



QUARTERLY AQUATIC ANIMAL DISEASE REPORT (Asia and Pacific Region)

April – June 2020



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Foreword

Regional Webinars and Consultation on Decapod Iridescent Virus 1 (DIV1)

The shrimp industry has been beset by many devastating diseases in the last three decades, which has caused severe production and economic losses, and even caused the collapse of the industry in some countries. In recent times, a shrimp viral disease has been threatening the shrimp industry in Asia and the Pacific. The virus, now formally named Decapod iridescent virus 1 (DIV1), was first detected as early as 2014. Targeted surveillance in China (People’s Rep. of) in 2017 and 2018 detected the virus in 11 of 16 provinces. In June 2020, Chinese Taipei reported the presence of the disease in crayfish and shrimp farms through OIE WAHIS. The disease meets the OIE definition of an ‘emerging disease’ and, as such, Members shall report it in accordance with Article 1.1.4 of the OIE Aquatic Animal Health Code (the Aquatic Code). Infection with DIV1 is now listed in the OIE/Network of Aquaculture Centres in Asia-Pacific (NACA) quarterly aquatic animal disease report (QAAD report).

In view of this current threat in the shrimp industry of the region, virtual webinars and consultation were organized and undertaken by OIE Regional Representation for Asia and the Pacific (RRAP), and NACA.

OIE-RRAP organized the **OIE Regional Virtual Meeting on DIV1** on 20th August (from 4-6.30pm, Tokyo time) to share information on the current DIV1 situation, covering the impacts, risk management measures and early detection methods. More than 100 participants attended this meeting, comprised of: OIE Delegates, OIE Focal Points for Aquatic Animals, interested representatives from Members, OIE designated experts from OIE Reference Laboratories, members of the OIE Aquatic Animals Health Standards Commission (AAHSC), as well as representatives from OIE headquarters, OIE RRAP, NACA and the Southeast Asian Fisheries Development Center (SEAFDEC). The objectives of the meeting are:

- Sharing information on impacts, risk management measures, laboratory test method and DIV1 surveillance to increase awareness and understanding on DIV1;
- Sharing sanitary measures that are being implemented and their rationale to continue to facilitate trade while mitigating risk of disease spread;
- Facilitating DIV1 disease control and information sharing within the region; and,
- Identifying issues/areas requiring cooperation to assist emerging disease preparedness and response measures.

Presentations were given by renowned experts in the region/world, introducing “OIE definition of emerging disease and the reason for reporting emerging disease outbreak information to the OIE as an Immediate Notification through the World Animal Health Information System (WAHIS)” by Dr. Stian Johnsen (OIE HQ), “Progress of the OIE Aquatic Animals Commission work on emerging diseases” by Dr. Ingo Ernst (OIE-AAHSC), and “DIV1 laboratory diagnostic methods and surveillance” by Dr. Jie Huang (NACA). Updates on members’ situation on DIV1

were also presented by Dr. Chenxu Cai (P.R. China), Dr. Chun-Ming Yu (Chinese Taipei), Dr. Jaree Polchana (Thailand), and Dr. Stéphanie Sourget (New Caledonia). More details on this meeting is available at <https://rr-asia.oie.int/en/events/oie-regional-virtual-meeting-on-decapod-iridescent-virus-1/>.

In 10-11 September, NACA organized the **Regional Webinar on Infection with Decapod Iridescent Virus 1 (DIV1) and other Emerging Shrimp Diseases** which was participated by around 250 participants from around the world. The regional consultation was undertaken with the primary objective of discussing and plan actions on the overall prevention and management of the disease. Specific objectives are:

- To provide updated information on DIV1 and other emerging shrimp diseases, and their impacts in shrimp production;
- To advocate strengthening of diagnostic capacities as well as active surveillance of DIV1 (to detect presence or absence of the virus);
- To formulate recommendations on sanitary measures (including biosecurity) for disease prevention;
- To promote emergency preparedness for countries not yet affected by DIV1 and other emerging disease, highly considering the capacity of each country.

Presentations on important topics on DIV1, other important shrimp diseases, diagnostics and disease prevention were given by renowned experts from the region as follows:

- OIE approach to emerging diseases – and activities on DIV1 (Dr. Ingo Ernst; OIE-AAHSC)
- Researches on identification and characterization of DIV1 (Dr. Fang Li; PR China)
- Technologies for diagnosis and surveillance of DIV1 (Dr. Jie Huang; NACA)
- DIV1: Detection in Indian Ocean and the pathogenic difference (Dr. Kallaya Sritunyalucksana; BIOTEC-Thailand)
- Major disease threats for cultured shrimps in Asia (Prof. Timothy Flegel; Centex Shrimp-Thailand)
- Biosecurity in shrimp aquaculture (Dr. Eduardo Leñaño; NACA)
- Methodological needs for confirmation of causative agent of emerging or multiple infections (Dr. Jie Huang; NACA)

A Panel Discussion proceeded after each session with all the invited speakers as panelists plus other renowned shrimp/aquatic animal health/aquaculture experts in the region: Dr. Celia Lavilla-Pitogo (Philippines); Dr. CV Mohan (WorlFish); Dr. Jing Wang (OIE-RRAP); Dr. Derun Yuan (NACA); and, Mr. Simon Wilkinson (NACA).

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 2020

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	-(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	+(2020)	-(2020)	-(2020)	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>	-(2019)	-(2019)	-(2019)		5
2. Infection with <i>Perkinsus olseni</i>	-(2020)	-(2020)	-(2020)		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	+(2020)	+(2020)	-(2020)	III	8
3. Infection with yellow head virus genotype 1	0000	0000	0000		
4. Infection with infectious hypodermal and haematopoietic necrosis virus	+(2020)	-(2020)	-(2020)	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. Decapod iridescent virus 1 (DIV1)	0000	0000	0000		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with <i>Ranavirus</i> species	-(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 2017), the Northern Territory (last reported 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.

3	<p>Viral encephalopathy and retinopathy (VER) 1. Reported in the Northern Territory April 2020, passive surveillance; 2. Species affected – Juvenile or young mature species, including Salmon red rainbowfish (<i>Glossolepis incisus</i>), Little rainbowfish (<i>Melanotaenia wilsoni</i>), Banded rainbowfish (<i>M. trifasciata</i>), Pygmy rainbowfish (<i>M. pygmaea</i>), Northwest glassfish (<i>Ambassis</i> sp.), Macleay’s glassfish (<i>A. macleayi</i>), Blackmast (<i>Craterocephalus stramineus</i>), Flyspeck hardyhead (<i>C. stercusmuscarum</i>) and 5-month-old barramundi (<i>Lates calcarifer</i>) ; 3. Clinical signs – affected fish displayed none to slightly increased daily mortality, reduced breeding rates or dark skin discoloration; 4. Pathogen –Betanodavirus; 5. Mortality rate – cumulative mortalities were generally high in juvenile fish; 6. Economic loss – high economic loss due to destocking; 7. Geographic extent – Captive bred ornamental fish breeding facility; 8. Containment measures –Movement control, destocking and decontamination; 9. Laboratory confirmation –Betanodavirus PCR test; 10. Publications – nil.</p> <p>Viral encephalopathy and retinopathy is known to occur in Queensland (last reported 2019), New South Wales (last reported 2018), Western Australia (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>
4	<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>
5	<p>Infection with <i>Bonamia exitiosa</i> was not reported this period despite passive surveillance in South Australia (last reported 2019), 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>
6	<p>Infection with <i>Perkinsus olseni</i> was not reported this period despite passive surveillance in Western Australia (last reported March 2020), is previously known to occur in South Australia (last reported 2019), Victoria (last reported 2015), and New South Wales last reported 2005). Passive surveillance and not reported for this period for Queensland (last reported 2014). 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 active and 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, 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)</p> <ol style="list-style-type: none"> 1. Reported in Queensland in April and May 2020, targeted surveillance; 2. Species affected – A) Juvenile <i>Penaeus monodon</i> and red-fingered shore crabs (<i>Parasesarma erythodactyla</i>) (April 2020), B) <i>Metapenaeus bennettiae</i>, <i>P. esculentus</i>, <i>Thalamita crenata</i> and <i>Portunus armatus</i> (sampled March 2020), C) <i>Acetes sibogae</i> and <i>Palaemon serrifer</i> (May 2020); 3. Clinical signs – A) Mortalities in pond (April 2020) B) Nil, C) Nil; 4. Pathogen – WSSV; 5. Mortality rate – A) Limited; harvested crop, B) N/A, C) N/A; 6. Economic loss – A) N/A, B) N/A, C) N/A; 7. Geographic extent – all detections were within the known infected zone. A) two ponds on one farm and 3 ponds from one farm in the Logan River region (April 2020), B) 11 sites from northern Morten Bay (samples collected March 2020), C) intake channel of a Logan River prawn farm (May 2020); 8. Containment measures – A) Remaining water retained and disinfected with chlorine prior to discharge. B) Within declared restricted zone (known infected zone); 9. Laboratory confirmation – qPCR; 10. Publications – nil <p>White spot disease has never been reported despite active and passive surveillance in New South Wales, South Australia, Western Australia and Northern Territory. Never reported in Victoria and 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 April 2020, passive surveillance; 2. Species affected – Juvenile <i>Penaeus monodon</i>; 3. Clinical signs – moribund prawns at pond edge; 4. Pathogen – IHHNV; 5. Mortality rate – minimal; 6. Economic loss – nil; 7. Geographic extent – one pond on one farm; 8. Containment measures – N/A; 9. Laboratory confirmation – qPCR; 10. Publications – nil <p>Infection with infectious hypodermal and haematopoietic necrosis virus was previously known to occur 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 in the Australian Capital Territory, New South Wales, the Northern Territory, South Australia, Victoria and Western Australia. No information available this period from 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>

12	<p>Infection with <i>Batrachochytrium dendrobatidis</i> was not reported this period despite passive surveillance in New South Wales (last reported 2019), Queensland (last reported 2018), Victoria (last reported 2016), Tasmania (last reported 2013) and 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>
13	<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 2020**

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)	-	-	-	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>Xenohalictis 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	-(2008)	-(2008)	-(2008)		1
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					
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. Decapod iridescent virus 1 (DIV1)	0000	0000	0000		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with <i>Ranavirus</i> species	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> (<i>Oreochromis niloticus</i> and <i>Anabas testudineus</i>)	-	+()	+()	III	2
2. Infection with <i>Aeromonas</i> (<i>Anabas testudineus</i> , <i>Heteropneustes fossilis</i> and <i>Ompok pabda</i>)	-	+()	+()	III	3
3. Infection with <i>Staphylococcus</i> (<i>Oreochromis niloticus</i>)	-	+()	+()	II	3

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

Finfish: Infection with HPR-deleted of HPR0 salmon anemia virus; Infection with salmon pancreas disease virus; Infection with *Gyrodactylus salaris*.

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

Crustaceans: Crayfish plague (*Aphanomyces astaci*).

NOT LISTED BY THE OIE

Finfish: Channel catfish virus disease

a/ Please use the following symbols:

+	Disease reported or known to be present	?()	Presence of the disease suspected but not confirmed in a zone
+?	Serological evidence and/or isolation of causative agent but no clinical diseases	***	No information available
?	Suspected by reporting officer but presence not confirmed	0000	Never reported
+()	Occurrence limited to certain zones	-	Not reported (but disease is known to occur)
+?()	Confirmed infection/infestation limited to one or more zones of the country, but no clinical disease	(year)	Year of last occurrence

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

1. Epidemiological comments:

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

Comment No.	
1	Infection with White spot syndrome virus (White spot disease) was not reported this period despite passive surveillance in Khulna and Chattagram regions (last reported 2008).

<p>2</p>	<p>Infection with <i>Streptococcus</i> 1. Reported in Mymensingh and Chandpur; 2. Species affected – Climbing perch (<i>Anabas testudinius</i>) and tilapia (<i>Oreochromis niloticus</i>) 3. Clinical signs – loss of balance, unusual movement, opaque eye, enlargement and discoloration of liver, kidney, spleen and bile; 4. Pathogen – <i>Streptococcus agalactiae</i>; 5. Mortality rate – 30-40%; 6. Economic loss –; 7. Geographic extent – Mymensingh and Chandpur; 8. Containment measures – use of disinfectants and antibiotics (tetracycline); 9. Laboratory confirmation –; 10. Publications – nil</p>
<p>3</p>	<p>Infection with <i>Aeromonas</i> 1. Reported in Mymensingh; 2. Species affected – Climbing perch (<i>Anabas testudinius</i>), Shing catfish (<i>Heteropneustes fossilis</i>) and Pabda (<i>Ompok pabda</i>) 3. Clinical signs – loss of balance, unusual movement, opaque eye, red lesion on body; 4. Pathogen – <i>Aeromonas</i> spp.; 5. Mortality rate – 5%; 6. Economic loss –; 7. Geographic extent – Mymensingh; 8. Containment measures – use of disinfectants and antibiotics (tetracycline); 9. Laboratory confirmation –; 10. Publications – nil</p>
<p>4</p>	<p>Infection with <i>Staphylococcus</i> 1. Reported in Mymensingh; 2. Species affected – Tilapia (<i>Oreochromis niloticus</i>) ; 3. Clinical signs – loss of balance, unusual movement; 4. Pathogen – <i>Staphylococcus</i> sp.; 5. Mortality rate – 5%; 6. Economic loss –; 7. Geographic extent – Mymensingh; 8. Containment measures – use of disinfectants and antibiotics (tetracycline); 9. Laboratory confirmation –; 10. Publications – nil</p>

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

Country: **BRUNEI DARUSSALAM**

 Period: **April - June 2020**

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	***	***	***		
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	0000	0000	0000	III	
7. Infection with koi herpesvirus	***	***	***		
Non OIE-listed diseases					
8. Grouper iridoviral disease	(2013)	(2013)	(2013)	III	
9. Viral encephalopathy and retinopathy	-(2013)	-(2013)	+()	I,III	1
10. Enteric septicaemia of catfish	***	***	***		
11. Carp edema virus disease	***	***	***		
12. Tilapia lake virus (TiLV)	-	-	-	III	2
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>Xenohalictis 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	III	
2. Infection with white spot syndrome virus	(2012)	(2012)	(2012)	III	
3. Infection with yellow head virus genotype 1	(2010)	(2010)	(2010)	III	
4. Infection with infectious hypodermal and haematopoietic necrosis virus	(2009)	(2009)	(2009)	III	
5. Infection with infectious myonecrosis virus	0000	0000	0000	III	
6. Infection with <i>Macrobrachium rosenbergii</i> nodavirus (White Tail disease)	-(2010)	-(2010)	-(2010)	III	
7. Infection with <i>Hepatobacter penaei</i> (Necrotising hepatopancreatitis)	***	***	***		
8. Acute hepatopancreatic necrosis disease (AHPND)	0000	0000	0000	III	
9. Infection with <i>Aphanomyces astaci</i> (Crayfish plague)	***	***	***		
Non OIE-listed diseases					
10. Hepatopancreatic microsporidiosis caused by <i>Enterocytozoon hepatopenaei</i> (HPM-EHP)	-	-	-	III	3
11. Viral covert mortality disease (VCMD) of shrimps	-	-	-	III	4

12. <i>Spiroplasma eriocheiris</i> infection	***	***	***		
13. Decapod iridescent virus 1 (DIV1)	-	-	-	III	5
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with <i>Ranavirus</i> species	***	***	***		
2. Infection with <i>Batrachochytrium dendrobatidis</i>	***	***	***		
3. Infection with <i>Batrachochytrium salamandrivorans</i>	***	***	***		
ANY OTHER DISEASES OF IMPORTANCE					
1.					

**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	Viral encephalopathy and retionopathy was detected by PCR in 2 hybrid grouper grow-out cages in Tanjung Pelumpong. Clinical observations include spiral swimming with mass mortality in 1 grou-out farm. Affected animals with clinical signs were harvested and destroyed.
2	Tilapia lake virus (TiLV). Tilapia of different life stages (larvae, fry, juveniles, adults and broodstock) were collected as part of the emerging disease monitoring program. Samples were analyzed using PCR and showed negative results for TiLV.

3	<p>Hepatopancreatic microsporidiosis caused by Enterocytozoon hepatopenaei (HPM-EHP). Samples of <i>Penaeus stylirostris</i>, <i>P. monodon</i> and <i>P. vannamei</i> were collected as part of the surveillance program. Samples were analyzed using PCR and showed negative results for EHP.</p>
4	<p>Viral covert mortality disease (VCMD). Samples of <i>Penaeus stylirostris</i>, <i>P. monodon</i>, <i>P. vannamei</i> and <i>Macrobrachium rosenbergii</i> were collected as part of the emerging disease monitoring program. Samples were analyzed using PCR and showed negative results for VCMD.</p>
5	<p>Decapod iridescent virus 1 (DIV1). Samples of <i>P. vannamei</i>, <i>M. rosenbergii</i> and crayfish were collected as part of the emerging disease monitoring program. Samples were analyzed using PCR and showed negative results for DIV1.</p>

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

Country: CHINESE TAIPEI
Period: April - June 2020

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	***	***	***		
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	+	+	-	AHRI	1
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	-	-	-		
2. Infection with white spot syndrome virus	+	+	-	AHRI	2
3. Infection with yellow head virus genotype 1	-	-	-		
4. Infection with infectious hypodermal and haematopoietic necrosis virus	-	-	-		
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)	-	-	-		
Non OIE-listed diseases					
10. Hepatopancreatic microsporidiosis caused by <i>Enterocytozoon hepatopenaei</i> (HPM-EHP)	-	-	-		

11. Viral covert mortality disease (VCMD) of shrimps	***	***	***		
12. <i>Spiroplasma eriocheiris</i> infection	***	***	***		
13. Decapod iridescent virus 1 (DIV1)	***	+	+	AHRI	3
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with <i>Ranavirus</i> species	-	-	-		
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 Red seabream iridovirus</p> <p>1. Pingtung county, Taoyuan City. 5 outbreak reports from 5 farms. 2. Date: (1), (2) Apr 14, (3) Apr 26, (4) May 15, (5) May 28. 3. Species: (1) <i>Datnioides microlepis</i>, (2), (5) <i>Micropterus salmoides</i>, (3), (4) <i>Lates calcarifer</i>. 4. Mortality rate: low (1 farm is high). 5. Total number of death: (1) 125/250, (2) 2000/24000, (3) 200/25000, (4) 50/40000, (5) 1000/15000.</p>

2	<p>Infection with White spot syndrome virus</p> <p>1. Kaohsiung City, Pingtung county, Taoyuan City. 4 outbreak reports from 4 farms.</p> <p>2. Date: (1) Apr 23, (2) May 14, (3), (4) May 26.</p> <p>3. Species: (1), (2), (4) <i>Litopenaeus vannamei</i>, (3) <i>Penaeus monodon</i>.</p> <p>4. Mortality rate: low (1 farm is high).</p> <p>5. Total number of death: (1) 40/1200000, (2) 24/240000, (3) 120/96000, (4) 2250000/2500000.</p>
3	<p>Decapod iridescent virus 1 (DIV1)</p> <p>1. New Taipei City, Hsinchu County, Nantou County, Yunlin County, Kaohsiung City, Pingtung county, Yilan County. 16 outbreak reports from 16 farms.</p> <p>2. Date: (1), (2) Jun 3, (3) May 25, (4), (10), (11) May 28, (5), (12) May 29, (6) May 27, (7), (9) May 26, (8) May 18, (13) May 30, (14) Jun 1, (15), (16) Jun 2.</p> <p>3. Species: (1), (4), (5), (6), (7), (8), (9), (10), (11), (12), (13), (14) <i>Cherax quadricarinatus</i>, (2), (3), (15) <i>Litopenaeus vannamei</i>, (16) <i>Penaeus monodon</i>.</p> <p>4. Mortality rate: low (1 farm is high).</p> <p>5. Total number of death: (1) 0/15000, (2) 0/1000000, (3) 700000/3400000, (4) 0/51240, (5) 0/4284, (6) 0/905620, (7) 0/96, (8) 0/60000, (9) 0/6000, (10) 0/100, (11) 0/1000000, (12) 0/1000000, (13) 0/1000000, (14) 0/310000, (15) 540000/600000, (16) 20000/100000.</p>

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

Country: **HONG KONG SAR, CHINA***Period: **April - June 2020**

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	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	
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	***	***	***		

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12. <i>Spiroplasma eriocheiris</i> infection	***	***	***		
13. Decapod iridescent virus 1 (DIV1)	***	***	***		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with <i>Ranavirus</i> species	(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 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	***	No information available
+?	Serological evidence and/or isolation of causative agent but no clinical diseases	0000	Never reported
?	Suspected by reporting officer but presence not confirmed	-	Not reported (but disease is known to occur)
+()	Occurrence limited to certain zones	(year)	Year of last occurrence
+?()	Confirmed infection/infestation limited to one or more zones of the country, but no clinical disease		

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):

Country: **INDIA***Period: **April - June 2020**

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	(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	-	-	-		
12. Tilapia lake virus (TiLV)	-	+()	+()	III	1
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with <i>Bonamia exitiosa</i>	0000	0000	0000		
2. Infection with <i>Perkinsus olseni</i>	-	-	+()	III	2
3. Infection with abalone herpesvirus	0000	0000	0000		
4. Infection with <i>Xenohalictis 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	3
3. Infection with yellow head virus genotype 1	0000	0000	0000		
4. Infection with infectious hypodermal and haematopoietic necrosis virus	-	-	+?()	III	4
5. Infection with infectious myonecrosis virus	(2019)	(2019)	(2019)		
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	5

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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. Decapod iridescent virus 1 (DIV1)	0000	0000	0000		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with <i>Ranavirus</i> species	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>Tilapia lake virus (TiLV) disease was reported in <i>Oreochromis niloticus</i> from very limited areas of Ernakulam, Pathanamthitta and Alapuzha districts of Kerala</p> <p>Preventive/Control measures taken: The farmers were advised for emergency harvest of market-size fish. Following and disinfection of the affected ponds, procurement of stock from certified source, and stocking after testing for TiLV were suggested.</p>
2	<p>Infection with <i>Perkinsus olsenii</i> was detected in wild samples of <i>Perna viridis</i> and <i>Mytella strigata</i> collected from west coast along Ernakulam and Thrissur districts of Kerala.</p> <p>Preventive/Control measures taken: No control measures could be undertaken as the samples were from wild.</p>

<p>3</p>	<p>Infection with White spotsyndrome virus (WSSV) was reported on basis of clinical signs in <i>Litopenaeus vannamei</i> from very limited areas of North 24 Parganas, South 24 Parganas and Purba Medinipur districts of West Bengal. In addition, Infection with WSSV was detected in <i>L. vannamei</i> from very limited areas of Nellore, Prakasam, and West Godavari districts of Andhra Pradesh. Infection with WSSV was also detected in wild samples of <i>Scylla serrata</i> from landing centre in South Andaman district of Andaman and Nicobar Islands.</p> <p>Preventive/Control measures taken: The farmers were advised emergency harvesting, drying of the ponds and disinfection before next stocking. Besides, the farmers were asked to implement strict biosecurity measures to prevent the spread of pathogen.</p>
<p>4</p>	<p>Infection with infectious hypodermal and haematopoietic necrosis virus was detected in wild samples of <i>Scylla serrata</i> and <i>Portunus pelagicus</i> from landing centre in South Andaman district of Andaman and Nicobar Islands.</p> <p>Preventive/Control measures taken: No control measures could be undertaken as the samples were from wild.</p>
<p>5</p>	<p>Hepatopancreatic microsporidiosis causedby Enterocytozoon hepatopenaei was detected in <i>Litopenaeus vannamei</i> from Nagapattinam, Cuddalore and Thiruvallur districts of Tamil Nadu; Nellore, Prakasam, East Godavari and West Godavari districts of Andhra Pradesh; Uttar Kannada Dakshina Kannada and Udipi districts of Karnataka.</p> <p>Preventive/Control measures taken: The farmers were asked to dry the ponds after harvesting, and disinfect the farms with 6 ton of CaO per hectare. Stocking with EHP negative seed was suggested for the next crop.</p>

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

Country: **IR IRAN***

 Period: **January - March 2020**

Item	Disease status ^{a/}			Level of diagnosis	Epidemiological comment numbers
	Month				
DISEASES PREVALENT IN THE REGION	January	February	March		
FINFISH DISEASES					
OIE-listed diseases					
1. Infection with epizootic haematopoietic necrosis virus	0000	0000	0000		
2. Infection with infectious haematopoietic necrosis virus	+()	+()	+()	III	2
3. Infection with spring viremia of carp virus	-	-	-		
4. Infection with viral haemorrhagic septicaemia virus	+()	+()	+()	III	1
5. Infection with <i>Aphanomyces invadans</i> (EUS)	0000	0000	0000		
6. Infection with red sea bream iridovirus	0000	0000	0000		
7. Infection with koi herpesvirus	(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>Xenohalotis 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	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	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. Decapod iridescent virus 1 (DIV1)	***	***	***		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with <i>Ranavirus</i> species	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.					
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	<p>Infectious haematopoietic necrosis (IHN)</p> <p>1) Reported from 6 farms in 4 provinces during January to March 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: West and central parts 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 10 farms in three provinces during January to March 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);</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 fallowing 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: **IR IRAN***

 Period: **April - June 2020**

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	-	-	-		
4. Infection with viral haemorrhagic septicaemia virus	+()	0000	0000	III	1
5. Infection with <i>Aphanomyces invadans</i> (EUS)	0000	0000	0000		
6. Infection with red sea bream iridovirus	0000	0000	0000		
7. Infection with koi herpesvirus	(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	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	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. Decapod iridescent virus 1 (DIV1)	***	***	***		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with <i>Ranavirus</i> species	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.					
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>Viral Haemorrhagic Septicaemia (VHS)</p> <p>1) Reported from 1 farm in 1 province 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);</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 fallowing 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>

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

Country: **MALAYSIA***

 Period: **October - December 2019**

Item	Disease status ^{a/}			Level of diagnosis	Epidemiological comment numbers
	Month				
DISEASES PREVALENT IN THE REGION	October	November	December		
FINFISH DISEASES					
OIE-listed diseases					
1. 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	I,II,III	1
4. Infection with viral haemorrhagic septicaemia virus	0000	0000	0000		
5. Infection with <i>Aphanomyces invadans</i> (EUS)	(1986)	(1986)	(1986)	I	2
6. Infection with red sea bream iridovirus	-	-	-	I,III	3
7. Infection with koi herpesvirus	(2019)	(2019)	(2019)	I,III	4
Non OIE-listed diseases					
8. Grouper iridoviral disease	0000	0000	0000		
9. Viral encephalopathy and retinopathy	(2015)	(2015)	(2015)	III	5
10. Enteric septicaemia of catfish	0000	0000	0000		
11. Carp edema virus disease	0000	0000	0000		
12. Tilapia lake virus (TiLV)	(2018)	(2018)	(2018)	III	6
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with <i>Bonamia exitiosa</i>	0000	0000	0000		
2. Infection with <i>Perkinsus olseni</i>	?(2016)	?(2016)	?(2016)		7
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	-	-	-	I,III	8
2. Infection with white spot syndrome virus	(2016)	(2016)	(2016)	I,III	9
3. Infection with yellow head virus genotype 1	0000	0000	0000	I,III	10
4. Infection with infectious hypodermal and haematopoietic necrosis virus	(2016)	(2016)	(2016)	III	11
5. Infection with infectious myonecrosis virus	(2018)	(2018)	(2018)	III	12
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)	(2014)	(2014)	(2014)		13
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)	+(2019)	+(2019)	(2019)		14

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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>	0000	0000	0000		
3. Infection with <i>Batrachochytrium salamandrivorans</i>	0000	0000	0000		
ANY OTHER DISEASES OF IMPORTANCE					
1. Megalocytivirus (Australia requirement)	(2016)	(2016)	(2016)	III	15
2. Enteric red mouth disease (Japan requirement)	0000	0000	0000	III	16

**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	Spring viraemia of carp (SVC) No positive case was detected (PCR) during DoF active surveillance programme.
2	Infection with <i>Aphanomyces invadans</i> (EUS) No positive case was detected (gross observation) during DoF active surveillance programme.
3	Red seabream iridoviral disease (RSID) No positive case was detected (PCR) during DoF active surveillance programme.
4	Koi herpesvirus disease (KHV) Known to occur previously in the state of Selangor (2017). Last occurrence was in state of Perak (April and June 2019).

5	<p>Viral encephalopathy and retinopathy (VER)/ (VNN) No positive case was detected (PCR) during DoF active surveillance programme.</p> <p>The disease is known to occur previously in the state of Perak (2015) and Kelantan (May 2015).</p>
6	<p>Tilapia lake virus (TiLV) No positive case was detected (PCR) during DoF active surveillance programme</p> <p>The disease is known to have occurred previously in Kedah (June 2017), Perlis (July 2017), Sarawak (July 2017), Negeri Sembilan (October 2017), Kedah and Sarawak (March 2018), and Terengganu (July 2018).</p>
7	<p>Infection with <i>Perkinsus olseni</i> No positive case was detected (PCR) during DoF active surveillance programme.</p> <p>Infection with <i>Perkinsus olseni</i> was suspected to occur in 2016, but not confirmed in a zone.</p>
8	<p>Infection with Taura syndrome virus (TSV) <i>Penaeus monodon</i> and <i>P. vannamei</i></p> <p>No positive case was detected (PCR) during DoF active surveillance programme.</p>
9	<p>Infection with White spot syndrome virus (WSD) No positive case was detected (PCR) during DoF active surveillance programme.</p>
10	<p>Infection with Yellow head virus genotype 1 (YHD) <i>Penaeus monodon</i> and <i>P. vannamei</i></p> <p>No positive case was detected (PCR) during DoF active surveillance programme.</p>
11	<p>Infection with Infectious hypodermal and haematopoietic virus (IHHNV) No positive case was detected (PCR) during DoF active surveillance programme.</p> <p>IHHNV is known to occur in Terengganu (last reported June 2016).</p>
12	<p>Infection with Infectious myonecrosis virus (IMNV) No positive case was detected (PCR) during DoF active surveillance programme.</p> <p>IMNV is known to occur previously in the state of Sabah (2014) and Malacca (June 2018).</p>
13	<p>Acute hepatopancreatic necrosis disease (AHPND) No positive case was detected (PCR) during DoF active surveillance programme.</p> <p>AHPND is known to occur previously in several states in Malaysia (2014)</p>

14	<p>Hepatopancreatic microsporidiosis caused by <i>Enterocytozoon hepatopenaei</i> (HPM-EHP) 1) Reported from Malacca and Pahang in October and November during DoF active surveillance programme; 2) Species affected: <i>Penaeus vannamei</i>; 3) Disease signs: No clinical signs; 4) Pathogen: <i>Enterocytozoon hepatopenaei</i>; 5) Mortality rate: No; 6) Economic loss: No; 7) Names of infected areas: Atlantys Fish Farm (Sempang) Sdn. Bhd. (Malacca), SS Energy Sdn. Bhd. (Pahang); 8) Preventive/control measures taken: - 9) Laboratory confirmation: PCR; Fisheries Biosecurity Centre, KLIA, Selangor; 10) Publications: None</p>
15	<p>Megalocytivirus No positive case was detected (PCR) during DoF active surveillance programme. The disease is known to have occurred previously in 2013, 2014 and 2016 in Johore state in Malaysia.</p>
16	<p>Enteric redmouth disease (ERD) No positive case was detected (biochemical test and PCR) during DoF active surveillance programme.</p>

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

Country: **MALAYSIA***Period: **January - March 2020**

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	I,II,III	1
4. Infection with viral haemorrhagic septicaemia virus	0000	0000	0000		
5. Infection with <i>Aphanomyces invadans</i> (EUS)	(1986)	(1986)	(1986)	I	2
6. Infection with red sea bream iridovirus	-	-	-	I,III	3
7. Infection with koi herpesvirus	(2019)	(2019)	(2019)	I,III	4
Non OIE-listed diseases					
8. Grouper iridoviral disease	0000	0000	0000		
9. Viral encephalopathy and retinopathy	(2015)	(2015)	(2015)	III	5
10. Enteric septicaemia of catfish	0000	0000	0000		
11. Carp edema virus disease	0000	0000	0000		
12. Tilapia lake virus (TiLV)	(2018)	(2018)	(2018)	III	6
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with <i>Bonamia exitiosa</i>	0000	0000	0000		
2. Infection with <i>Perkinsus olseni</i>	?(2016)	?(2016)	?(2016)		7
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	-	-	-	I,III	8
2. Infection with white spot syndrome virus	(2016)	(2016)	(2016)	I,III	9
3. Infection with yellow head virus genotype 1	0000	0000	0000	I,III	10
4. Infection with infectious hypodermal and haematopoietic	(2016)	(2016)	(2016)	III	11
5. Infection with infectious myonecrosis virus	(2018)	(2018)	(2018)	III	12
6. Infection with <i>Macrobrachium rosenbergii</i> nodavirus (White Tail disease)	-	-	-		
7. Infection with <i>Hepatobacter penaei</i> (Necrotising	0000	0000	0000		
8. Acute hepatopancreatic necrosis disease (AHPND)	(2014)	(2014)	(2014)		13
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)	(2019)	(2019)	(2019)		14
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. Decapod iridescent virus 1 (DIV1)	0000	0000	0000		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with <i>Ranavirus</i> species	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. Megalocytivirus (Australia requirement)	(2016)	(2016)	(2016)	III	15
2. Enteric red mouth disease (Japan requirement)	0000	0000	0000	III	16

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	Spring viraemia of carp (SVC) No positive case was detected (PCR) during DoF active surveillance programme.
2	Infection with <i>Aphanomyces invadans</i> (EUS) No positive case was detected (gross observation) during DoF active surveillance programme.
3	Red seabream iridoviral disease (RSID) No positive case was detected (PCR) during DoF active surveillance programme.
4	Koi herpesvirus disease (KHV) Known to occur previously in the state of Selangor (2017). Last occurrence was in state of Perak (April and June 2019).

5	<p>Viral encephalopathy and retinopathy (VER)/ (VNN) No positive case was detected (PCR) during DoF active surveillance programme.</p> <p>The disease is known to occur previously in the state of Perak (2015) and Kelantan (May 2015).</p>
6	<p>Tilapia lake virus (TiLV) No positive case was detected (PCR) during DoF active surveillance programme</p> <p>The disease is known to have occurred previously in Kedah (June 2017), Perlis (July 2017), Sarawak (July 2017), Negeri Sembilan (October 2017), Kedah and Sarawak (March 2018), and Terengganu (July 2018).</p>
7	<p>Infection with <i>Perkinsus olseni</i> No positive case was detected (PCR) during DoF active surveillance programme.</p> <p>Infection with <i>Perkinsus olseni</i> was suspected to occur in 2016, but not confirmed in a zone.</p>
8	<p>Infection with Taura syndrome virus (TSV) <i>Penaeus monodon</i> and <i>P. vannamei</i></p> <p>No positive case was detected (PCR) during DoF active surveillance programme.</p>
9	<p>Infection with White spot syndrome virus (WSD) No positive case was detected (PCR) during DoF active surveillance programme.</p>
10	<p>Infection with Yellow head virus genotype 1 (YHD) <i>Penaeus monodon</i> and <i>P. vannamei</i></p> <p>No positive case was detected (PCR) during DoF active surveillance programme.</p>
11	<p>Infection with Infectious hypodermal and haematopoietic virus (IHHNV) No positive case was detected (PCR) during DoF active surveillance programme.</p> <p>IHHNV is known to occur in Terengganu (last reported June 2016).</p>
12	<p>Infection with Infectious myonecrosis virus (IMNV) No positive case was detected (PCR) during DoF active surveillance programme.</p> <p>IMNV is known to occur previously in the state of Sabah (2014) and Malacca (June 2018).</p>
13	<p>Acute hepatopancreatic necrosis disease (AHPND) No positive case was detected (PCR) during DoF active surveillance programme.</p> <p>AHPND is known to occur previously in several states in Malaysia (2014)</p>
14	<p>Hepatopancreatic microsporidiosis caused by <i>Enterocytozoon hepatopenaei</i> (HPM-EHP) No positive case was detected (PCR) during DoF active surveillance programme.</p> <p>HPM-EHP is known to occur previously in several states of Malaysia (2016), and in Malacca and Pahang (2019).</p>

15	<p>Megalocytivirus (Requirement for exporting to Australia) No positive case was detected (PCR) during DoF active surveillance programme.</p> <p>The disease is known to have occurred previously in 2013, 2014 and 2016 in Johore state in Malaysia.</p>
16	<p>Enteric red mouth disease (Requirement for exporting to Japan) No positive case was detected (biochemical test and PCR) during DoF active surveillance programme.</p>

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

Country: **MALAYSIA***Period: **April - June 2020**

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	I,II,III	1
4. Infection with viral haemorrhagic septicaemia virus	0000	0000	0000		
5. Infection with <i>Aphanomyces invadans</i> (EUS)	(1986)	(1986)	(1986)	I	2
6. Infection with red sea bream iridovirus	-	-	-	I,III	3
7. Infection with koi herpesvirus	(2019)	(2019)	(2019)	I,III	4
Non OIE-listed diseases					
8. Grouper iridoviral disease	0000	0000	0000		
9. Viral encephalopathy and retinopathy	(2015)	(2015)	(2015)	III	5
10. Enteric septicaemia of catfish	0000	0000	0000		
11. Carp edema virus disease	0000	0000	0000		
12. Tilapia lake virus (TiLV)	(2018)	(2018)	(2018)	III	6
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with <i>Bonamia exitiosa</i>	0000	0000	0000		
2. Infection with <i>Perkinsus olseni</i>	?(2016)	?(2016)	?(2016)		7
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	-	-	-	I,III	8
2. Infection with white spot syndrome virus	(2016)	(2016)	(2016)	I,III	9
3. Infection with yellow head virus genotype 1	0000	0000	0000	I,III	10
4. Infection with infectious hypodermal and haematopoietic	(2016)	(2016)	(2016)	III	11
5. Infection with infectious myonecrosis virus	(2018)	(2018)	(2018)	III	12
6. Infection with <i>Macrobrachium rosenbergii</i> nodavirus (White Tail disease)	-	-	-		
7. Infection with <i>Hepatobacter penaei</i> (Necrotising	0000	0000	0000		
8. Acute hepatopancreatic necrosis disease (AHPND)	(2014)	(2014)	(2014)		13
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)	(2019)	(2019)	(2019)		14
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. Decapod iridescent virus 1 (DIV1)	0000	0000	0000		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with <i>Ranavirus</i> species	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. Megalocytivirus (Australia requirement)	(2016)	(2016)	(2016)	III	15
2. Enteric red mouth disease (Japan requirement)	0000	0000	0000	III	16

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	Spring viraemia of carp (SVC) No positive case was detected (PCR) during DoF active surveillance programme.
2	Infection with <i>Aphanomyces invadans</i> (EUS) No positive case was detected (gross observation) during DoF active surveillance programme.
3	Red seabream iridoviral disease (RSID) No positive case was detected (PCR) during DoF active surveillance programme.
4	Koi herpesvirus disease (KHV) Known to occur previously in the state of Selangor (2017). Last occurrence was in state of Perak (April and June 2019).

5	<p>Viral encephalopathy and retinopathy (VER)/ (VNN) No positive case was detected (PCR) during DoF active surveillance programme.</p> <p>The disease is known to occur previously in the state of Perak (2015) and Kelantan (May 2015).</p>
6	<p>Tilapia lake virus (TiLV) No positive case was detected (PCR) during DoF active surveillance programme</p> <p>The disease is known to have occurred previously in Kedah (June 2017), Perlis (July 2017), Sarawak (July 2017), Negeri Sembilan (October 2017), Kedah and Sarawak (March 2018), and Terengganu (July 2018).</p>
7	<p>Infection with <i>Perkinsus olseni</i> No positive case was detected (PCR) during DoF active surveillance programme.</p> <p>Infection with <i>Perkinsus olseni</i> was suspected to occur in 2016, but not confirmed in a zone.</p>
8	<p>Infection with Taura syndrome virus (TSV) <i>Penaeus monodon</i> and <i>P. vannamei</i></p> <p>No positive case was detected (PCR) during DoF active surveillance programme.</p>
9	<p>Infection with White spot syndrome virus (WSD) No positive case was detected (PCR) during DoF active surveillance programme.</p>
10	<p>Infection with Yellow head virus genotype 1 (YHD) <i>Penaeus monodon</i> and <i>P. vannamei</i></p> <p>No positive case was detected (PCR) during DoF active surveillance programme.</p>
11	<p>Infection with Infectious hypodermal and haematopoietic virus (IHHNV) No positive case was detected (PCR) during DoF active surveillance programme.</p> <p>IHHNV is known to occur in Terengganu (last reported June 2016).</p>
12	<p>Infection with Infectious myonecrosis virus (IMNV) No positive case was detected (PCR) during DoF active surveillance programme.</p> <p>IMNV is known to occur previously in the state of Sabah (2014) and Malacca (June 2018).</p>
13	<p>Acute hepatopancreatic necrosis disease (AHPND) No positive case was detected (PCR) during DoF active surveillance programme.</p> <p>AHPND is known to occur previously in several states in Malaysia (2014)</p>
14	<p>Hepatopancreatic microsporidiosis caused by <i>Enterocytozoon hepatopenaei</i> (HPM-EHP) No positive case was detected (PCR) during DoF active surveillance programme.</p> <p>HPM-EHP is known to occur previously in several states of Malaysia (2016), and in Malacca and Pahang (2019).</p>

<p>15</p>	<p>Megalocytivirus (Requirement for exporting to Australia) No positive case was detected (PCR) during DoF active surveillance programme. The disease is known to have occurred previously in 2013, 2014 and 2016 in Johore state in Malaysia.</p>
<p>16</p>	<p>Enteric red mouth disease (Requirement for exporting to Japan) No positive case was detected (biochemical test and PCR) during DoF active surveillance programme.</p>

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

Country: **MYANMAR***

 Period: **January - March 2020**

Item	Disease status ^{a/}			Level of diagnosis	Epidemiological comment numbers
	Month				
DISEASES PREVALENT IN THE REGION	January	February	March		
FINFISH DISEASES					
OIE-listed diseases					
1. 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. Decapod iridescent virus 1 (DIV1)	***	***	***		
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:

+	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 90 samples of crustaceans (35 frozen shrimp, 19 soft shell crab, 3 live lobsters, and 5 freshwater prawn for export), live PLs of <i>P. vannamei</i> (16 samples) and <i>M. rosenbergii</i> (10 samples), and broodstock (1 sample) and adult (1 sample) <i>P. vannamei</i> for import and local testing, and found that all samples were negative for WSSV, MrNV, YHV, IMN, AHPND and TSV.
2	

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

Country: **MYANMAR***

 Period: **April - June 2020**

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	***	***	***		
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. Decapod iridescent virus 1(DIV1)	***	***	***		
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:

+	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 55 samples of crustaceans (25 frozen shrimp and 10 soft shell crab for export), live PLs of <i>P. vannamei</i> (11 samples), and <i>Macrobrachium rosenbergii</i> (8 samples), and broodstock of <i>P. vannamei</i> (1 samples) for import and local testing, and found that all samples were negative for WSSV, MrNV, YHV, IMN, AHPND and TSV.
2	

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

Country: **NEW CALEDONIA**Period: **April - June 2020**

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	***	***	***		
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	0000	0000	0000	III	

12. <i>Spiroplasma eriocheiris</i> infection	***	***	***		
13. Decapod iridescent virus 1 (DIV1)	0000	0000	0000	III	
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with <i>Ranavirus</i> species	***	***	***		
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:

+	Disease reported or known to be present	?()	Presence of the disease suspected but not confirmed in a zone
+?	Serological evidence and/or isolation of causative agent but no clinical diseases	***	No information available
?	Suspected by reporting officer but presence not confirmed	0000	Never reported
+()	Occurrence limited to certain zones	-	Not reported (but disease is known to occur)
+?()	Confirmed infection/infestation limited to one or more zones of the country, but no clinical disease	(year)	Year of last occurrence

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

1. Epidemiological comments:

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

Comment No.	
1	
2	

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

Country: **NEW ZEALAND**Period: **April - June 2020**

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	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>	-(2019)	-(2019)	-(2019)	III	1
2. Infection with <i>Perkinsus olseni</i>	-(2019)	-(2019)	-(2019)	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>	-(2019)	-(2019)	-(2019)	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. Decapod iridescent virus 1 (DIV1)	0000	0000	0000	III	
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with <i>Ranavirus</i> species	0000	0000	0000	III	
2. Infection with <i>Batrachochytrium dendrobatidis</i>	-(2019)	-(2019)	-(2019)	III	4
3. Infection with <i>Batrachochytrium salamandrivorans</i>	0000	0000	0000	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:

		?()	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	<i>Bonamia exitiosa</i> occurs 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 the North Island. Previous reports of detection in <i>Ostrea chilensis</i> have been 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.

2	<p>Infection with <i>Perkinsus olseni</i> was first detected in New Zealand in 1999, in wild wedge shells (<i>Macomona liliانا</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>), an abalone species 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. In August 2018, there was another incidental finding of <i>P. olseni</i> in farmed green lipped mussels (<i>Perna canaliculus</i>) in the Coromandel region (North Island), that was not associated with mortalities. In October 2019, <i>P. olseni</i> was detected in <i>P. canaliculus</i> in a land based aquaculture facility that were experiencing low level mortalities. It remains unknown if <i>P. olseni</i> was related to the mortalities in <i>P. canaliculus</i> in this case.</p>
3	<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 in two regions in the northern part of the South Island: on one land-based aquaculture facility in the Nelson region, and on two marine farms in the Marlborough region. 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. In September 2019, surveillance detected <i>B. ostreae</i> in one wild flat oyster in Big Glory Bay, Stewart Island. No clinical signs were observed in association with this wild flat oyster.</p>
4	<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.</p>

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

Country: **PHILIPPINES***Period: **January - March 2020**

Item	Disease status ^{a/}			Level of diagnosis	Epidemiological comment numbers
	Month				
DISEASES PREVALENT IN THE REGION	January	February	March		
FINFISH DISEASES					
OIE-listed diseases					
1. 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	1
6. Infection with red sea bream iridovirus	0000	0000	0000	I, III	2
7. Infection with koi herpesvirus	0000	0000	0000		
Non OIE-listed diseases					
8. Grouper iridoviral disease	(2008)	(2008)	(2008)	I, III	3
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		
7. Infection with <i>Hepatobacter penaei</i> (Necrotising hepatopancreatitis)	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. Decapod iridescent virus 1 (DIV1)	0000	0000	0000		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with <i>Ranavirus</i> species	***	***	***		
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:

+	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) Report of suspected infection of Epizootic Ulcerative Syndrome was reported in freshwater fish (<i>Awaous melanocephalus/Sicyopterus lacrymosus</i>) in Baay and Malanas river, Abra in February. Samples with ulcerations and hemorrhages were collected for histopathological examination at the BFAR Fish Health Laboratory for confirmation of EUS.</p>
2	<p>Infection with Red seabream iridovirus (RSIV) Jade perch (grow-out), Milkfish (juvenile), Sea bass (grow-out), Snapper (adult), and Tilapia (fry, fingerlings, and breeder) analyzed using PCR test showed negative results for Red Seabream Iridoviral disease. Samples were collected from Bataan, Bulacan, Guimaras, Iloilo, Nueva Ecija, Pampanga, Quezon, Rizal and Zambales. Examinations were conducted by BFAR Central and Southeast Asian Fisheries Development Center (SEAFDEC) Fish Health Laboratories.</p>

3	<p>Grouper iridoviral disease Sea bass (grow-out) analyzed using PCR test showed negative result for Grouper iridoviral disease. Sample was collected from Zambales. Examination was conducted by BFAR Central Fish Health Laboratory.</p>
4	<p>Viral Encephalopathy and Retinopathy (VER) Eel, Jade perch (grow-out), Milkfish (juvenile), Pompano (grow-out), Sea bass (grow-out), Snapper (adult), and Tilapia (fry, fingerlings, and breeder) analyzed using PCR test showed negative results for Viral Encephalopathy and Retinopathy. Samples were collected from Bataan, Bulacan, Guimaras, Iloilo, Lucena, Marinduque, Nueva Ecija, Pampanga, Quezon, Rizal, and Zambales. Examinations were conducted by BFAR Central, BFAR Regional and SEAFDEC Fish Health Laboratories.</p>
5	<p>Tilapia Lake Virus (TiLV) Origin of the disease or pathogen (history of the disease)- detected in 2 farms Species affected: Tilapia (fry and fingerlings) Disease characteristics: no mortalities observed Pathogen: Tilapia Lake Virus Size of infected areas or names of infected areas: Tilapia hatchery in Laguna and Pampanga Samples sent to national or international laboratories for confirmation (indicate the name of laboratories): Polymerase Chain Reaction Test (PCR) / BFAR Central and Regional Fish Health Laboratories</p>
6	<p>Infection with Taura syndrome virus (TSV) <i>Penaeus vannamei</i> (broodstock, post-larvae, and grow-out), <i>P. monodon</i> (adult, post-larvae, and grow-out), and <i>Scylla</i> sp. (adult) analyzed using PCR test showed negative results for Taura Syndrome. Samples were collected from Agusan del Norte, Batangas, Bulacan, Cagayan, Capiz, Cebu, Davao del Sur, Davao Oriental, Guimaras, Iloilo, Leyte, Negros Occidental, Occidental Mindoro, Oriental Mindoro, Pangasinan and Zambales. Other samples were imported from Hawaii. Examinations were conducted by BFAR Central, BFAR Regional and SEAFDEC Fish Health Laboratories.</p>
7	<p>Infection with White spot syndrome virus (WSD) Origin of the disease or pathogen (history of the disease)- detected in 15 farms Species affected: <i>P. monodon</i> (post-larvae and grow-out), <i>P. vannamei</i> (juvenile and grow-out), and <i>Scylla serrata</i> (broodstock) Pathogen: White Spot Syndrome Virus Size of infected areas or names of infected areas: Agusan del Norte, Cagayan, Davao Oriental, Guimaras, Iloilo, Occidental Mindoro, Oriental Mindoro, Surigao, and Zamboanga. Samples sent to national or international laboratories for confirmation (indicate the name of laboratories): Polymerase Chain Reaction Test (PCR) / BFAR Central, BFAR Regional and SEAFDEC Fish Health Laboratories.</p>
8	<p>Infection with Yellow head Virus (YHV) <i>P. vannamei</i> (broodstock, post-larvae and grow-out), and <i>P. monodon</i> (post-larvae and grow-out) analyzed using PCR test showed negative for Yellow Head Virus. Samples were collected from Agusan del Norte, Batangas, Bulacan, Cagayan, Cebu, Davao del Sur, Davao Oriental, Guimaras, Iloilo, Leyte, Negros Occidental, Occidental Mindoro, Oriental Mindoro, and Zambales. Other samples were imported from Hawaii. Examinations were conducted by BFAR Central, BFAR Regional Fish Health Laboratories.</p>

9	<p>Infection with Infectious hypodermal and heamatopoietic necrosis virus (IHHNV)</p> <p>Origin of the disease or pathogen (history of the disease) – detected in 3 farms Species affected: <i>P. vannamei</i> (post-larvae) and <i>P. monodon</i> (post-larvae and grow-out) Pathogen: Infectious Hypodermal and Heamatopoietic Virus Size of infected areas or names of infected areas: Agusan del Norte, Bulacan and Zambales Samples sent to national or international laboratories for confirmation (indicate the name of laboratories): Polymerase Chain Reaction Test (PCR) / BFAR Fish Health Laboratories</p>
10	<p>Infection with Infectious myonecrosis virus (IMNV) <i>P. vannamei</i> (broodstock, post-larvae and grow-out), <i>P. monodon</i> (adult, post-larvae and grow-out), and <i>Scylla</i> sp. (adult) analyzed using PCR test showed negative for Infectious Myonecrosis. Samples were collected from Agusan del Norte, Batangas, Bulacan, Cagayan, Capiz, Cebu, Davao del Sur, Davao Oriental, Guimaras, Iloilo, Leyte, Negros Occidental, Occidental Mindoro, Oriental Mindoro, South Cotabato and Zambales. Other samples were imported from Hawaii. Examinations were conducted by BFAR Central, BFAR Regional and SEAFDEC Fish Health Laboratories.</p>
11	<p>Infection with Hepatobacter penaei (Necrotising hepatopancreatitis) <i>P. vannamei</i> (broodstock, post-larvae and grow-out) and <i>P. monodon</i> (post-larvae and grow-out) analyzed using PCR test showed negative for Necrotising Hepatopancreatitis. Samples were collected from Agusan del Norte, Bulacan, Cagayan, Cebu, Davao del Sur, Davao Oriental, Negros Occidental, Occidental Mindoro, Oriental Mindoro and Zambales. Examinations were conducted by BFAR Central, BFAR Regional and SEAFDEC 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 9 farms Species affected: <i>P. vannamei</i> (juvenile, post-larvae and grow-out) Pathogen: AHPND <i>Vibrio parahaemolyticus</i> Size of infected areas or names of infected areas: Agusan del Norte, Cagayan, Cebu, Iloilo, Oriental Mindoro and Zambales Samples sent to national or international laboratories for confirmation (indicate the name of laboratories): Polymerase Chain Reaction Test (PCR) / BFAR Central, BFAR 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 4 farms Species affected: <i>P. vannamei</i> (grow-out) and <i>P. monodon</i> (adult) Pathogen: <i>Enterocytozoon hepatopenaei</i> Size of infected areas or names of infected areas: Cagayan, Capiz, Occidental Mindoro and Zambales Samples sent to national or international laboratories for confirmation (indicate the name of laboratories): Polymerase Chain Reaction Test (PCR) / BFAR Central, BFAR Regional 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 2020**

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)	-	-	+	I, II	1
6. Infection with red sea bream iridovirus	0000	0000	0000	I, III	2
7. Infection with koi herpesvirus	0000	0000	0000		
Non OIE-listed diseases					
8. Grouper iridoviral disease	(2008)	(2008)	(2008)		
9. Viral encephalopathy and retinopathy	-	-	-	I, III	3
10. Enteric septicaemia of catfish	***	***	***		
11. Carp edema virus disease	0000	0000	0000		
12. Tilapia lake virus (TiLV)	-	-	-	I, III	4
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	5
2. Infection with white spot syndrome virus	+	+	+	I, III	6
3. Infection with yellow head virus genotype 1	0000	0000	0000	I, III	7
4. Infection with infectious hypodermal and haematopoietic	-	-	+	I, III	8
5. Infection with infectious myonecrosis virus	0000	0000	0000	I, III	9
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	I, III	10
8. Acute hepatopancreatic necrosis disease (AHPND)	+	+	+	I, III	11
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	12
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. Decapod iridescent virus 1 (DIV1)	0000	0000	0000		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with <i>Ranavirus</i> species	***	***	***		
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) Fish samples (<i>Awaous melanocephalus/Sicyopterus lacrymosus</i>) collected from Baay and Malanas river Abra, with ulcerations and hemorrhages showed mycotic granulomatous lesions in the muscle tissue through histopathological examination. Examinations were conducted by BFAR Fish Health Laboratory.</p>
2	<p>Infection with Red seabream iridovirus (RSIV) Eel (fry), Grouper (adult), Sea bass (adult) and Tilapia (fry and fingerlings) analyzed using PCR test showed negative results for Red Seabream Iridoviral disease. Samples were collected from Iloilo, Nueva Ecija and Rizal. Examinations were conducted by BFAR Central and SEAFDEC Fish Health Laboratories.</p>

3	<p>Viral Encephalopathy and Retinopathy (VER) Eel (fry), Grouper (adult), Sea bass (adult) and Tilapia (fry, fingerlings and adult) analyzed using PCR test showed negative results for Viral Encephalopathy and Retinopathy. Samples were collected from Iloilo, Laguna, Nueva Ecija and Rizal. Examinations were conducted by BFAR Central, BFAR Regional and SEAFDEC Fish Health Laboratories.</p>
4	<p>Tilapia Lake Virus (TiLV) Tilapia (fry, post-fingerlings, fingerlings, juvenile, adult and broodstock) analyzed using PCR test showed negative results for Tilapia Lake Virus. Samples were collected from Agusan del Norte, Camarines Sur, Davao de Oro, Iloilo, Laguna, Nueva Ecija, Pampanga, Pangasinan, Rizal and South Cotabato. Examinations were conducted by BFAR Central and BFAR Regional Fish Health Laboratories.</p>
5	<p>Infection with Taura syndrome virus (TSV) <i>Penaeus vannamei</i> (juvenile, broodstock and grow-out), and <i>P. monodon</i> (post-larvae and grow-out) analyzed using PCR test showed negative results for Taura Syndrome. Samples were collected from Bulacan, Bohol, Cebu, and Pangasinan. Other samples were imported from Hawaii. Examinations were conducted by BFAR Central and BFAR Regional Fish Health Laboratories.</p>
6	<p>Infection with White spot syndrome virus (WSD) Origin of the disease or pathogen (history of the disease)- detected in 13 farms Species affected: <i>P. monodon</i> (juvenile, post-larvae and spawner), and <i>P. vannamei</i> (juvenile and grow-out) Pathogen: White Spot Syndrome Virus Size of infected areas or names of infected areas: Agusan del Norte, Davao Oriental, Iloilo, Leyte, Negros Occidental, Oriental Mindoro and Pangasinan Samples sent to national or international laboratories for confirmation (indicate the name of laboratories): Polymerase Chain Reaction Test (PCR) / BFAR Regional and SEAFDEC Fish Health Laboratories.</p>
7	<p>Infection with Yellow head Virus (YHV) <i>P. monodon</i> and <i>P. vannamei</i> (post-larvae) analyzed using PCR test showed negative result for Yellow Head Virus. Samples were collected from Bulacan and Iloilo. Examinations were conducted by BFAR Central and BFAR Regional Fish Health Laboratories..</p>
8	<p>Infection with Infectious hypodermal and heamatopoietic necrosis virus (IHHNV) Origin of the disease or pathogen (history of the disease) – detected in 2 farms Species affected: <i>P. vannamei</i> (post-larvae and grow-out) Pathogen: Infectious Hypodermal and Heamatopoietic Virus Size of infected areas or names of infected areas: Bulacan and Bohol Samples sent to national or international laboratories for confirmation (indicate the name of laboratories): Polymerase Chain Reaction Test (PCR) / BFAR Regional Fish Health Laboratory</p>

9	<p>Infection with Infectious myonecrosis virus (IMNV) <i>P. vannamei</i> (juvenile, broodstock and grow-out) and <i>P. monodon</i> (grow-out) analyzed using PCR test showed negative for Infectious Myonecrosis. Samples were collected from Agusan del Norte, Bohol, Bulacan and Cebu. Examinations were conducted by BFAR Central and BFAR Regional Fish Health Laboratories.</p>
10	<p>Infection with Hepatobacter penaei (Necrotising hepatopancreatitis) <i>P. vannamei</i> (broodstock) analyzed using PCR test showed negative for Necrotising Hepatopancreatitis. Samples were collected from Cebu. Examination was conducted by BFAR Regional Fish Health Laboratory.</p>
11	<p>Acute Hepatopancreatic Necrosis Disease (AHPND)</p> <p>Origin of the disease or pathogen (history of the disease) – detected in 6 farms Species affected: <i>P. vannamei</i> (nauplii, juvenile, post-larvae and broodstock) Pathogen: AHPND <i>Vibrio parahaemolyticus</i> Size of infected areas or names of infected areas: Cebu Samples sent to national or international laboratories for confirmation (indicate the name of laboratories): Polymerase Chain Reaction Test (PCR) / BFAR Regional Laboratory</p>
12	<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 2 farms Species affected: <i>P. vannamei</i> (adult and grow-out) Pathogen: <i>Enterocytozoon hepatopenaei</i> Size of infected areas or names of infected areas: Oriental Mindoro and Sarangani Samples sent to national or international laboratories for confirmation (indicate the name of laboratories): Polymerase Chain Reaction Test (PCR) / BFAR Regional Fish Health Laboratory</p>

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

Country: **SINGAPORE***Period: **April - June 2020**

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)	0000	0000	0000		
6. Infection with red sea bream iridovirus	(2019)	(2019)	(2019)		
7. Infection with koi herpesvirus	(2019)	(2019)	(2019)		
Non OIE-listed diseases					
8. Grouper iridoviral disease	(2014)	(2014)	(2014)		
9. Viral encephalopathy and retinopathy	(2020)	(2020)	(2020)		
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. Decapod iridescent virus 1 (DIV1)	***	***	***		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with <i>Ranavirus</i> species	***	***	***		
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	(2019)	+	(2020)	III	1
2. Scale Drop Disease Virus	(2019)	(2019)	+	III	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	Big Belly (BB) bacterial infection was diagnosed through a combination of PCR and histopathology from a batch of moribund Asian seabass (<i>Lates calcarifer</i>) submitted from a commercial aquaculture facility. Lesions observed represent the characteristic BB infection, comprising of necrotising enteritis with clusters of intra-lesional, coccobacillary entities; concurrently, PCR detected the bacterium in ethanol-fixed samples of intestine and liver. The farm's attending veterinarian was promptly informed.
2	Scale Drop Disease Virus (SDDV) was detected by PCR and histopathology from a batch of diseased asian seabass submitted by a commercial aquaculture facility. The fish health manager was informed.

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

Country: **THAILAND***Period: **April - June 2020**

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	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)	(2009)	(2009)	(2009)	II	
6. Infection with red sea bream iridovirus	0000	0000	0000	III	
7. Infection with koi herpesvirus	(2011)	(2011)	(2011)	III	
Non OIE-listed diseases					
8. Grouper iridoviral disease	-	-	-		
9. Viral encephalopathy and retinopathy	(2019)	(2019)	(2019)	III	
10. Enteric septicaemia of catfish	0000	0000	0000	II	
11. Carp edema virus disease	0000	0000	0000		
12. Tilapia lake virus (TiLV)	-	-	+?()	III	
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with <i>Bonamia exitiosa</i>	0000	0000	0000		
2. Infection with <i>Perkinsus olseni</i>	0000	0000	0000	III	
3. Infection with abalone 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	(2019)	(2019)	(2019)	III	
2. Infection with white spot syndrome virus	-	+?()	+?()	III	1
3. Infection with yellow head virus genotype 1	-	-	+?()	III	
4. Infection with infectious hypodermal and haematopoietic necrosis virus	+?()	+?()	+?()	III	
5. Infection with infectious myonecrosis virus	0000	0000	0000	III	
6. Infection with <i>Macrobrachium rosenbergii</i> nodavirus (White Tail disease)	+?()	-	+?()	III	
7. Infection with <i>Hepatobacter penaei</i> (Necrotising hepatopancreatitis)	(2005)	(2005)	(2005)	III	
8. Acute hepatopancreatic necrosis disease (AHPND)	-	+?()	+?()	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)	+?()	+?()	+?()	III	2

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11. Viral covert mortality disease (VCMD) of shrimps	(2014)	(2014)	(2014)	III	
12. <i>Spiroplasma eriocheiris</i> infection	0000	0000	0000		
13. Decapod iridescent virus 1 (DIV1)	0000	0000	0000		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with <i>Ranavirus</i> species	(2018)	(2018)	(2018)		
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.					
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	A total of 4,126 shrimp samples from shrimp farms had been tested at PCR Laboratories of the DOF under active surveillance. 34 specimens or 0.82% recorded as PCR positive or carrying WSSV genes. Shrimp farms with positive testing results are subjected to health improvement, movement control, eradication and/or farm disinfection.
2	A total of 3,688 shrimp samples from shrimp farms had been tested at PCR Laboratories of the DOF under active surveillance. 174 specimens or 4.72% recorded as PCR positive for EHP . Shrimp farms with positive testing results have been subjected to shrimp health management control and pond improvement.

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

Country: VIETNAM*

Period: April - June 2020

Item	Disease status ^{a/}			Level of diagnosis	Epidemiological comment numbers
	April	May	June		
DISEASES PREVALENT IN THE REGION					
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>	(2013)	(2013)	(2013)		
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	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)	+	+	+	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		

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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. Decapod iridescent virus 1 (DIV1)	0000	0000	0000		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with <i>Ranavirus</i> species	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 HPRO salmon anemia virus; Infection with salmon pancreas disease virus; Infection with <i>Gyrodactylus salaris</i> . Molluscs: Infection with <i>Bonamia ostreae</i> ; <i>Marteilia refringens</i> ; <i>Perkinsus marinus</i> . Crustaceans: Crayfish plague (<i>Aphanomyces astaci</i>). NOT LISTED BY THE OIE Finfish: Channel catfish virus disease	
a/ Please use the following symbols:	
+ Disease reported or known to be present +? Serological evidence and/or isolation of causative agent but no clinical diseases ? Suspected by reporting officer but presence not confirmed +() Occurrence limited to certain zones +?() Confirmed infection/infestation limited to one or more zones of the country, but no clinical disease	?() Presence of the disease suspected but not confirmed in a zone *** No information available 0000 Never reported - Not reported (but disease is known to occur) (year) Year of last occurrence
b/ If there is suspicion or confirmation of any of these diseases, they must be reported immediately, because the region is considered free of these diseases	

1. Epidemiological comments:

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

Comment No.	
1	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: ; 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 2020)

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 (TiLV)
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>Martellioides chungmuensis</i>
2. Infection with <i>Perkinsus olseni</i>	2. Acute viral necrosis (in scallops)
3. Infection with abalone herpesvirus	
4. Infection with <i>Xenohaliotis 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. Decapod iridescent virus 1 (DIV1)
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> species	
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, 22nd Edition, 2019. 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 22nd edition incorporates modifications to the Aquatic Code agreed at the 87th General Session in May 2019. This edition includes the following updates: Glossary: revised definition for 'basic biosecurity conditions'; Chapter 1.5. 'Criteria for listing species as susceptible to infection with a specific pathogen'; Chapter 8.3. 'Infection with Ranavirus'; Chapter 9.1. 'Acute hepatopancreatic necrosis disease'; Articles 10.2.1. and 10.2.2. of Chapter 10.2. 'Infection with *Aphanomyces invadans*'; Article 10.5.2. of Chapter 10.5. 'Infection with salmonid alphavirus'; Articles 10.6.1., 10.6.2. and 10.6.8. of Chapter 10.6. 'Infection with infectious haematopoietic necrosis virus'; Article 10.7.2. of Chapter 10.7. 'Infection with koi herpesvirus'; Article 10.9.2. of Chapter 10.9. 'Infection with spring viraemia of carp virus'; Article X.X.8. of all disease-specific chapters (except for Article 10.3.8. of Chapter 10.3. 'Infection with *Gyrodactylus salaris*' due to the nature of the pathogenic agent) and Article 10.4.12. of Chapter 10.4. 'Infection with infectious salmon anaemia virus'. 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/>

NACA (2020). **Infection with Decapod Iridescent Virus 1 (DIV1): Disease Card.** Network of Aquaculture Centres in Asia-Pacific, <https://enaca.org/?id=1104&title=infection-with-decapod-iridescent-virus-1-%28div1%29-disease-card>

NACA (2020). **Disease Advisory-Decapod iridescent virus 1 (DIV1): An emerging threat to the shrimp industry.** Network of Aquaculture Centres in Asia-Pacific, <https://enaca.org/?id=1098&title=decapod-iridescent-virus-1-an-emerging-threat-to-the-shrimp-industry>

Sanguanrut, P., Thaiue, D., Thawonsuwan, J., Flegel, T. W., Sritunyalucksana, K. (2020). **Urgent announcement on usefulness of the lymphoid organ (LO) as an additional prime target for diagnosis of decapod iridescent virus 1 (DIV1) in diseased *P. vannamei*.** NACA Newsletter, ISSN 0115-8503, 2020, XXXV: 2. <https://enaca.org/?id=1092>.

Srisala, J., Sanguanrut, Thaiue, P. D., Laiphrom, S., Siritwattano, J., Khudet, J., Powtongsook, S., Flegel, T. W., Sritunyalucksana, K. (2020). **Urgent warning: Positive PCR detection results for infectious myonecrosis virus (IMNV) and decapod iridescent virus 1 (DIV1) in captured *Penaeus monodon* from the Indian Ocean.** NACA Newsletter, ISSN 0115-8503, 2020, XXXV: 2. <https://enaca.org/?id=1093>

Qiu, L., Chen, X., Guo, X.-M., Gao, W., Zhao, R.-H., Zhang, Q.-L., Yang, B., Huang, J. (2020). **A TaqMan probe based real-time PCR for the detection of Decapod iridescent virus 1.** Journal of Invertebrate Pathology, 2020, 107367. doi:10.1016/j.jip.2020.107367.

Harkell, L. (2020). **Chinese scientists confirm new virus causes shrimp ‘glass post-larvae’**. Undercurrent News, <https://www.undercurrentnews.com/2020/05/08/chinese-scientists-confirm-new-virus-causes-shrimp-glass-post-larvae>.

Reverter, M., Sarter, S., Caruso, D., et al. (2020). **Aquaculture at the crossroads of global warming and antimicrobial resistance**. Nature Communications, 11:1870 | <https://doi.org/10.1038/s41467-020-15735-6>.

Bondad-Reantaso, M.G., MacKinnon, B, Hao, B., Huang, J., et al. (2020). **Viewpoint: SARS-CoV-2 (the cause of COVID-19 in humans) is not known to infect aquatic food animals nor contaminate their products**. Asian Fisheries Science, 33:74-78.

Dong, H.T., Senapin, S., Gangnonngiw, W., Nguyen, V.V., Rodkhum, C., Debnath, P.P., Delamare-Deboutteville, J. and Mohan, C.V. (2020). **Experimental infection reveals transmission of tilapia lake virus (TiLV) from tilapia broodstock to their reproductive organs and fertilized eggs**. Aquaculture, 515: doi.10.1016.2019.734541

Nurliyana, M., Lukman, B., Ina-Salwany, M.Y., Zamri-Saad, M., Annas, S., Dong, H.T., Rodkhum, C. and Amal, M.N.A. (2020). **First evidence of scale drop disease virus in farmed Asian seabass (*Lates calcarifer*) in Malaysia**. Aquaculture, <https://doi.org/10.1016/j.aquaculture.2020.735600>.

NACA (2019). **Report of the Eighteenth Meeting of the Asia Regional Advisory Group on Aquatic Animal Health. Network of Aquaculture Centres in Asia-Pacific**, <https://enaca.org/?id=1094&title=report-of-the-18th-regional-advisory-group-on-aquatic-animal-health>.

Ernst, I. and Peeler, E.J. (Editors) (2019). **The Role of Aquatic Animal Health in Food Security**. Rev. Sci. Tech. Off. Int. Epiz., Volume 38, 651 pp.

Niederle, M.V., Bosch, J., Ale, C.E., Nader-Macías, M.E., Aristimuño Ficooseco, C., Toledo, L.F., Valenzuela-Sanchez, A., Soto-Azat, C., and Pasteris, S.E. (2019). **Skin-associated lactic acid bacteria from North American bullfrogs as potential control agents of *Batrachochytrium dendrobatidis***. PLoS ONE, 14 (9), e0223020.

Ye, L.T., Wu, L., Wang, J.Y., Li, Q.Z., Guan, J.L. & Luo, B. (2019). **First report of black-heart disease in Kumamoto oyster *Crassostrea sikamea* spat caused by *Polydora lingshuiensis* in China**. Diseases of Aquatic Organisms, 133, 247-252.

Qiu, L., Chen, X., Zhao, R.-H., Li, C., Gao, W., Zhang Q.-L., Huang J. (2019). **Description of a natural infection with Decapod iridescent virus 1 in farmed giant freshwater prawn, *Macrobrachium rosenbergii***. Viruses, 2019, 11(4): 354. doi: 10.3390/v11040354.

Dong, H.T., Senapin, S., Jeamkunakorn, C, Nguyen, V.V., Nguyen, N.T., Rodkhum, C., Khunrae, P., and Rattanarojpong, T. (2019). **Natural occurrence of edwardsiellosis caused by *Edwardsiella ictaluri* in farmed hybrid red tilapia (*Oreochromis* sp.) in Southeast Asia**. Aquaculture, 499:17-23.

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.

OIE, 2018. *Batrachochytrium Salamandrivorans*. World Organization for Animal Health, Paris, France. http://www.oie.int/fileadmin/Home/eng/International_Standard_Setting/docs/pdf/Aquatic_Commission/A_BSAL_Disease_card.pdf

NACA, NFTEC, China-ASEAN CJRPMAT and SYS, 2018. **Emergency Regional Consultation for Prevention and Management of Tilapia Lake Virus (TiLV) in the Asia-Pacific**. EM leano and Y Liang (Editors). Network of Aquaculture Centres in Asia-Pacific, Bangkok, Thailand. 67 pp.

Qiu L, Chen M M, Wan X Y, et al., 2018. **Detection and quantification of Shrimp hemocyte iridescent virus by TaqMan probe based real-time PCR**. J Inverteb Pathol, 154.

- Huang, J., 2018. **Emerging disease: Shrimp haemocyte iridescent virus (SHIV)**. Global Aquaculture Advocate.
- Jansen, MD, Dong, HT and Mohan CV, 2018. **Tilapia lake virus: a threat to the global tilapia industry? Reviews in Aquaculture**, doi: 10.1111/raq.12254.
- Watts, JEM, Schreirer, HJ, Lanska, L. and Hale, M.S., 2017. **The rising tide of antimicrobial resistance in aquaculture: sources, sinks and solutions**. Marine Drugs, 15(6): 158.
- NACA, 2017. **Disease Advisory: Tilapia Lake Virus – an Emerging Threat to Farmed Tilapia in the Asia-Pacific Region**. Network of Aquaculture Centres in Asia-Pacific, Bangkok, Thailand.
- Jansen, M.D. and Mohan, C.V., 2017. **Tilapia Lake Virus (TiLV): Literature Review**. Penang, Malaysia: CGIAR Research Program on Fish Agri-Food Systems. Working Paper: FISH-2017-04.
- OIE, 2017. **Tilapia Lake Virus (TiLV) – a Novel Orthomyxo-like Virus**. World Organization for Animal Health, Paris, France.
- FAO, 2017. **Outbreaks of Tilapia lake virus (TiLV) Threaten the Livelihoods and Food Security of Millions of People Dependent on Tilapia Farming**. GIEWS Special Alert No: 338 – Global Food and Agriculture Organization of the United Nations, Rome, Italy.
- Surachetpong, W., Janetanakit, T., Nonhabenjawan, N., Tattiyapong, P., Sirikanchana, K. and Amonsin, A., 2017. **Outbreaks of tilapia lake virus infection, Thailand, 2015-2016**. Emerging Infectious Diseases, <https://dx.doi.org/10.3201/eid2306.161278>
- Dong HT, Siriroob, S., Meemetta, W., Santimanawong, W., Gangnonngiw, W., Pirarat, N., Khunrae, P., Rattanarojpong, T., Vanichviriyakit, R. and Senapin, S., 2017a. **Emergence of tilapia lake virus in Thailand and an alternative semi-nested RT-PCR for detection**. Aquaculture, doi: 10.1016/j.aquaculture.2017.04.019
- Dong HT, Siriroob, S., Meemetta, W., Santimanawong, W., Gangnonngiw, W., Pirarat, N., Khunrae, P., Rattanarojpong, T., Vanichviriyakit, R. and Senapin, S., 2017b. **A warning and an improved PCR detection method for tilapia lake virus (TiLV) disease in Thai tilapia farms**. http://www.enaca.org/modules/news/article.php?article_id=2077&title=tilapia-lake-virus-in-thailand-improved-pcr-detection-method
- Kramer, L., 2017. **Sizing up TiLV and its potential impact on tilapia production**. Global Aquaculture Advocate, May 2017.
- Li F, Xu L, Yang F., 2017. **Genomic characterization of a novel iridovirus from redclaw crayfish *Cherax quadricarinatus*: evidence for a new genus within the family Iridoviridae**. J Gen Virol, 98(10).
- Qiu L, Chen M M, Wan X Y, et al., 2017. **Characterization of a new member of Iridoviridae, Shrimp hemocyte iridescent virus (SHIV), found in white leg shrimp (*Litopenaeus vannamei*)**. Sci Rep, 7(1):11834.
- Qiu L, Chen M M, Wang R Y, et al., 2017. **Complete genome sequence of shrimp hemocyte iridescent virus (SHIV) isolated from white leg shrimp, *Litopenaeus vannamei***. Arch Virol, 130(9):1-5.
- Xu L, Wang T, Li F, et al., 2016. **Isolation and preliminary characterization of a new pathogenic iridovirus from redclaw crayfish *Cherax quadricarinatus***. Dis Aquat Org, 120(1):17.
- Pakingking, R.V. Jr., de Jesus-Ayson, E.G.T. and Acosta, B.O. (Eds.), 2016. **Addressing Acute Hepatopancreatic Necrosis Disease (AHPND) and Other Transboundary Diseases for Improved Aquatic Animal Health in Southeast Asia**. SEAFDEC AQD, Tigbauan, Iloilo, Philippines. 109 pp.

Lio-Po, G.D. and E.M. Leño, 2016. **Chapter 13: Important diseases of penaeid shrimps.** In: IC Liao, NH Chao and EM Leño (editors), Progress of Shrimp and Prawn Aquaculture in the World. National Taiwan Ocean University, Keelung, Taiwan, The Fisheries Society of Taiwan, Keelung, Taiwan, Asian Fisheries Society, Selangor, Malaysia and World Aquaculture Society, Louisiana, USA. p. 269-315.

Liu, Z., Zhang, Q.-L., Wan, X.-Y., Huang, J., 2016. **Development of real-time PCR assay for detection of microsporidian *Enterocytozoon hepatopenaei* and detection in shrimp samples under different growth rates.** Progress in Fishery Sciences. In press (in Chinese. Abstract in English).

Dabu, I.M., Lim, J.J., Arabit, P.M.T., Orense, S.J.A.B., Tabardillo Jr., J.A., Corre, V.L. and Maningas, M.B.B., 2015. **The first record of acute hepatopancreatic necrosis disease in the Philippines.** Aquacul. Res. doi: 10.1111/are.12923

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

Kondo, H., Van, P.T., Dang, L.T. and Hirono, I., 2015. **Draft genome sequence of non-*Vibrio parahaemolyticus* acute hepatopancreatic necrosis disease strain KC13.17.5, isolated from diseased shrimp in Vietnam.** Genome Announc 3(5):e00978-15. doi:10.1128/genomeA.00978-15.

Liu, L., Xiao, J., Xia, X., Pan, Y., Yan, S. and Wang, Y., 2015. **Draft genome sequence of *Vibrio owensii* strain SH-14, which causes shrimp acute hepatopancreatic necrosis disease.** Genome Announc 3(6):e01395-15. doi:10.1128/genomeA.01395-15.

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

Han, J.E., Tang, K.F.J., Tran, L.H. and Lightner, D.V., 2015. **Photorhabdus insect-related (Pir) toxin-like genes in a plasmid of *Vibrio parahaemolyticus*, the causative agent of acute hepatopancreatic necrosis disease (AHPND) of shrimp.** Dis. Aquat. Org., 113:33-40

Sirikharin, R., Taengchaiyaphum, S., Sanguanrut, P., Chi, T.D., Mavichak, R., Proespraiwong, P., et al., 2015. **Characterization and PCR Detection Of Binary, Pir-Like Toxins from *Vibrio parahaemolyticus* Isolates that Cause Acute Hepatopancreatic Necrosis Disease (AHPND) in Shrimp.** PLoS ONE 10(5): e0126987. doi:10.1371/journal.pone.0126987

Zhang, Q., Liu, Q., Liu, S., Yang, H., Liu, S., Zhu, L., Yang, B., Jin, J., Ding, L., Wang, X., Liang, Y., Wang, Q. and Huang, J., 2014. **A new nodavirus associated with covert mortality disease of shrimp.** J. Gen. Virol., 95:2700-2709.

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

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

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

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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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Notes

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