



QUARTERLY AQUATIC ANIMAL DISEASE REPORT (Asia and Pacific Region)

April – June 2019



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Foreword

Dr. Huang Jie elected as the new Director General of NACA

NACA welcomes Dr Huang Jie as the incoming Director General. He will serve a five year term beginning in May 2019. Dr Huang succeeded Dr Cherdsak Virapat, who completed his own five-year term in April 2019. Dr Huang was elected at the 30th Governing Council Meeting held on 26-27 March in Guangzhou, China.

Dr Huang, a Chinese national, obtained his BSc on Virology in Wuhan University in 1987, an MSc in the Wuhan Virology Institute, Chinese Academy of Science (CAS) in 1990, and his PhD in Marine Biology at the Ocean Institute, CAS, in 2010. He is a Senior Researcher of the Maricultural Disease Control and Molecular Pathology Laboratory, Yellow Sea Fisheries Research Institute, Chinese Academy of Fishery Sciences (CAFS); the Chief Scientist of CAFS on aquatic animal disease control; an OIE Designated Expert for White spot disease (WSD) and Infectious and haematopoietic necrosis (IHHN); and a doctoral tutor for Shanghai Ocean University.



Dr Huang has been conducting research projects on the diagnostics, epidemiology, molecular mechanism of virus infection and control technology for WSD and other aquatic animal diseases for 26 years. He identified a new virus, HHNBV (now named WSSV), as the pathogen of WSD in China in 1993 and reported the transmission route of the virus. His research group has discovered several new viruses, new genotypes, or new emerging diseases in marine farming industries of China, including turbot reddish body iridovirus; acute viral necrotic virus in scallop; covert mortality nodavirus in shrimp; a new genotype of yellow head virus (YHV-8) in shrimp; an earliest identified virulent strain of *Vibrio parahaemolyticus* in shrimp causing acute hepatopancreatic necrosis disease (AHPND) in 2010; shrimp hemocyte iridescent virus (SHIV), and a virulent strain of *V. campbellii* causing AHPND.

His laboratory has established a series of detection techniques, including gene probes, PCR, LAMP, and gene chips, for different aquatic animal pathogens and national standards for shrimp diseases diagnosis. They have also developed rapid detection kits for more than 20 aquatic animal pathogens, non-specific immunoenhancers and probiotic bacteria for shrimp disease prevention, microorganism-enhanced biofloc technology for aquaculture, and marine fish vaccines for *V. anguillarum* and *Edwardsiella tarda*. Dr Huang proposes the concept of microbiological control technology to prevent aquatic animal disease and actively promotes the concept of biosecurity systems for the aquaculture industry.

Dr Huang has more than 330 publications of which 80 were published on international journals, has obtained 48 patents, published 30 national or professional standards, won 13 national and provincial awards, and trained 94 doctoral and masters level students. He won the Distinguished Expert for TAISHAN scholars of Shandong Province, the Excellence Talent and Innovation Team for Agriculture Research, and holds other national, provincial and ministerial honor titles.

Source: NACA Newsletter, April-June 2019

Reports Received by the NACA and OIE-RRAP

(Officially prepared by OIE National Focal Points for Aquatic Animals/NACA National Coordinator, and submitted by OIE Delegate)

Country: AUSTRALIA*Period: April - June 2019

Item	Disease status ^{a/}			Level of diagnosis	Epidemiological comment numbers
	Month				
DISEASES PREVALENT IN THE REGION	April	May	June		
FINFISH DISEASES					
OIE-listed diseases					
1. Infection with epizootic haematopoietic necrosis virus	-(2012)	-(2012)	-(2012)		1
2. Infection with infectious haematopoietic necrosis virus	0000	0000	0000		
3. Infection with spring viremia of carp virus	0000	0000	0000		
4. Infection with viral haemorrhagic septicaemia virus	0000	0000	0000		
5. Infection with <i>Aphanomyces invadans</i> (EUS)	-(2017)	-(2017)	-(2017)		2
6. Infection with red sea bream iridovirus	0000	0000	0000		
7. Infection with koi herpesvirus	0000	0000	0000		
Non OIE-listed diseases					
8. Grouper iridoviral disease	0000	0000	0000		
9. Viral encephalopathy and retinopathy	+(2019)	-(2019)	-(2019)	III	3
10. Enteric septicaemia of catfish	-(2014)	-(2014)	-(2014)		4
11. Carp edema virus disease	***	***	***		
12. Tilapia lake virus (TiLV)	0000	0000	0000		
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with <i>Bonamia exitiosa</i>	-(2018)	-(2018)	-(2018)		5
2. Infection with <i>Perkinsus olseni</i>	+(2019)	-(2019)	-(2019)	III	6
3. Infection with abalone herpesvirus	-(2011)	-(2011)	-(2011)		7
4. Infection with <i>Xenohaliotis californiensis</i>	0000	0000	0000		
5. Infection with <i>Bonamia ostreae</i>	0000	0000	0000		
Non OIE-listed diseases					
6. Infection with <i>Marteilioides chungmuensis</i>	0000	0000	0000		
7. Acute viral necrosis (in scallops)	***	***	***		
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Infection with Taura syndrome virus	0000	0000	0000		
2. Infection with white spot syndrome virus	-(2018)	-(2018)	-(2018)		8
3. Infection with yellow head virus genotype 1	0000	0000	0000		
4. Infection with infectious hypodermal and haematopoietic necrosis virus	-(2019)	+(2019)	-(2019)	III	9
5. Infection with infectious myonecrosis virus	0000	0000	0000		
6. Infection with <i>Macrobrachium rosenbergii</i> nodavirus (White Tail disease)	-(2008)	-(2008)	-(2008)		10
7. Infection with <i>Hepatobacter penaei</i> (Necrotising hepatopancreatitis)	0000	0000	0000		
8. Acute hepatopancreatic necrosis disease (AHPND)	0000	0000	0000		
9. Infection with <i>Aphanomyces astaci</i> (Crayfish plague)	0000	0000	0000		
Non OIE-listed diseases					
10. Hepatopancreatic microsporidiosis caused by <i>Enterocytozoon hepatopenaei</i> (HPM-EHP)	0000	0000	0000		
11. Viral covert mortality disease (VCMD) of shrimps	***	***	***		

*Member of NACA's Asia Regional Aquatic Animal Health Programme

12. <i>Spiroplasma eriocheiris</i> infection	***	***	***		
13. Shrimp haemocyte iridescent virus (SHIV)	***	***	***		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	-(2008)	-(2008)	-(2008)		11
2. Infection with <i>Batrachochytrium dendrobatidis</i>	+(2019)	+(2019)	-(2019)		12
3. Infection with <i>Batrachochytrium salamandrivorans</i>	0000	0000	0000		
ANY OTHER DISEASES OF IMPORTANCE					
1. <i>Hepatopancreatitis</i> in prawns	-(2017)	-(2017)	-(2017)		13

**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) was not reported this period despite passive surveillance in New South Wales (last reported July 2017) and the Northern Territory (last reported May 2017), Queensland (last reported 2014), Western Australia (last reported 2013), Victoria (last reported 2012), and South Australia (last reported 2008). Passive surveillance and never reported in Tasmania. No information available this period in the Australian Capital Territory.

<p>3</p>	<p>Viral encephalopathy and retinopathy (VER)</p> <ol style="list-style-type: none"> 1. Reported in Queensland in April 2019, passive surveillance; 2. Species affected – 6 months old juvenile Queensland grouper (<i>Epinephelus lanceolatus</i>); 3. Clinical signs – vacuolating neuronal cell necrosis, inflammation in the retina, extensive encephalitis and meningitis in the brain; 4. Pathogen – Betanodavirus; 5. Mortality rate – 0.3%; 6. Economic loss – none; 7. Geographic extent – one cage is seawater reservoir; 8. Containment measures – none; 9. Laboratory confirmation – Histopathology, RT-PCR; 10. Publications – nil. <p>Viral encephalopathy and retinopathy is known to occur previously in the New South Wales (last reported 2018), Western Australia (last reported 2013), Northern Territory (last reported 2013), South Australia (last reported 2010) and Tasmania (last reported 2000). Passive surveillance and never reported in Victoria. No information available this period in the Australian Capital Territory.</p>
<p>4</p>	<p>Enteric septicaemia of catfish (<i>E. ictaluri</i>) was not reported this period despite 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. It was reported from clinically normal fish from a single river in Queensland (last reported 2014), 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; the Northern Territory in a closed aquarium (last reported 2011), and in PC2 containment facilities in Tasmania (last reported 2001) and Queensland (last reported 2008).</p>
<p>5</p>	<p>Infection with <i>Bonamia exitiosa</i> was not reported in this period despite passive surveillance in South Australia (last reported 2018), Western Australia (last reported 2017) and Victoria (last reported 2016). Passive surveillance and never reported in Queensland, New South Wales, Tasmania and Northern Territory. No information available for the Australian Capital Territory (no marine water responsibility).</p>
<p>6</p>	<p>Infection with <i>Perkinsus olseni</i></p> <ol style="list-style-type: none"> 1. Reported in South Australia in April 2019, active surveillance; 2. Species affected – 2-3 year old farmed greenlip abalone (<i>Haliotis laevis</i>); 3. Clinical signs – sub-clinical; 4. Pathogen – <i>Perkinsus olseni</i>; 5. Mortality rate – none ; 6. Economic loss – none; 7. Geographic extent – in the grow-out zones of the Port Lincoln abalone farm; 8. Containment measures – greater livestock movement restrictions for the farm in accordance with the Aquaculture Regulations 2016 and the Livestock Act 1997; 9. Laboratory confirmation – PCR and histopathology; 10. Publications – nil. <p><i>Perkinsus olseni</i> is known to occur previously in Western Australia (last reported 2018), Victoria (last reported 2015), Queensland (last reported 2014), and New South Wales (last reported 2005). Passive surveillance and never reported in the Northern Territory and Tasmania. No information available for the Australian Capital Territory (no marine water responsibility).</p>

7	<p>Infection with abalone herpesvirus (abalone viral ganglioneuritis) was not reported this period despite passive surveillance in Tasmania (last reported 2011), 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 in the Australian Capital Territory (no marine water responsibility).</p>
8	<p>Infection with white spot syndrome virus (white spot disease) was not reported this period despite targeted surveillance in Queensland (last reported 2018). White spot disease has never been reported despite active and passive surveillance in New South Wales, South Australia, Western Australia, Victoria and Northern Territory. Never reported in Tasmania despite passive surveillance. No information available for the Australian Capital Territory (no marine water responsibility).</p>
9	<p>Infection with infectious hypodermal and haematopoietic necrosis virus</p> <ol style="list-style-type: none"> 1. Reported in Queensland in May 2019, passive surveillance; 2. Species affected – juvenile black tiger prawn (<i>Penaeus monodon</i>); 3. Clinical signs – reduced growth; 4. Pathogen – Infectious hypodermal and haematopoietic necrosis virus; 5. Mortality rate – N/A; 6. Economic loss – N/A; 7. Geographic extent – three ponds on one farm; 8. Containment measures – N/A; 9. Laboratory confirmation – RT-PCR; 10. Publications – nil. <p>Infectious hypodermal and haematopoietic necrosis virus is known to occur previously in 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 water responsibility) and Tasmania (susceptible species not present).</p>
10	<p>Infection with <i>Macrobrachium rosenbergii</i> nodavirus (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>
11	<p>Infection with <i>Ranavirus</i> 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 and New South Wales. No information available this period in the Australian Capital Territory, South Australia, Victoria and Western Australia.</p>

<p>12</p>	<p>Infection with <i>Batrachochytrium dendrobatidis</i> 1. Reported in New South Wales in April and May 2019, targeted surveillance; 2. Species affected – wild species of listed frogs - Southern corroboree frog (<i>Pseudophryne corroboree</i> adult) Spotted tree frog (<i>Litoria spenceri</i>), Booroolong frog (<i>Litoria booroolongensis</i>), Common eastern froglet (<i>Crinia signifera</i>), Alpine tree frog (<i>Litoria verreauxii alpina</i>), Southern bell frog (<i>Litoria raniformis</i>), Spotted grass frog (<i>Limnodynastes tasmaniensis</i>); 3. Clinical signs – nil; 4. Pathogen – <i>Batrachochytrium dendrobatidis</i>; 5. Mortality rate – nil; 6. Economic loss – none; 7. Geographic extent – Kosciuszko National Park; four sites in Lower Murrumbidgee wetlands between Balranald and Hay; 8. Containment measures – none, endemic; 9. Laboratory confirmation – Taqman qPCR; 10. Publications – nil.</p> <p>Infection with <i>Batrachochytrium dendrobatidis</i> is previously known to occur in Queensland (last reported 2018), Victoria (last reported 2016), Tasmania (last reported 2013), New South Wales (last reported 2012), Western Australia (last reported 2008). Passive surveillance and never reported in the Northern Territory. No information available this period in the Australian Capital Territory and South Australia.</p>
<p>13</p>	<p>Hepatopancreatitis in prawns was not reported this period despite passive surveillance in Queensland (last reported 2017). Passive surveillance and never reported in New South Wales. No information available in the Australian Capital Territory, Victoria, Northern Territory, South Australia, Western Australia and Tasmania.</p>

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

Nil

Country: **BANGLADESH***Period: **April - June 2019**

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. Infection with epizootic haematopoietic necrosis virus	0000	0000	0000		
2. Infection with infectious haematopoietic necrosis virus	0000	0000	0000		
3. Infection with spring viremia of carp virus	0000	0000	0000		
4. Infection with viral haemorrhagic septicaemia virus	0000	0000	0000		
5. Infection with <i>Aphanomyces invadans</i> (EUS)	-	-	-	I	
6. Infection with red sea bream iridovirus	0000	0000	0000		
7. Infection with koi herpesvirus	0000	0000	0000		
Non OIE-listed diseases					
8. Grouper iridoviral disease	0000	0000	0000		
9. Viral encephalopathy and retinopathy	0000	0000	0000		
10. Enteric septicaemia of catfish	0000	0000	0000		
11. Carp edema virus disease	0000	0000	0000		
12. Tilapia lake virus (TiLV)	0000	0000	0000		
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with <i>Bonamia exitiosa</i>	0000	0000	0000		
2. Infection with <i>Perkinsus olseni</i>	0000	0000	0000		
3. Infection with abalone herpesvirus	0000	0000	0000		
4. Infection with <i>Xenohaliotis californiensis</i>	0000	0000	0000		
5. Infection with <i>Bonamia ostreae</i>	0000	0000	0000		
Non OIE-listed diseases					
6. Infection with <i>Marteilioides chungmuensis</i>	0000	0000	0000		
7. Acute viral necrosis (in scallops)	0000	0000	0000		
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Infection with Taura syndrome virus	0000	0000	0000		
2. Infection with white spot syndrome virus	0000	0000	0000		
3. Infection with yellow head virus genotype 1	0000	0000	0000		
4. Infection with infectious hypodermal and haematopoietic necrosis virus	0000	0000	0000		
5. Infection with infectious myonecrosis virus	0000	0000	0000		
6. Infection with <i>Macrobrachium rosenbergii</i> nodavirus (White Tail disease)	0000	0000	0000		
7. Infection with <i>Hepatobacter penaei</i> (Necrotising hepatopancreatitis)	0000	0000	0000		
8. Acute hepatopancreatic necrosis disease (AHPND)	0000	0000	0000		
9. Infection with <i>Aphanomyces astaci</i> (Crayfish plague)	0000	0000	0000		
Non OIE-listed diseases	0000	0000	0000		
10. Hepatopancreatic microsporidiosis caused by <i>Enterocytozoon hepatopenaei</i> (HPM-EHP)	0000	0000	0000		

*Member of NACA's Asia Regional Aquatic Animal Health Programme

11. Viral covert mortality disease (VCMD) of shrimps	0000	0000	0000		
12. <i>Spiroplasma eriocheiris</i> infection	0000	0000	0000		
13. Shrimp haemocyte iridescent virus (SHIV)	0000	0000	0000		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	0000	0000	0000		
2. Infection with <i>Batrachochytrium dendrobatidis</i>	0000	0000	0000		
3. Infection with <i>Batrachochytrium salamandrivorans</i>	0000	0000	0000		
ANY OTHER DISEASES OF IMPORTANCE					
1. Infection with <i>Streptococcus</i> (Tilapia and Koi)	-	+()	+()	III	
2. Infection with <i>Aeromonas</i> (Koi)	-	+()	+()	III	

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

Nil

Country: **HONG KONG SAR, CHINA***Period: **April - June 2019**

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. Infection with epizootic haematopoietic necrosis virus	0000	0000	0000	II	
2. Infection with infectious haematopoietic necrosis virus	0000	0000	0000	III	
3. Infection with spring viremia of carp virus	0000	0000	0000	III	
4. Infection with viral haemorrhagic septicaemia virus	0000	0000	0000	III	
5. Infection with <i>Aphanomyces invadans</i> (EUS)	0000	0000	0000	III	
6. Infection with red sea bream iridovirus	-	-	+	III	1
7. Infection with koi herpesvirus	-	-	-	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	
11. Carp edema virus disease	***	***	***		
12. Tilapia lake virus (TiLV)	***	***	***		
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	
5. Infection with <i>Bonamia ostreae</i>	***	***	***		
Non OIE-listed diseases					
6. Infection with <i>Marteilioides chungmuensis</i>	0000	0000	0000	II	
7. Acute viral necrosis (in scallops)	0000	0000	0000	II	
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Infection with Taura syndrome virus	0000	0000	0000	III	
2. Infection with white spot syndrome virus	-	-	-	III	
3. Infection with yellow head virus genotype 1	0000	0000	0000	III	
4. Infection with infectious hypodermal and haematopoietic necrosis virus	0000	0000	0000	II	
5. Infection with infectious myonecrosis virus	0000	0000	0000	II	
6. Infection with <i>Macrobrachium rosenbergii</i> nodavirus (White Tail disease)	0000	0000	0000	II	
7. Infection with <i>Hepatobacter penaei</i> (Necrotising hepatopancreatitis)	***	***	***	II	
8. Acute hepatopancreatic necrosis disease (AHPND)	***	***	***	II	
9. Infection with <i>Aphanomyces astaci</i> (Crayfish plague)	0000	0000	0000	II	
Non OIE-listed diseases					
10. Hepatopancreatic microsporidiosis caused by <i>Enterocytozoon hepatopenaei</i> (HPM-EHP)	***	***	***		
11. Viral covert mortality disease (VCMD) of shrimps	***	***	***		

*Member of NACA's Asia Regional Aquatic Animal Health Programme

12. <i>Spiroplasma eriocheiris</i> infection	***	***	***		
13. Shrimp haemocyte iridescent virus (SHIV)	***	***	***		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	(1 Apr 2017)	(1 Apr 2017)	(1 Apr 2017)	III	
2. Infection with <i>Batrachochytrium dendrobatidis</i>	***	***	***	III	
3. Infection with <i>Batrachochytrium salamandrivorans</i>	***	***	***	III	
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	Red seabream iridoviral disease caused by Infectious spleen and kidney necrosis virus (ISKNV) was identified in samples of Sabah hybrid grouper fry. Clinical signs include emaciation, lethargy, dark colouration, and enlargement of spleen. The case mortality rate was reported to be approximately 30%. The affected farm was approximately 250 m ² . Adoption of preventive measures including the use of virus-free stocks, disinfection of contaminated facilities, repair of filter system and ozone generator were recommended, as well as application of good aquaculture practices.

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

Country: **INDIA***

 Period: **April - June 2019**

Item	Disease status ^{1/}			Level of diagnosis	Epidemiological comment numbers
	Month				
DISEASES PREVALENT IN THE REGION	April	May	June		
FINFISH DISEASES					
OIE-listed diseases					
1. Infection with epizootic haematopoietic necrosis virus	0000	0000	0000		
2. Infection with infectious haematopoietic necrosis virus	0000	0000	0000		
3. Infection with spring viremia of carp virus	0000	0000	0000		
4. Infection with viral haemorrhagic septicaemia virus	0000	0000	0000		
5. Infection with <i>Aphanomyces invadans</i> (EUS)	-	-	-		
6. Infection with red sea bream iridovirus	(2018)	(2018)	(2018)		
7. Infection with koi herpesvirus	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		
11. Carp edema virus disease	-	+()	+()	III	1
12. Tilapia lake virus (TiLV)	-	+()	+()	III	2
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with <i>Bonamia exitiosa</i>	0000	0000	0000		
2. Infection with <i>Perkinsus olseni</i>	+()	+()	+()	H, III	3
3. Infection with abalone herpesvirus	0000	0000	0000		
4. Infection with <i>Xenohaliotis californiensis</i>	0000	0000	0000		
5. Infection with <i>Bonamia ostreae</i>	0000	0000	0000		
Non OIE-listed diseases					
6. Infection with <i>Marteilioides chungmuensis</i>	0000	0000	0000		
7. Acute viral necrosis (in scallops)	0000	0000	0000		
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Infection with Taura syndrome virus	0000	0000	0000		
2. Infection with white spot syndrome virus	+()	+()	+()	III	4
3. Infection with yellow head virus genotype 1	0000	0000	0000		
4. Infection with infectious hypodermal and haematopoietic necrosis virus	-	-	+()	III	5
5. Infection with infectious myonecrosis virus	+()	+()	+()	III	6
6. Infection with <i>Macrobrachium rosenbergii</i> nodavirus (White Tail disease)	-	-	-		
7. Infection with <i>Hepatobacter penaei</i> (Necrotising hepatopancreatitis)	0000	0000	0000		
8. Acute hepatopancreatic necrosis disease (AHPND)	0000	0000	0000		
9. Infection with <i>Aphanomyces astaci</i> (Crayfish plague)	0000	0000	0000		
Non OIE-listed diseases					
10. Hepatopancreatic microsporidiosis caused by <i>Enterocytozoon hepatopenaei</i> (HPM-EHP)	+()	+()	+()	III	7

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11. Viral covert mortality disease (VCMD) of shrimps	0000	0000	0000		
12. <i>Spiroplasma eriocheiris</i> infection	0000	0000	0000		
13. Shrimp haemocyte iridescent virus (SHIV)	0000	0000	0000		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	0000	0000	0000		
2. Infection with <i>Batrachochytrium dendrobatidis</i>	****	****	****		
3. Infection with <i>Batrachochytrium salamandrivorans</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	<p>Infection with carp edema virus was detected in samples of koi carp <i>Cyprinus carpio</i> collected from Chennai, Tamil Nadu.</p> <p><i>Preventive/Control measures taken:</i> Treatment of affected fish with 5 ppt salt for 1 hour and implementation of biosecurity measures</p>
2	<p>Tilapia lake virus disease was reported from very limited areas of Pathanamthitta, Thrissur, Kozhikode and Wayanad districts of Kerala; and East Midnapur district of West Bengal.</p> <p><i>Preventive/Control measures taken:</i> Advised to follow better management practices for controlling the disease, implementation of strict biosecurity measures to prevent the spread of pathogen.</p>

3	<p>Infection with <i>Perkinsus olseni</i> was detected in farmed samples of <i>Perna viridis</i> in Kasaragod, Kannur, Thrissur and Ernakulam districts of Kerala. Infection was also detected in wild samples of <i>Modiolus modiolus</i>, <i>Paphia malabarica</i>, <i>Pinctada fucata</i> and <i>Pinna bilcolor</i> from Kannur district in Kerala.</p> <p><i>Preventive/Control measures taken:</i> Nil</p>
4	<p>Infection with white spot syndrome virus (WSSV) was reported in <i>Litopenaeus vannamei</i> from very limited areas of Cuddalore and Thiruvallur districts of Tamil Nadu; Nellore, East Godavari and West Godavari districts of Andhra Pradesh; Udupi district of Karnataka; and Thrissur district of Kerala. The infection was also reported in <i>Penaes monodon</i> from very limited areas of Thrissur district of Kerala.</p> <p><i>Preventive/Control measures taken:</i> Advised to follow better management practices for controlling the disease, implementation of strict biosecurity measures to prevent the spread of pathogen and emergency harvesting, drying of the ponds and disinfection before next stocking.</p>
5	<p>Infection with infectious hypodermal and haematopoietic necrosis virus was detected in <i>Litopenaeus vannamei</i> from very limited areas of Thiruvallur district of Tamil Nadu.</p> <p><i>Preventive/Control measures taken:</i> Advised to follow better management practices for controlling the disease.</p>
6	<p>Infection with infectious myonecrosis virus was detected in <i>Litopenaeus vannamei</i> in very limited areas of Thiruvallur, Nagapattinam and Tiruvarur districts of Tamil Nadu.</p> <p><i>Preventive/Control measures taken:</i> Advised to follow better management practices for controlling the disease, implementation of strict biosecurity measures to prevent the spread of pathogen and emergency harvesting, drying of the ponds and disinfection before next stocking.</p>
7	<p>Infection with <i>Enterocytozoon hepatopenaei</i> was reported in <i>Litopenaeus vannamei</i> from very limited areas of Balasore and Bhadrak districts of Odisha; Uttar Kannada and Udupi districts of Karnataka; Tiruvarur, Cuddalore, Nagapattinam, Pudukkottai, Thoothukudi and Thiruvallur districts of Tamil Nadu; Nellore, Vizianagaram, Srikakulam, East Godavari and West Godavari districts of Andhra Pradesh; Thane, Raigad and Sindhudurg districts of Maharashtra; East Midnapur in West Bengal; and Valsad and Junagadh districts of Gujarat. The infection was also reported in <i>Penaes monodon</i> from very limited areas of Thrissur district of Kerala.</p> <p><i>Preventive/Control measures taken:</i> Advised to follow better management practices for controlling the disease, implementation of strict biosecurity measures to prevent the spread of pathogen, drying of the ponds and disinfection before next stocking.</p>

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

Country: **IR IRAN***

 Period: **April - June 2019**

Item	Disease status ^{1/2}			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)	(2015)	(2015)	(2015)		
Non OIE-listed diseases					
8. Grouper iridoviral disease	0000	0000	0000		
9. Viral encephalopathy and retinopathy	0000	0000	0000		
10. Enteric septicaemia of catfish	0000	0000	0000		
11. Carp edema virus disease	***	***	***		
12. Tilapia lake virus (TiLV)	***	***	***		
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		
5. Infection with <i>Bonamia ostreae</i>	0000	0000	0000		
Non OIE-listed diseases					
6. Infection with <i>Marteilioides chungmuensis</i>	0000	0000	0000		
7. Acute viral necrosis (in scallops)	0000	0000	0000		
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Infection with Taura syndrome virus	0000	0000	0000		
2. Infection with white spot syndrome virus	-	-	-		
3. Infection with yellow head virus genotype 1	0000	0000	0000		
4. Infection with infectious hypodermal and haematopoietic necrosis virus	0000	0000	0000		
5. Infection with infectious myonecrosis virus	0000	0000	0000		
6. Infection with <i>Macrobrachium rosenbergii</i> nodavirus (White Tail disease)	***	***	***		
7. Infection with <i>Hepatobacter penaei</i> (Necrotising hepatopancreatitis)	0000	0000	0000		
8. Acute hepatopancreatic necrosis disease (AHPND)	0000	0000	0000		
9. Infection with <i>Aphanomyces astaci</i> (Crayfish plague)	***	***	***		
Non OIE-listed diseases					
10. Hepatopancreatic microsporidiosis caused by <i>Enterocytozoon hepatopenaei</i> (HPM-EHP)	***	***	***		
11. Viral covert mortality disease (VCMD) of shrimps	***	***	***		

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12. <i>Spiroplasma eriocheiris</i> infection	***	***	***		
13. Iridovirus in crayfish	***	***	***		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	***	***	***		
2. Infection with <i>Batrachochytrium dendrobatidis</i>	***	***	***		
3. Infection with <i>Batrachochytrium salamandrivorans</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	<p>Infectious haematopoietic necrosis (IHN)</p> <p>1) Reported from two farms in two provinces during April to June by implementation of active surveillance;</p> <p>2) Species affected: rainbow trout (<i>Oncorhynchus mykiss</i>);</p> <p>3) Clinical Signs: mass mortality, lethargy, swimming with abnormal behavior, pinpoint haemorrhages in visceral organs and pale gills; Clinical signs were dominant in fry and young fish;</p> <p>4) Pathogen: Infectious haematopoietic necrosis virus (related to genogroup E and near to Italian isolates);</p> <p>5) Mortality rate: 30-40%</p> <p>6) Economic loss: —</p> <p>7) Names of infected areas: Central part of the country;</p> <p>8) Preventive/control measures taken: zoning and quarantine (restriction of fish movement) are major actions that were taken; killing of sick fish, disinfection, and fallowing of affected farms were essential measures for disease control;</p> <p>9) Laboratories for confirmation: Realtime-PCR and Cell culture in CVL;</p> <p>10) Publications: None</p>

2	<p>Viral Haemorrhagic Septicaemia (VHS)</p> <p>1) Reported from 7 farms in 7 provinces during April to June by implementation of both active and passive surveillance;</p> <p>2) Species affected: Rainbow trout (<i>Oncorhynchus mykiss</i>);</p> <p>3) Disease signs: mass mortality, lethargy, abnormal swimming, pinpoint haemorrhages in visceral organs and pale gills. Clinical signs were dominant in fry and young fish;</p> <p>4) Pathogen: Viral haemorrhagic septicaemia virus (isolates were related to genotype IIa-2);</p> <p>5) Mortality rate: 90% in hatchery, lower percentage in grow-out;</p> <p>6) Economic loss: –</p> <p>7) Names of infected areas: Central part of the country;</p> <p>8) Preventive/control measures taken: zoning and quarantine (restriction of fish movement) are major actions that were taken; killing of sick fish, disinfection, and following of affected farms were essential measures for disease control;</p> <p>9) Laboratory confirmation: Real time PCR and cell culture in CVL;</p> <p>10) Publications: None</p>
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2. New aquatic animal health regulations introduced within past six months (with effective date):

Country: **MYANMAR***

 Period: **January - March 2019**

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. Infection with epizootic haematopoietic necrosis virus	***	***	***		
2. Infection with infectious haematopoietic necrosis virus	***	***	***		
3. Infection with spring viremia of carp virus	***	***	***		
4. Infection with viral haemorrhagic septicaemia virus	***	***	***		
5. Infection with <i>Aphanomyces invadans</i> (EUS)	***	***	***		
6. Infection with red sea bream iridovirus	***	***	***		
7. Infection with koi herpesvirus					
Non OIE-listed diseases					
8. Grouper iridoviral disease	***	***	***		
9. Viral encephalopathy and retinopathy	***	***	***		
10. Enteric septicaemia of catfish	***	***	***		
11. Carp edema virus disease	***	***	***		
12. Tilapia lake virus (TiLV)	***	***	***		
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>	/	/	/		
5. Infection with <i>Bonamia ostreae</i>					
Non OIE-listed diseases					
6. Infection with <i>Marteilioides chungmuensis</i>	/	/	/		
7. Acute viral necrosis (in scallops)	/	/	/		
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Infection with Taura syndrome virus	-	-	-	III	1
2. Infection with white spot syndrome virus	-	-	-	III	1
3. Infection with yellow head virus genotype 1	-	-	-	III	1
4. Infection with infectious hypodermal and haematopoietic necrosis virus	***	***	***	III	
5. Infection with infectious myonecrosis virus	-	-	-	III	1
6. Infection with <i>Macrobrachium rosenbergii</i> nodavirus (White Tail disease)	-	-	-	III	1
7. Infection with <i>Hepatobacter penaei</i> (Necrotising hepatopancreatitis)	***	***	***		
8. Acute hepatopancreatic necrosis disease (AHPND)	-	-	-	III	1
9. Infection with <i>Aphanomyces astaci</i> (Crayfish plague)	***	***	***		
Non OIE-listed diseases					
10. Hepatopancreatic microsporidiosis caused by <i>Enterocytozoon hepatopenaei</i> (HPM-EHP)	***	***	***		
11. Viral covert mortality disease (VCMD) of shrimps	***	***	***		

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12. <i>Spiroplasma eriocheiris</i> infection	***	***	***		
13. Shrimp haemocyte iridescent virus (SHIV)	***	***	***		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	/	/	/		
2. Infection with <i>Batrachochytrium dendrobatidis</i>	/	/	/		
3. Infection with <i>Batrachochytrium salamandrivorans</i>	/	/	/		
ANY OTHER DISEASES OF IMPORTANCE					
1. Parasitic disease					2
2.					

DISEASES PRESUMED EXOTIC TO THE REGION^b
LISTED BY THE OIE
Finfish: Infection with 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	During this period, we have received 66 samples of crustaceans (26 frozen shrimp and 10 soft shell crab for export), live PLs of <i>P. vannamei</i> (12 samples), <i>Macrobrachium rosenbergii</i> (17 sample), and <i>P. monodon</i> (1 sample) for import and local testing, and found that all samples were negative for WSSV, MrNV, YHV, IMN, AHPND and TSV.
2	Visited some fish farms in Yangon, Mandalay and Ayeyarwaddy regions during this period. Parasitic infestations (<i>Dactylogyrus</i> sp., <i>Argulus</i> sp., and <i>Ergasilus</i> sp.) were found in some farms due to poor water quality.

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

Country: **NEW CALEDONIA**Period: **April - June 2019**

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. Infection with epizootic haematopoietic necrosis virus	***	***	***		
2. Infection with infectious haematopoietic necrosis virus	***	***	***		
3. Infection with spring viremia of carp virus	***	***	***		
4. Infection with viral haemorrhagic septicaemia virus	***	***	***		
5. Infection with <i>Aphanomyces invadans</i> (EUS)	***	***	***		
6. Infection with red sea bream iridovirus	***	***	***		
7. Infection with koi herpesvirus	***	***	***		
Non OIE-listed diseases					
8. Grouper iridoviral disease	***	***	***		
9. Viral encephalopathy and retinopathy	+	+	+		
10. Enteric septicaemia of catfish	***	***	***		
11. Carp edema virus disease	***	***	***		
12. Tilapia lake virus (TiLV)	***	***	***		
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	
5. Infection with <i>Bonamia ostreae</i>	0000	0000	0000	II	
Non OIE-listed diseases					
6. Infection with <i>Marteilioides chungmuensis</i>	0000	0000	0000	II	
7. Acute viral necrosis (in scallops)	***	***	***		
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Infection with Taura syndrome virus	0000	0000	0000	III	
2. Infection with white spot syndrome virus	0000	0000	0000	III	
3. Infection with yellow head virus genotype 1	0000	0000	0000	III	
4. Infection with infectious hypodermal and haematopoietic	2013	2013	2013	III	
5. Infection with infectious myonecrosis virus	0000	0000	0000	III	
6. Infection with <i>Macrobrachium rosenbergii</i> nodavirus (White Tail disease)	0000	0000	0000	III	
7. Infection with <i>Hepatobacter penaei</i> (Necrotising	0000	0000	0000	III	
8. Acute hepatopancreatic necrosis disease (AHPND)	0000	0000	0000	III	
9. Infection with <i>Aphanomyces astaci</i> (Crayfish plague)	0000	0000	0000	III	
Non OIE-listed diseases					
10. Hepatopancreatic microsporidiosis caused by <i>Enterocytozoon hepatopenaei</i> (HPM-EHP)	0000	0000	0000	III	
11. Viral covert mortality disease (VCMD) of shrimps	***	***	***		

12. <i>Spiroplasma eriocheiris</i> infection	0000	0000	0000	III	
13. Shrimp haemocyte iridescent virus (SHIV)	***	***	***		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	***	***	***		
2. Infection with <i>Batrachochytrium dendrobatidis</i>	***	***	***		
3. Infection with <i>Batrachochytrium salamandrivorans</i>	***	***	***		
ANY OTHER DISEASES OF IMPORTANCE					
1.					
2.					

DISEASES PRESUMED EXOTIC TO THE REGION^b

LISTED BY THE OIE

Finfish: Infection with 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:

		?()	Presence of the disease suspected but not confirmed in a zone
+	Disease reported or known to be present		
+?	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: NEW ZEALAND
Period: April - June 2019

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. Infection with epizootic haematopoietic necrosis virus	0000	0000	0000	III	
2. Infection with infectious haematopoietic necrosis virus	0000	0000	0000	III	
3. Infection with spring viremia of carp virus	0000	0000	0000	III	
4. Infection with viral haemorrhagic septicaemia virus	0000	0000	0000	III	
5. Infection with <i>Aphanomyces invadans</i> (EUS)	0000	0000	0000	III	
6. Infection with red sea bream iridovirus	0000	0000	0000	III	
7. Infection with koi herpesvirus	0000	0000	0000	III	
Non OIE-listed diseases					
8. Grouper iridoviral disease	0000	0000	0000	III	
9. Viral encephalopathy and retinopathy	0000	0000	0000	III	
10. Enteric septicaemia of catfish	0000	0000	0000	III	
11. Carp edema virus disease	0000	0000	0000	III	
12. Tilapia lake virus (TiLV)	0000	0000	0000	III	
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with <i>Bonamia exitiosa</i>	- (2018)	- (2018)	+	III	1
2. Infection with <i>Perkinsus olseni</i>	- (2018)	- (2018)	+	III	2
3. Infection with abalone herpesvirus	0000	0000	0000	III	
4. Infection with <i>Xenohaliotis californiensis</i>	0000	0000	0000	III	
5. Infection with <i>Bonamia ostreae</i>	- (2017)	- (2017)	- (2017)	III	3
Non OIE-listed diseases					
6. Infection with <i>Marteilioides chungmuensis</i>	0000	0000	0000	III	
7. Acute viral necrosis (in scallops)	0000	0000	0000	III	
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Infection with Taura syndrome virus	0000	0000	0000	III	
2. Infection with white spot syndrome virus	0000	0000	0000	III	
3. Infection with yellow head virus genotype 1	0000	0000	0000	III	
4. Infection with infectious hypodermal and haematopoietic	0000	0000	0000	III	
5. Infection with infectious myonecrosis virus	0000	0000	0000	III	
6. Infection with <i>Macrobrachium rosenbergii</i> nodavirus (White Tail disease)	0000	0000	0000	III	
7. Infection with <i>Hepatobacter penaei</i> (Necrotising	0000	0000	0000	III	
8. Acute hepatopancreatic necrosis disease (AHPND)	0000	0000	0000	III	
9. Infection with <i>Aphanomyces astaci</i> (Crayfish plague)	0000	0000	0000	III	
Non OIE-listed diseases					
10. Hepatopancreatic microsporidiosis caused by <i>Enterocytozoon hepatopenaei</i> (HPM-EHP)	0000	0000	0000	III	
11. Viral covert mortality disease (VCMD) of shrimps	0000	0000	0000	III	

12. <i>Spiroplasma eriocheiris</i> infection	0000	0000	0000	III	
13. Shrimp haemocyte iridescent virus (SHIV)	0000	0000	0000	III	
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	0000	0000	0000	III	
2. Infection with <i>Batrachochytrium dendrobatidis</i>	-(2010)	-(2010)	-(2010)	III	4
3. Infection with <i>Batrachochytrium salamandrivorans</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:

		?()	Presence of the disease suspected but not confirmed in a zone
+	Disease reported or known to be present		
+?	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>Infection with <i>Bonamia exitiosa</i> 1) Reported in Foveaux Strait, New Zealand via targeted surveillance; 2) Species affected: wild fawn oysters (<i>Ostrea chilensis</i>); 3) Disease signs: low level; 4) Pathogen: <i>Bonamia exitiosa</i>; 5) Mortality rate: 2%; 6) Economic loss: N/A 7) Names of infected areas: Foveaux Strait, Southland; 8) Preventive/control measures taken: none; 9) Laboratory confirmation: histopathology and ddPCR (National Institute Water and Atmospheric Research); 10) Publications: None</p> <p>Infection with <i>Bonamia exitiosa</i> was reported to occur in commercial oyster beds in Foveaux Strait, Southland where it is highly prevalent and associated with mortalities in mid to late summer. It occurs intermittently around the South Island and in Wellington Harbour (southern end of the North Island), and has been previously reported in <i>Ostrea chilensis</i> from Hauraki Gulf (Auckland region), Tauranga (Bay of Plenty region), the Marlborough Sounds and Wellington Harbour. Annual monitoring of the presence of <i>B. exitiosa</i> infection is undertaken in the flat oyster (<i>O. chilensis</i>) population in the Foveaux Strait.</p>
2	<p>Infection with <i>Perkinsus olseni</i> 1) Reported in Northland in June 2019 via passive surveillance; 2) Species affected: farmed black foot paua (<i>Haliotis iris</i>); 3) Disease signs: low level; 4) Pathogen: <i>Perkinsus olseni</i>; 5) Mortality rate: N/A; 6) Economic loss: N/A 7) Names of infected areas: on one land-based farm in Northland; 8) Preventive/control measures taken: N/A; 9) Laboratory confirmation: histopathology (Cawthron Institute)and in situ hybridisation (Investigation and Diagnostic Centre - Wallaceville); 10) Publications: None</p> <p>Infection with <i>Perkinsus olseni</i> was first detected in New Zealand in 1999, in wild wedge shells (<i>Macomona liliana</i>). It was then found in wild populations of New Zealand cockles (<i>Austrovenus stutchburyi</i>), ark shells (<i>Barbatia novaezelandiae</i>) and pipi (<i>Paphies australis</i>) in 2000-2001. In July 2013, <i>P. olseni</i> was detected for the first time in farmed black foot pāua (<i>Haliotis iris</i>), a type of abalone native to New Zealand. Further detections were made in wild <i>H. iris</i> populations in 2014. These mollusc species occur widely around the coast of New Zealand, but to date <i>P. olseni</i> has only been detected in these species from the Auckland region northwards. <i>Perkinsus olseni</i> was found for the first time on the South Island in New Zealand green lipped mussels (<i>Perna canaliculus</i>) in a land based aquaculture facility in September 2014, and then in wild New Zealand scallops (<i>Pecten novaezelandiae</i>) in November 2014. Both of these findings were in the Marlborough region, and were incidental and not associated with mortality events. In November 2017, passive surveillance detected <i>P. olseni</i> from New Zealand scallops in two sites within Kaipara harbour, Auckland region, and again was thought to be incidental and not associated with significant pathology in scallops.</p>

<p>3</p>	<p>Infection with <i>Bonamia ostreae</i> was detected for the first time in New Zealand flat oysters (<i>Ostrea chilensis</i>) in January 2015. It was found on one land-based aquaculture facility in the Nelson region, and on two marine farms in the Marlborough region, both regions being in northern part of the South Island. Since that time, movement controls have been in place to regulate the movement of susceptible shellfish from the northern regions of the South Island and active surveillance has been conducted for the purposes of early detection of spread. In 2016, <i>B. ostreae</i> was detected in both farmed and wild flat oysters within the Marlborough region (the same region as initially reported), and was associated with pathology and mortality in the farmed population. In May 2017 surveillance detected <i>B. ostreae</i> in marine flat oyster farms in Big Glory Bay, Stewart Island (situated in the Southland region, at the southern end of the South Island). No clinical signs or elevated mortality was observed in association with <i>B. ostreae</i> in farmed flat oysters in Big Glory Bay. Following this detection, movement controls to manage risk movements from Stewart Island were issued, and depopulation of all flat oyster farms within areas where <i>B. ostreae</i> had been detected commenced. Depopulation of farms in Big Glory Bay commenced on the 19 June 2017 and was completed September 2017. Depopulation of farms in Marlborough Sounds commenced on the 11 July and was completed in December 2017. Active surveillance continues for the purposes of early detection of spread.</p>
<p>4</p>	<p>The first isolation of <i>Batrachochytrium dendrobatidis</i> was made in 1999 in New Zealand. Since then the fungus has been detected both on the North and South Islands in both native and introduced frog species. It is not certain what level of population decline if any, is associated with the presence of the fungus in native frogs.</p>

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

Country: **PHILIPPINES***

 Period: **January - March 2019**

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. Infection with epizootic haematopoietic necrosis virus	0000	0000	0000		
2. Infection with infectious haematopoietic necrosis virus	0000	0000	0000		
3. Infection with spring viremia of carp virus	0000	0000	0000		
4. Infection with viral haemorrhagic septicaemia virus	0000	0000	0000		
5. Infection with <i>Aphanomyces invadans</i> (EUS)	(2002)	(2002)	(2002)	I	1
6. Infection with red sea bream iridovirus	?	?	?	I, III	2
7. Infection with koi herpesvirus	0000	0000	0000	I, III	3
Non OIE-listed diseases					
8. Grouper iridoviral disease	(2008)	(2008)	(2008)	I, III	
9. Viral encephalopathy and retinopathy	-	-	-	I, III	4
10. Enteric septicaemia of catfish	***	***	***		
11. Carp edema virus disease	0000	0000	0000		
12. Tilapia lake virus (TiLV)	+	+	-	I, III	5
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	***	***	***		
4. Infection with <i>Xenohaliotis californiensis</i>	***	***	***		
5. Infection with <i>Bonamia ostreae</i>	0000	0000	0000		
Non OIE-listed diseases					
6. Infection with <i>Marteilioides chungmuensis</i>	0000	0000	0000		
7. Acute viral necrosis (in scallops)	***	***	***		
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Infection with Taura syndrome virus	0000	0000	0000	I, III	6
2. Infection with white spot syndrome virus	+	+	+	I, III	7
3. Infection with yellow head virus genotype 1	0000	0000	0000	I, III	8
4. Infection with infectious hypodermal and haematopoietic	-	+	+	I, III	9
5. Infection with infectious myonecrosis virus	0000	0000	0000	I, III	10
6. Infection with <i>Macrobrachium rosenbergii</i> nodavirus (White Tail disease)	0000	0000	0000	I, III	
7. Infection with <i>Hepatobacter penaei</i> (Necrotising	0000	0000	0000	I, III	11
8. Acute hepatopancreatic necrosis disease (AHPND)	-	+	+	I, III	12
9. Infection with <i>Aphanomyces astaci</i> (Crayfish plague)	0000	0000	0000		
Non OIE-listed diseases					
10. Hepatopancreatic microsporidiosis caused by <i>Enterocytozoon hepatopenaei</i> (HPM-EHP)	-	-	+	I, III	13
11. Viral covert mortality disease (VCMD) of shrimps	0000	0000	0000		

*Member of NACA's Asia Regional Aquatic Animal Health Programme

12. <i>Spiroplasma eriocheiris</i> infection	0000	0000	0000		
13. Shrimp haemocyte iridescent virus (SHIV)	0000	0000	0000		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	***	***	***		
2. Infection with <i>Batrachochytrium dendrobatidis</i>	***	***	***		
3. Infection with <i>Batrachochytrium salamandrivorans</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>Infection with <i>Aphanomyces invadans</i> (EUS)</p> <p>EUS was not detected by gross morphological examinations in <i>Anguilla</i> spp. from Batangas, Cabadbaran City, Cavite, Cotabato, and Laguna. Examinations were conducted by Bureau of Fisheries and Aquatic Resources (BFAR) Central Fish Health Laboratory.</p>
2	<p>Red Seabream Iridoviral Disease (RSID)</p> <p>Sample of Green Grouper from a farm in Sarangani showed positive result by PCR. Examination was conducted by the Southeast Asian Fisheries Development Center (SEAFDEC) Fish Health Laboratory.</p>

3	<p>Koi herpesvirus disease (KHV)</p> <p>Koi analyzed using PCR test showed negative result of Koi herpesvirus disease. Examination was conducted by BFAR Central Fish Health Laboratory.</p>
4	<p>Viral Encephalopathy and Retinopathy (VER)</p> <p>Snapper, Green Grouper, Tilapia, Domino Damsel, Pompano, Clown Fish, Fire Goby, Round Goby, and Panther Grouper of different stages (fry, fingerling, broodstock, and juvenile) analyzed using PCR test showed negative results for Viral Encephalopathy and Retinopathy. Samples were collected from Agusan del Norte, Batangas, Camarines Sur, Iloilo, Laguna, Nueva Ecija, Quezon Province, Sarangani, and Surigao del Sur. Examinations were conducted by BFAR Central and SEAFDEC Fish Health Laboratories.</p>
5	<p>Tilapia Lake Virus (TiLV)</p> <p>Origin of the disease or pathogen (history of the disease)- detected in 3 farms Species affected: Tilapia Pathogen: Tilapia Lake Virus Size of infected areas or names of infected areas: Agusan del Sur, Laguna, and Lanao del Norte Samples sent to national or international laboratories for confirmation (indicate the name of laboratories): Polymerase Chain Reaction Test (PCR) / BFAR Central Fish Health Laboratory</p>
6	<p>Taura Syndrome (TS)</p> <p><i>Pennaeus vannamei</i>, <i>P. monodon</i>, <i>P. indicus</i> and <i>Macrobrachium rosenbergii</i> of different stages (post-larvae, grow-out and broodstock) analyzed using PCR test showed negative results for Taura Syndrome. Samples were collected from Bataan, Bohol, Cebu, Masbate, Oriental Mindoro, Palawan, Pampanga, Rizal, and Zambales. Other samples examined were imported from Hawaii. Examinations were conducted by BFAR Central Fish Health Laboratory.</p>
7	<p>White Spot Disease (WSD)</p> <p>Origin of the disease or pathogen (history of the disease)- detected in 24 farms Species affected: <i>P. vannamei</i>, <i>P. monodon</i>, lobster and crab Pathogen: White Spot Virus Size of infected areas or names of infected areas: Agusan del Sur, Albay, Bataan, Cagayan, Cebu, Marinduque, Masbate, Negros Occidental, Oriental Mindoro, Palawan, Pampanga, Surigao City, and Zambales. Samples sent to national or international laboratories for confirmation (indicate the name of laboratories): Polymerase Chain Reaction Test (PCR) / BFAR Central and SEAFDEC Fish Health Laboratories</p>
8	<p>Yellow Head Virus (YHV)</p> <p><i>P. vannamei</i>, <i>P. monodon</i>, <i>P. indicus</i> and <i>M. rosenbergii</i> different stages (post-larvae, grow-out and broodstock) analyzed using PCR test showed negative results for Yellow Head Virus. Samples were collected from Bataan, Cebu, Marinduque, Masbate, Oriental Mindoro, Palawan, Pampanga, Rizal, and Zambales. Other samples examined were imported from Hawaii. Examination was conducted by BFAR Central Fish Health Laboratory.</p>

9	<p>Infectious Hypodermal and Heamatopoietic Necrosis (IHHNV)</p> <p>Origin of the disease or pathogen (history of the disease) – detected in 11 farms Species affected: <i>P. vannamei</i> and <i>P. monodon</i> Pathogen: Infectious Hypodermal and Heamatopoietic Virus Size of infected areas or names of infected areas: Bataan, Bohol, Marinduque, Masbate, and Zambales Samples sent to national or international laboratories for confirmation (indicate the name of laboratories): Polymerase Chain Reaction Test (PCR) / BFAR Central Fish Health Laboratory</p>
10	<p>Infectious Myonecrosis (IMN)</p> <p><i>P. vannamei</i>, <i>P. monodon</i>, <i>P. indicus</i> and <i>M. rosenbergii</i> of different stages (post-larvae, adult, grow-out and broodstock) analyzed using PCR test showed negative for Infectious Myonecrosis. Samples were collected from Bataan, Bohol, Cebu, Marinduque, Masbate, Negros Occidental, Oriental Mindoro, Palawan, Pampanga, Rizal, and Zambales. Some samples examined were imported from Hawaii. Examinations were conducted by BFAR Central and SEAFDEC Fish Health Laboratories.</p>
11	<p>Necrotising Hepatopancreatitis (NHP)</p> <p><i>P. vannamei</i>, <i>P. monodon</i>, <i>P. indicus</i> and <i>M. rosenbergii</i> of different stages (post-larvae, grow-out and broodstock) analyzed using PCR test showed negative for Necrotising Hepatopancreatitis. Samples were collected from Bataan, Cebu, Marinduque, Masbate, Oriental Mindoro, Palawan, Pampanga, Rizal, and Zambales. Some samples examined were imported from Hawaii. Examinations were conducted by BFAR Central Fish Health Laboratory.</p>
12	<p>Acute Hepatopancreatic Necrosis Disease (AHPND)</p> <p>Origin of the disease or pathogen (history of the disease) – detected in 4 farms Species affected: <i>P. vannamei</i>, and <i>P.monodon</i> Pathogen: AHPND <i>Vibrio parahaemolyticus</i> Size of infected areas or names of infected areas: Cebu, Iloilo and Pampanga Samples sent to national or international laboratories for confirmation (indicate the name of laboratories): Polymerase Chain Reaction Test (PCR) / BFAR Central and SEAFDEC Fish Health Laboratories</p>
13	<p>Hepatopancreatic Microsporidiosis caused by <i>Enterocytozoon hepatopenaei</i> (HPM-EHP)</p> <p>Origin of the disease or pathogen (history of the disease) – detected in 3 farms Species affected: <i>P. vannamei</i>, and <i>P. monodon</i> Pathogen: <i>Enterocytozoon hepatopenaei</i> Size of infected areas or names of infected areas: Zambales Samples sent to national or international laboratories for confirmation (indicate the name of laboratories): Polymerase Chain Reaction Test (PCR) / BFAR Central and SEAFDEC Fish Health Laboratories</p>

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

Country: **PHILIPPINES***

 Period: **April - June 2019**

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. Infection with epizootic haematopoietic necrosis virus	0000	0000	0000		
2. Infection with infectious haematopoietic necrosis virus	0000	0000	0000		
3. Infection with spring viremia of carp virus	0000	0000	0000		
4. Infection with viral haemorrhagic septicaemia virus	0000	0000	0000		
5. Infection with <i>Aphanomyces invadans</i> (EUS)	+	-	-	I, III	1
6. Infection with red sea bream iridovirus	?	?	?	I, III	2
7. Infection with koi herpesvirus	0000	0000	0000	I, III	3
Non OIE-listed diseases					
8. Grouper iridoviral disease	(2008)	(2008)	(2008)	I, III	
9. Viral encephalopathy and retinopathy	-	-	-	I, III	4
10. Enteric septicaemia of catfish	***	***	***		
11. Carp edema virus disease	0000	0000	0000		
12. Tilapia lake virus (TiLV)	+	-	-	I, III	5
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	***	***	***		
4. Infection with <i>Xenohaliotis californiensis</i>	***	***	***		
5. Infection with <i>Bonamia ostreae</i>	0000	0000	0000		
Non OIE-listed diseases					
6. Infection with <i>Marteilioides chungmuensis</i>	0000	0000	0000		
7. Acute viral necrosis (in scallops)	***	***	***		
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Infection with Taura syndrome virus	0000	0000	0000	I, III	6
2. Infection with white spot syndrome virus	+	+	+	I, III	7
3. Infection with yellow head virus genotype 1	0000	0000	0000	I, III	8
4. Infection with infectious hypodermal and haematopoietic	+	+	+	I, III	9
5. Infection with infectious myonecrosis virus	0000	0000	0000	I, III	10
6. Infection with <i>Macrobrachium rosenbergii</i> nodavirus (White Tail disease)	0000	0000	0000	I, III	
7. Infection with <i>Hepatobacter penaei</i> (Necrotising	0000	0000	0000	I, III	11
8. Acute hepatopancreatic necrosis disease (AHPND)	+	+	+	I, III	12
9. Infection with <i>Aphanomyces astaci</i> (Crayfish plague)	0000	0000	0000		
Non OIE-listed diseases					
10. Hepatopancreatic microsporidiosis caused by <i>Enterocytozoon hepatopenaei</i> (HPM-EHP)	+	+	+	I, III	13
11. Viral covert mortality disease (VCMD) of shrimps	0000	0000	0000		

*Member of NACA's Asia Regional Aquatic Animal Health Programme

12. <i>Spiroplasma eriocheiris</i> infection	0000	0000	0000		
13. Shrimp haemocyte iridescent virus (SHIV)	0000	0000	0000		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	***	***	***		
2. Infection with <i>Batrachochytrium dendrobatidis</i>	***	***	***		
3. Infection with <i>Batrachochytrium salamandrivorans</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>Infection with <i>Aphanomyces invadans</i> (EUS)</p> <p>Origin of the disease or pathogen (history of the disease)- detected in 1 area</p> <p>Species affected: Goby</p> <p>Pathogen: <i>Aphanomyces invadans</i></p> <p>Size of infected areas or names of infected areas: Abra</p> <p>Samples sent to national or international laboratories for confirmation (indicate the name of laboratories): BFAR Regional and Central Fish Health Laboratories for initial diagnoses and Department of Fisheries, Aquatic Animal Health Research Development Division for confirmatory diagnosis</p>

2	<p>Red Seabream Iridoviral Disease (RSID)</p> <p>Sample of juvenile Green Grouper from a farm in Sarangani showed positive result by PCR. No clinical signs and mortalities observed. Examination was conducted by the Southeast Asian Fisheries Development Center (SEAFDEC) Fish Health Laboratory.</p>
3	<p>Koi herpesvirus disease (KHV)</p> <p>Koi, Wuchang bream, Big head carp, and Grass carp analyzed using PCR test showed negative results of Koi herpesvirus disease. Samples were collected from China. Examination was conducted by BFAR Central Fish Health Laboratory.</p>
4	<p>Viral Encephalopathy and Retinopathy (VER)</p> <p>Giant grouper, Tilapia, Green grouper, Pompano, Wuchang bream, Big head carp, and Grass carp analyzed using PCR test showed negative results for Viral Encephalopathy and Retinopathy. Samples were collected from Agusan del Norte and Nueva Ecija. Other samples were imported from China, Taiwan and Uganda. Examinations were conducted by BFAR Central and SEAFDEC Fish Health Laboratories.</p>
5	<p>Tilapia Lake Virus (TiLV)</p> <p>Origin of the disease or pathogen (history of the disease)- detected in 1 farm Species affected: Tilapia Pathogen: Tilapia Lake Virus Size of infected areas or names of infected areas: Agusan del Norte Samples sent to national or international laboratories for confirmation (indicate the name of laboratories): Polymerase Chain Reaction Test (PCR) / BFAR Central Fish Health Laboratory</p>
6	<p>Taura Syndrome (TS)</p> <p><i>Pennaeus vannamei</i>, and <i>P. monodon</i> of different stages (post-larvae, grow-out and broodstock) analyzed using PCR test showed negative results for Taura Syndrome. Samples were collected from Agusan del Norte, Bohol, Bulacan, Cagayan, Cebu, Leyte, Misamis Oriental, Negros Occidental, Negros Oriental, Oriental Mindoro, Pampanga, and Zambales. Other samples examined were imported from Hawaii. Examinations were conducted by BFAR Central and Regional Fish Health Laboratories.</p>
7	<p>White Spot Disease (WSD)</p> <p>Origin of the disease or pathogen (history of the disease)- detected in 8 farms Species affected: <i>P. vannamei</i>, and <i>P. monodon</i> Pathogen: White Spot Virus Size of infected areas or names of infected areas: Bulacan, Cagayan, CARAGA, Iloilo, Leyte, Misamis Oriental, Negros Occidental, and Zambales. Samples sent to national or international laboratories for confirmation (indicate the name of laboratories): Polymerase Chain Reaction Test (PCR) / BFAR Central, Regional and SEAFDEC Fish Health Laboratories</p>

8	<p>Yellow Head Virus (YHV)</p> <p><i>P. vannamei</i>, and <i>P. monodon</i> of different stages (post-larvae, grow-out and broodstock) analyzed using PCR test showed negative results for Yellow Head Virus. Samples were collected from Agusan del Norte, Bohol, Bulacan, Cagayan, Cebu, Leyte, Misamis Oriental, Negros Occidental, Negros Oriental, Oriental Mindoro, Pampanga and Zambales. Other samples examined were imported from Hawaii. Examination was conducted by BFAR Central, Regional and SEAFDEC Fish Health Laboratories.</p>
9	<p>Infectious Hypodermal and Heamatopoietic Necrosis (IHHNV)</p> <p>Origin of the disease or pathogen (history of the disease) – detected in 10 farms Species affected: <i>P. vannamei</i> and <i>P. monodon</i> Pathogen: Infectious Hypodermal and Heamatopoietic Virus Size of infected areas or names of infected areas: Bohol, Bulacan, Cebu, Misamis Oriental, Negros Occidental, Negros Oriental, and Zambales Samples sent to national or international laboratories for confirmation (indicate the name of laboratories): Polymerase Chain Reaction Test (PCR) / BFAR Central, Regional and SEAFDEC Fish Health Laboratories</p>
10	<p>Infectious Myonecrosis (IMN)</p> <p><i>P. vannamei</i>, and <i>P. monodon</i> of different stages (post-larvae grow-out and broodstock) analyzed using PCR test showed negative for Infectious Myonecrosis. Samples were collected from Agusan del Norte, Bohol, Bulacan, Cagayan, Cebu, Leyte, Misamis Oriental, Negros Occidental, Negros Oriental, Oriental Mindoro, Pampanga, and Zambales. Some samples examined were imported from Hawaii. Examinations were conducted by BFAR Central, Regional and SEAFDEC Fish Health Laboratories.</p>
11	<p>Necrotising Hepatopancreatitis (NHP)</p> <p><i>P. vannamei</i>, and <i>P. monodon</i> of different stages (post-larvae, grow-out and broodstock) analyzed using PCR test showed negative for Necrotising Hepatopancreatitis. Samples were collected from Agusan del Norte, Bohol, Bulacan, Cagayan, Cebu, Leyte, Misamis Oriental, Negros Occidental, Negros Oriental, Oriental Mindoro, and Zambales. Some samples examined were imported from Hawaii. Examinations were conducted by BFAR Central and Regional Fish Health Laboratories.</p>
12	<p>Acute Hepatopancreatic Necrosis Disease (AHPND)</p> <p>Origin of the disease or pathogen (history of the disease) – detected in 11 farms Species affected: <i>P. vannamei</i>, and <i>P. monodon</i> Pathogen: AHPND <i>Vibrio parahaemolyticus</i> Size of infected areas or names of infected areas: Bohol, Bulacan, Cebu, Iloilo, Leyte, Oriental Mindoro, Zambales Samples sent to national or international laboratories for confirmation (indicate the name of laboratories): Polymerase Chain Reaction Test (PCR) / BFAR Central, Regional and SEAFDEC Fish Health Laboratories</p>

13	<p>Hepatopancreatic Microsporidiosis caused by <i>Enterocytozoon hepatopenaei</i> (HPM-EHP)</p> <p>Origin of the disease or pathogen (history of the disease) – detected in 10 farms</p> <p>Species affected: <i>P. vannamei</i>, and <i>P. monodon</i></p> <p>Pathogen: <i>Enterocytozoon hepatopenaei</i></p> <p>Size of infected areas or names of infected areas: Agusan del Norte, Cagayan, Cebu, Misamis Oriental, Negros Occidental, Negros Oriental, Surigao del Norte, Zambales</p> <p>Samples sent to national or international laboratories for confirmation (indicate the name of laboratories): Polymerase Chain Reaction Test (PCR) / BFAR Central, Regional and SEAFDEC Fish Health Laboratories</p>
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2. New aquatic animal health regulations introduced within past six months (with effective date):

Country: **SINGAPORE***Period: **April - June 2019**

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. Infection with epizootic haematopoietic necrosis virus	0000	0000	0000		
2. Infection with infectious haematopoietic necrosis virus	0000	0000	0000		
3. Infection with spring viremia of carp virus	0000	0000	0000		
4. Infection with viral haemorrhagic septicaemia virus	0000	0000	0000		
5. Infection with <i>Aphanomyces invadans</i> (EUS)	0000	0000	0000		
6. Infection with red sea bream iridovirus	(2019)	+	(2019)	III	1
7. Infection with koi herpesvirus	(2019)	(2019)	(2019)		
Non OIE-listed diseases					
8. Grouper iridoviral disease	(2014)	(2014)	(2014)		
9. Viral encephalopathy and retinopathy	(2018)	(2018)	+	III	2
10. Enteric septicaemia of catfish	***	****	****		
11. Carp edema virus disease	***	****	****		
12. Tilapia lake virus (TiLV)	0000	0000	0000		
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>	****	****	****		
5. Infection with <i>Bonamia ostreae</i>	****	****	****		
Non OIE-listed diseases					
6. Infection with <i>Marteilioides chungmuensis</i>	****	****	****		
7. Acute viral necrosis (in scallops)	****	****	****		
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Infection with Taura syndrome virus	0000	0000	0000		
2. Infection with white spot syndrome virus	(2018)	(2018)	(2018)		
3. Infection with yellow head virus genotype 1	0000	0000	0000		
4. Infection with infectious hypodermal and haematopoietic necrosis virus	0000	0000	0000		
5. Infection with infectious myonecrosis virus	0000	0000	0000		
6. Infection with <i>Macrobrachium rosenbergii</i> nodavirus (White Tail disease)	***	***	***		
7. Infection with <i>Hepatobacter penaei</i> (Necrotising hepatopancreatitis)	0000	0000	0000		
8. Acute hepatopancreatic necrosis disease (AHPND)	0000	0000	0000		
9. Infection with <i>Aphanomyces astaci</i> (Crayfish plague)	***	***	***		
Non OIE-listed diseases					
10. Hepatopancreatic microsporidiosis caused by <i>Enterocytozoon hepatopenaei</i> (HPM-EHP)	***	***	***		
11. Viral covert mortality disease (VCMD) of shrimps	***	***	***		

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12. <i>Spiroplasma eriocheiris</i> infection	***	***	***		
13. Shrimp haemocyte iridescent virus (SHIV)	***	***	***		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	***	***	***		
2. Infection with <i>Batrachochytrium dendrobatidis</i>	(2018)	(2018)	(2018)		
3. Infection with <i>Batrachochytrium salamandrivorans</i>	(2018)	(2018)	(2018)		
ANY OTHER DISEASES OF IMPORTANCE					
1 Big Belly bacteria (Asian seabass)	(2019)	+	(2019)	III	3
2 <i>Mycobacterium</i> sp. infection (grouper)	(2019)	+	(2019)	II	4
3 <i>Lates calcarifer</i> Herpesvirus (Asian seabass)	(2019)	(2019)	+	III	5
4 Megalocytivirus (ornamental betta)	(2018)	+	(2019)	III	6

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

Finfish: Infection with 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	Red seabream iridovirus disease (RSIVD) was detected by a combination of histopathology and PCR in a batch of diseased hybrid grouper fish submitted by a land-based commercial aquaculture facility. The farm manager and foodfish authorities from the Singapore Food Agency were notified. Subsequent investigations revealed that the mortalities have since subsided, however the farm was prohibited from undertaking any transfer or selling of the affected batch.

2	<p>Viral Nervous Necrosis Virus (VNNV) was detected by PCR in a batch of diseased pompano submitted by an offshore netcage farm. Concurrently, lesions indicative of VNNV infection were detected from histopathology analysis of the eye sections. The farm had stocked 300,000 pcs of 2-inch pompano into sea cages, of which sudden death of approximately 2,000 pcs was observed overnight. Subsequent investigations revealed that there had been no attempt at acclimatising the fish before stocking into net cages, and hence that management-related stressors could have contributed to the disease situation. The farm was promptly notified of the pathogen detection and advised to take biosecurity precautions.</p>
3	<p>Big Belly bacteria (BB) infection was diagnosed by a combination of PCR and histopathology from a batch of moribund Asian seabass (<i>Lates calcarifer</i>) submitted by a commercial aquaculture facility. The seabass were 1-2.5-inches long, 50-days old and suffered 10% mortality (out of an initial stocking size of 300,000 pcs). Lesions observed represent the characteristic BB infection, and comprised a granulomatous necrotising enteritis with high numbers of atypically large coccobacillary entities within the lesions. At the time of diagnosis, the farm had already been undertaking intensive antimicrobial treatment with no improvement. The farm was advised to reduce feeding, and undertake gradual salinity change (from marine towards lower salinity) as past cases have shown BB to be primarily a disease of marine conditions.</p>
4	<p>Acid-fast (Ziehl-Neelsen-positive) non-branching rods suggestive of <i>Mycobacterium sp.</i> were detected within granulomatous lesions of a batch of diseased giant grouper fish submitted by a land-based commercial aquaculture facility. Due to several recurrences of mycobacterium sp. detections within the facility, the farm was advised to reinforce existing biosecurity measures.</p>
5	<p><i>Lates calcarifer</i> herpesvirus (LCHV) was detected by PCR in a batch of diseased Asian seabass submitted by a commercial offshore netcage farm. The farm's attending veterinarian was promptly informed of the detection.</p>
6	<p>Megalocytivirus was detected by PCR in a batch of healthy ornamental betta fish from exporters' premises.</p>

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

Country: **VIETNAM***Period: **April - June 2019**

Item	Disease status ^{a/}			Level of diagnosis	Epidemiological comment numbers
	Month				
DISEASES PREVALENT IN THE REGION	April	May	June		
FINFISH DISEASES					
OIE-listed diseases					
1. Infection with epizootic haematopoietic necrosis virus	0000	0000	0000		
2. Infection with infectious haematopoietic necrosis virus	0000	0000	0000		
3. Infection with spring viremia of carp virus	0000	0000	0000		
4. Infection with viral haemorrhagic septicaemia virus	0000	0000	0000		
5. Infection with <i>Aphanomyces invadans</i> (EUS)	-	-	-		
6. Infection with red sea bream iridovirus	0000	0000	0000		
7. Infection with koi herpesvirus	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, III	1
11. Carp edema virus disease	0000	0000	0000		
12. Tilapia lake virus (TiLV)	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>	-	-	-		
3. Infection with abalone herpesvirus	0000	0000	0000		
4. Infection with <i>Xenohaliotis californiensis</i>	0000	0000	0000		
5. Infection with <i>Bonamia ostreae</i>	0000	0000	0000		
Non OIE-listed diseases					
6. Infection with <i>Marteilioides chungmuensis</i>	0000	0000	0000		
7. Acute viral necrosis (in scallops)	0000	0000	0000		
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Infection with Taura syndrome virus	0000	0000	0000		
2. Infection with white spot syndrome virus	+()	+()	+()	I, III	2
3. Infection with yellow head virus genotype 1	-	-	-		
4. Infection with infectious hypodermal and haematopoietic necrosis virus	0000	0000	0000		
5. Infection with infectious myonecrosis virus	0000	0000	0000		
6. Infection with <i>Macrobrachium rosenbergii</i> nodavirus (White Tail disease)	-	-	-		
7. Infection with <i>Hepatobacter penaei</i> (Necrotising hepatopancreatitis)	0000	0000	0000		
8. Acute hepatopancreatic necrosis disease (AHPND)	+()	+()	+()	I, III	3
9. Infection with <i>Aphanomyces astaci</i> (Crayfish plague)	0000	0000	0000		
Non OIE-listed diseases					
10. Hepatopancreatic microsporidiosis caused by <i>Enterocytozoon hepatopenaei</i> (HPM-EHP)	0000	0000	0000		
11. Viral covert mortality disease (VCMD) of shrimps	0000	0000	0000		

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12. <i>Spiroplasma eriocheiris</i> infection	0000	0000	0000		
13. Shrimp haemocyte iridescent virus (SHIV)	0000	0000	0000		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	0000	0000	0000		
2. Infection with <i>Batrachochytrium dendrobatidis</i>	0000	0000	0000		
3. Infection with <i>Batrachochytrium salamandrivorans</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	Enteric Septicaemia of Catfish (<i>Edwardsiella ictaluri</i>) Infection found in some small scale catfish (<i>Pangasius micronema</i> , <i>P. hypophthalmus</i>) farms.

<p>2</p>	<p>Infection with white spot syndrome virus (White Spot Disease; WSD) Pathogen: White spot syndrome virus (WSSV) Species affected: <i>Penaeus monodon</i> and <i>Litopenaeus vannamei</i>; Name of affected area: reported and limited in some small scale farms with low biosecurity control. Shrimps were affected at 10-100 days after stocking; Mortality rate: average to high; 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, cleaning and disinfection of infected ponds and farming tools using Calcium hypochlorite (chlorine).</p>
<p>3</p>	<p>Acute Hepatopancreatic Necrosis Disease (AHPND) Pathogen: <i>Vibrio parahaemolyticus</i> with Phage A3 Species affected: <i>Penaeus monodon</i> and <i>Litopenaeus vannamei</i> (10-45 DOC) Name of affected area: reported and limited to some small-scale farms with low biosecurity control. Mortality rate: could reach 95% in intensive and semi-intensive farms; Clinical signs: shrimps become lethargic with soft, darkened shells, mottling of the carapace. Pathology is limited to hepatopancreas. Control measures: early harvest, strict isolation of infected ponds from movement and transport controls, cleaning and disinfection of infected ponds and farming tools 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 2019)

1. DISEASES PREVALENT IN THE REGION	
1.1 FINFISH DISEASES	
OIE-listed diseases	Non OIE-listed diseases
1. Infection with epizootic haematopoietic necrosis virus	1. Grouper iridoviral disease
2. Infection with infectious haematopoietic necrosis virus	2. Viral encephalopathy and retinopathy
3. Infection with spring viremia of carp virus	3. Enteric septicaemia of catfish
4. Infection with viral haemorrhagic septicaemia virus	4. Carp edema virus disease
5. Infection with <i>Aphanomyces invadans</i> (EUS)	5. Tilapia lake virus disease
6. Infection with red sea bream iridovirus	
7. Infection with koi herpesvirus	
1.2 MOLLUSC DISEASES	
OIE-listed diseases	Non OIE-listed diseases
1. Infection with <i>Bonamia exitiosa</i>	1. Infection with <i>Marteilioides chungmuensis</i>
2. Infection with <i>Perkinsus olseni</i>	2. Acute viral necrosis (in scallops)
3. Infection with abalone herpesvirus	
4. Infection with <i>Xenohalotis californiensis</i>	
5. Infection with <i>Bonamia ostreae</i>	
1.3 CRUSTACEAN DISEASES	
OIE-listed diseases	Non OIE-listed diseases
1. Infection with Taura syndrome virus	1. Hepatopancreatic microsporidiosis caused by <i>Enterocytozoon hepatopenaei</i> (HPM-EHP)
2. Infection with white spot syndrome virus	2. Viral covert mortality disease (VCMD) of shrimps
3. Infection with yellow head virus genotype 1	3. <i>Spiroplasma eriocheiris</i> infection
4. Infection with infectious hypodermal and haematopoietic necrosis	4. Shrimp haemocyte iridescent virus (SHIV)
5. Infection with infectious myonecrosis virus	
6. Infection with <i>Macrobrachium rosenbergii</i> nodavirus (White Tail disease)	
7. Infection with <i>Hepatobacter penaei</i> (Necrotising hepatopancreatitis)	
8. Acute hepatopancreatic necrosis disease (AHPND)	
9. Infection with <i>Aphanomyces astaci</i> (Crayfish plague)	
1.4 AMPHIBIAN DISEASES	
OIE-listed diseases	Non OIE-listed diseases
1. Infection with <i>Ranavirus</i>	
2. Infection with <i>Bachtracochytrium dendrobatidis</i>	
3. Infection with <i>Batrachocytrium salamandrivorans</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>Marteilia refringens</i>	
2. Infection with <i>Perkinsus marinus</i>	

Recent Aquatic Animal Health Related Publications

OIE Aquatic Animal Health Code, 21st Edition, 2018. The OIE Aquatic Animal Health Code (the Aquatic Code) provides standards for the improvement of aquatic animal health worldwide. It also includes standards for the welfare of farmed fish and use of antimicrobial agents in aquatic animals. The sanitary measures in the Aquatic Code should be used by the Competent Authorities of importing and exporting countries for early detection, reporting and control of pathogenic agents in aquatic animals (amphibians, crustaceans, fish and molluscs) and to prevent their spread via international trade in aquatic animals and their products, while avoiding unjustified sanitary barriers to trade. The standards in the Aquatic Code have been formally adopted by the World Assembly of OIE Delegates, which constitutes the organisation's highest decision-making body. This 21st edition incorporates modifications to the Aquatic Code agreed at the 86th General Session in May 2018. This edition includes the following updates: Chapter 1.3. 'Diseases listed by the OIE'; Chapter 5.3. 'OIE procedures relevant to the Agreement on the Application of Sanitary and Phytosanitary Measures of the World Trade Organization'; Chapter 5.4. 'Criteria to assess the safety of aquatic animal commodities'; Article X.X.2. of Chapters 10.1. 'Epizootic haematopoietic necrosis', 10.3. 'Infection with *Gyrodactylus salaris*' and 10.4. 'Infection with infectious salmon anaemia virus'; Articles X.X.8., X.X.9., X.X.10. and X.X.11. of all disease-specific chapters in Sections 8, 9 and 10. This edition also includes the following new chapter: Chapter 8.2. 'Infection with *Batrachochytrium salamandrivorans*'. The Aquatic Animal Health Code is available for free download <http://www.oie.int/en/standard-setting/aquatic-code/access-online/>

OIE Manual of Diagnostic Tests for Aquatic Animals, 2019. The purpose of the Manual of Diagnostic Tests for Aquatic Animals (the Aquatic Manual) is to provide a standardised approach to the diagnosis of the diseases listed in the Aquatic Code, to facilitate health certification for trade in aquatic animals and aquatic animal products. Although there are many publications on the diagnosis and control of aquatic animal diseases, the Aquatic Manual is a key reference document describing the methods relevant to the OIE-listed diseases and other important diseases for use by aquatic animal health laboratories around the world. Adoption of the specified methods will help to increase efficiency of laboratories and to promote improvements in aquatic animal health world-wide. The manual is available for free download at <http://www.oie.int/en/standard-setting/aquatic-manual/access-online/>

Jaemwimol, P., Sirakanchana, K., Tattiyapong, P., Mongkolsuk, S. and Surachetpong, W., 2019. **Virucidal effects of common disinfectants against tilapia lake virus.** Journal of Fish Diseases, DOI: 10.1111/jfd.13060.

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**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:

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