	III	7
6. White tail disease (MrNV)	0	0	0	III	8
7. Necrotising hepatopancreatitis (NHP)	0	0	0	III	
Non OIE-listed diseases	0	0	0	III	
8. <i>Monodon</i> slow growth syndrome					
9. Acute hepatopancreatic necrosis disease (AHPND)	***	***	***		
AMPHIBIAN DISEASES	-	-	+()	III	9
OIE-listed diseases					
1. Infection with Ranavirus					
2. Infection with <i>Batrachochytrium dendrobatidis</i>	***	***	***		
ANY OTHER DISEASES OF IMPORTANCE					
1.					
2.					

**DISEASES PRESUMED EXOTIC TO THE REGION^b
LISTED BY THE OIE**

Finfish: Infection with HPR-deleted of HPR0 salmon anemia virus, Infection with salmon pancreas disease virus; 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	?()	Presence of the disease suspected but not confirmed in a zone
+?	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
+()	Occurrence limited to certain zones	-	Not reported (but disease is known to occur)
+?()	Confirmed infection/infestation limited to one or more zones of the country, but no clinical disease	(year)	Year of last occurrence

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

1. Epidemiological comments:

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

Comment No.	
1	Two hundred twenty two (222) samples of <i>Anguilla</i> spp. were negative for Infection with <i>Aphanomyces invadans</i> (EUS) by gross morphological examination. Samples were from Laguna, Antipolo, Cotabato and Zambales. Examination was conducted by the Bureau of Fisheries and Aquatic Resources (BFAR), Central Office Fish Health Laboratory.
2	Thirty (30) samples (10 <i>Epinephelus</i> spp, and 6 <i>Trachinotus</i> spp.) were analyzed using PCR test. All samples showed negative results for Red Seabream Iridoviral Disease . <i>Epinephelus</i> spp. samples were collected from Palawan while <i>Trachinotus</i> spp were collected from Bataan. Examination was conducted by BFAR Central Office Laboratory.
3	Ten (10) samples of <i>Epinephelus</i> spp. were analyzed using PCR test. One sample showed positive results for Viral Encephalopathy and Retinopathy . The positive sample was collected from Palawan. Examination was conducted by BFAR Central Office Laboratory.
4	Two hundred seventy nine (279) samples (199 <i>P.vannamei</i> , 77 <i>P.monodon</i> , 2 <i>P.indicus</i> and 1 hermit crab) of different stages (brood stock, adult, fry and juvenile) were analyzed using PCR test. All samples showed negative results for Taura Syndrome . The samples were collected from Camarines Norte, Camarines Sur, Catanduanes, Zambales, Pangasinan, Bataan, Zamboanga del Sur, Cagayan, Davao del Sur, Bulacan, Agusan del Norte, Zamboanga del Norte, Quezon, Iloilo, Aklan, Ormoc, Dapitan, Oriental Mindoro, Catanduanes, Sarangani Province, Davao City, General Santos City and Marinduque. Other samples are imported from Hawaii, U.S.A. Examinations were conducted by BFAR Central Office, BFAR Region III, BFAR Region IV-A, BFAR Region V and BFAR Region VI Laboratories.

5	<p>Three hundred seventy four (374) samples of <i>P.vannamei</i>, <i>P.monodon</i> and crab of different stages (fry, juvenile, adult and brood stock) were tested using PCR. Sixteen (16) were positive for White Spot Syndrome Virus. The positive samples were from Bulacan, Quezon, Ormoc City, Aklan, Catanduanes and Zambales. Examinations were conducted by BFAR Central Office, BFAR Region III, BFAR Region IV-A, BFAR Region V, BFAR Region VI, BFAR Region VII, BFAR Region X and CARAGA Region Laboratories.</p>
6	<p>Two hundred sixteen (216) samples (172 <i>P.vannamei</i>, 42 <i>P.monodon</i>, 1 <i>P.indicus</i> and 1 hermit crab) in different stages were analyzed using PCR test. All samples showed negative results for Yellowhead Disease. The samples were collected from Zambales, Pangasinan, Zamboanga del Sur, Cagayan, Davao del Sur, Bulacan, Agusan del Norte, Zamboanga del Norte, Quezon, Iloilo, Aklan, Ormoc, Leyte, Davao Occidental, Dapitan, Davao Oriental, Ilocos Sur, Marinduque, Misamis Occidental and Camarines Norte. Other samples are imported from Hawaii, U.S.A. Examinations were conducted by BFAR Central Office and BFAR Region X Laboratories.</p>
7	<p>Two hundred fifty eight (258) samples of <i>P.vannamei</i>, <i>P.monodon</i>, and <i>P.indicus</i> of different stages (broodstock, adult, fry and juvenile) were analyzed using PCR test. Forty nine (24 <i>P.monodon</i> and 25 <i>P.vannamei</i>) samples showed positive results for Infectious hypodermal and haematopoietic necrosis (IHHN). The samples were collected from Bataan, Zamboanga, Pangasinan, Bulacan, Quezon, Aklan, Iloilo, Agusan del Norte, Marinduque, Camarines Norte, Ormoc, Leyte, Cagayan, Oriental Mindoro, Catanduanes, Misamis Occidental, Lanao del Norte and Batangas. Examination was conducted by BFAR Central Office, BFAR Region IV-A, BFAR Region VI and CARAGA Region Laboratories.</p>
8	<p>Two hundred twenty five (225) samples (164 <i>P.vannamei</i>, 59 <i>P.monodon</i>, 1 <i>P.indicus</i> and 1 hermit crab) of different stages were analyzed using PCR test. All samples showed negative results for Infectious myonecrosis (IMN). The samples were collected from Zambales, Bataan, Pangasinan, Zamboanga del Sur, Cagayan, Bulacan, Ormoc City, Leyte, Dapitan, Davao Oriental, Agusan del Norte, Davao del Sur, Cebu, Catanduanes, Sarangani Province, General Santos, Batangas, Ilocos Sur, Marinduque, Aklan, Iloilo and Quezon. Other samples are imported from Hawaii, U.S.A. Examination was conducted by BFAR Central Office, BFAR Region IV-A and BFAR Region VI Laboratories.</p>
9	<p>Three hundred twenty seven (327) samples of <i>P.vannamei</i>, <i>P.monodon</i>, <i>P.indicus</i> and crab, of different stages (fry, juvenile and adult) were tested using PCR. One (1) sample <i>P.vannamei</i> was positive for Acute Hepatopancreatic Necrosis Disease. The positive sample was from Batangas. Examinations were conducted by BFAR Central Office, BFAR Region III, BFAR Region IV-A, BFAR Region VII, BFAR Region X and CARAGA Region Laboratories.</p>

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

Country: **SINGAPORE**

 Period: **April - June 2015**

Item	Disease status ^{at}			Level of diagnosis	Epidemiological comment numbers
	Month				
DISEASES PREVALENT IN THE REGION	April	May	June		
FINFISH DISEASES					
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	0000	0000	0000		
2. Infectious haematopoietic necrosis	0000	0000	0000		
3. Spring viraemia of carp (SVC)	0000	0000	0000		
4. Viral haemorrhagic septicaemia (VHS)	0000	0000	0000		
5. Infection with <i>Aphanomyces invadans</i> (EUS)	0000	0000	0000		
6. Red seabream iridoviral disease (RSID)	(2015)	(2015)	(2015)	III	
7. Koi herpesvirus disease (KHV)	(2012)	(2012)	(2012)	III	1
Non OIE-listed diseases					
8. Grouper iridoviral disease	(2014)	(2014)	(2014)	III	
9. Viral encephalopathy and retinopathy	+	(2015)	(2015)	III	2
10. Enteric septicaemia of catfish	***	***	***		
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with <i>Bonamia exitiosa</i>	***	***	***		
2. Infection with <i>Perkinsus olseni</i>	***	***	***		
3. Infection with abalone herpesvirus	***	***	***		
4. Infection with <i>Xenohaliotis californiensis</i>	***	***	***		
Non OIE-listed diseases					
5. Infection with <i>Marteilioides chungmuensis</i>	***	***	***		
6. Acute viral necrosis (in scallops)	***	***	***		
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Taura syndrome (TS)	0000	0000	0000		
2. White spot disease (WSD)	(2013)	(2013)	(2013)	III	3
3. Yellowhead disease (YHD)	0000	0000	0000		
4. Infectious hypodermal and haematopoietic necrosis (IHHN)	0000	0000	0000		
5. Infectious myonecrosis (IMN)	0000	0000	0000		
6. White tail disease (MrNV)	***	***	***		
7. Necrotising hepatopancreatitis (NHP)	0000	0000	0000		
Non OIE-listed diseases					
8. <i>Monodon</i> slow growth syndrome	***	***	***		
9. Acute hepatopancreatic necrosis disease (AHPND)	0000	0000	0000	II	4
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	***	***	***		
2. Infection with <i>Batrachochytrium dendrobatidis</i>	+	+	(2015)	III	5
ANY OTHER DISEASES OF IMPORTANCE					
1. Infectious spleen and kidney necrosis virus (ISKNV) (marine and ornamental fish)	+	(2015)	(2015)	III	6
2. <i>Aeromonas salmonicida</i> (in goldfish)	0000	0000	0000	III	7

**DISEASES PRESUMED EXOTIC TO THE REGION^b
LISTED BY THE OIE**

Finfish: Infection with HPR-deleted of HPR0 salmon anemia virus, Infection with salmon pancreas disease virus; 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	?()	Presence of the disease suspected but not confirmed in a zone
+?	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
+()	Occurrence limited to certain zones	-	Not reported (but disease is known to occur)
+?()	Confirmed infection/infestation limited to one or more zones of the country, but no clinical disease	(year)	Year of last occurrence

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

1. Epidemiological comments:

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

Comment No.	
1	Koi herpesvirus (KHV) was detected in 1 batch of imported ornamental koi in May by qPCR. The fish were under quarantine and were healthy during inspection. All 2,300 koi in the affected batch were humanely euthanized and cleaning and disinfection carried out. The isolation order of the exporter's premise was lifted, after two rounds of follow-up IPCR tests did not detect KHV from koi of other consignments within the same quarantine area. KHV was not detected in 45 batches of imported ornamental koi this quarter by qPCR. The last detection of KHV in local koi was September 2012. As the detection in May this quarter was in koi under quarantine, there is no change to the disease status for Singapore.
2	Viral nervous necrosis virus (VNNV) was detected via RT-PCR in a batch of 2-week old, locally sourced, diseased Asian seabass fry from a landbased hatchery. All affected fry were culled and the hatchery disinfected. The virus was not detected in 17 other batches of diseased marine food fish submitted this quarter.
3	White spot syndrome virus (WSSV) was not detected by qPCR in 13 batches of imported and locally farmed ornamental crustaceans (shrimps and crayfish) submitted from targeted surveillance program, and in 140 <i>L. vannamei</i> submitted from a local broodstock farm this quarter
4	Lesions suggestive of Acute hepatopancreatic necrosis disease (AHPND) were not detected on histopathological examination of 13 batches of <i>Litopenaeus vannamei</i> submitted weekly by a local broodstock farm this quarter.

5	During follow-up investigation into <i>Batrachochytrium dendrobatidis</i> (Bd) detections in the previous quarter, Bd was detected in two batches of American bullfrogs (food frogs), and in one batch of imported ornamental frogs by qPCR this quarter. The American bullfrogs were imported from Taiwan and Malaysia, while the ornamental frogs were from China. All frogs were humanely euthanized, with the food frogs harvested for food.
6	Infectious spleen and kidney necrosis virus (ISKNV) was detected by PCR and histological examination revealed lesions consistent with a megalocytivirus-infection in diseased mullet fingerling from a coastal fish farm. The farmer had reported increasing fish mortalities 1 month after stocking, with clinical signs of darkened body.
7	<i>Aeromonas salmonicida</i> was not detected in 11 batches of goldfish submitted under a targeted surveillance program to meet Australia's export requirements this quarter.

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

Country: VIETNAM

Period: April - June 2015

Item	Disease status ^{at}			Level of diagnosis	Epidemiological comment numbers
	Month				
DISEASES PREVALENT IN THE REGION	April	May	June		
FINFISH DISEASES					
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	0000	0000	0000		
2. Infectious haematopoietic necrosis	0000	0000	0000		
3. Spring viraemia of carp (SVC)	0000	0000	0000		
4. Viral haemorrhagic septicaemia (VHS)	0000	0000	0000		
5. Infection with <i>Aphanomyces invadans</i> (EUS)	-	-	-		
6. Red seabream iridoviral disease (RSID)	0000	0000	0000		
7. Koi herpesvirus disease (KHV)	0000	0000	0000		
Non OIE-listed diseases					
8. Grouper iridoviral disease	0000	0000	0000		
9. Viral encephalopathy and retinopathy	0000	0000	0000		
10. Enteric septicaemia of catfish	+()	+()	+()	I,II	1
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with <i>Bonamia exitiosa</i>	0000	0000	0000		
2. Infection with <i>Perkinsus olseni</i>	-	-	-		
3. Infection with abalone herpesvirus	0000	0000	0000		
4. Infection with <i>Xenohaliotis californiensis</i>	0000	0000	0000		
Non OIE-listed diseases					
5. Infection with <i>Marteilioides chungmuensis</i>	0000	0000	0000		
6. Acute viral necrosis (in scallops)	0000	0000	0000		
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Taura syndrome (TS)	0000	0000	0000		
2. White spot disease (WSD)	+	+	+	I,III	2
3. Yellowhead disease (YHD)	-	-	-		
4. Infectious hypodermal and haematopoietic necrosis (IHHN)	0000	0000	0000		
5. Infectious myonecrosis (IMN)	0000	0000	0000		
6. White tail disease (MrNV)	-	-	-		
7. Necrotising hepatopancreatitis (NHP)	0000	0000	0000		
Non OIE-listed diseases					
8. <i>Monodon</i> slow growth syndrome	-	-	-		
9. Acute hepatopancreatic necrosis disease (AHPND)	+	+	+	I,III	3
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	0000	0000	0000		
2. Infection with <i>Batrachochytrium dendrobatidis</i>	0000	0000	0000		
ANY OTHER DISEASES OF IMPORTANCE					

**DISEASES PRESUMED EXOTIC TO THE REGION^b
LISTED BY THE OIE**

Finfish: Infection with HPR-deleted of HPR0 salmon anemia virus, Infection with salmon pancreas disease virus; 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	?()	Presence of the disease suspected but not confirmed in a zone
+?	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
+()	Occurrence limited to certain zones	-	Not reported (but disease is known to occur)
+?()	Confirmed infection/infestation limited to one or more zones of the country, but no clinical disease	(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>Enteric Septicaemia of Catfish</p> <p>Infection found in intensive catfish (<i>Pangasius micronema</i>, <i>P. hypophthalmus</i>) farms. The disease occurred in An Giang province.</p>
2	<p>White Spot Disease (WSD)</p> <p>Pathogen: White spot syndrome virus (WSSV) Species affected: <i>Penaeus monodon</i> and <i>Litopenaeus vannamei</i> (10-100 DOC) Name of affected area: reported in 19 provinces (total area 2,100 ha) including Hai Phong, Thai Binh, Nghe An, Ha Tinh, Quang Binh, Thua Thien Hue, Quang Ngai, Phu Yen, Khanh Hoa, Ho Chi Minh, Ba Ria Vung Tau, Long An, Tien Giang, Ben Tre, Tra Vinh, Kien Giang, Soc Trang, Bac Lieu and Ca Mau. Mortality rate: average to high, 100% in some cases within 10 d. Clinical signs: lethargic or moribund shrimps aggregated 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; Control measures: early harvest, strict isolation of infected ponds from movement, strengthened control of transportation, disinfection of infected ponds using Calcium hypochlorite (chlorine).</p>

3	<p>Acute Hepatopancreatic Necrosis Disease (AHPND)</p> <p>Pathogen: <i>Vibrio parahaemolyticus</i> with Phage A3</p> <p>Species affected: <i>Penaeus monodon</i> and <i>Litopenaeus vannamei</i> (10-45 DOC)</p> <p>Name of affected area: reported in 20 provinces and caused losses in total shrimp culture area of 4,258 ha. Affected provinces include Hai Phong, Nam Dinh, Quang Ninh, Nghe An, Quang Tri, Quang Nam, Quang Ngai, Phu Yen, Khanh Hoa, Ho Chi Minh, Ba Ria-Vung Tau, Ninh Thuan, Long An, Tien Giang, Ben Tre, Tra Vinh, Kien Giang, Soc Trang, Bac Lieu and Ca Mau.</p> <p>Mortality rate: could reach 95% in intensive and semi-intensive farms;</p> <p>Clinical signs: shrimps become lethargic with soft, darkened shells, mottling of the carapace. Pathology is limited to hepatopancreas.</p> <p>Control measures: strict isolation of infected ponds from movement and transport controls, disinfection of infected ponds using Calcium hypochlorite (chlorine).</p>
---	---

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 2015)

1. DISEASES PREVALENT IN THE REGION	
1.1 FINFISH DISEASES	
OIE-listed diseases	Non OIE-listed diseases
1. Epizootic haematopoietic necrosis	1. Grouper iridoviral disease
2. Infectious haematopoietic necrosis	2. Viral encephalopathy and retinopathy
3. Spring viraemia of carp (SVC)	3. Enteric septicaemia of catfish
4. Viral haemorrhagic septicaemia (VHS)	
5. Infection with <i>Aphanomyces invadans</i> (EUS)	
6. Red seabream iridoviral disease (RSID)	
7. Koi herpesvirus disease (KHV)	
1.2 MOLLUSC DISEASES	
OIE-listed diseases	Non OIE-listed diseases
1. Infection with <i>Bonamia exitiosa</i>	1. Infection with <i>Marteilioides chungmuensis</i>
2. Infection with <i>Perkinsus olseni</i>	2. Acute viral necrosis (in scallops)
3. Infection with abalone herpesvirus	
4. Infection with <i>Xenohalotis californiensis</i>	
1.3 CRUSTACEAN DISEASES	
OIE-listed diseases	Non OIE-listed diseases
1. Taura syndrome (TS)	1. Monodon slow growth syndrome
2. White spot disease (WSD)	2. Acute hepatopancreatic necrosis disease (AHPND)
3. Yellowhead disease (YHD)	
4. Infectious hypodermal and haematopoietic necrosis (IHHN)	
5. Infectious myonecrosis (IMN)	
6. White tail disease (MrNV)	
7. Necrotising hepatopancreatitis (NHP)	
1.4 AMPHIBIAN DISEASES	
OIE-listed diseases	Non OIE-listed diseases
1. Infection with Ranavirus	
2. Infection with <i>Bachtracochytrium dendrobatidis</i>	
2. DISEASES PRESUMED EXOTIC TO THE REGION	
2.1 Finfish	
OIE-listed diseases	Non OIE-listed diseases
1. Infection with HPRdeleted or HPR0 salmon anaemia virus	1. Channel catfish virus disease
2. Infection with salmon pancreas disease virus	
3. Infection with <i>Gyrodactylus salaris</i>	
2.2 Molluscs	
OIE-listed diseases	Non OIE-listed diseases
1. Infection with <i>Bonamia ostreae</i>	
2. Infection with <i>Marteilia refringens</i>	
3. Infection with <i>Perkinsus marinus</i>	
2.3 Crustaceans	
OIE-listed diseases	Non OIE-listed diseases
1. Crayfish plague (<i>Aphanomyces astaci</i>)	

Recent Aquatic Animal Health Related Publications

OIE Aquatic Animal Health Code, 18th Edition, 2015. 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. The 18th edition includes an updated version of the table of contents, user's guide and glossary, and revised text in the following chapters: diseases listed by the OIE, import risk analysis, control of pathogenic agents in aquatic animal feed, general obligations related to certification, certification procedures, infection with *Batrachochytrium dendrobatidis*, infection with ranavirus and infection with *Perkinsus olseni*. In addition, the text in Articles X.X.7. and X.X.11. of disease-specific chapters has been merged, and some amendments have been made in Articles 10.4.4. and 10.4.6. The 18th edition also includes two new chapters: Recommendations for surface disinfection of salmonid eggs (4.4.) and Risk analysis for antimicrobial resistance arising from the use of antimicrobial agents in aquatic animals (6.5.). 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, 2015. 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/international-standard-setting/aquatic-manual/access-online/>

De la Peña, L.D., N.A.R. Cabillon, D.D. Catedral, E.C. Amar, R.C. Usero, W.D. monotilla, A.T. Calpe, D.D.G. Fernandez and C.P. Saloma, 2015. **Acute hepatopancreatic necrosis disease (AHPND) outbreaks in *Penaeus vannamei* and *P. monodon* cultured in the Philippines.** Diseases of Aquatic Organisms, 116:251-254.

Soto-Rodriguez, S.A., Gomez-Gil, B., Lozano-Olvera, R., Betancourt-Lozano, M. and Morales-Covarrubias, M.S., 2015. **Field and experimental evidence of *Vibrio parahaemolyticus* as the causative agent of acute hepatopancreatic necrosis disease of cultured shrimp (*Litopenaeus vannamei*) in Northwestern Mexico.** Applied and Environmental Microbiology, 81: 1-11.

Tran, L.H., Fitzsimmons, K., Lightner, D.V., 2014. **AHPND/EMS: From the academic science perspective to the production point of view.** Aquaculture Asia-Pacific, March/April 2014: 14-18.

Tran, L.H., Fitzsimmons, K., Lightner, D.V., 2014. **Tilapia could enhance water conditions, help control EMS in shrimp ponds.** Global Aquaculture Advocate, Jan/Feb 2014: 26-28

Mohan, C.V. and Leño, E., 2014. **Shrimp early mortality syndrome (EMS)/Acute hepatopancreatic necrosis syndrome (AHPNS): an emerging aquatic animal disease in the Asia Pacific.** In: Aquaculture New Possibilities and Concerns (VRP Sinha and P Jayashankar, editors). p. 133-140.

FAO, 2013. **Report of the FAO/MARD Technical Workshop on Early Mortality Syndrome (EMS) or Acute Hepatopancreatic Necrosis Syndrome (AHPNS) of Culture Shrimps (Under TCP/VIE/3304).** FAO Fisheries and Aquaculture Report No. 1053. Food and Agriculture Organization of the United Nations, Rome, Italy. 65 pp.

Tran, L., Nunan, L., Redman, R.M., Mohny, L.L., Pantoja, C.R., Fitzsimmons, K., Lightner, D.V., 2013. **Determination of the infectious nature of the agent of acute hepatopancreatic necrosis syndrome affecting penaeid shrimp.** Diseases of Aquatic Organisms, 105:45-55.

NACA, 2012. **Final Report. Asia Pacific Regional Consultation on the Emerging Shrimp Disease – Early Mortality Syndrome (EMS)/Acute Hepatopancreatic Necrosis Syndrome (AHPNS).** Network of Aquaculture Centres in Asia-Pacific, Bangkok, Thailand. http://www.enaca.org/modules/library/publication.php?publication_id=1059

OIE, 2012. **Proceedings of OIE Global Conference on Aquatic Animal Health – Aquatic Animal Health Programmes: their Benefits for Global Food Security.** World Organisation for Animal Health, Paris, France. 205 pp.

FAO, 2012. **Improving biosecurity through prudent and responsible use of veterinary medicines in aquatic food production.** FAO Fisheries and Aquaculture Technical Paper No. 547. FAO, Rome. 207 pp.

Leaño, E. M, and C.V. Mohan. 2012. **Early mortality syndrome threatens Asia's shrimp farms.** Global Aquaculture Advocate, July/August 2012: 38-39

Flegel, T.W., 2012. **Historic emergence, impact and current status of shrimp pathogens in Asia.** J. Invertebrate Pathology, 110:166-173.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

List of National Coordinators*

Country	Name and Address
Australia	<p>Dr. Ingo Ernst Aquatic Animal Health Unit Office of the Chief Veterinary Officer Department of Agriculture, Fisheries and Forestry GPO Box 858, Canberra ACT 2601, Australia Fax: +61-2-6272 3150; Tel: +61-2-6272 4328 Email: ingo.ernst@daff.gov.au</p> <p>Dr. Herbert Brett Aquatic Animal Health Unit , Office of the Chief Veterinary Officer Department of Agriculture, Fisheries and Forestry GPO Box 858, Canberra ACT 2601, Australia Fax: +61 2 6272 3150; tel: +61 2 6272 4009 E-mail: brett.herbert@daff.gov.au</p>
Bangladesh	<p>Dr. M. G. Hussain Director General, Bangladesh Fisheries Research Institute (BFRI) Mymensingh 2201, Bangladesh Fax: +880-91-66559, Tel: +880-91-65874 E-mail: hussain.bfri@gmail.com; dg@fri.gov.bd; dgbfri@gmail.com</p>
Cambodia	<p>Mr. Chheng Phen Acting Director Inland Fisheries Research and Development Institute (IFReDI) Fisheries Administration, # 186, Norodom Blvd., PO Box 582, Phnom Penh, Cambodia Phone: +855 23 221485 E-mail: chhengp@yahoo.com</p>
China	<p>Mr. Zhuzewen Disease Prevention and Control Division National Fisheries Technique Extension Center (NFTEC) Ministry of Agriculture Mai Zi Dian Street No 18 Chanyang District, Beijing 100026, China Fax: +86-10-65074250; Tel: +86-10-64195073 E-mail: zewenzhu@sina.com</p>
DPR Korea	<p>Mr. Chong Yong Ho Director of Fish Farming Technical Department, Bureau of Freshwater Culture Sochangdong Central District, P.O.Box. 95 , Pyongyong, DPR Korea Fax: +850-2-814416; Tel: 3816001, 3816121</p>
Hong Kong China	<p>Ms Joanne On-on Lee Fisheries Officer (Aquaculture Environment) Agriculture, Fisheries and Conservation Department 8/F, Cheung Sha Wan Government Offices 303 Cheung Sha Wan Road, Kowloon, Hong Kong SAR Fax: +852 21520383; Tel: +852 21506808 E-mail: joanne_oo_lee@afcd.gov.hk</p>

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

India	<p>Mr. Intisar Anees Siddiqui Fisheries Research & Investigation Officer Department of Animal Husbandry, Dairying and Fisheries Ministry of Agriculture, Krishi Bhawan, New Delhi 110114, India Tel: +91-11-23389419/23097013 Fax: +91-11-23070370/23384030 E-mail: intisarsiddiqui@yahoo.co.in</p>
Indonesia	<p>Dr. Maskur Director, Fish Health and Environment Ministry of Marine Affairs and Fisheries Directorate General of Aquaculture Jl. Harsono RM No. 3, Gedung Ps. Minggu Jakarta Selatan Indonesia 12550 Fax: +62-21-78835853; Tel: +62-21-7890552 E-mail: maskurfish@gmail.com</p>
Iran	<p>Dr. Kazem Abdi Khazineh Jadid Director General, Aquatic Animal Health Department Iran Veterinary Organization Ministry of Jihad-E-Agriculture Seyed Jamaledin Asad-Abadi St., Vali-Asr Ave. P.O.Box 14155-6349, Tehran, Iran Tel: +98-21-88966877; Fax: +98-21-88957252 E-mail: kazemabdy@yahoo.com</p>
Japan	<p>Mr. Toshiyuki Kubodera Director Fish and Fishery Products Safety Office Animal Products Safety Division Ministry of Agriculture, Forestry and Fisheries 1-2-1, Kasumigaseki Chiyoda-ku, Tokyo 100-8950, Japan Fax: +81 3 35012685; Tel: +81 3 67442105 E-mail: roshiyuki_kubodera@nm.maff.go.jp</p>
Lao PDR	<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: theungphachan@yahoo.com</p> <p>Dr. Bounthong Saphakdy Director of Fisheries Division Department of Livestock and Fisheries DLF P.O. Box 811, Lao PDR E-mail: saphakdy@yahoo.com</p>
Malaysia	<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: siti.zahrah.abd@gmail.com</p>
Myanmar	<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: dof@mptmail.net.mm</p>

Nepal	<p>Mr. Ram Prasad Panta Senior Fisheries Development Officer Central Fisheries Laboratory Central Fisheries Building, Balaju, Machhapokhari Kathmandu. Nepal. Fax: +977 1 4350833; Tel: +977 1 4385854 E-mail: rppanta13@gmail.com</p>
Pakistan	<p>Mr. Anser Mahmood Chatta Deputy Fisheries Development Commissioner Livestock Division, Ministry of Food, Agriculture and Livestock 10th Floor, Shaheed-e-Millat Secretariat (Livestock Wing) I Islamabad, Pakistan Fax: +9251 9212630; Tel: +9251 9208267, ansermchatta@yahoo.com</p>
Philippines	<p>Dr. Joselito R. Somga Aquaculturist II, Fish Health Section, BFAR 860 Arcadia Building, Quezon Avenue, Quezon City 1003 Fax: +63 2 3725055/4109987; Tel: +63 2 3723878 loc206 or 4109988 to 89 E-mail: jsomga@bfar.da.gov.ph</p>
Republic of Korea	<p>Dr. Myoung Ae Park Director, Pathology Division National Fisheries Research and Development Institute 152-1, Haeanro, Gijang-up Gijang-gun, Busan 619-705 Korea Tel: +82-51-7202470 E-mail: mapark@nfrdi.go.kr</p>
Singapore	<p>Mr. Hanif Loo Jang Jing Programme Executive (Aquaculture) Aquaculture Branch Food Supply & Technology Department Agri-Food & Veterinary Authority of Singapore 5 Maxwell Road, #01-00, Tower Block, MND Complex, Singapore 069110 Fax: +65 63257677; Tel: +65 63257636; Email: loo_jang_jing@ava.gov.sg</p> <p>Ms. Diana Chee Aquatic Animal Health Section Animal and Plant Health Centre 6 Perahu Road, Singapore 718827 Fax: +65 63161090; Tel: +65 63165140 E-mail: Diana_Chee@AVA.gov.sg</p>
Sri Lanka	<p>Dr. Rajapaksa Arachilage Geetha Ramani Veterinary Investigation Officer Veterinary Investigation Center Department of Animal Production and Health Welisara, Sri Lanka Tel: +94-112-9258213; +94-714-932169 E-mail: vic_welisara@yahoo.com</p>
Thailand	<p>Dr. Jaree Polchana Aquatic Animal Health Research Institute (AAHRI) Department of Fisheries , Kasetsart University Campus Jatujak, Bangkok 10900, Thailand Fax: +66 2 5613993; Tel: +66 2 5794122, 5796977 E-mail: j_polchana@yahoo.com</p>

Vietnam	Dr. Nguyen Van Long Vice Chief Aquatic Animal Health Division Department of Animal Health (DAH) 15/78 Giai Phong Street, Dong Da Hanoi, Vietnam Fax: +84 4 38685961; Tel: +84 4 38693605 E-mail: long.dahvn@gmail.com
----------------	--

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

(Revised during the Provisional Meeting of the AG¹, Bangkok, Thailand, November 7-9, 2001)

Symbols used in the report are similar to those used by FAO, OIE and WHO for the *Animal Health Yearbook*. Please read these instructions carefully before you fill in the forms.

Under the heading 'Country', please enter your country.

Under the heading 'Period', please enter the reporting quarter (months) and year, e.g. January to March 2002.

Under the heading "Month", please enter months of a quarter in question, e.g. January, February, March.

In "Level of Diagnosis", please enter the Level of Diagnosis used, e.g., I, II, or III. See Section C below.

In "Epidemiological Comment Numbers", please enter the serial numbers, and write your corresponding epidemiological comments on page 2. See Section D below for guidance on the subjects to be covered under Epidemiological Comments.

If an unknown disease of serious nature appears, please fill in the last line of the form, with additional information on "Level of Diagnosis" and "Epidemiological Comment Numbers" as above.

Please do not fail to enter "****" or "-" as appropriate against each disease, which is essential to incorporate your information on the *Quarterly Aquatic Animal Disease Report (Asia and Pacific Region.)*

If you have new aquatic animal health regulations introduced within the past six months, please describe them under Section 2 on page 2.

Please use the following symbols to fill in the forms.

A. Symbols used for negative occurrence are as follows:

*** This symbol means that no information on a disease in question is available due to reasons such as lack of surveillance systems or expertise.

- This symbol is used when a disease is not reported during a reporting period. However the disease is known to be present in the country (date of last outbreak is not always known).

0000 This symbol is used when disease surveillance is in place and a disease has never been reported.

(year) Year of last occurrence (a disease has been absent since then).

B. Symbols used for positive occurrence are shown below.

+ This symbol means that the disease in question is reported or known to be present.

+? This symbol is used when the presence of a disease is suspected but there is no recognised occurrence of clinical signs of the disease in the country. Serological evidence and isolation of the causal agent may indicate the presence of the disease, but no confirmed report is available. **It is important that the species of animals to which it applies is indicated in the "Comments" on page 2 of the form if you use this symbol.**

+() These symbols mean that a disease is present in a very limited zone or zones as exceptional cases. It may also include the occurrence of a disease in a quarantine area.

? This symbol is used only when a disease is suspected by the reporting officer, but the presence of the disease has not been confirmed.

+?() 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.

¹ Regional Advisory Group on Aquatic Animal Health (AG)

C. Levels of Diagnosis

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

D. Subjects to be covered in the Epidemiological Comments

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

IMPORTANT

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

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

OIE Regional Representation for Asia and the Pacific

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

NACA

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

FAO

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

Notes

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

ISSN 1513-6558