2019/1

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AQUATIC ANIMAL DISEASE REPORT
(Asia and Pacific Region)

January – March 2019

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Network of Aquaculture Centres in Asia-Pacific

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Contents

Foreword

OIE Regional Collaboration Framework on Aquatic Animal Diseases in Asia and the Pacific

Following the OIE Expert Consultation Meeting on Aquatic Animal Disease Diagnosis and Control which took place in November 2018 in Bangkok (Thailand), a Regional Collaboration Framework was proposed to be established in the region by May 2020.

The proposed Regional Collaboration Framework on Aquatic Animal Diseases in Asia and the Pacific will initially focus on building a framework of actors with the aim of strengthening laboratory capacity for aquatic animal disease activities in Asia and the Pacific such as emergency response.

Objectives:

- Strengthening collaboration among and between OIE Reference Centres (i.e Reference Laboratories and Collaborating Centres) and Member Countries;
- Sharing and exchanging information on test validation, reference materials and positive samples.

The Framework will be established as a platform to stimulate, support and promote these objectives.

Composition:

The framework will be a partnership consisting of the following structure and actors:

A Steering Committee composed of:

- A representative of OIE Collaborating Centres (for Diagnostic Test Validation Science in the Asia-Pacific Region; and New and Emerging Diseases)
- Two representatives of OIE Reference Laboratories in the region;
- Representative of OIE National Focal Points for Aquatic Animals;
- A representative from the OIE Aquatic Animal Health Standards Commission;
- Regional partners: FAO; NACA; SEAFDEC.

Secretariat:

- OIE Regional representation of Asia and the Pacific

Members:

- OIE Collaborating Centres: (For Diagnostic Test Validation Science in the Asia-Pacific Region; For New and Emerging Diseases).
- OIE Reference Laboratories on aquatic animal diseases in the region;
- The 32 national Focal Points for Aquatic Animals from the region;

- National reference laboratories (as designated by OIE Delegates).

Stakeholder group:

- Public and private universities as well as research institutions and private companies that focus on aquatic animal health and have objectives aligned with those of this Framework

Roles and Responsibilities:

Reference Centres and Member Country representatives agree to contribute or participate in the following:

- Coordinate and provide Proficiency testing programmes across the Asia-Pacific region to assess laboratory diagnostic capacity and provide technical support on test validation and quality control, pending funding;
- Support emergency response and provide in-country training to enhance disease surveillance as well as laboratory diagnosis capacity for OIE listed and emerging diseases;
- Improve communication among and between Reference Centres and OIE Member Countries to enable information, resource, technology and sample sharing between parties, for example, scientific publications, positive controls, and sampling and testing protocols to assist with disease investigations;
- Support and promote a standardisation of methods to diagnose and confirm a pathogenic agent;

Stakeholder group members would support:

- Wider information sharing as well as research assistance and technical support especially on emerging diseases.

(Prepared by OIE Regional Representation for Asia and the Pacific)

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: January - March 2019**

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

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12. *Spiroplasma eriocheiris* infection	***	***	***		
13. Shrimp haemocyte iridescent virus (SHIV)	***	***	***		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	-(2008)	-(2008)	-(2008)		11
2. Infection with *Batrachochytrium dendrobatidis*	-(2018)	-(2018)	-(2018)		12
3. Infection with *Batrachochytrium salamandrivorans*	0000	0000	0000		
ANY OTHER DISEASES OF IMPORTANCE					
1. *Hepatopancreatitis* 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 *Aphanomyces invadans* (EUS)** was not reported this period despite passive surveillance in New South Wales (last reported July 2017) and the Northern Territory (last reported May 2017), Queensland (last reported 2014), Western Australia (last reported 2013), Victoria (last reported 2012), and South Australia (last reported 2008). Passive surveillance and never reported in Tasmania. No information available this period in the Australian Capital Territory.

3	**Viral encephalopathy and retinopathy (VER)** 1. **Reported in** Queensland in January and February 2019, passive surveillance; 2. **Species affected** – juvenile Queensland grouper (*Epinephelus lanceolatus*), 40 day old barramundi (*Lates calcarifer*); 3. **Clinical signs** – corneal opacity, over-inflated swim bladders, necrotic neuronal cells in the retina, olfactory lobe, optic tectum and cerebellum; 4. **Pathogen** – Betanodavirus; 5. **Mortality rate** – 0.5%, 10%; 6. **Economic loss** – none; 7. **Geographic extent** – 3 cages in one large seawater reservoir, multiple nursery tanks on two farms; 8. **Containment measures** – none; 9. **Laboratory confirmation** – Histopathology, RT-PCR, and IHC test; 10. **Publications** – nil. VER is known to occur previously in the New South Wales (2018), Northern Territory (last reported 2013), Western Australia (last reported 2013), South Australia (last reported 2010), and Tasmania (last reported 2000). Passive surveillance and never reported Victoria. No information available this period in the Australian Capital Territory.
4	**Enteric septicaemia of catfish (*E. ictaluri*)** 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 occurence of E. ictaluri in wild fish populations in Australia. Active surveillance throughout Northern Australia has found no evidence of E. ictaluri in any other wild fish populations. E. ictaluri has been detected previously in association with imported ornamental fish including; the Northern Territory in a closed aquarium (last reported in 2011), and in PC2 containment facilities in Tasmania (last reported in 2001) and Queensland (last reported 2008).
5	**Infection with *Bonamia exitiosa*** was not reported in this period despite passive surveillance in South Australia (last reported 2018), Western Australia (last reported 2017) and Victoria (last reported 2016). Passive surveillance and never reported in Queensland, New South Wales, Tasmania and Northern Territory. No information available for the Australian Capital Territory (no marine water responsibility).
6	**Infection with *Perkinsus olseni*** 1. **Reported in** South Australia in January 2019, targeted surveillance; 2. **Species affected** – wild greenlip abalone (*Haliotis laevigata*), wild blacklip abalone (*H. rubra*); 3. **Clinical signs** – clinical and sub-clinical; 4. **Pathogen** – *Perkinsus olseni*; 5. **Mortality rate** – unknown ; 6. **Economic loss** – N/A; 7. **Geographic extent** – Tyalor Island, Western Zone fishery and Tickera, Central Zone fishery in SA; 8. **Containment measures** – endemic ; industy stip fishing and avoid clinical areas; 9. **Laboratory confirmation** – RFTM; 10. **Publications** – nil. *Perkinsus olseni* is known to occur previously in Western Australia (last reported 2018)Victoria (last reported 2015), Queensland (last reported 2014), and New South Wales (last reported 2005). Passive surveillance and never reported in the Northern Territory and Tasmania. No information available for the Australian Capital Territory (no marine water responsibility).

7	**Infection with abalone herpesvirus (abalone viral ganglioneuritis)** was not reported this period despite passive surveillance in Tasmania (last reported 2011), New South Wales (last reported 2011 and eradicated following detection in contained commercial live-holding facilities) and Victoria (last reported 2010). Passive surveillance and never reported in the Northern Territory, Queensland, South Australia and Western Australia. No information available this period in the Australian Capital Territory (no marine water responsibility).
8	**Infection with white spot syndrome virus (white spot disease)** was not reported this period despite targeted surveillance in Queensland (last reported 2018). White spot disease has never been reported despite active and passive surveillance in New South Wales, South Australia, Western Australia, Victoria and Northern Territory. Never reported in Tasmania despite passive surveillance. No information available for the Australian Capital Territory (no marine water responsibility).
9	**Infection with infectious hypodermal and haematopoietic necrosis virus** 1. **Reported in** Queensland in January, February and March 2019, passive surveillance; 2. **Species affected** – juvenile and adult black tiger prawn (*Penaeus monodon*); 3. **Clinical signs** – moribund prawns; 4. **Pathogen** – Infectious hypodermal and haemotopoietic necrosis virus; 5. **Mortality rate** – variable rates of mortality; 6. **Economic loss** – N/A; 7. **Geographic extent** – one pond on one farm, and four ponds at one hatchery, three ponds across two farms; 8. **Containment measures** – N/A; 9. **Laboratory confirmation** – RT-PCR, histopathology; 10. **Publications** – nil. Infectious hypodermal and haematopoietic necrosis virus is known to occur previously in the Northern Territory (last reported 2003). Passive surveillance and never reported in New South Wales, South Australia, Victoria and Western Australia. No information available this period in the Australian Capital Territory (no marine water responsibility) and Tasmania (susceptible species not present).
10	**Infection with *Macrobrachium rosenbergii* nodavirus (White tail disease)** was not reported this period despite passive surveillance in Queensland (last reported 2008). Passive surveillance and never reported from the Australian Capital Territory, New South Wales, the Northern Territory, South Australia, Victoria and Western Australia. No information available this period in Tasmania (susceptible species not present).
11	**Infection with *Ranavirus*** was not reported this period despite passive surveillance in the Northern Territory (last reported 2008, prior to official reporting for ranavirus). Suspected but not confirmed through passive surveillance in Queensland. Passive surveillance and never reported in Tasmania and New South Wales. No information available this period in the Australian Capital Territory, South Australia, Victoria and Western Australia.
12	**Infection with *Batrachochytrium dendrobatidis*** is know to occur previously in Queensland (last reported in April 2018, was not reported this period despite passive surveillance), Victoria (last reported 2016), Tasmania (last reported 2013), New South Wales (last reported 2012), and Western Australia (last reported 2008). Passive surveillance and never reported from the Northern Territory. No information available this period in the Australian Capital Territory and South Australia.
13	**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, Norther Territory, South Australia, Western Australia and Tasmania.

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

Nil

Country: BANGLADESH* Period: January - March 2019

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	January	February	March		
OIE-listed diseases					
1. Infection with epizootic haematopoietic necrosis virus	0000	0000	0000		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 *Aphanomyces invadans* (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 *Bonamia exitiosa*	0000	0000	0000		
2. Infection with *Perkinsus olseni*	0000	0000	0000		
3. Infection with abalone herpesvirus	0000	0000	0000		
4. Infection with *Xenohaliotis californiensis*	0000	0000	0000		
5. Infection with *Bonamia ostreae*	0000	0000	0000		
Non OIE-listed diseases					
6. Infection with *Marteilioides chungmuensis*	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	
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 *Macrobrachium rosenbergii* nodavirus (White Tail disease)	0000	0000	0000		
7. Infection with *Hepatobacter penaei* (Necrotising hepatopancreatitis)	0000	0000	0000		
8. Acute hepatopancreatic necrosis disease (AHPND)	0000	0000	0000		
9. Infection with *Aphanomyces astaci* (Crayfish plague)	0000	0000	0000		
Non OIE-listed diseases	0000	0000	0000		
10. Hepatopancreatic microsporidiosis caused by *Enterocytozoon hepatopenaei* (HPM-EHP)	0000	0000	0000		

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11. Viral covert mortality disease (VCMD) of shrimps	0000	0000	0000		
12. *Spiroplasma eriocheiris* 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 *Batrachochytrium dendrobatidis*	0000	0000	0000		
3. Infection with *Batrachochytrium salamandrivorans*	0000	0000	0000		
ANY OTHER DISEASES OF IMPORTANCE					
1. Infection with Streptococcus (Tilapia and climbing perch)	-	+( )	+( )	III	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	***Streptococcus agalactiae*** was detected through PCR test in climbing perch (*Anabas testudineus*) and tilapia (Orechromis niloticus) and mortality rate was 30-40% in district of Mymensingh and Chandpur. Preventive measures applied through the use of disinfectant and antibiotics (tetracycline).

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

Nil

Country: CHINESE TAIPEI **Period: January - March 2019**

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	January	February	March		
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 *Aphanomyces invadans* (EUS)	-	-	-		
6. Infection with red sea bream iridovirus	-	+	-	AHRI	1
7. Infection with koi herpesvirus	-	-	-		
Non OIE-listed diseases					
8. Grouper iridoviral disease	+	+	+	AHRI	2
9. Viral encephalopathy and retinopathy	+	+	+	AHRI	3
10.Enteric septicaemia of catfish	***	***	***		
11. Carp edema virus disease	-	-	-		
12. Tilapia lake virus (TiLV)	-	-	-		
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with *Bonamia exitiosa*	***	***	***		
2. Infection with *Perkinsus olseni*	***	***	***		
3. Infection with abalone herpesvirus	-	-	-		
4. Infection with *Xenohaliotis californiensis*	***	***	***		
5. Infection with *Bonamia ostreae*	***	***	***		
Non OIE-listed diseases					
6. Infection with *Marteilioides chungmuensis*	***	***	***		
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	4
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 *Macrobrachium rosenbergii* nodavirus (White Tail disease)	-	-	-		
7. Infection with *Hepatobacter penaei* (Necrotising hepatopancreatitis)	***	***	***		
8. Acute hepatopancreatic necrosis disease (AHPND)	-	-	-		
9. Infection with *Aphanomyces astaci* (Crayfish plague)	-	-	-		
Non OIE-listed diseases					
10. Hepatopancreatic microsporidiosis caused by *Enterocytozoon hepatopenaei* (HPM-EHP)	+	-	+	AHRI	5

11. Viral covert mortality disease (VCMD) of shrimps	***	***	***		
12. *Spiroplasma eriocheiris* infection	***	***	***		
13. Shrimp haemocyte iridescent virus (SHIV)	***	***	***		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	-	-	-		
2. Infection with *Batrachochytrium dendrobatidis*	***	***	***		
3. Infection with *Batrachochytrium salamandrivorans*	***	***	***		
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	1. Pingtung County. 2 outbreak reports from 1 farm. 2. Date: (1), (2) Feb 19. 3. Species: (1) *Epinephelus fuscoguttatus*, (2) *Epinephelus fuscoguttatus x Epinephelus lanceolatus*. 4. Mortality rate: 0. 5. Total number of death: (1) 0/80000; (2) 0/120000.

2	1. Kaohsiung City and Pingtung County. 49 outbreak reports from 23 farms. 2. Date: (1) Jan 9; (2) Jan 15; (3) Jan 18; (4), (5) Jan 21; (6), (7), (8) Jan 22; (9) Jan 24; (10) Jan 25; (11) Jan 28; (12), (13), (14) Jan 29; (15), (16) Feb 1; (17), (18) Feb 21; (19), (20), (21), (22) Feb 23; (23) Feb 26; (24) Mar 4; (25), (26) Mar 5; (27), (28), (29), (30), (31), (32) Mar 7; (33), (34) Mar 8; (35), (36) Mar 11; (37) Mar 12; (38), (39) Mar 18; (40) Mar 25, (41) Mar 26; (42) Mar 27; (43), (44), (45) Mar 28; (46), (47), (48), (49) Mar 29. 3. Species: (1), (2), (4), (12), (15), (19), (23), (24), (25), (26), (27), (28), (29), (30), (32), (33), (34), (35), (36), (37), (38), (39), (40), (44), (45), (46), (47), (48), (49) *Lates calcarifer*; (3), (7), (8), (9), (10), (11), (13), (14), (16), (17), (18), (41), (42) *Epinephelus fuscoguttatus x Epinephelus* lanceolatus; (5), (6), (20), (21), (22) *Epinephelus malabaricus*; (31) *Epinephelus lanceolatus*; (43) *Plectropomus leopardus*. 4. Mortality rate: 0. 5. Total number of death: (1), (12), (19), (20), (24), (25), (26), (27), (33), (34), (35), (36), (37), (42) 0/40000; (2), (8), (23), (44), (47) 0/20000; (3), (5), (6), (7), (9), (10), (11), (13), (16), (31), (41) 0/10000; (4), (15) 0/50000; (14) 0/12000; (17) 0/35000; (18), (21), (28), (38), (49) 0/30000; (22) 0/45000; (29) 0/150000; (30), (40) 0/100000; (32), (45) 0/23000; (39), (46) 0/25000; (43) 0/16000; (48) 0/26000.
3	1. Kaohsiung City, Pingtung County. 43 outbreak reports from 32 farms. 2. Date: (1) Jan 8; (2), (3) Jan 9; (4), (5), (6), (7) Jan 10; (8), (9), (10), (11) Jan 11; (12) Jan 15; (13), (14) Jan 18; (15), (16), (17) Jan 21; (18), (19) Jan 22; (20), (21) Jan 28; (22) Jan 29; (23), (24), (25) Feb 1; (26) Feb 18; (27), (28), (29), (30), (31), (32), (33), (34) Feb 19; (35) Feb 22; (36), (37) Feb 25; (38) Feb 26; (39) Mar 4; (40) Mar 8; (41), (42), (43) Mar 25. 3. Species: (1), (2), (3), (4), (5), (6), (22), (24), (25) *Epinephelus malabaricus*; (7), (8), (9), (10), (12), (13), (14), (15), (16), (17), (18), (20), (21), (26), (28), (29), (30), (31), (32), (33), (34), (35), (36), (37), (38), (39), (40), (41), (43) *Epinephelus fuscoguttatus x Epinephelus lanceolatus*; (11), (19), (23), (42) *Epinephelus lanceolatus*; (27) *Epinephelus fuscoguttatus*. 4. Mortality rate: 0. 5. Total number of death: (1), (2), (3), (6), (7), (8), (9), (14), (16), (18), (19), (20), (21), (23), (24), (25), (26), (30), (35), (36), (39), (42) 0/10000; (4) 0/47000; (5) 0/45000; (10) 0/30000; (11) 0/6000; (12) 0/12000; (13) 0/7000; (15) 0/20000; (17) 0/15000; (22), (27) 0/80000; (28) 0/120000; (29), (31), (33), (34), (37), (41) 0/35000; (32), (38) 0/9000; (40) 0/21000; (43) 0/1000.
4	1. Kaohsiung City, Pingtung County. 2 outbreak reports from 2 farms. 2. Date: (1) Jan 14; (2) Feb 19. 3. Species: (1) *Litopenaeus vannamei*; (2) *Cherax quadricarinatus*. 4. Mortality rate: low. 5. Total number of death: (1) 0/150000; (2) 3000/25000.
5	1. Kaohsiung City, Pingtung County. 3 outbreak reports from 2 farms. 2. Date: (1) Jan 3; (2) Jan 4; (3) Mar 7. 3. Species: (1), (2), (3) *Litopenaeus vannamei*. 4. Mortality rate: 0. 5. Total number of death: (1), (2) 0/500000; (3) 0/50000.

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

Country: HONG KONG SAR, CHINA* Period: January - March 2019

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	January	February	March		
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 *Aphanomyces invadans* (EUS)	0000	0000	0000	III	
6. Infection with red sea bream iridovirus	-	-	-	III	
7. Infection with koi herpesvirus	+	-	-	III	1
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 *Bonamia exitiosa*	0000	0000	0000	II	
2. Infection with *Perkinsus olseni*	0000	0000	0000	II	
3. Infection with abalone herpesvirus	0000	0000	0000	II	
4. Infection with *Xenohaliotis californiensis*	0000	0000	0000	II	
5. Infection with *Bonamia ostreae*	***	***	***		
Non OIE-listed diseases					
6. Infection with *Marteilioides chungmuensis*	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 *Macrobrachium rosenbergii* nodavirus (White Tail disease)	0000	0000	0000	II	
7. Infection with *Hepatobacter penaei* (Necrotising hepatopancreatitis)	***	***	***	II	
8. Acute hepatopancreatic necrosis disease (AHPND)	***	***	***	II	
9. Infection with *Aphanomyces astaci* (Crayfish plague)	0000	0000	0000	II	
Non OIE-listed diseases					
10. Hepatopancreatic microsporidiosis caused by *Enterocytozoon hepatopenaei* (HPM-EHP)	***	***	***		
11. Viral covert mortality disease (VCMD) of shrimps	***	***	***		

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12. *Spiroplasma eriocheiris* infection	***	***	***		
13. Shrimp haemocyte iridescent virus (SHIV)	***	***	***		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	(1 Apr 2017)	(1 Apr 2017)	(1 Apr 2017)	III	
2. Infection with *Batrachochytrium dendrobatidis*	***	***	***	III	
3. Infection with *Batrachochytrium salamandrivorans*	***	***	***	III	
ANY OTHER DISEASES OF IMPORTANCE					
1.					
2.					

DISEASES PRESUMED EXOTIC TO THE REGION[b]
LISTED BY THE OIE
Finfish: Infection with HPR-deleted of HPR0 salmon anemia virus, Infection with salmon pancreas disease virus; Infection with *Gyrodactylus salaris*.
Molluscs: Infection with *Bonamia ostreae*; *Marteilia refringens*; *Perkinsus marinus*.
Crustaceans: Crayfish plague (*Aphanomyces astaci*).
NOT LISTED BY THE OIE
Finfish: Channel catfish virus disease

a/ Please use the following symbols:

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

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

1. Epidemiological comments:

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

Comment No.	
1	**Koi herpesvirus** was detected from tissue samples of Koi fish from Ocean Park's koi pond. Clinical signs were evident with fishes either moribund or dead. Necropsy findings included pale gills, skin haemorrahge, ocular damage, and inflamed viscera. Mortality was approximately 10% and morbidity 25%.
2	
3	

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

Country: INDIA* **Period: January - March 2019**

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	January	February	March		
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 *Aphanomyces invadans* (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 *Bonamia exitiosa*	0000	0000	0000		
2. Infection with *Perkinsus olseni*	+( )	+( )	+( )	II, III	2
3. Infection with abalone herpesvirus	0000	0000	0000		
4. Infection with *Xenohaliotis californiensis*	0000	0000	0000		
5. Infection with *Bonamia ostreae*	0000	0000	0000		
Non OIE-listed diseases					
6. Infection with *Marteilioides chungmuensis*	0000	0000	0000		
7. Acute viral necrosis (in scallops)	0000	0000	0000		
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Infection with Taura syndrome virus	0000	0000	0000		
2. Infection with white spot syndrome virus	+( )	+( )	+( )	III	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	-	-	-		
6. Infection with *Macrobrachium rosenbergii* nodavirus (White Tail disease)	-	-	-		
7. Infection with *Hepatobacter penaei* (Necrotising hepatopancreatitis)	0000	0000	0000		
8. Acute hepatopancreatic necrosis disease (AHPND)	0000	0000	0000		
9. Infection with *Aphanomyces astaci* (Crayfish plague)	0000	0000	0000		
Non OIE-listed diseases					
10. Hepatopancreatic microsporidiosis caused by *Enterocytozoon hepatopenaei* (HPM-EHP)	+( )	+( )	+( )	III	5

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11. Viral covert mortality disease (VCMD) of shrimps	0000	0000	0000		
12. *Spiroplasma eriocheiris* 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 *Batrachochytrium dendrobatidis*	****	****	****		
3. Infection with *Batrachochytrium salamandrivorans*					
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	**Tilapia lake virus** was reported from very limited areas of Kannur district of Kerala and Nagapattinam district of Tamil Nadu.
2	**Infection with *Perkinsus olseni*** was reported in farmed samples of *Perna viridis* in Kasaragod, Kannur and Kozhikode districts of Kerala. Infection was also detected in wild samples of *P. viridis* and *Geloina bengalensis* from Kannur; *Perna indica* from Thiruvananthapuram and *Paphia malabarica* in Kasaragod, Kerala.

3	**Infection with white spot syndrome virus (WSSV)** was reported in *Litopenaeus vannamei* from very limited areas of Nagapattinam and Thiruvallur districts of Tamil Nadu; Sindhudurg and Raigad districts of Maharashtra; Nellore, Srikakulam, East Godavari, West Godavari, Visakhapatnam districts of Andhra Pradesh; Udupi and Uttar Kannada districts of Karnataka; Thrissur district of Kerala; Balasore and Bhadrak districts of Odisha.
4	**Infection with infectious hypodermal and haematopoietic necrosis virus** was reported in *Litopenaeus vannamei* from very limited areas of Thrissur district of Kerala.
5	**Infection with *Enterocytozoon hepatopenaei*** was reported in *Litopenaeus vannamei* from very limited areas of Balasore and Bhadrak districts of Odisha; Uttar Kannada, Dakshina Kananada and Udupi districts of Karnataka; Nagapattinam, Thoothukudi and Thiruvallur districts of Tamil Nadu; Srikakulam, Guntur, East Godavari and West Godavari districts of Andhra Pradesh; Thane, Ratnagiri and Sindhudurg districts of Maharashtra; and North 24 Parganas district of West Bengal.

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

Country: IR IRAN* **Period: April - June 2018**

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	April	May	June		
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	0000	0000	0000		
2. Infectious haematopoietic necrosis	+()	+()	-	III	1
3. Spring viraemia of carp (SVC)	-	-	-		
4. Viral haemorrhagic septicaemia (VHS)	+()	+()	-	III	2
5. Infection with *Aphanomyces invadans* (EUS)	0000	0000	0000		
6. Red seabream iridoviral disease (RSID)	0000	0000	0000		
7. Koi herpesvirus disease (KHV)	(2015)	(2015)	(2015)		
Non OIE-listed diseases					
8. Grouper iridoviral disease	0000	0000	0000		
9. Viral encephalopathy and retinopathy	0000	0000	0000		
10.Enteric septicaemia of catfish	***	***	***		
11. Carp edema virus disease	***	***	***		
12. Tilapia lake virus (TiLV)					
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with *Bonamia exitiosa*	0000	0000	0000		
2. Infection with *Perkinsus olseni*	0000	0000	0000		
3. Infection with abalone herpesvirus	0000	0000	0000		
4. Infection with *Xenohaliotis californiensis*	0000	0000	0000		
5. Infection with *Bonamia ostreae*	0000	0000	0000		
Non OIE-listed diseases					
6. Infection with *Marteilioides chungmuensis*	0000	0000	0000		
7. Acute viral necrosis (in scallops)	0000	0000	0000		
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Infection with Taura syndrome virus	0000	0000	0000		
2. Infection with white spot syndrome virus	+()	+()	+()	III	3
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 *Macrobrachium rosenbergii* nodavirus (White Tail disease)	***	***	***		
7. Infection with *Hepatobacter penaei* (Necrotising hepatopancreatitis)	0000	0000	0000		
8. Acute hepatopancreatic necrosis disease (AHPND)	***	***	***		
9. Infection with *Aphanomyces astaci* (Crayfish plague)	***	***	***		
Non OIE-listed diseases					
10. Hepatopancreatic microsporidiosis caused by *Enterocytozoon hepatopenaei* (HPM-EHP)	***	***	***		
11. Viral covert mortality disease (VCMD) of shrimps	***	***	***		

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12. *Spiroplasma eriocheiris* infection	***	***	***		
13. Iridovirus in crayfish	***	***	***		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	***	***	***		
2. Infection with *Batrachochytrium dendrobatidis*	***	***	***		
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	**Infectious haematopoietic necrosis (IHN)** 1) **Reported in** two provinces, one propagation and culture center in Gilan, one propagation center in West-Azarbaijan; 2) **Species affected:** 2-5 months rainbow trout (*Oncorhynchus mykiss*); 3) **Clinical Signs:** mass mortality, lethargy, swimming with abnormal behavior, abnormal activity, pinpoint haemorrhages in visceral organs and pale gills; 4) **Pathogen:** Infectious haematopoietic necrosis virus (related to genogroup E and near to Italian isolates); 5) **Mortality rate:** 30-40% 6) **Economic loss:** – 7) **Names of infected areas:** Gilan and West Azarbaijan; 8) **Preventive/control measures taken:** emergency harvesting, stamping out of juveniles, and fallowing; 9) **Laboratories for confirmation:** Histopathology , Realtime-PCR and Cell culture in CVL and genetic sequencing of previous samples in OIE reference laboratory in Denmark; 10) **Publications:** None

2	**Viral Haemorrhagic Septicaemia (VHS)** 1) **Reported in** 2 provinces, one farm in Chaharmahal & Bakhtari, and one propagation and culture center in Mazandaran; 2) **Species affected:** Rainbow trout (*Oncorhynchus mykiss*); 3) **Disease characteristics:** pinpoint haemorrhages in visceral organs and pale gills,ascite and 'pop eye' exophthalmia,bleeding under skin around base of pectoral and pelvic fins; 4) **Pathogen:** Viral haemorrhagic septicaemia virus (isolates were related to genotype Ia-2; exotic origin) 5) **Mortality rate:** 30-70%; 6) **Economic loss:** – 7) **Names of infected areas:** Chaharmahal & Baktari, Mazandaran; 8) **Preventive/control measures taken:** emergency harvesting, stamping out of juveniles, and fallowing; 9) **Laboratory confirmation:** Real time PCR, ELISA, histopathology, nested-PCR and virus culture in CVL and Mashhad PCR Lab; 10) **Publications:** None
3	**Infection with White Spot Syndrome Virus (WSSV)** 1) **Reported in** two provinces, one propagation center in Abadan City (Khozestan Province), and 14 farms in Chabahar complex (Sistan & Balochestan province); 2) **Species affected:** juvenile whilte leg shrimp (*Penaeus vannamei*); 3) **Disease characteristics:** sudden decrease in feeding, swimming near the edge of pond, reddish body and white spot on the cephalothorax and sudden death; 4) **Pathogen:** White spot syndrome virus; 5) **Mortality rate:** low, morbidity rate near to 1%; 6) **Economic loss:** – 7) **Names of infected areas:** Khozestan and Sistan & Balochestan; 8) **Preventive/control measures taken:** Affected ponds was disinfected with 40 ppm calcium choloride and all of infected shrimps were eradicated; 9) **Laboratory confirmation:** nested-PCR and confirmed by national shrimp laboratory in Boushehr; 10) **Publications:** None.

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

Country: IR IRAN* **Period: July - September 2018**

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	July	August	September		
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	0000	0000	0000		
2. Infectious haematopoietic necrosis	+()	+()	+()	III	1
3. Spring viraemia of carp (SVC)	-	-	-		
4. Viral haemorrhagic septicaemia (VHS)	+()	+()	+()	III	2
5. Infection with *Aphanomyces invadans* (EUS)	0000	0000	0000		
6. Red seabream iridoviral disease (RSID)	0000	0000	0000		
7. Koi herpesvirus disease (KHV)	(2015)	(2015)	(2015)		
Non OIE-listed diseases					
8. Grouper iridoviral disease	0000	0000	0000		
9. Viral encephalopathy and retinopathy	0000	0000	0000		
10.Enteric septicaemia of catfish	0000	0000	0000		
11. Carp edema virus disease	***	***	***		
12. Tilapia lake virus (TiLV)	0000	0000	0000		
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with *Bonamia exitiosa*	0000	0000	0000		
2. Infection with *Perkinsus olseni*	0000	0000	0000		
3. Infection with abalone herpesvirus	0000	0000	0000		
4. Infection with *Xenohaliotis californiensis*	0000	0000	0000		
5. Infection with *Bonamia ostreae*	0000	0000	0000		
Non OIE-listed diseases					
6. Infection with *Marteilioides chungmuensis*	0000	0000	0000		
7. Acute viral necrosis (in scallops)	0000	0000	0000		
CRUSTACEAN DISEASES					
OIE-listed diseases	0000	0000	0000		
1. Infection with Taura syndrome virus	+()	+()	+()	III	3
2. Infection with white spot syndrome virus	0000	0000	0000		
3. Infection with yellow head virus genotype 1	0000	0000	0000		
4. Infection with infectious hypodermal and haematopoietic necrosis virus	0000	0000	0000		
5. Infection with infectious myonecrosis virus	***	***	***		
6. Infection with *Macrobrachium rosenbergii* nodavirus (White Tail disease)	0000	0000	0000		
7. Infection with *Hepatobacter penaei* (Necrotising hepatopancreatitis)	0000	0000	0000		
8. Acute hepatopancreatic necrosis disease (AHPND)	***	***	***		
9. Infection with *Aphanomyces astaci* (Crayfish plague)					
Non OIE-listed diseases	***	***	***		
10. Hepatopancreatic microsporidiosis caused by *Enterocytozoon hepatopenaei* (HPM-EHP)	***	***	***		
11. Viral covert mortality disease (VCMD) of shrimps	***	***	***		

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12. *Spiroplasma eriocheiris* infection	***	***	***		
13. Iridovirus in crayfish	***	***	***		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	***	***	***		
2. Infection with *Batrachochytrium dendrobatidis*	***	***	***		
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	**Infectious haematopoietic necrosis (IHN)** 1) **Reported in** 12 farms located in 9 different provinces during by implementation of active surveillance 2) **Species affected:** Rainbow trout (*Oncorhynchus mykiss*); 3) **Clinical Signs:** mass mortality, lethargy, abnormal swimming, pinpoint haemorrahges in visceral organs, and pale gills. Clinical signs were dominant in fry and young fish; 4) **Pathogen:** Infectious haematopoietic necrosis virus (related to genogroup E and near to Italian isolates); 5) **Mortality rate:** 30-40% 6) **Economic loss:** – 7) **Names of infected areas:** Cnetral part of the country; 8) **Preventive/control measures taken:** zoning and quarantine (restriction of fish movement), killing of sick fish and fallowing; 9) **Laboratories for confirmation:** Realtime PCR and cell culture in CVL, and genetic sequencing of previous samples in OIE Reference Laboratory in Denmark 10) **Publications:** None

2	**Viral Haemorrhagic Septicaemia (VHS)** 1) **Reported in** 6 farms located in 3 different provinces by implementation of active surveillance as well as passive surveillance 2) **Species affected:** Rainbow trout (*Oncorhynchus mykiss*); 3) **Disease characteristics:** mass mortality, lethargy, abnormal swimming ,pinpoint haemorrhages in visceral organs and pale gills. Clinical signs were dominant in fry and young fish; 4) **Pathogen:** Viral haemorrhagic septicaemia virus (isolates were related to genotype IIa) 5) **Mortality rate:** 90% in hatchery, lower in grow-out ponds; 6) **Economic loss:** – 7) **Names of infected areas:** central part of the country; 8) **Preventive/control measures taken:** zoning and quarantine (restriction of fish movement), killing of sick fish and fallowing; 9) **Laboratory confirmation:** Realtime PCR and cell culture in CVL, and genetic sequencing of previous samples in OIE Reference Laboratory in Denmark; 10) **Publications:** None
3	**Infection with White Spot Syndrome Virus (WSSV)** 1) **Reported in** one shrimp site (24 farms) located in Khozestan province by implementation of active and passive surveillance; 2) **Species affected:** whilte leg shrimp (*Penaeus vannamei*); 3) **Disease characteristics:** mass mortality,sudden decrease in feeding, swimming near the edge of pond, reddish body and white spot on the cuticle of cephalothorax; 4) **Pathogen:** White spot syndrome virus; 5) **Mortality rate:** average of 40% 6) **Economic loss:** – 7) **Names of infected areas:** Southwest part of the country and limited to one zone; 8) **Preventive/control measures taken:** stamping out of infected ponds, emergency harvest, zoning and quarantine (restriction of movement); 9) **Laboratory confirmation:** PCR according to OIE Manual; 10) **Publications:** None.

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

Country: IR IRAN* **Period: October - December 2018**

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	October	November	December		
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	0000	0000	0000		
2. Infectious haematopoietic necrosis	+()	+()	-	III	1
3. Spring viraemia of carp (SVC)	-	-	-		
4. Viral haemorrhagic septicaemia (VHS)	+()	+()	-	III	2
5. Infection with *Aphanomyces invadans* (EUS)	0000	0000	0000		
6. Red seabream iridoviral disease (RSID)	0000	0000	0000		
7. Koi herpesvirus disease (KHV)	(2015)	(2015)	(2015)		
Non OIE-listed diseases					
8. Grouper iridoviral disease	0000	0000	0000		
9. Viral encephalopathy and retinopathy	0000	0000	0000		
10.Enteric septicaemia of catfish	***	***	***		
11. Carp edema virus disease	***	***	***		
12. Tilapia lake virus (TiLV)					
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with *Bonamia exitiosa*	0000	0000	0000		
2. Infection with *Perkinsus olseni*	0000	0000	0000		
3. Infection with abalone herpesvirus	0000	0000	0000		
4. Infection with *Xenohaliotis californiensis*	0000	0000	0000		
5. Infection with *Bonamia ostreae*	0000	0000	0000		
Non OIE-listed diseases					
6. Infection with *Marteilioides chungmuensis*	0000	0000	0000		
7. Acute viral necrosis (in scallops)	0000	0000	0000		
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Infection with Taura syndrome virus	0000	0000	0000		
2. Infection with white spot syndrome virus	+()	+()	+()	III	3
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 *Macrobrachium rosenbergii* nodavirus (White Tail disease)	***	***	***		
7. Infection with *Hepatobacter penaei* (Necrotising hepatopancreatitis)	0000	0000	0000		
8. Acute hepatopancreatic necrosis disease (AHPND)	***	***	***		
9. Infection with *Aphanomyces astaci* (Crayfish plague)	***	***	***		
Non OIE-listed diseases					
10. Hepatopancreatic microsporidiosis caused by *Enterocytozoon hepatopenaei* (HPM-EHP)	***	***	***		
11. Viral covert mortality disease (VCMD) of shrimps	***	***	***		

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12. *Spiroplasma eriocheiris* infection	***	***	***		
13. Iridovirus in crayfish	***	***	***		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	***	***	***		
2. Infection with *Batrachochytrium dendrobatidis*	***	***	***		
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	**Infectious haematopoietic necrosis (IHN)** 1) **Reported in** 14 farms located in 7 different provinces during by implementation of active surveillance 2) **Species affected:** Rainbow trout (*Oncorhynchus mykiss*); 3) **Clinical Signs:** mass mortality, lethargy, abnormal swimming, pinpoint haemorrahges in visceral organs, and pale gills. Clinical signs were dominant in fry and young fish; 4) **Pathogen:** Infectious haematopoietic necrosis virus (related to genogroup E and near to Italian isolates); 5) **Mortality rate:** 30-40% 6) **Economic loss:** – 7) **Names of infected areas:** Central part of the country; 8) **Preventive/control measures taken:** zoning and quarantine (restriction of fish movement), killing of sick fish and fallowing; 9) **Laboratories for confirmation:** Realtime PCR and cell culture in CVL, and genetic sequencing of previous samples in OIE Reference Laboratory in Denmark 10) **Publications:** None

2	**Viral Haemorrhagic Septicaemia (VHS)** 1) **Reported in** 15 farms located in 4 different provinces by implementation of active surveillance as well as passive surveillance 2) **Species affected:** Rainbow trout (*Oncorhynchus mykiss*); 3) **Disease characteristics:** mass mortality, lethargy, abnormal swimming ,pinpoint haemorrhages in visceral organs and pale gills. Clinical signs were dominant in fry and young fish; 4) **Pathogen:** Viral haemorrhagic septicaemia virus (isolates were related to genotype IIa) 5) **Mortality rate:** 90% in hatchery, lower in grow-out ponds; 6) **Economic loss:** – 7) **Names of infected areas:** central part of the country; 8) **Preventive/control measures taken:** zoning and quarantine (restriction of fish movement), killing of sick fish and fallowing; 9) **Laboratory confirmation:** Realtime PCR and cell culture in CVL, and genetic sequencing of previous samples in OIE Reference Laboratory in Denmark; 10) **Publications:** None

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

Country: IR IRAN* **Period: January - March 2019**

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

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11. Viral covert mortality disease (VCMD) of shrimps	***	***	***		
12. *Spiroplasma eriocheiris* infection	***	***	***		
13. Shrimp haemocyte iridescent virus (SHIV)	***	***	***		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	***	***	***		
2. Infection with *Batrachochytrium dendrobatidis*	***	***	***		
3. Infection with *Batrachochytrium salamandrivorans*	***	***	***		
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	**Infectious haematopoietic necrosis (IHN)** 1) **Reported in** 3 farms located in 2 different provinces by implementation of active surveillance; 2) **Species affected:** Rainbow trout (*Oncorhynchus mykiss*); 3) **Clinical Signs:** mass mortality, lethargy, abnormal swimming, pinpoint haemorrahges in visceral organs, and pale gills. Clinical signs were dominant in fry and young fish; 4) **Pathogen:** Infectious haematopoietic necrosis virus (related to genogroup E and near to Italian isolates); 5) **Mortality rate:** 30-40% 6) **Economic loss:** – 7) **Names of infected areas:** Central part of the country; 8) **Preventive/control measures taken:** zoning and quarantine (restriction of fish movement), killing of sick fish and fallowing; 9) **Laboratories for confirmation:** Realtime PCR and cell culture in CVL, and genetic sequencing of previous samples in OIE Reference Laboratory in Denmark 10) **Publications:** None

2	**Viral Haemorrhagic Septicaemia (VHS)** 1) **Reported in** 3 farms located in s different provinces by implementation of active surveillance as well as passive surveillance 2) **Species affected:** Rainbow trout (*Oncorhynchus mykiss*); 3) **Disease characteristics:** mass mortality, lethargy, abnormal swimming ,pinpoint haemorrhages in visceral organs and pale gills. Clinical signs were dominant in fry and young fish; 4) **Pathogen:** Viral haemorrhagic septicaemia virus (isolates were related to genotype IIa) 5) **Mortality rate:** 90% in hatchery, lower in grow-out ponds; 6) **Economic loss:** – 7) **Names of infected areas:** central part of the country; 8) **Preventive/control measures taken:** zoning and quarantine (restriction of fish movement), killing of sick fish and fallowing; 9) **Laboratory confirmation:** Realtime PCR and cell culture in CVL, and genetic sequencing of previous samples in OIE Reference Laboratory in Denmark; 10) **Publications:** None

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

Country: JAPAN* **Period: January - March 2019**

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	January	February	March		
OIE-listed diseases					
1. Infection with epizootic haematopoietic necrosis virus	0000	0000	0000	I	
2. Infection with infectious haematopoietic necrosis virus	+	+	+	III	1
3. Infection with spring viremia of carp virus	0000	0000	0000	I	
4. Infection with viral haemorrhagic septicaemia virus	-(2018)	+	+	I	2
5. Infection with *Aphanomyces invadans* (EUS)	-(2015)	-(2015)	-(2015)	I	
6. Infection with red sea bream iridovirus	-(2018)	-(2018)	+	III	3
7. Infection with koi herpesvirus	+	+	-	III	4
Non OIE-listed diseases					
8. Grouper iridoviral disease	0000	0000	0000	I	
9. Viral encephalopathy and retinopathy	+	+	+	III	5
10.Enteric septicaemia of catfish	-(2010)	-(2010)	-(2010)	I	
11. Carp edema virus disease	-(2018)	-(2018)	-(2018)	III	
12. Tilapia lake virus (TiLV)	0000	0000	0000	I	
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with *Bonamia exitiosa*	0000	0000	0000	I	
2. Infection with *Perkinsus olseni*	-(2007)	-(2007)	-(2007)	I	
3. Infection with abalone herpesvirus	0000	0000	0000	I	
4. Infection with *Xenohaliotis californiensis*	-(2015)	-(2015)	-(2015)	I	
5. Infection with *Bonamia ostreae*	0000	0000	0000	I	
Non OIE-listed diseases					
6. Infection with *Marteilioides chungmuensis*	-(2014)	-(2014)	-(2014)	I	
7. Acute viral necrosis (in scallops)	0000	0000	0000	I	
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Infection with Taura syndrome virus	0000	0000	0000	I	
2. Infection with white spot syndrome virus	-(2018)	-(2018)	-(2018)	I	
3. Infection with yellow head virus genotype 1	0000	0000	0000	I	
4. Infection with infectious hypodermal and haematopoietic necrosis virus	0000	0000	0000	I	
5. Infection with infectious myonecrosis virus	0000	0000	0000	I	
6. Infection with *Macrobrachium rosenbergii* nodavirus (White Tail disease)	0000	0000	0000	I	
7. Infection with *Hepatobacter penaei* (Necrotising hepatopancreatitis)	0000	0000	0000	I	
8. Acute hepatopancreatic necrosis disease (AHPND)	0000	0000	0000	I	
9. Infection with *Aphanomyces astaci* (Crayfish plague)	0000	0000	0000	I	
Non OIE-listed diseases					
10. Hepatopancreatic microsporidiosis caused by *Enterocytozoon hepatopenaei* (HPM-EHP)	0000	0000	0000	I	
11. Viral covert mortality disease (VCMD) of shrimps	0000	0000	0000	I	

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12. *Spiroplasma eriocheiris* infection	0000	0000	0000	I	
13. Shrimp haematocyte iridescent virus (SHIV)	0000	0000	0000	I	
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	-(2012)	-(2012)	-(2012)	I	
2. Infection with *Batrachochytrium dendrobatidis*	-(2009)	-(2009)	-(2009)	I	
3. Infection with *Batrachochytrium salamandrivorans*					
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	**Infectious haematopoietic necrosis (IHN)** 1) **Reported in** 5 prefectures 2) **Species affected:** Amago (*Onchorynchus masou ishikawae*), Yamame (*O. masou masou*), Rainbow trout (*O.mykiss*), Biwa trout (*O. masou rhodurus*); 3) **Disease characteristics:** Mortality, anemia, haemorrahges, exophthalmia, discoloration, unusual swimming, intestinal and pancreatic hypertrophy, ascites; 4) **Pathogen:** Infectious haematopoietic necrosis virus; 5) **Mortality rate:** 1-50% 6) **Economic loss:** ― 7) **Names of infected areas:** Honshu; 8) **Preventive/control measures taken:** Feed restriction,movement control, culling of infected fish; 9) **Laboratories for confirmation: C**ell culture, PCR, isolation of the virus, PCR and observation of CPE by prefectural research laboratories 10) **Publications:** None

2	**Viral haemorrhagic septicaemia (VHS)** 1) **Reported in** 2 prefectures, 2) **Species affected:** Japanese flounder (*Paralichthys olivaceus*); 3) **Disease characteristics:** Mortality, ascites, brownish gills; 4) **Pathogen:** Viral haemorrhagic septicaemia virus; 5) **Mortality rate:** 3% 6) **Economic loss:** － 7) **Names of infected areas:** Shikoku, Kyushu; 8) **Preventive/control measures taken:** Removal of dead fish. 9) **Laboratory confirmation:** PCR prefectural research laboratory. 10) **Publications:** none.
3	**Red seabream iridiviral disease (RSID)** 1) **Reported in** 1 prefecture; 2) **Species affected:** Red seabream (*Pagrus major*); 3) **Disease characteristics:** None; 4) **Pathogen:** Red seabream iridovirus 5) **Mortality rate:** 0% 6) **Economic loss:** － 7) **Names of infected areas:** Kyushu; 8) **Preventive/control measures taken:** None; 9) **Laboratory confirmation:** PCR by prefectural research laboratories. 10) **Publications:** None
4	**Koi herpesvirus disease (KHV)** 1) **Reported in** 4 prefectures 2) **Species affected:** Koi carp (*Cyrpinus carpio*); 3) **Disease characteristics:** Mortality; 4) **Pathogen:** Koi herpesvirus; 5) **Mortality rate:** 1-3% 6) **Economic loss:** － 7) **Names of infected areas:** Honshu; 8) **Preventive/control measures taken:** Movement control, removal of dead fish, culling of infected fish, disinfection of ponds, facilities and tools, drainage stop; 9) **Laboratory confirmation:** PCR by National Research Institute of Aquaculture and prefectural research laboratories. 10) **Publications:** Website of Ministry of Agriculture, Forestry and Fisheries (MAFF), website of Prefectures, notification to press.
5	**Viral encephalopathy and retinopathy (VER)** 1) **Reported in** 1 prefecture; 2) **Species affected:** Longtooth grouper (*Epinephelus bruneus*) x Giant grouper (*E. lanceolatus*), Pacific Bluefin tuna (*Thunnus orientalis*); 3) **Disease characteristics:** Mortality, redness of body surface; 4) **Pathogen:** Betanodavirus; 5) **Mortality rate:** 66% 6) **Economic loss:** － 7) **Names of infected areas:** Honsyu, Kyushu; 8) **Preventive/control measures taken:** Removal of dead fish. 9) **Laboratory confirmation:** PCR by prefectural research laboratory. 10) **Publications:** none.

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

Country: MYANMAR* **Period: January - March 2019**

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	Jnauary	February	March		
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 *Aphanomyces invadans* (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 *Bonamia exitiosa*					
2. Infection with *Perkinsus olseni*					
3. Infection with abalone herpesvirus					
4. Infection with *Xenohaliotis californiensis*					
5. Infection with *Bonamia ostreae*					
Non OIE-listed diseases					
6. Infection with *Marteilioides chungmuensis*					
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	
3. Infection with yellow head virus genotype 1	-	-	-		
4. Infection with infectious hypodermal and haematopoietic necrosis virus	***	***	***	III	
5. Infection with infectious myonecrosis virus	-	-	-	III	
6. Infection with *Macrobrachium rosenbergii* nodavirus (White Tail disease)	-	-	-	III	
7. Infection with *Hepatobacter penaei* (Necrotising hepatopancreatitis)	***	***	***		
8. Acute hepatopancreatic necrosis disease (AHPND)	-	-	-	III	
9. Infection with *Aphanomyces astaci* (Crayfish plague)	***	***	***		
Non OIE-listed diseases					
10. Hepatopancreatic microsporidiosis caused by *Enterocytozoon hepatopenaei* (HPM-EHP)	***	***	***		
11. Viral covert mortality disease (VCMD) of shrimps	***	***	***		

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

DISEASES PRESUMED EXOTIC TO THE REGION[b]
LISTED BY THE OIE
Finfish: Infection with HPR-deleted of HPR0 salmon anemia virus, Infection with salmon pancreas disease virus; Infection with *Gyrodactylus salaris*.
Molluscs: Infection with *Bonamia ostreae*; *Marteilia refringens*; *Perkinsus marinus.*
Crustaceans: Crayfish plague (*Aphanomyces astaci*).
NOT LISTED BY THE OIE
Finfish: Channel catfish virus disease

a/ Please use the following symbols:

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

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

1. Epidemiological comments:

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

Comment No.	
1	During this period, we have received 54 samples of crustaceans (9 frozen shrimp and 8 soft shell crab for export), live PL (11 samples) and broodstock (2 samples) of *P. vannamei*, PL of *Macrobrachium rosenbergii* (18 sample), PL of *P. monodon* (5 samples) and one sample of rock shrimp for import and local use) for testing, and found that all samples were negative for WSSV, MrNV, YHV, IMN, AHPND and TSV.
2	Visited some fish farms in Yangon, Mandalay and Ayeyarwaddy regions during this period. Parasitic infestations (*Dactylogyrus* spp., *Trichodina* spp.) were found in some farms due to poor water quality.

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

Country: NEW ZEALAND Period: January - March 2019

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	January	February	March		
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 *Aphanomyces invadans* (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 *Bonamia exitiosa*	- (2018)	- (2018)	- (2018)	III	1
2. Infection with *Perkinsus olseni*	- (2018)	- (2018)	- (2018)	III	2
3. Infection with abalone herpesvirus	0000	0000	0000	III	
4. Infection with *Xenohaliotis californiensis*	0000	0000	0000	III	
5. Infection with *Bonamia ostreae*	- (2017)	- (2017)	- (2017)	III	3
Non OIE-listed diseases					
6. Infection with *Marteilioides chungmuensis*	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 *Macrobrachium rosenbergii* nodavirus (White Tail disease)	0000	0000	0000	III	
7. Infection with *Hepatobacter penaei* (Necrotising	0000	0000	0000	III	
8. Acute hepatopancreatic necrosis disease (AHPND)	0000	0000	0000	III	
9. Infection with *Aphanomyces astaci* (Crayfish plague)	0000	0000	0000	III	
Non OIE-listed diseases					
10. Hepatopancreatic microsporidiosis caused by *Enterocytozoon hepatopenaei* (HPM-EHP)	0000	0000	0000	III	
11. Viral covert mortality disease (VCMD) of shrimps	0000	0000	0000	III	

12. *Spiroplasma eriocheiris* infection	0000	0000	0000	III	
13. Shrimp haemocyte iridescent virus (SHIV)	0000	0000	0000	III	
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	0000	0000	0000	III	
2. Infection with *Batrachochytrium dendrobatidis*	-(2010)	-(2010)	-(2010)	III	4
3. Infection with *Batrachochytrium salamandrivorans*	0000	0000	0000		
ANY OTHER DISEASES OF IMPORTANCE					
1.					
2.					

DISEASES PRESUMED EXOTIC TO THE REGION[b]
LISTED BY THE OIE
Finfish: Infection with HPR-deleted of HPR0 salmon anemia virus, Infection with salmon pancreas disease virus; Infection with *Gyrodactylus salaris*.
Molluscs: Infection with *Bonamia ostreae*; *Marteilia refringens*; *Perkinsus marinus*.
Crustaceans: Crayfish plague (*Aphanomyces astaci*).
NOT LISTED BY THE OIE
Finfish: Channel catfish virus disease

a/ Please use the following symbols:

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

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

1. Epidemiological comments:

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

Comment No.	
1	**Infection with *Bonamia exitiosa*** 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 has been previously reported in *Ostrea chilensis* from Hauraki Gulf (Auckland region), Tauranga (Bay of Plenty region), the Marlborough Sounds and Wellington Harbour. Annual monitoring of the presence of *B. exitiosa* infection is undertaken in the flat oyster (*O. chilensis*) population in the Foveaux Strait.

2	**Infection with *Perkinsus olseni*** was first detected in New Zealand in 1999, in wild wedge shells (*Macomona liliana*). It was then found in wild populations of New Zealand cockles (*Austrovenus stutchburyi*), ark shells (*Barbatia novaezelandiae*) and pipi (*Paphies australis*) in 2000-2001. In July 2013, *P. olseni* was detected for the first time in farmed black foot pāua (*Haliotis iris*), a type of abalone native to New Zealand. Further detections were made in wild *H. iris* populations in 2014. These mollusc species occur widely around the coast of New Zealand, but to date *P. olseni* has only been detected in these species from the Auckland region northwards. *Perkinsus olseni* was found for the first time on the South Island in New Zealand green lipped mussels (*Perna canaliculus*) in a land based aquaculture facility in September 2014, and then in wild New Zealand scallops (*Pecten novaezelandiae*) 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 *P. olseni* 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.
3	**Infection with *Bonamia ostreae*** was detected for the first time in New Zealand flat oysters (*Ostrea chilensis*) in January 2015. It was found on one land-based aquaculture facility in the Nelson region, and on two marine farms in the Marlborough region, both regions being in northern part of the South Island. Since that time, movement controls have been in place to regulate the movement of susceptible shellfish from the northern regions of the South Island and active surveillance has been conducted for the purposes of early detection of spread. In 2016, *B. ostreae* 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 *B. ostreae* 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 *B. ostreae* 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 *B. ostreae* had been detected commenced. Depopulation of farms in Big Glory Bay commenced on the 19 June 2017 and was completed September 2017. Depopulation of farms in Marlborough Sounds commenced on the 11 July and was completed in December 2017. Active surveillance continues for the purposes of early detection of spread.
4	The first isolation of ***Batrachochytrium dendrobatidis*** was made in 1999 in New Zealand. Since then the fungus has been detected both on the North and South Islands in both native and introduced frog species. It is not certain what level of population decline if any, is associated with the presence of the fungus in native frogs.

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

Country: PHILIPPINES* Period: October - December 2018

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	October	November	December		
OIE-listed diseases					
1. Epizootic haematopoietic necrosis	0000	0000	0000		
2. Infectious haematopoietic necrosis	0000	0000	0000		
3. Spring viraemia of carp (SVC)	0000	0000	0000		
4. Viral haemorrhagic septicaemia (VHS)	0000	0000	0000		
5. Infection with *Aphanomyces invadans* (EUS)	(2002)	(2002)	(2002)	I	1
6. Red seabream iridoviral disease (RSID)	?	?	?	I, III	2
7. Koi herpesvirus disease (KHV)	0000	0000	0000	I, III	3
Non OIE-listed diseases					
8. Grouper iridoviral disease	(2008)	(2008)	(2008)	I, III	
9. Viral encephalopathy and retinopathy	-	-	-	I, III	4
10.Enteric septicaemia of catfish	***	***	***		
11. Carp edema virus disease	0000	0000	0000		
12. Tilapia lake virus (TiLV)	-	-	-	I, III	5
MOLLUSC DISEASES					
OIE-listed diseases					
1. Infection with *Bonamia exitiosa*	0000	0000	0000		
2. Infection with *Perkinsus olseni*	0000	0000	0000		
3. Infection with abalone herpesvirus	***	***	***		
4. Infection with *Xenohaliotis californiensis*	***	***	***		
5. Infection with *Bonamia ostreae*	0000	0000	0000		
Non OIE-listed diseases					
6. Infection with *Marteilioides chungmuensis*	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 necrosis virus	+	+	+	I, III	9
5. Infection with infectious myonecrosis virus	0000	0000	0000	I, III	10
6. Infection with *Macrobrachium rosenbergii* nodavirus (White Tail disease)	0000	0000	0000	I, III	
7. Infection with *Hepatobacter penaei* (Necrotising hepatopancreatitis)	0000	0000	0000	I, III	11
8. Acute hepatopancreatic necrosis disease (AHPND)	+	+	+	I, III	12
9. Infection with *Aphanomyces astaci* (Crayfish plague)	0000	0000	0000		
Non OIE-listed diseases					
10. Hepatopancreatic microsporidiosis caused by *Enterocytozoon hepatopenaei* (HPM-EHP)	+	+	-	I, III	13
11. Viral covert mortality disease (VCMD) of shrimps	0000	0000	0000		

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12. *Spiroplasma eriocheiris* infection	0000	0000	0000		
13. Iridovirus in crayfish	0000	0000	0000		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	***	***	***		
2. Infection with *Batrachochytrium dendrobatidis*	***	***	***		
ANY OTHER DISEASES OF IMPORTANCE					
1.					
2.					

DISEASES PRESUMED EXOTIC TO THE REGION[b]
LISTED BY THE OIE
Finfish: Infection with HPR-deleted of HPR0 salmon anemia virus, Infection with salmon pancreas disease virus; Infection with *Gyrodactylus salaris*.
Molluscs: Infection with *Bonamia ostreae*; *Marteilia refringens*; *Perkinsus marinus*.
Crustaceans: Crayfish plague (*Aphanomyces astaci*).
NOT LISTED BY THE OIE
Finfish: Channel catfish virus disease

a/ Please use the following symbols:

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

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

1. Epidemiological comments:

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

Comment No.	
1	**Infection with *Aphanomyces invadans* (EUS)** EUS was not detected by gross morphological examinations in *Anguilla* spp., Percula Clown, and Domino Damsel from Antipolo City, Batangas, Cavite, Laguna, Leyte and Zambales. Examinations were conducted by Bureau of Fisheries and Aquatic Resources (BFAR) Central Fish Health Laboratory.
2	**Red Seabream Iridoviral Disease (RSID)** Samples of Grouper and Three Spot Domino Damsel from 2 farms in Palawan and Batangas showed positive results for Megalocytivirus infection by PCR. Examination was conducted by BFAR Central Fish Health Laboratory.

3	**Koi herpesvirus disease (KHV)** Koi analyzed using PCR test showed negative results of Koi herpesvirus disease. Examination was conducted by BFAR Central Fish Health Laboratory.
4	**Viral Encephalopathy and Retinopathy (VER)** Grouper, Tilapia, Damsel, Chromis, Pink Anthias, Milkfish, Clownfish, and *Lates calcarifer* of different stages (egg/larvae, fry, broodstock, juveniles and adults) analyzed using PCR test showed negative results for Viral Encephalopathy and Retinopathy. Samples were collected from Batangas, Iloilo, Lapu-Lapu City, Nueva Ecija, Palawan, Quezon, Quezon Province, Sorsogon, South Cotabato, and Zamboanga City. Examinations were conducted by BFAR Central and SEAFDEC Fish Health Laboratories.
5	**Tilapia Lake Virus (TiLV)** Tilapia, of different stages (breeder and fry) analyzed using PCR test showed negative results for Tilapia Lake Virus. Samples were collected from Nueva Ecija and Oriental Mindoro. Examinations were conducted by BFAR Central Fish Health Laboratory.
6	**Taura Syndrome (TS)** *Pennaeus vannamei*, and *P. monodon* of different stages (mysis, post-larvae, adult, grow-out and broodstock) analyzed using PCR test showed negative results for Taura Syndrome. Samples were collected from Agusan del Norte, Batangas, Cagayan, Camarines Sur, Cebu, Iloilo, Lanao del Norte, Misamis Oriental, Negros Occidental, Negros Oriental, Northern Samar, Occidental Mindoro, Oriental Mindoro, Palawan, Pangasinan, and Sorsogon. Other samples examined were imported from Thailand. Examinations were conducted by BFAR Central Fish Health Laboratory.
7	**White Spot Disease (WSD)** **Origin of the disease or pathogen (history of the disease)-** detected in 13 farms **Species affected:** *P. vannamei*, *P. indicus* and *P. monodon* **Pathogen:** White Spot Virus **Size of infected areas or names of infected areas:** Cagayan, Cebu, Davao del Sur, Davao Oriental, Iloilo, Misamis Oriental, Negros Oriental, Northern Samar, Occidental Mindoro, Oriental Mindoro, and Sorsogon **Samples sent to national or international laboratories for confirmation (indicate the name of laboratories):** Polymerase Chain Reaction Test (PCR) / BFAR Central and SEAFDEC Fish Health Laboratories
8	**Yellow Head Virus (YHV)** *P. vannamei* and *P. monodon* different stages (mysis, post-larvae, grow-out and broodstock) analyzed using PCR test showed negative results for Yellow Head Virus. Samples were collected from Agusan del Norte, Batangas, Cagayan, Camarines Norte, Camarines Sur, Cebu, Iloilo, Lanao del Norte, Misamis Oriental, Negros Occidental, Negros Oriental, Northern Samar, Occidental Mindoro, Oriental Mindoro, Palawan, Pangasinan, and Sorsogon. Other samples examined were imported from Thailand. Examination was conducted by BFAR Central Fish Health Laboratory.

9	**Infectious Hypodermal and Heamatopoietic Necrosis (IHHNV)** **Origin of the disease or pathogen (history of the disease) –** detected in 13 farms **Species affected:** *P. vannamei* and *P. monodon* **Pathogen:** Infectious Hypodermal and Heamatopoietic Virus **Size of infected areas or names of infected areas:** Cebu, Davao del Sur, Iloilo, Lanao del Norte, Misamis Occidental, Misamis Oriental, Palawan, Pangasinan, and Surigao del Norte **Samples sent to national or international laboratories for confirmation (indicate the name of laboratories):** Polymerase Chain Reaction Test (PCR) / BFAR Central Fish Health Laboratory
10	**Infectious Myonecrosis (IMN)** *P. vannamei* and *P.monodon* of different stages (mysis, post-larvae, adult, grow-out and broodstock) analyzed using PCR test showed negative for Infectious Myonecrosis. Samples were collected from Agusan del Norte, Batangas, Cagayan, Camarines Norte, Camarines Sur, Cebu, Iloilo, Lanao del Norte, Misamis Oriental, Negros Occidental, Negros Oriental, Northern Samar, Occidental Mindoro, Oriental Mindoro, Palawan, Pangasinan, Sorsogon, and Surigao del Norte. Some samples examined were imported from Thailand. Examinations were conducted by BFAR Central Fish Health Laboratory.
11	**Necrotising Hepatopancreatitis (NHP)** *P. vannamei* and *P.monodon* of different stages (post-larvae, grow-out and broodstock) analyzed using PCR test showed negative for Necrotising Hepatopancreatitis. Samples were collected from Agusan del Norte, Batangas, Cagayan, Camarines Sur, Cebu, Misamis Oriental, Negros Occidental, Negros Oriental, Oriental Mindoro, Palawan, and Sorsogon. Some samples examined were imported from Thailand. Examinations were conducted by BFAR Central Fish Health Laboratory.
12	**Acute Hepatopancreatic Necrosis Disease (AHPND)** **Origin of the disease or pathogen (history of the disease) –** detected in 4 farms **Species affected:** *P. vannamei*, and *P.monodon* **Pathogen:** AHPND *Vibrio parahaemolyticus* **Size of infected areas or names of infected areas:** Cagayan, Cebu, Iloilo and Sorsogon **Samples sent to national or international laboratories for confirmation (indicate the name of laboratories):** Polymerase Chain Reaction Test (PCR) / BFAR Central and SEAFDEC Fish Health Laboratories
13	**Hepatopancreatic Microsporidiosis caused by *Enterocytozoon hepatopenaei* (HPM-EHP)** **Origin of the disease or pathogen (history of the disease) –** detected in 3 farms **Species affected:** *P. vannamei*, and *P. monodon* **Pathogen:** *Enterocytozoon hepatopenaei* **Size of infected areas or names of infected areas:** Misamis Occidental and South Cotabato **Samples sent to national or international laboratories for confirmation (indicate the name of laboratories):** Polymerase Chain Reaction Test (PCR) / BFAR Central and SEAFDEC Fish Health Laboratories

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

Country: SINGAPORE* **Period: January - March 2019**

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	Jnauary	February	March		
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 *Aphanomyces invadans* (EUS)	0000	0000	0000		
6. Infection with red sea bream iridovirus	(2018)	(2018)	+	III	1
7. Infection with koi herpesvirus	+	(2019)	(2019)	III	2
Non OIE-listed diseases					
8. Grouper iridoviral disease	(2014)	(2014)	(2014)		
9. Viral encephalopathy and retinopathy	(2018)	(2018)	(2018)		
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 *Bonamia exitiosa*	****	****	****		
2. Infection with *Perkinsus olseni*	****	****	****		
3. Infection with abalone herpesvirus	****	****	****		
4. Infection with *Xenohaliotis californiensis*	****	****	****		
5. Infection with *Bonamia ostreae*	****	****	****		
Non OIE-listed diseases					
6. Infection with *Marteilioides chungmuensis*	****	****	****		
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 *Macrobrachium rosenbergii* nodavirus (White Tail disease)	***	***	***		
7. Infection with *Hepatobacter penaei* (Necrotising hepatopancreatitis)	0000	0000	0000		
8. Acute hepatopancreatic necrosis disease (AHPND)	0000	0000	0000		
9. Infection with *Aphanomyces astaci* (Crayfish plague)	***	***	***		
Non OIE-listed diseases					
10. Hepatopancreatic microsporidiosis caused by *Enterocytozoon hepatopenaei* (HPM-EHP)	***	***	***		
11. Viral covert mortality disease (VCMD) of shrimps	***	***	***		

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12. *Spiroplasma eriocheiris* infection	***	***	***		
13. Shrimp haemocyte iridescent virus (SHIV)	***	***	***		
AMPHIBIAN DISEASES					
OIE-listed diseases					
1. Infection with Ranavirus	***	***	***		
2. Infection with *Batrachochytrium dendrobatidis*	(2018)	(2018)	(2018)		
3. Infection with *Batrachochytrium salamandrivorans*	(2018)	(2018)	(2018)		
ANY OTHER DISEASES OF IMPORTANCE					
1 Streptococcosis (snapper)	+	(2019)	+	II, III	3
2 Lates Calcarifer Herpesvirus (Asian seabass)	+	(2019)	(2019)	III	4, 5
3 Big Belly bacteria (Asian seabass)	+	(2019)	+	II	5,6
4 Infectious Spleen and Kidney Necrosis Virus (Asian seabass)	+	(2019)	(2019)	III	5
5 Mycobacterium sp. infection (grouper)	+	+	(2019)	II	7
6 Scale Drop Disease Virus (Asian seabass)	(2018)	(2018)	+	III	8

DISEASES PRESUMED EXOTIC TO THE REGION[b]
LISTED BY THE OIE
Finfish: Infection with HPR-deleted of HPR0 salmon anemia virus, Infection with salmon pancreas disease virus; Infection with *Gyrodactylus salaris*.
Molluscs: Infection with *Bonamia ostreae*; *Marteilia refringens*; *Perkinsus marinus*.
Crustaceans: Crayfish plague (*Aphanomyces astaci*).
NOT LISTED BY THE OIE
Finfish: Channel catfish virus disease

a/ Please use the following symbols:

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

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

1. Epidemiological comments:

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

Comment No.	
1	**Red Seabream Iridoviral Disease (RSIVD)** was detected through a combination of PCR and histopathology in two batches of diseased hybrid grouper fish received from a land-based commercial aquaculture facility. An on-site investigation was conducted on the affected farm, with advice given on biosecurity improvement and quality assurance of import sources. The farm was encouraged to cull all moribund fish, and restricted from selling or transfer of the affected batches to other premises.

2	**Koi Herpesvirus (KHV)** was detected by PCR in a batch of clinically healthy ornamental koi carp in an importer's premises. An inspection was conducted at the affected farm, whereby the farm carried out culling of the entire affected batch, all in-contact fish, and then disinfected the system.
3	Gram-positive coccoid entities compatible with **Streptococcus sp.** were detected by histopathology analysis from batches of diseased snapper fish submitted by a commercial aquaculture facility in January. However, the bacterium could not be cultured from tissue, possibly suggesting prior use of antimicrobials which diminished culturable levels of bacteria in tissue. Streptococcus sp. was isolated from the batch of diseased threadfin submitted from a commercial aquaculture facility in march, concurrent with findings of gram-positive cocci in the same batch. Subsequent PCR confirmed the bacterium identity as Streptococcus iniae. The affected farms were advised to remove all moribund stock and reduce husbandry-related stressors.
4	***Lates calcarifer*** **Herpesvirus (LCHV)** was detected by PCR in a batch of diseased asian seabass fish submitted by an offshore commercial aquaculture facility. The fish also had a gill infection with filamentous bacteria (morphology compatible with ***Tenacibaculum*** **sp.**), possibly secondary to the LCHV infection. The farm's attending veterinarian was informed of the findings.
5	***Lates calcarifer*** **Herpesvirus (LCHV)** was also detected by PCR in a batch of diseased asian seabass fish submitted by a commercial aquaculture facility also in January. The fish also had a co-infection with Infectious Spleen and Kidney Necrosis Virus (ISKNV) (detected by PCR) and Big Belly Bacteria (detected with histopathology analysis). The affected farm was advised to improve biosecurity measures, reduce stressors and feeding, and to remove moribund fish. The farm's appointed fish health manager subsequently reported that mortalities have subsided.
6	**Big Belly bacteria** was detected by histopathology analysis in a batch of diseased asian seabass submitted from an offshore floating netcage farm in March. The farm reduced feeding and removed all moribund and dead fish.
7	Acid-fast bacilli compatible with **Mycobacterium sp.** were detected from two separate batches of diseased grouper fish submitted by a land-based recirculating-system aquaculture facility in January and February respectively. Due to the recurring occurrences of mycobacterium sp. infection within the facility, the farm was advised to reinforce existing biosecurity measures.
8	**Scale Drop Disease Virus (SDDV)** was detected by PCR from a batch of diseased seabass from a commercial commercial and research facility. The fish health manager of the affected farm was promptly informed of the detection.

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

Country: VIETNAM* **Period: January - March 2019**

Item	Disease status [a/]			Level of diagnosis	Epidemiological comment numbers
DISEASES PREVALENT IN THE REGION	Month				
FINFISH DISEASES	January	February	March		
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 *Aphanomyces invadans* (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 *Bonamia exitiosa*	0000	0000	0000		
2. Infection with *Perkinsus olseni*	-	-	-		
3. Infection with abalone herpesvirus	0000	0000	0000		
4. Infection with *Xenohaliotis californiensis*	0000	0000	0000		
5. Infection with *Bonamia ostreae*	0000	0000	0000		
Non OIE-listed diseases					
6. Infection with *Marteilioides chungmuensis*	0000	0000	0000		
7. Acute viral necrosis (in scallops)	0000	0000	0000		
CRUSTACEAN DISEASES					
OIE-listed diseases					
1. Infection with Taura syndrome virus	0000	0000	0000		
2. Infection with white spot syndrome virus	+()	+()	+()	I, III	2
3. Infection with yellow head virus genotype 1	-	-	-		
4. Infection with infectious hypodermal and haematopoietic necrosis virus	0000	0000	0000		
5. Infection with infectious myonecrosis virus	0000	0000	0000		
6. Infection with *Macrobrachium rosenbergii* nodavirus (White Tail disease)	-	-	-		
7. Infection with *Hepatobacter penaei* (Necrotising hepatopancreatitis)	0000	0000	0000		
8. Acute hepatopancreatic necrosis disease (AHPND)	+()	+()	+()	I, III	3
9. Infection with *Aphanomyces astaci* (Crayfish plague)	0000	0000	0000		
Non OIE-listed diseases					
10. Hepatopancreatic microsporidiosis caused by *Enterocytozoon hepatopenaei* (HPM-EHP)	0000	0000	0000		
11. Viral covert mortality disease (VCMD) of shrimps	0000	0000	0000		

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

12. *Spiroplasma eriocheiris* 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 *Batrachochytrium dendrobatidis*	0000	0000	0000		
3. Infection with *Batrachochytrium salamandrivorans*					
ANY OTHER DISEASES OF IMPORTANCE					

DISEASES PRESUMED EXOTIC TO THE REGION[b]
LISTED BY THE OIE
Finfish: Infection with HPR-deleted of HPR0 salmon anemia virus, Infection with salmon pancreas disease virus; Infection with *Gyrodactylus salaris*.
Molluscs: Infection with *Bonamia ostreae*; *Marteilia refringens*; *Perkinsus marinus*.
Crustaceans: Crayfish plague (*Aphanomyces astaci*).
NOT LISTED BY THE OIE
Finfish: Channel catfish virus disease

a/ Please use the following symbols:

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

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

1. Epidemiological comments:

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

Comment No.	
1	**Enteric Septicaemia of Catfish (*Edwardsiella ictaluri*)** Infection found in some small scale catfish (*Pangasius micronema, P. hypophthalmus*) farms.

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

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

List of Diseases in the Asia-Pacific
Quarterly Aquatic Animal Disease Report (Beginning 2019)

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

Recent Aquatic Animal Health Related Publications

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

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

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Instructions on how to fill in the
QUARTERLY AQUATIC ANIMAL DISEASE REPORT
(Revised during the Provisional Meeting of the AG[1], 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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