



QUARTERLY AQUATIC ANIMAL DISEASE REPORT (Asia and Pacific Region)

July – September 2019



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Foreword

11th Symposium on Diseases in Asian Aquaculture (DAA 11)

The 11th Symposium on Diseases in Asian Aquaculture (DAA 11) marks the 30 years of Fish Health Section of the Asian Fisheries Society (FHS-AFS) establishment and it will be celebrated in Malaysia. Local hosts, the Department of Fisheries Malaysia (DOF) under the Ministry of Agriculture and Agro-based Industry together with the Ministry of Modernisation of Agriculture, Native Land and Regional Development Sarawak (MANRED) will be organizing the event in collaboration with the FHS-AFS. DAA 11 will be held on 29 September to 2 October 2020, at the Borneo Convention Center Kuching (BCKC), Sarawak, Malaysia.



The DAA11 symposium aims to combine intellectual stimulation while exploring the nature of Sarawak. DAA11 anticipates the attendance of 300-500 delegates from 20-30 countries which will be held in two plenaries and six sessions over four days. With the chosen theme: *Land of Adventure: Exploring Aquatic Animal Health for Sustainable Aquaculture*, main topics will cover Biosecurity in Aquaculture, Epidemiology, Diagnostics, Prevention & Control Measures and cutting-edge research in fish and shrimp health management. Ample time is scheduled for networking, field trips, and social functions during the Symposium. Trade displays will be exhibited throughout the Symposium. DAA11 has introduced a 3-Minute Pitch (3MP) for each session and is an extended form of an elevator pitch that was introduced in DAA10 (2017). 3MP is a great exercise for all speakers to construct research findings and pertinent information into a 3 minute speech. It will expose researchers to initiate their ideas and share research discoveries in brief, simple and clear manner to wider audience. It also aims to encourage more oral presentations and serves as a platform for researchers to highlight the impact of their research using one slide only.

The Symposium aims to bring academicians, scientists, and business professionals, general public, current and prospective fish farmers to join and share their research findings at DAA11 in Kuching, Sarawak, Malaysia. We are now calling for online abstract submission and online registration. For more information about the symposium, please visit DAA11 website at <https://www.daa11.org>. For assistance, please feel free to contact the secretariat at daa11@dof.gov.my. See you in the land of adventure!

Important Dates:

| | |
|---|--------------------------|
| Registration and Abstract Submission | From Jan 10, 2020 |
| Abstract Submission Deadline | June 15, 2020 |
| Notification of Abstract Acceptance | August 30, 2020 |
| Early Registration Deadline | August 15, 2020 |
| Normal Registration | August 16, 2020 onwards |



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: July - September 2019

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

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

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

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

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

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

Crustaceans: Crayfish plague (*Aphanomyces astaci*).

NOT LISTED BY THE OIE

Finfish: Channel catfish virus disease

a/ Please use the following symbols:

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

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

1. Epidemiological comments:

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

| Comment No. | |
|-------------|--|
| 1 | Epizootic haematopoietic necrosis was not reported this period despite passive surveillance in Victoria (last reported 2012), the Australian Capital Territory (last reported 2011), New South Wales (last reported 2009) and South Australia (last reported 1992). Passive surveillance and never reported in the Northern Territory, Queensland, Tasmania and Western Australia. |
| 2 | Infection with <i>Aphanomyces invadans</i> (EUS) was not reported this period despite passive surveillance in New South Wales (last reported July 2017) and the Northern Territory (last reported May 2017), Queensland (last reported 2014), Western Australia (last reported 2013), Victoria (last reported 2012), and South Australia (last reported 2008). Passive surveillance and never reported in Tasmania. No information available this period in the Australian Capital Territory. |

| | |
|---|---|
| 3 | <p>Viral encephalopathy and retinopathy (VER) was not reported for this period despite passive surveillance in Queensland (last reported in February 2019), New South Wales (last reported 2018), Western Australia (last reported 2013), Northern Territory (last reported 2013), South Australia (last reported 2010) and Tasmania (last reported 2000). Passive surveillance and never reported in Victoria. No information available this period in the Australian Capital Territory..</p> |
| 4 | <p>Enteric septicaemia of catfish (<i>E. ictaluri</i>) was not reported this period despite passive surveillance and never reported in New South Wales, South Australia, Victoria and Western Australia. No information available this period in the Australian Capital Territory. It was reported from clinically normal fish from a single river in Queensland (last reported 2014), the only occurrence of <i>E. ictaluri</i> in wild fish populations in Australia. Active surveillance throughout Northern Australia has found no evidence of <i>E. ictaluri</i> in any other wild fish populations. <i>E. ictaluri</i> has been detected previously in association with imported ornamental fish including; the Northern Territory in a closed aquarium (last reported 2011), and in PC2 containment facilities in Tasmania (last reported 2001) and Queensland (last reported 2008).</p> |
| 5 | <p>Infection with <i>Bonamia exitiosa</i> 1. Reported in South Australia in July 2019, passive surveillance; 2. Species affected – Australian flat oyster (<i>Ostrea angasi</i>) ; 3. Clinical signs – sub-clinical; 4. Pathogen – <i>Bonamia exitiosa</i>; 5. Mortality rate – N/A ; 6. Economic loss – N/A; 7. Geographic extent – marine farmed, grow-out area in Coffin Bay, SA; 8. Containment measures – None; 9. Laboratory confirmation – smear and qPCR; 10. Publications – nil.</p> <p>Infection with <i>Bonamia exitiosa</i> is previously known to occur in Western Australia (last reported 2017) and Victoria (last reported 2016). Passive surveillance and never reported in Queensland, New South Wales, Tasmania and Northern Territory. No information available for the Australian Capital Territory (no marine water responsibility).</p> |
| 6 | <p>Infection with <i>Perkinsus olseni</i> 1. Reported in South Australia in July 2019, passive surveillance; 2. Species affected – wild greenlip abalone (<i>Haliotis laevis</i>), wild ridged ear abalone (<i>H. scalaris</i>); 3. Clinical signs – sub-clinical; 4. Pathogen – <i>Perkinsus olseni</i>; 5. Mortality rate – 100's of dead abalone – mortality due to harmful algal bloom (<i>Karenia mikimotoi</i>); 6. Economic loss – N/A; 7. Geographic extent – Hardwicke Bay, Yorke Peninsula, SA; 8. Containment measures – endemic, commercial fishing avoided in the area; 9. Laboratory confirmation – water sample analyses (phytoplankton), histopathology, PCR; 10. Publications – nil.</p> <p><i>Perkinsus olseni</i> is known to occur previously in Western Australia (last reported 2018), Victoria (last reported 2015), Queensland (last reported 2014), and New South Wales (last reported 2005). Passive surveillance and never reported in the Northern Territory and Tasmania. No information available for the Australian Capital Territory (no marine water responsibility).</p> |

| | |
|----|--|
| 7 | <p>Infection with abalone herpesvirus (abalone viral ganglioneuritis) was not reported this period despite passive surveillance in Tasmania (last reported 2011), New South Wales (last reported 2011 and eradicated following detection in contained commercial live-holding facilities) and Victoria (last reported 2010). Passive surveillance and never reported in the Northern Territory, Queensland, South Australia and Western Australia. No information available this period in the Australian Capital Territory (no marine water responsibility).</p> |
| 8 | <p>Infection with white spot syndrome virus (white spot disease) was not reported this period despite targeted surveillance in Queensland (last reported 2018). White spot disease has never been reported despite active and passive surveillance in New South Wales, South Australia, Western Australia, Victoria and Northern Territory. Never reported in Tasmania despite passive surveillance. No information available for the Australian Capital Territory (no marine water responsibility).</p> |
| 9 | <p>Infection with infectious hypodermal and haematopoietic necrosis virus was not reported this period despite passive surveillance in Queensland (last reported in May 2019) and the Northern Territory (last reported 2003). Passive surveillance and never reported in New South Wales, South Australia, Victoria and Western Australia. No information available this period in the Australian Capital Territory (no marine water responsibility) and Tasmania (susceptible species not present).</p> |
| 10 | <p>Infection with <i>Macrobrachium rosenbergii</i> nodavirus (White tail disease) was not reported this period despite passive surveillance in Queensland (last reported 2008). Passive surveillance and never reported from the Australian Capital Territory, New South Wales, the Northern Territory, South Australia, Victoria and Western Australia. No information available this period in Tasmania (susceptible species not present).</p> |
| 11 | <p>Infection with <i>Ranavirus</i> was not reported this period despite passive surveillance in the Northern Territory (last reported 2008, prior to official reporting for ranavirus). Suspected but not confirmed through passive surveillance in Queensland. Passive surveillance and never reported in Tasmania and New South Wales. No information available this period in the Australian Capital Territory, South Australia, Victoria and Western Australia.</p> |
| 12 | <p>Infection with <i>Batrachochytrium dendrobatidis</i></p> <ol style="list-style-type: none"> 1. Reported in New South Wales in July, August and September 2019, targeted surveillance; 2. Species affected – juvenile (tadpoles) Fleay’s barred frog (<i>Mixophyes fleayi</i>); 3. Clinical signs – Tadpoles noted to have loss of mouthparts (jaw sheaths), but otherwise healthy; 4. Pathogen – <i>Batrachochytrium dendrobatidis</i>; 5. Mortality rate – nil; 6. Economic loss – none; 7. Geographic extent – Brindle Creek in the Border Ranges National Park; 8. Containment measures – none, endemic; 9. Laboratory confirmation – RT PCR; 10. Publications – nil. <p>Infection with <i>Batrachochytrium dendrobatidis</i> is previously known to occur in Queensland (last reported 2018), Victoria (last reported 2016), Tasmania (last reported 2013), New South Wales (last reported 2012), Western Australia (last reported 2008). Passive surveillance and never reported in the Northern Territory. No information available this period in the Australian Capital Territory and South Australia.</p> |
| 13 | <p>Hepatopancreatitis in prawns was not reported this period despite passive surveillance in Queensland (last reported 2017). Passive surveillance and never reported in New South Wales. No information available in the Australian Capital Territory, Victoria, Northern Territory, South Australia, Western Australia and Tasmania.</p> |

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

Nil

Country: **CHINESE TAIPEI**

 Period: **July - September 2019**

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

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

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

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

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

Crustaceans: Crayfish plague (*Aphanomyces astaci*).

NOT LISTED BY THE OIE

Finfish: Channel catfish virus disease

a/ Please use the following symbols:

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

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

1. Epidemiological comments:

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

| Comment No. | |
|-------------|---|
| 1 | <p>1. Pingtung county. 2 outbreak reports from 2 farms. 2. Date: (1) Jul 26, (2) Aug 22. 3. Species: (1), (2) <i>Penaeus monodon</i>. 4. Mortality rate: low. 5. Total number of death: (1) 6/135000, (2) 21/80000.</p> |

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

Country: **HONG KONG SAR, CHINA***Period: **July - September 2019**

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

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

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

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

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

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

Crustaceans: Crayfish plague (*Aphanomyces astaci*).

NOT LISTED BY THE OIE

Finfish: Channel catfish virus disease

a/ Please use the following symbols:

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

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

1. Epidemiological comments:

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

| Comment No. | |
|-------------|---|
| 1 | Red seabream iridoviral disease caused by Infectious spleen and kidney necrosis virus (ISKNV) was identified in samples of longfin batfish (<i>Platax teira</i>) fry. Clinical signs include emaciation, lethargy, and enlargement of spleen. The case morbidity and mortality rate was reported to be approximately 100% and 80%, respectively. Preventive measures include the use of virus-free stocks (with proper health certificates), isolation of diseased fish, prompt removal of dead fish, and regular disinfection of culture gear. The farmer was advised to follow good aquaculture practices. |

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

Country: **INDIA***Period: **July - September 2019**

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

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

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

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

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

Crustaceans: Crayfish plague (*Aphanomyces astaci*).

NOT LISTED BY THE OIE

Finfish: Channel catfish virus disease

a/ Please use the following symbols:

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

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

1. Epidemiological comments:

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

| Comment No. | |
|-------------|--|
| 1 | <p>Infection with carp edema virus was detected in samples of koi carp <i>Cyprinus carpio</i> collected from Chennai, Tamil Nadu in 12th August and 16th September, 2019.</p> <p><i>Preventive/Control measures taken:</i> The affected fish was treated with 5 ppt salt solution and after recovery the stock was sold out.</p> |
| 2 | <p>Tilapia lake virus disease was reported from very limited areas of Chennai, Tamil Nadu; and Kottayam, Ernakulam and Palakkad districts of Kerala.</p> <p><i>Preventive/Control measures taken:</i> Advised to implement strict biosecurity measures to prevent the spread of pathogen, and follow better management practices including stocking with TiLV free seed in next crop.</p> |

| | |
|---|---|
| 3 | <p>Infection with <i>Perkinsus olseni</i> was detected in wild samples of <i>Perna viridis</i> from Kannur district and <i>Paphia malabarica</i> from Kollam district in Kerala.</p> <p><i>Preventive/Control measures taken:</i> Since the disease was reported in the samples collected from the wild, no preventive/control measures could be applied.</p> |
| 4 | <p>Infection with white spot syndrome virus (WSSV) was reported in <i>Litopenaeus vannamei</i> from very limited areas of Nagapattinam district of Tamil Nadu; Balasore district of Odisha; South 24 Parganas district of West Bengal; East Godavari, Srikakulam, West Godavari, Vizianagram, Visakhapatnam and Nellore districts of Andhra Pradesh; Uttar Kannada district of Karnataka; and Raigad district of Maharashtra. The infection was also reported in <i>Penaeus monodon</i> from very limited areas of Ernakulam and Alapuzha districts of Kerala..</p> <p><i>Preventive/Control measures taken:</i> Advised to follow better management practices for controlling the disease, implementation of strict biosecurity measures to prevent the spread of pathogen and emergency harvesting, drying of the ponds and disinfection before next stocking.</p> |
| 5 | <p>Infection with <i>Enterocytozoon hepatopenaei</i> was reported in <i>Litopenaeus vannamei</i> from very limited areas of Balasore district of Odisha; Uttar Kannada district of Karnataka; Nagapattinam, Cuddalore, Kanchipuram, Thiruvallur and Pudukkottai districts of Tamil Nadu; Nellore, Vizianagaram, Visakhapatnam, Srikakulam, East Godavari and West Godavari districts of Andhra Pradesh; Thrissur district of Kerala; Mansa, Sri Muktsar Sahib and Fazilka districts of Punjab; and Bhiwani and Fatehabad districts of Haryana.</p> <p><i>Preventive/Control measures taken:</i> Advised to implement strict biosecurity measures to prevent the spread of pathogen, follow better management practices for controlling the disease, drying of the ponds and disinfection before next stocking.</p> |

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

Country: **IR IRAN***Period: **July - September 2019**

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

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

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

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

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

Crustaceans: Crayfish plague (*Aphanomyces astaci*).

NOT LISTED BY THE OIE

Finfish: Channel catfish virus disease

a/ Please use the following symbols:

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

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

1. Epidemiological comments:

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

| Comment No. | |
|-------------|---|
| 1 | <p>Infectious haematopoietic necrosis (IHN)</p> <p>1) Reported from one farm located in Kordestan province in August by implementation of active surveillance;</p> <p>2) Species affected: rainbow trout (<i>Oncorhynchus mykiss</i>);</p> <p>3) Clinical Signs: mass mortality, lethargy, swimming with abnormal behavior, pinpoint haemorrhages in visceral organs and pale gills; Clinical signs were dominant in fry and young fish;</p> <p>4) Pathogen: Infectious haematopoietic necrosis virus (related to genogroup E and near to Italian isolates);</p> <p>5) Mortality rate: 30-40%</p> <p>6) Economic loss: –</p> <p>7) Names of infected areas: West part of the country;</p> <p>8) Preventive/control measures taken: zoning and quarantine (restriction of fish movement) are major actions that were taken; killing of sick fish, disinfection, and fallowing of affected farms were essential measures for disease control;</p> <p>9) Laboratories for confirmation: Realtime-PCR and Cell culture in CVL;</p> <p>10) Publications: None</p> |

| | |
|----------|--|
| <p>2</p> | <p>Viral Haemorrhagic Septicaemia (VHS) 1) Reported from 6 farms in 4 provinces in August and September by implementation of both active and passive surveillance; 2) Species affected: Rainbow trout (<i>Oncorhynchus mykiss</i>); 3) Disease signs: mass mortality, lethargy, abnormal swimming, pinpoint haemorrhages in visceral organs and pale gills. Clinical signs were dominant in fry and young fish; 4) Pathogen: Viral haemorrhagic septicaemia virus (isolates were related to genotype IIa); 5) Mortality rate: 90% in hatchery, lower percentage in grow-out; 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) are major actions that were taken; killing of sick fish, disinfection, and following of affected farms were essential measures for disease control; 9) Laboratory confirmation: Real time PCR and cell culture in CVL; 10) Publications: None</p> |
| <p>3</p> | <p>By implementation of Active surveillance system in shrimp culture, Infection with White spot syndrome virus (WSD) detected in 3 provinces of IRAN (Golestan Province, Khuzestan Province and Boushehr Province).</p> <p>1) Reported from 60 farms (a big complex farms) in Gomishan area (Golestan), 11 farms in Choebdeh area (Khuzestan), and 38 farms (Boushehr); 2) Species affected: <i>Litopenaeus vannamei</i> (infected PLs is the source of the disease); 3) Disease signs: 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: near 70% (Golestan), near 24% (Khuzestan) and under 6% (Boushehr); 6) Economic loss: – 7) Names of infected areas: Gomishan area (Golestan), Choebdeh area (Khuzestan), and in Boushehr province; 8) Preventive/control measures taken: emergency harvest, dead shrimps destroyed; 9) Laboratory confirmation: nested PCR (IQ 2000 kits), confirmed by sub-national laboratory and CVL; 10) Publications: None</p> |

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

Country: **MALAYSIA***Period: **July - September 2019**

| Item | Disease status ^{at} | | | Level of diagnosis | Epidemiological comment numbers |
|--|------------------------------|---------|-----------|--------------------|---------------------------------|
| | July | August | September | | |
| DISEASES PREVALENT IN THE REGION | | | | | |
| FINFISH DISEASES | | | | | |
| OIE-listed diseases | | | | | |
| 1. Epizootic haematopoietic necrosis | 0000 | 0000 | 0000 | | |
| 2. Infectious haematopoietic necrosis | 0000 | 0000 | 0000 | | |
| 3. Spring viraemia of carp (SVC) | 0000 | 0000 | 0000 | I,II,III | 1 |
| 4. Viral haemorrhagic septicaemia (VHS) | 0000 | 0000 | 0000 | | |
| 5. Infection with <i>Aphanomyces invadans</i> (EUS) | (1986) | (1986) | (1986) | I | 2 |
| 6. Red seabream iridoviral disease (RSID) | - | - | - | I,III | 3 |
| 7. Koi herpesvirus disease (KHV) | (2019) | (2019) | (2019) | I,III | 4 |
| Non OIE-listed diseases | | | | | |
| 8. Grouper iridoviral disease | 0000 | 0000 | 0000 | | |
| 9. Viral encephalopathy and retinopathy | (2015) | (2015) | (2015) | III | 5 |
| 10. Enteric septicaemia of catfish | 0000 | 0000 | 0000 | | |
| 11. Carp edema virus disease | 0000 | 0000 | 0000 | | |
| 12. Tilapia lake virus (TiLV) | (2018) | (2018) | (2018) | III | 6 |
| MOLLUSC DISEASES | | | | | |
| OIE-listed diseases | | | | | |
| 1. Infection with <i>Bonamia exitiosa</i> | 0000 | 0000 | 0000 | | |
| 2. Infection with <i>Perkinsus olseni</i> | ?(2016) | ?(2016) | ?(2016) | | 7 |
| 3. Infection with abalone herpesvirus | 0000 | 0000 | 0000 | | |
| 4. Infection with <i>Xenohaliotis californiensis</i> | 0000 | 0000 | 0000 | | |
| 5. Infection with <i>Bonamia ostreae</i> | 0000 | 0000 | 0000 | | |
| Non OIE-listed diseases | | | | | |
| 6. Infection with <i>Marteilioides chungmuensis</i> | 0000 | 0000 | 0000 | | |
| 7. Acute viral necrosis (in scallops) | 0000 | 0000 | 0000 | | |
| CRUSTACEAN DISEASES | | | | | |
| OIE-listed diseases | | | | | |
| 1. Infection with Taura syndrome virus | - | - | - | I,III | 8 |
| 2. Infection with white spot syndrome virus | (2016) | (2016) | (2016) | I,III | 9 |
| 3. Infection with yellow head virus genotype 1 | 0000 | 0000 | 0000 | I,III | 10 |
| 4. Infection with infectious hypodermal and haematopoietic necrosis virus | (2016) | (2016) | (2016) | III | 11 |
| 5. Infection with infectious myonecrosis virus | (2018) | (2018) | (2018) | III | 12 |
| 6. Infection with <i>Macrobrachium rosenbergii</i> nodavirus (White Tail disease) | - | - | - | | |
| 7. Infection with <i>Hepatobacter penaei</i> (Necrotising hepatopancreatitis) | 0000 | 0000 | 0000 | | |
| 8. Acute hepatopancreatic necrosis disease (AHPND) | (2014) | (2014) | (2014) | | 13 |
| 9. Infection with <i>Aphanomyces astaci</i> (Crayfish plague) | 0000 | 0000 | 0000 | | |
| Non OIE-listed diseases | | | | | |
| 10. Hepatopancreatic microsporidiosis caused by <i>Enterocytozoon hepatopenaei</i> (HPM-EHP) | (2016) | (2016) | (2016) | | 14 |
| 11. Viral covert mortality disease (VCMD) of shrimps | 0000 | 0000 | 0000 | | |

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| | | | | | |
|--|--------|--------|--------|-----|----|
| 12. <i>Spiroplasma eriocheiris</i> infection | 0000 | 0000 | 0000 | | |
| 13. Shrimp haemocyte iridescent virus (SHIV) | 0000 | 0000 | 0000 | | |
| AMPHIBIAN DISEASES | | | | | |
| OIE-listed diseases | | | | | |
| 1. Infection with Ranavirus | 0000 | 0000 | 0000 | | |
| 2. Infection with <i>Batrachochytrium dendrobatidis</i> | 0000 | 0000 | 0000 | | |
| ANY OTHER DISEASES OF IMPORTANCE | | | | | |
| 1. Megalocytivirus (Requirement for export to Australia) | (2016) | (2016) | (2016) | III | 15 |
| 2. Enteric red mouth disease (Requirement for export to Japan) | 0000 | 0000 | 0000 | III | 16 |

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

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

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

Crustaceans: Crayfish plague (*Aphanomyces astaci*).

NOT LISTED BY THE OIE

Finfish: Channel catfish virus disease

a/ Please use the following symbols:

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

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

1. Epidemiological comments:

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

| Comment No. | |
|-------------|---|
| 1 | Spring viraemia of carp (SVC) No positive case was detected (PCR) during DoF active surveillance programme. |
| 2 | Infection with <i>Aphanomyces invadans</i> (EUS) No positive case was detected (gross observation) during DoF active surveillance programme. |
| 3 | Red seabream iridoviral disease (RSID) No positive case was detected (PCR) during DoF active surveillance programme. |
| 4 | Koi herpesvirus disease (KHV) No positive case was detected (PCR) during DoF active surveillance programme. Infection with KHV is known to occur in the state of Perak (April and June 2019) |

| | |
|----|--|
| 5 | <p>Viral encephalopathy and retinopathy (VER)/ (VNN) No positive case was detected (PCR) during DoF active surveillance programme.</p> <p>Infection with VER is known to occur in the state of Perak (2015) and Kelantan (May 2015).</p> |
| 6 | <p>Tilapia lake virus (TiLV) No positive case was detected (PCR) during DoF active surveillance programme</p> <p>The disease is known to have occurred previously in Kedah (June 2017), Perlis (July 2017), Sarawak (July 2017), Negeri Sembilan (October 2017), Kedah and Sarawak (March 2018), and Terengganu (July 2018).</p> |
| 7 | <p>Infection with <i>Perkinsus olseni</i> No positive case was detected (PCR) during DoF active surveillance programme.</p> <p>Infection with <i>Perkinsus olseni</i> was suspected to occur in 2016, but not confirmed in a zone.</p> |
| 8 | <p>Infection with Taura syndrome virus (TSV) <i>Penaeus monodon</i> and <i>P. vannamei</i></p> <p>No positive case was detected (PCR) during DoF active surveillance programme.</p> |
| 9 | <p>Infection with White spot syndrome virus (WSD) No positive case was detected (PCR) during DoF active surveillance programme.</p> |
| 10 | <p>Infection with Yellow head virus genotype 1 (YHD) <i>Penaeus monodon</i> and <i>P. vannamei</i></p> <p>No positive case was detected (PCR) during DoF active surveillance programme.</p> |
| 11 | <p>Infection with Infectious hypodermal and haematopoietic virus (IHHNV) No positive case was detected (PCR) during DoF active surveillance programme.</p> <p>IHHNV is known to occur in Terengganu (last reported June 2016).</p> |
| 12 | <p>Infection with Infectious myonecrosis virus (IMNV) No positive case was detected (PCR) during DoF active surveillance programme.</p> <p>IMNV is known to occur previously in the state of Sabah (2014) and Malacca (June 2018).</p> |
| 13 | <p>Acute hepatopancreatic necrosis disease (AHPND) No positive case was detected (PCR) during DoF active surveillance programme.</p> <p>AHPND is known to occur previously in several states in Malaysia (2014)</p> |
| 14 | <p>Hepatopancreatic microsporidiosis caused by <i>Enterocytozoon hepatopenaei</i> (HPM-EHP) No positive case was detected (PCR) during DoF active surveillance programme.</p> <p>HPM-EHP is known to occur previously in several states in Malaysia (2016)</p> |
| 15 | <p>Megalocytivirus No positive case was detected (PCR) during DoF active surveillance programme.</p> <p>The disease is known to have occurred previously in 2013 and 2014 in Johore state in Malaysia.</p> |

| | |
|----|---|
| 16 | Enteric redmouth disease (ERD) No positive case was detected (biochemical test and PCR) during DoF active surveillance programme. |
|----|---|

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

Country: **MYANMAR***

 Period: **July - September 2019**

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

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

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

Finfish: Infection with HPR0 salmon anemia virus; Infection with salmon pancreas disease virus; Infection with *Gyrodactylus salaris*.

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

Crustaceans: Crayfish plague (*Aphanomyces astaci*).

NOT LISTED BY THE OIE

Finfish: Channel catfish virus disease

a/ Please use the following symbols:

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

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

1. Epidemiological comments:

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

| Comment No. | |
|-------------|---|
| 1 | During this period, we have received 61 samples of crustaceans (15 frozen shrimp and 15 soft shell crab for export), live PLs of <i>P. vannamei</i> (11 samples), and <i>Macrobrachium rosenbergii</i> (18 samples), and broodstock of <i>P. vannamei</i> (2 samples) for import and local testing, and found that all samples were negative for WSSV, MrNV, YHV, IMN, AHPND and TSV. |
| 2 | Visited some fish farms in Yangon, Mandalay and Ayeyarwaddy regions during this period. Parasitic infestations (<i>Dactylogyrus</i> sp. and <i>Argulus</i> sp.) were found in some farms due to poor water quality. |

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

Country: **NEW ZEALAND**Period: **July - September 2019**

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

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

DISEASES PRESUMED EXOTIC TO THE REGION^b

LISTED BY THE OIE

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

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

Crustaceans: Crayfish plague (*Aphanomyces astaci*).

NOT LISTED BY THE OIE

Finfish: Channel catfish virus disease

a/ Please use the following symbols:

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

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

1. Epidemiological comments:

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

| Comment No. | |
|-------------|---|
| 1 | <p>Infection with <i>Bonamia exitiosa</i> 1) Reported in Foveaux Strait, New Zealand via targeted surveillance and Port Adventure, Stewart Island via passive surveillance; 2) Species affected: wild flat oysters (<i>Ostrea chilensis</i>); 3) Disease signs: N/A; 4) Pathogen: <i>Bonamia exitiosa</i>; 5) Mortality rate: unknown; 6) Economic loss: N/A 7) Names of infected areas: Foveaux Strait and Stewart Island, Southland; 8) Preventive/control measures taken: none; 9) Laboratory confirmation: ddPCR (National Institute Water and Atmospheric Research) for animals from Foveaux Strait, qPCR and histopathology for animals from Port Adventure (Investigation and Diagnostic Centre - Wallaceville); 10) Publications: None</p> <p>Infection with <i>Bonamia exitiosa</i> occurs in commercial oyster beds in Foveaux Strait, Southland where it is highly prevalent and can be associated with mortalities in mid to late summer. It occurs intermittently around the South Island, Stewart Island and in Wellington Harbour (southern end of the North Island), and has been previously reported in <i>Ostrea chilensis</i> from Hauraki Gulf (Auckland region), Tauranga (Bay of Plenty region), the Marlborough Sounds and Wellington Harbour. Annual monitoring of the presence of <i>B. exitiosa</i> infection is undertaken in the flat oyster (<i>O. chilensis</i>) population in the Foveaux Strait.</p> |
| 2 | <p><i>Perkinsus olseni</i> was first detected in New Zealand in 1999, in wild wedge shells (<i>Macomona liliana</i>). It was then found in wild populations of New Zealand cockles (<i>Austrovenus stutchburyi</i>), ark shells (<i>Barbatia novaezelandiae</i>) and pipi (<i>Paphies australis</i>) in 2000-2001. In July 2013, <i>P. olseni</i> was detected for the first time in farmed black foot pāua (<i>Haliotis iris</i>). Further detections were made in wild <i>H. iris</i> populations in 2014. These mollusc species occur widely around the coast of New Zealand, but to date <i>P. olseni</i> has only been detected in these species from the Auckland region northwards. <i>Perkinsus olseni</i> was found for the first time on the South Island in New Zealand green lipped mussels (<i>Perna canaliculus</i>) in a land based aquaculture facility in September 2014, and then in wild New Zealand scallops (<i>Pecten novaezelandiae</i>) in November 2014. Both of these findings were in the Marlborough region, were incidental and not associated with mortality events. In November 2017, passive surveillance detected <i>P. olseni</i> from New Zealand scallops in two sites within Kaipara harbour, Auckland region, and again was thought to be incidental and not associated with significant pathology in scallops. In August 2018, there was another incidental finding of <i>P. olseni</i> in farmed <i>P. canaliculus</i> in the Coromandel region (North Island), that was not associated with mortalities.</p> |

| | |
|----------|---|
| <p>3</p> | <p>Infection with <i>Bonamia ostreae</i> 1) Reported in Stewart Island via targeted surveillance; 2) Species affected: wild flat oysters (<i>Ostrea chilensis</i>); 3) Disease signs: N/A; 4) Pathogen: <i>Bonamia ostreae</i>; 5) Mortality rate: unknown; 6) Economic loss: N/A 7) Names of infected areas: Stewart Island, Southland; 8) Preventive/control measures taken: movement controls; 9) Laboratory confirmation: ddPCR (National Institute Water and Atmospheric Research), qPCR and nucelotide sequencing (Investigation and Diagnostic Centre - Wallaceville); 10) Publications: None</p> <p>Infection with <i>Bonamia ostreae</i> was detected for the first time in New Zealand flat oysters (<i>Ostrea chilensis</i>) in January 2015. It was found in two regions in the northern part of the South Island: on one land-based aquaculture facility in the Nelson region, and on two marine farms in the Marlborough region. Since that time, movement controls have been in place to regulate the movement of susceptible shellfish from the northern regions of the South Island and active surveillance has been conducted for the purposes of early detection of spread. In 2016, <i>B. ostreae</i> was detected in both farmed and wild flat oysters within the Marlborough region (the same region as initially reported), and was associated with pathology and mortality in the farmed population. In May 2017 surveillance detected <i>B. ostreae</i> in marine flat oyster farms in Big Glory Bay, Stewart Island (situated in the Southland region, at the southern end of the South Island). No clinical signs or elevated mortality was observed in association with <i>B. ostreae</i> in farmed flat oysters in Big Glory Bay. Following this detection, movement controls to manage risk movements from Stewart Island were issued, and depopulation of all flat oyster farms within areas where <i>B. ostreae</i> had been detected commenced. Depopulation of farms in Big Glory Bay commenced on the 19 June 2017 and was completed September 2017. Depopulation of farms in Marlborough Sounds commenced on the 11 July and was completed in December 2017. In September 2019, surveillance detected <i>B. ostreae</i> in one wild flat oyster in Big Glory Bay, Stewart Island. No clinical signs were observed in association with this wild flat oyster.</p> |
| <p>4</p> | <p>The first isolation of <i>Batrachochytrium dendrobatidis</i> was made in 1999 in New Zealand. Since then the fungus has been detected both on the North and South Islands in both native and introduced frog species. It is not certain what level of population decline if any, is associated with the presence of the fungus in native frogs.</p> |

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

Country: **PHILIPPINES***

 Period: **July - September 2019**

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

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

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

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

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

Crustaceans: Crayfish plague (*Aphanomyces astaci*).

NOT LISTED BY THE OIE

Finfish: Channel catfish virus disease

a/ Please use the following symbols:

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

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

1. Epidemiological comments:

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

| Comment No. | |
|-------------|--|
| 1 | <p>Infection with <i>Aphanomyces invadans</i> (EUS)</p> <p>EUS was not detected by gross morphological examinations in <i>Anguilla</i> spp. and Tilapia from Agusan del Norte, Batangas, Metro Manila, Nueva Ecija and Rizal. Examinations were conducted by BFAR Central Fish Health Laboratory.</p> |
| 2 | <p>Red Seabream Iridoviral Disease (RSID)</p> <p>Samples of Grouper (grow out) from a farm in Camarines Norte showed positive results for Megalocytivirus infection by PCR. Mortalities were observed in the farm. Examination was conducted by BFAR Central Fish Health Laboratory.</p> |

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| 3 | <p>Grouper Iridoviral Disease</p> <p>Grouper analyzed using PCR test showed negative results for Grouper Iridoviral Disease. Samples were collected from Camarines Norte, and Camarines Sur. Examinations were conducted by BFAR Central Fish Health Laboratory.</p> |
| 4 | <p>Viral Encephalopathy and Retinopathy (VER)</p> <p>Grouper, Tilapia, Jade Perch, Seabass, and Pompano analyzed using PCR test showed negative results for Viral Encephalopathy and Retinopathy. Samples were collected from Camarines Norte, Cebu, Iloilo, Isabela, Lanao del Norte, Nueva Ecija, Rizal, Sarangani, and Surigao del Sur. Other samples were imported from Taiwan. Examinations were conducted by BFAR Central and SEAFDEC Fish Health Laboratories.</p> |
| 5 | <p>Tilapia Lake Virus (TiLV)</p> <p>Origin of the disease or pathogen (history of the disease)- detected in 2 farms Species affected: Tilapia Pathogen: Tilapia Lake Virus Size of infected areas or names of infected areas: Agusan del Sur and Surigao del Sur Samples sent to national or international laboratories for confirmation (indicate the name of laboratories): Polymerase Chain Reaction Test (PCR) / BFAR Central Fish Health Laboratory</p> |
| 6 | <p>Taura Syndrome (TS)</p> <p><i>Penaeus vannamei</i>, <i>P. monodon</i> and <i>P. indicus</i> of different stages (post-larvae and broodstock) analyzed using PCR test showed negative results for Taura Syndrome. Samples were collected from Agusan del Norte, Batangas, Bulacan, Camarines Norte, Compostela Valley, Davao del Sur, Lanao del Norte, Misamis Oriental, Negros Occidental, Negros Oriental, Palawan, Surigao del Sur and Zambales. Other samples examined were imported from Hawaii. Examinations were conducted by BFAR Central Fish Health Laboratory.</p> |
| 7 | <p>White Spot Disease (WSD)</p> <p>Origin of the disease or pathogen (history of the disease)- detected in 9 farms Species affected: <i>P. monodon</i>, <i>P. vannamei</i>, <i>P. indicus</i> and Crab Pathogen: White Spot Syndrome Virus Size of infected areas or names of infected areas: Agusan del Norte, Bulacan, Camarines Norte, Iloilo, Lanao del Norte, and Palawan. Samples sent to national or international laboratories for confirmation (indicate the name of laboratories): Polymerase Chain Reaction Test (PCR) / BFAR Central, and SEAFDEC Fish Health Laboratories</p> |
| 8 | <p>Yellow Head Virus (YHV)</p> <p><i>P. vannamei</i>, <i>P. monodon</i> and <i>P. indicus</i> of different stages (post-larvae and broodstock) analyzed using PCR test showed negative results for Yellow Head Virus. Samples were collected from Agusan del Norte, Batangas, Bulacan, Camarines Norte, Compostela Valley, Davao del Sur, Lanao del Norte, Misamis Oriental, Negros Occidental, Negros Oriental, Palawan, Surigao del Sur and Zambales. Other samples examined were imported from Hawaii. Examinations were conducted by BFAR Central Fish Health Laboratory.</p> |

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| 9 | <p>Infectious Hypodermal and Heamatopoietic Necrosis (IHHNV)</p> <p>Origin of the disease or pathogen (history of the disease) – detected in 12 farms Species affected: <i>P. vannamei</i>, <i>P. monodon</i> and <i>P. indicus</i> Pathogen: Infectious Hypodermal and Heamatopoietic Virus Size of infected areas or names of infected areas: Bulacan, , Lanao del Norte, Misamis Oriental, Palawan and Surigao del Sur Samples sent to national or international laboratories for confirmation (indicate the name of laboratories): Polymerase Chain Reaction Test (PCR) / BFAR Central Fish Health Laboratory</p> |
| 10 | <p>Infectious Myonecrosis (IMN)</p> <p><i>P. vannamei</i>, <i>P. monodon</i> and <i>P. indicus</i> of different stages (post-larvae and broodstock) analyzed using PCR test showed negative for Infectious Myonecrosis. Samples were collected from Agusan del Norte, Batangas, Bulacan, Camarines Norte, Compostela Valley, Davao del Sur, Lanao del Norte, Misamis Oriental, Negros Occidental, Negros Oriental, Palawan, Surigao del Sur and Zambales. Some samples examined were imported from Hawaii. Examinations were conducted by BFAR Central Fish Health Laboratory.</p> |
| 11 | <p>Necrotising Hepatopancreatitis (NHP)</p> <p><i>P. vannamei</i>, <i>P. monodon</i> and <i>P. indicus</i> of different stages (post-larvae and broodstock) analyzed using PCR test showed negative for Necrotising Hepatopancreatitis. Samples were collected from Agusan del Norte, Batangas, Bulacan, Camarines Norte, Compostela Valley, Davao del Sur, Lanao del Norte, Misamis Oriental, Negros Occidental, Negros Oriental, Palawan, Surigao del Sur and Zambales. Some samples examined were imported from Hawaii. Examinations were conducted by BFAR Central Fish Health Laboratory.</p> |
| 12 | <p>Acute Hepatopancreatic Necrosis Disease (AHPND)</p> <p>Origin of the disease or pathogen (history of the disease) – detected in 5 farms Species affected: <i>P. vannamei</i>, and <i>P. indicus</i> Pathogen: AHPND <i>Vibrio parahaemolyticus</i> Size of infected areas or names of infected areas: Batangas, Palawan and Oriental Mindoro Samples sent to national or international laboratories for confirmation (indicate the name of laboratories): Polymerase Chain Reaction Test (PCR) / BFAR Central Fish Health Laboratory</p> |
| 13 | <p>Hepatopancreatic Microsporidiosis caused by <i>Enterocytozoon hepatopenaei</i> (HPM-EHP)</p> <p>Origin of the disease or pathogen (history of the disease) – detected in 5 farms Species affected: <i>P. vannamei</i>, and <i>P. monodon</i> Pathogen: <i>Enterocytozoon hepatopenaei</i> Size of infected areas or names of infected areas: Camarines Norte, Lanao del Norte, Negros Oriental, Negros Occidental and Oriental Mindoro Samples sent to national or international laboratories for confirmation (indicate the name of laboratories): Polymerase Chain Reaction Test (PCR) / BFAR Central Fish Health Laboratory</p> |

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

Country: **SINGAPORE***

 Period: **July - September 2019**

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

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| | | | | | |
|--|--------|--------|--------|-----|---|
| 12. <i>Spiroplasma eriocheiris</i> infection | *** | *** | *** | | |
| 13. Shrimp haemocyte iridescent virus (SHIV) | *** | *** | *** | | |
| AMPHIBIAN DISEASES | | | | | |
| OIE-listed diseases | | | | | |
| 1. Infection with Ranavirus | *** | *** | *** | | |
| 2. Infection with <i>Batrachochytrium dendrobatidis</i> | (2018) | (2018) | (2018) | | |
| 3. Infection with <i>Batrachochytrium salamandrivorans</i> | (2018) | (2018) | (2018) | | |
| ANY OTHER DISEASES OF IMPORTANCE | | | | | |
| 1 <i>Lates Calcarifer</i> Herpesvirus (Asian seabass) | + | (2019) | (2019) | III | 2 |
| 2 <i>Lates Calcarifer</i> Birnavirus (Asian seabass) | + | (2019) | (2019) | III | 3 |
| 3 <i>Streptococcus agalactiae</i> (Jade perch) | + | + | (2019) | III | 4 |
| 4 <i>Streptococcus iniae</i> (Asian seabass) | (2018) | + | (2019) | III | 5 |
| 5 Megalocytivirus (Ornamental guppy) | (2019) | (2019) | + | III | 6 |

**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 | RSIVD was detected by a combination of histopathology and PCR in a batch of diseased orange-spotted grouper submitted by a land-based commercial aquaculture facility. The farm manager and foodfish authorities from the Singapore Food Agency were notified. The farm was advised to isolate the infected batches of fish, and cull sick fish, and also prohibited from selling potentially infected stock to other farms. |
| 2 | <i>Lates calcarifer</i> Herpesvirus (LCHV) was detected by PCR in a batch of Asian seabass submitted by an offshore aquaculture facility. The facility fish health manager was promptly informed. |

| | |
|---|---|
| 3 | <p><i>Lates calcarifer</i> Birnavirus (LCBV) was detected by PCR in two batches of diseased Asian seabass fish submitted by an offshore aquaculture facility. Post-mortem and histopathology also detected a mixed bacterial infection. The farm's fish health manager was informed of the detection. Although the pathogenesis of LCBV infection in farmed fish is not confirmed, it is suspected to cause an immunosuppressive effect leading to secondary bacterial infection and morbidity.</p> |
| 4 | <p><i>Streptococcus-like</i> gram-positive cocci were detected by histopathology in a batch of diseased Jade perch submitted by a land-based commercial aquaculture facility in July, however the bacterium was not culturable from fish organs. A second submission from the same farm in August revealed similar-looking bacteria with confirmation by culture and PCR of <i>Streptococcus agalactiae</i>. The farm was advised on <i>in vitro</i> antibiotic sensitivity test results for potential antimicrobial treatment, and advised to cull affected populations and sick fish.</p> |
| 5 | <p><i>Streptococcus iniae</i> was detected by histopathology, culture and PCR in a batch of diseased Asian seabass submitted by an offshore commercial aquaculture facility. The farm's attending veterinarian was informed of the diagnosis and advised on <i>in vitro</i> antibiotic sensitivity test results for antimicrobial treatment.</p> |
| 6 | <p>Megalocytivirus (MCV) was detected by PCR in a batch of clinically healthy ornamental guppy fish from exporter's premises.</p> |

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

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

| Item | Disease status ^{a/} | | | Level of diagnosis | Epidemiological comment numbers |
|--|------------------------------|--------|--------|--------------------|---------------------------------|
| | Month | | | | |
| DISEASES PREVALENT IN THE REGION | April | May | June | | |
| FINFISH DISEASES | | | | | |
| OIE-listed diseases | | | | | |
| 1. Epizootic haematopoietic necrosis | 0000 | 0000 | 0000 | III | |
| 2. Infectious haematopoietic necrosis | 0000 | 0000 | 0000 | III | |
| 3. Spring viraemia of carp (SVC) | 0000 | 0000 | 0000 | III | |
| 4. Viral haemorrhagic septicaemia (VHS) | 0000 | 0000 | 0000 | III | |
| 5. Infection with <i>Aphanomyces invadans</i> (EUS) | (2009) | (2009) | (2009) | II | |
| 6. Red seabream iridoviral disease (RSID) | 0000 | 0000 | 0000 | III | |
| 7. Koi herpesvirus disease (KHV) | (2011) | (2011) | (2011) | III | |
| Non OIE-listed diseases | | | | | |
| 8. Grouper iridoviral disease | - | - | - | | |
| 9. Viral encephalopathy and retinopathy | - | - | +?() | III | 1 |
| 10. Enteric septicaemia of catfish | 0000 | 0000 | 0000 | II | |
| 11. Carp edema virus disease | 0000 | 0000 | 0000 | | |
| 12. Tilapia lake virus (TiLV) | +?() | - | - | III | 2 |
| MOLLUSC DISEASES | | | | | |
| OIE-listed diseases | | | | | |
| 1. Infection with <i>Bonamia exitiosa</i> | 0000 | 0000 | 0000 | | |
| 2. Infection with <i>Perkinsus olseni</i> | 0000 | 0000 | 0000 | III | |
| 3. Infection with abalone herpesvirus | 0000 | 0000 | 0000 | | |
| 4. Infection with <i>Xenohalotis californiensis</i> | 0000 | 0000 | 0000 | | |
| 5. Infection with <i>Bonamia ostreae</i> | 0000 | 0000 | 0000 | | |
| Non OIE-listed diseases | | | | | |
| 6. Infection with <i>Marteilioides chungmuensis</i> | 0000 | 0000 | 0000 | | |
| 7. Acute viral necrosis (in scallops) | 0000 | 0000 | 0000 | | |
| CRUSTACEAN DISEASES | | | | | |
| OIE-listed diseases | | | | | |
| 1. Infection with Taura syndrome virus | - | +?() | - | III | 3 |
| 2. Infection with white spot syndrome virus | - | +?() | +?() | III | 4 |
| 3. Infection with yellow head virus genotype 1 | - | - | - | III | |
| 4. Infection with infectious hypodermal and haematopoietic | - | - | +?() | III | 5 |
| 5. Infection with infectious myonecrosis virus | 0000 | 0000 | 0000 | III | |
| 6. Infection with <i>Macrobrachium rosenbergii</i> nodavirus (White Tail disease) | - | - | - | III | |
| 7. Infection with <i>Hepatobacter penaei</i> (Necrotising hepatopancreatitis) | (2005) | (2005) | (2005) | III | |
| 8. Acute hepatopancreatic necrosis disease (AHPND) | +?() | +?() | +?() | III | 6 |
| 9. Infection with <i>Aphanomyces astaci</i> (Crayfish plague) | 0000 | 0000 | 0000 | III | |
| Non OIE-listed diseases | | | | | |
| 10. Hepatopancreatic microsporidiosis caused by <i>Enterocytozoon hepatopenaei</i> (HPM-EHP) | +?() | +?() | +?() | III | 7 |
| 11. Viral covert mortality disease (VCMD) of shrimps | (2014) | (2014) | (2014) | III | |

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| | | | | | |
|--|--------|--------|--------|-----|--|
| 12. <i>Spiroplasma eriocheiris</i> infection | 0000 | 0000 | 0000 | | |
| 13. Shrimp haemocyte iridescent virus (SHIV) | 0000 | 0000 | 0000 | | |
| AMPHIBIAN DISEASES | | | | | |
| OIE-listed diseases | | | | | |
| 1. Infection with Ranavirus | (2018) | (2018) | (2018) | III | |
| 2. Infection with <i>Batrachochytrium dendrobatidis</i> | 0000 | 0000 | 0000 | | |
| 3. Infection with <i>Batrachochytrium salamandrivorans</i> | 0000 | 0000 | 0000 | | |
| ANY OTHER DISEASES OF IMPORTANCE | | | | | |
| | | | | | |
| | | | | | |

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

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

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

Crustaceans: Crayfish plague (*Aphanomyces astaci*).

NOT LISTED BY THE OIE

Finfish: Channel catfish virus disease

a/ Please use the following symbols:

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

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

1. Epidemiological comments:

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

| Comment No. | |
|-------------|--|
| 1 | A total of 144 fish samples from fish farms had been tested at PCR Laboratories of the DOF under active and passive surveillance. 20 specimens or 13.89% recorded as PCR positive for VER . Fish farm with positive testing results is subjected to health improvement, movement control, eradication and/or farm disinfection. |
| 2 | A total of 72 fish samples from fish farms had been tested at PCR Laboratories of the DOF under active and passive surveillance. 1 specimen or 1.39% recorded as PCR positive for TiLV . Fish farm with positive testing results is subjected to health improvement, movement control, eradication and/or farm disinfection. |

| | |
|---|--|
| 3 | A total of 2,653 shrimp samples from shrimp farms had been tested at PCR Laboratories of the DOF under active surveillance. 12 specimens or 0.45% recorded as PCR positive or carrying TSV genes. Shrimp farm with positive testing results is subjected to health improvement, movement control, eradication and/or farm disinfection. |
| 4 | A total of 2,923 shrimp samples from shrimp farms had been tested at PCR Laboratories of the DOF under active surveillance. 27 specimens or 0.92% recorded as PCR positive or carrying WSSV genes. Shrimp farm with positive testing results is subjected to health improvement, movement control, eradication and/or farm disinfection. |
| 5 | A total of 2,483 shrimp samples from shrimp farms had been tested at PCR Laboratories of the DOF under active surveillance. 37 specimens or 1.49% recorded as PCR positive or carrying IHHNV genes. Shrimp farm with positive testing results is subjected to health improvement, movement control, eradication and/or farm disinfection. |
| 6 | A total of 2,765 shrimp samples from shrimp farms had been tested by PCR assay at the DOF's laboratories under active surveillance, 84 specimens or 3.04% recorded as PCR positive for AHPND . Shrimp farms with positive testing results have been subjected to shrimp health management control and pond improvement. |
| 7 | A total of 1,641 shrimp samples from shrimp farms had been tested by PCR assay at the DOF's laboratories under passive surveillance, 452 specimens or 27.54% recorded as PCR positive for EHP . Shrimp farms with positive testing results have been subjected to shrimp health management control and pond improvement. |

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

Country: **THAILAND***

 Period: **July - September 2019**

| Item | Disease status ^{2/} | | | Level of diagnosis | Epidemiological comment numbers |
|--|------------------------------|--------|-----------|--------------------|---------------------------------|
| | Month | | | | |
| DISEASES PREVALENT IN THE REGION | July | August | September | | |
| FINFISH DISEASES | | | | | |
| OIE-listed diseases | | | | | |
| 1. Epizootic haematopoietic necrosis | 0000 | 0000 | 0000 | III | |
| 2. Infectious haematopoietic necrosis | 0000 | 0000 | 0000 | III | |
| 3. Spring viraemia of carp (SVC) | 0000 | 0000 | 0000 | III | |
| 4. Viral haemorrhagic septicaemia (VHS) | 0000 | 0000 | 0000 | III | |
| 5. Infection with <i>Aphanomyces invadans</i> (EUS) | (2009) | (2009) | (2009) | II | |
| 6. Red seabream iridoviral disease (RSID) | 0000 | 0000 | 0000 | III | |
| 7. Koi herpesvirus disease (KHV) | (2011) | (2011) | (2011) | III | |
| Non OIE-listed diseases | | | | | |
| 8. Grouper iridoviral disease | - | - | - | | |
| 9. Viral encephalopathy and retinopathy | - | - | - | III | |
| 10. Enteric septicaemia of catfish | 0000 | 0000 | 0000 | II | |
| 11. Carp edema virus disease | 0000 | 0000 | 0000 | | |
| 12. Tilapia lake virus (TiLV) | +?() | +?() | +?() | III | 1 |
| MOLLUSC DISEASES | | | | | |
| OIE-listed diseases | | | | | |
| 1. Infection with <i>Bonamia exitiosa</i> | 0000 | 0000 | 0000 | | |
| 2. Infection with <i>Perkinsus olseni</i> | 0000 | 0000 | 0000 | III | |
| 3. Infection with abalone herpesvirus | 0000 | 0000 | 0000 | | |
| 4. Infection with <i>Xenohalotis californiensis</i> | 0000 | 0000 | 0000 | | |
| 5. Infection with <i>Bonamia ostreae</i> | 0000 | 0000 | 0000 | | |
| Non OIE-listed diseases | | | | | |
| 6. Infection with <i>Marteilioides chungmuensis</i> | 0000 | 0000 | 0000 | | |
| 7. Acute viral necrosis (in scallops) | 0000 | 0000 | 0000 | | |
| CRUSTACEAN DISEASES | | | | | |
| OIE-listed diseases | | | | | |
| 1. Infection with Taura syndrome virus | - | - | - | III | |
| 2. Infection with white spot syndrome virus | +?() | +?() | - | III | 2 |
| 3. Infection with yellow head virus genotype 1 | - | - | - | III | |
| 4. Infection with infectious hypodermal and haematopoietic | - | - | - | III | |
| 5. Infection with infectious myonecrosis virus | 0000 | 0000 | 0000 | III | |
| 6. Infection with <i>Macrobrachium rosenbergii</i> nodavirus (White Tail disease) | +?() | +?() | - | III | 3 |
| 7. Infection with <i>Hepatobacter penaei</i> (Necrotising hepatopancreatitis) | (2005) | (2005) | (2005) | III | |
| 8. Acute hepatopancreatic necrosis disease (AHPND) | +?() | - | +?() | III | 4 |
| 9. Infection with <i>Aphanomyces astaci</i> (Crayfish plague) | 0000 | 0000 | 0000 | III | |
| Non OIE-listed diseases | | | | | |
| 10. Hepatopancreatic microsporidiosis caused by <i>Enterocytozoon hepatopenaei</i> (HPM-EHP) | +?() | +?() | +?() | III | 5 |
| 11. Viral covert mortality disease (VCMD) of shrimps | - | - | - | III | |

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| | | | | | |
|---|--------|--------|-------|-----|---|
| 12. <i>Spiroplasma eriocheiris</i> infection | 0000 | 0000 | 0000 | | |
| 13. Shrim haemocyte iridescent virus (SHIV) | *** | *** | *** | | |
| AMPHIBIAN DISEASES | | | | | |
| OIE-listed diseases | | | | | |
| 1. Infection with Ranavirus | (2016) | (2016) | +?() | III | 8 |
| 2. Infection with <i>Batrachochytrium dendrobatidis</i> | 0000 | 0000 | 0000 | | |
| ANY OTHER DISEASES OF IMPORTANCE | | | | | |
| | | | | | |
| | | | | | |

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

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

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

Crustaceans: Crayfish plague (*Aphanomyces astaci*).

NOT LISTED BY THE OIE

Finfish: Channel catfish virus disease

a/ Please use the following symbols:

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

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

1. Epidemiological comments:

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

| Comment No. | |
|-------------|---|
| 1 | A total of 819 fish samples from fish farms had been tested at PCR Laboratories of the DOF under active and passive surveillance. 17 specimens or 2.76% recorded as PCR positive for TiLV . Fish farm with positive testing results is subjected to health improvement, movement control, eradication and/or farm disinfection. |
| 2 | A total of 1,794 shrimp samples from shrimp farms had been tested at PCR Laboratories of the DOF under active surveillance. 22 specimens or 1.23% recorded as PCR positive or carrying WSSV genes. Shrimp farm with positive testing results is subjected to health improvement, movement control, eradication and/or farm disinfection. |

| | |
|---|--|
| 3 | A total of 4138 shrimp samples from shrimp farms had been tested at PCR Laboratories of the DOF under active surveillance. 10 specimens or 7.25% recorded as PCR positive or carrying MrNV genes. Shrimp farm with positive testing results is subjected to health improvement, movement control, eradication and/or farm disinfection. |
| 4 | A total of 1,405 shrimp samples from shrimp farms had been tested at PCR Laboratories of the DOF under active surveillance. 11 specimens or 0.78% recorded as PCR positive or carrying AHPND genes. Shrimp farm with positive testing results is subjected to health improvement, movement control, eradication and/or farm disinfection. |
| 5 | A total of 828 shrimp samples from shrimp farms had been tested at PCR Laboratories of the DOF under active surveillance. 154 specimens or 18.60% recorded as PCR positive or carrying EHP genes. Shrimp farm with positive testing results is subjected to health improvement, movement control, eradication and/or farm disinfection. |

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

Country: **VIETNAM***Period: **July - September 2019**

| Item | Disease status ^{a/} | | | Level of diagnosis | Epidemiological comment numbers |
|---|------------------------------|--------|-----------|--------------------|---------------------------------|
| | Month | | | | |
| DISEASES PREVALENT IN THE REGION | July | August | September | | |
| FINFISH DISEASES | | | | | |
| OIE-listed diseases | | | | | |
| 1. Infection with epizootic haematopoietic necrosis virus | 0000 | 0000 | 0000 | | |
| 2. Infection with infectious haematopoietic necrosis virus | 0000 | 0000 | 0000 | | |
| 3. Infection with spring viremia of carp virus | 0000 | 0000 | 0000 | | |
| 4. Infection with viral haemorrhagic septicaemia virus | 0000 | 0000 | 0000 | | |
| 5. Infection with <i>Aphanomyces invadans</i> (EUS) | (2012) | (2012) | (2012) | | |
| 6. Infection with red sea bream iridovirus | 0000 | 0000 | 0000 | | |
| 7. Infection with koi herpesvirus | 0000 | 0000 | 0000 | | |
| Non OIE-listed diseases | | | | | |
| 8. Grouper iridoviral disease | 0000 | 0000 | 0000 | | |
| 9. Viral encephalopathy and retinopathy | 0000 | 0000 | 0000 | | |
| 10. Enteric septicaemia of catfish | +() | - | +() | I, III | 1 |
| 11. Carp edema virus disease | 0000 | 0000 | 0000 | | |
| 12. Tilapia lake virus (TiLV) | 0000 | 0000 | 0000 | | |
| MOLLUSC DISEASES | | | | | |
| OIE-listed diseases | | | | | |
| 1. Infection with <i>Bonamia exitiosa</i> | 0000 | 0000 | 0000 | | |
| 2. Infection with <i>Perkinsus olseni</i> | (2013) | (2013) | (2013) | | |
| 3. Infection with abalone herpesvirus | 0000 | 0000 | 0000 | | |
| 4. Infection with <i>Xenohaliotis californiensis</i> | 0000 | 0000 | 0000 | | |
| 5. Infection with <i>Bonamia ostreae</i> | 0000 | 0000 | 0000 | | |
| Non OIE-listed diseases | | | | | |
| 6. Infection with <i>Marteilioides chungmuensis</i> | 0000 | 0000 | 0000 | | |
| 7. Acute viral necrosis (in scallops) | 0000 | 0000 | 0000 | | |
| CRUSTACEAN DISEASES | | | | | |
| OIE-listed diseases | | | | | |
| 1. Infection with Taura syndrome virus | 0000 | 0000 | 0000 | | |
| 2. Infection with white spot syndrome virus | +() | +() | +() | I, III | 2 |
| 3. Infection with yellow head virus genotype 1** | 0000 | 0000 | 0000 | | |
| 4. Infection with infectious hypodermal and haematopoietic necrosis virus | 0000 | 0000 | 0000 | | |
| 5. Infection with infectious myonecrosis virus | 0000 | 0000 | 0000 | | |
| 6. Infection with <i>Macrobrachium rosenbergii</i> nodavirus (White Tail disease) | - | - | - | | |
| 7. Infection with <i>Hepatobacter penaei</i> (Necrotising hepatopancreatitis) | 0000 | 0000 | 0000 | | |
| 8. Acute hepatopancreatic necrosis disease (AHPND) | +() | +() | +() | I, III | 3 |
| 9. Infection with <i>Aphanomyces astaci</i> (Crayfish plague) | 0000 | 0000 | 0000 | | |

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

**Since 2015, “-” was used for YHV in Vietnam (YHV was replaced by YHV1 from 2019). After recent verification of the YHV genotype detected since 2015, it was found that the YHV genotype was actually GAV. Therefore, the code for YHV1 is changed to “0000” starting from this quarter, which means that YHV1 is never reported in Vietnam.

| Non OIE-listed diseases | | | | | |
|--|------|------|------|--|--|
| 10. Hepatopancreatic microsporidiosis caused by <i>Enterocytozoon hepatopenaei</i> (HPM-EHP) | 0000 | 0000 | 0000 | | |
| 11. Viral covert mortality disease (VCMD) of shrimps | 0000 | 0000 | 0000 | | |
| 12. <i>Spiroplasma eriocheiris</i> infection | 0000 | 0000 | 0000 | | |
| 13. Shrimp haemocyte iridescent virus (SHIV) | 0000 | 0000 | 0000 | | |
| AMPHIBIAN DISEASES | | | | | |
| OIE-listed diseases | | | | | |
| 1. Infection with Ranavirus | 0000 | 0000 | 0000 | | |
| 2. Infection with <i>Batrachochytrium dendrobatidis</i> | 0000 | 0000 | 0000 | | |
| 3. Infection with <i>Batrachochytrium salamandrivorans</i> | 0000 | 0000 | 0000 | | |
| ANY OTHER DISEASES OF IMPORTANCE | | | | | |
| | | | | | |

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

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

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

Crustaceans: Crayfish plague (*Aphanomyces astaci*).

NOT LISTED BY THE OIE

Finfish: Channel catfish virus disease

a/ Please use the following symbols:

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

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

1. Epidemiological comments:

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

| Comment No. | |
|-------------|---|
| 1 | <p>Enteric Septicaemia of Catfish (<i>Edwardsiella ictaluri</i>)</p> <p>Infection found in some small scale catfish (<i>Pangasius micronema</i>, <i>P. hypophthalmus</i>) farms.</p> |

| | |
|---|--|
| 2 | <p>Infection with white spot syndrome virus (White Spot Disease; WSD) Pathogen: White spot syndrome virus (WSSV) Species affected: <i>Penaeus monodon</i> and <i>Litopenaeus vannamei</i>; Name of affected area: reported and limited in some small scale farms with low biosecurity control. Shrimps were affected at 10-100 days after stocking; Mortality rate: average to high; Clinical signs: lethargic or moribund shrimps aggregated at pond surface and edges, slow to erratic swimming behavior, overall body color often reddish, minute to large (0.5-2.0 mm diameter) white inclusions embedded in the cuticle; Control measures: early harvest, strict isolation of infected ponds from movement, strengthened control of transportation, cleaning and disinfection of infected ponds and farming tools using Calcium hypochlorite (chlorine).</p> |
| 3 | <p>Acute Hepatopancreatic Necrosis Disease (AHPND) Pathogen: <i>Vibrio parahaemolyticus</i> with Phage A3 Species affected: <i>Penaeus monodon</i> and <i>Litopenaeus vannamei</i> (10-45 DOC) Name of affected area: reported and limited to some small-scale farms with low biosecurity control. Mortality rate: ; Clinical signs: shrimps become lethargic with soft, darkened shells, mottling of the carapace. Pathology is limited to hepatopancreas. Control measures: early harvest, strict isolation of infected ponds from movement and transport controls, cleaning and disinfection of infected ponds and farming tools using Calcium hypochlorite (chlorine).</p> |

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

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

| 1. DISEASES PREVALENT IN THE REGION | |
|---|---|
| 1.1 FINFISH DISEASES | |
| OIE-listed diseases | Non OIE-listed diseases |
| 1. Infection with epizootic haematopoietic necrosis virus | 1. Grouper iridoviral disease |
| 2. Infection with infectious haematopoietic necrosis virus | 2. Viral encephalopathy and retinopathy |
| 3. Infection with spring viremia of carp virus | 3. Enteric septicaemia of catfish |
| 4. Infection with viral haemorrhagic septicaemia virus | 4. Carp edema virus disease |
| 5. Infection with <i>Aphanomyces invadans</i> (EUS) | 5. Tilapia lake virus disease |
| 6. Infection with red sea bream iridovirus | |
| 7. Infection with koi herpesvirus | |
| 1.2 MOLLUSC DISEASES | |
| OIE-listed diseases | Non OIE-listed diseases |
| 1. Infection with <i>Bonamia exitiosa</i> | 1. Infection with <i>Marteilioides chungmuensis</i> |
| 2. Infection with <i>Perkinsus olseni</i> | 2. Acute viral necrosis (in scallops) |
| 3. Infection with abalone herpesvirus | |
| 4. Infection with <i>Xenohalotis californiensis</i> | |
| 5. Infection with <i>Bonamia ostreae</i> | |
| 1.3 CRUSTACEAN DISEASES | |
| OIE-listed diseases | Non OIE-listed diseases |
| 1. Infection with Taura syndrome virus | 1. Hepatopancreatic microsporidiosis caused by <i>Enterocytozoon hepatopenaei</i> (HPM-EHP) |
| 2. Infection with white spot syndrome virus | 2. Viral covert mortality disease (VCMD) of shrimps |
| 3. Infection with yellow head virus genotype 1 | 3. <i>Spiroplasma eriocheiris</i> infection |
| 4. Infection with infectious hypodermal and haematopoietic necrosis | 4. Shrimp haemocyte iridescent virus (SHIV) |
| 5. Infection with infectious myonecrosis virus | |
| 6. Infection with <i>Macrobrachium rosenbergii</i> nodavirus (White Tail disease) | |
| 7. Infection with <i>Hepatobacter penaei</i> (Necrotising hepatopancreatitis) | |
| 8. Acute hepatopancreatic necrosis disease (AHPND) | |
| 9. Infection with <i>Aphanomyces astaci</i> (Crayfish plague) | |
| 1.4 AMPHIBIAN DISEASES | |
| OIE-listed diseases | Non OIE-listed diseases |
| 1. Infection with <i>Ranavirus</i> | |
| 2. Infection with <i>Bachtracochytrium dendrobatidis</i> | |
| 3. Infection with <i>Batrachocytrium salamandrivorans</i> | |
| 2. DISEASES PRESUMED EXOTIC TO THE REGION | |
| 2.1 Finfish | |
| OIE-listed diseases | Non OIE-listed diseases |
| 1. Infection with HPRdeleted or HPR0 salmon anaemia virus | 1. Channel catfish virus disease |
| 2. Infection with salmon pancreas disease virus | |
| 3. Infection with <i>Gyrodactylus salaris</i> | |
| 2.2 Molluscs | |
| OIE-listed diseases | Non OIE-listed diseases |
| 1. Infection with <i>Marteilia refringens</i> | |
| 2. Infection with <i>Perkinsus marinus</i> | |

Recent Aquatic Animal Health Related Publications

OIE Aquatic Animal Health Code, 22nd Edition, 2019. The OIE Aquatic Animal Health Code (the Aquatic Code) provides standards for the improvement of aquatic animal health worldwide. It also includes standards for the welfare of farmed fish and use of antimicrobial agents in aquatic animals. The sanitary measures in the Aquatic Code should be used by the Competent Authorities of importing and exporting countries for early detection, reporting and control of pathogenic agents in aquatic animals (amphibians, crustaceans, fish and molluscs) and to prevent their spread via international trade in aquatic animals and their products, while avoiding unjustified sanitary barriers to trade. The standards in the Aquatic Code have been formally adopted by the World Assembly of OIE Delegates, which constitutes the organisation's highest decision-making body. This 22nd edition incorporates modifications to the Aquatic Code agreed at the 87th General Session in May 2019. This edition includes the following updates: Glossary: revised definition for 'basic biosecurity conditions'; Chapter 1.5. 'Criteria for listing species as susceptible to infection with a specific pathogen'; Chapter 8.3. 'Infection with Ranavirus'; Chapter 9.1. 'Acute hepatopancreatic necrosis disease'; Articles 10.2.1. and 10.2.2. of Chapter 10.2. 'Infection with *Aphanomyces invadans*'; Article 10.5.2. of Chapter 10.5. 'Infection with salmonid alphavirus'; Articles 10.6.1., 10.6.2. and 10.6.8. of Chapter 10.6. 'Infection with infectious haematopoietic necrosis virus'; Article 10.7.2. of Chapter 10.7. 'Infection with koi herpesvirus'; Article 10.9.2. of Chapter 10.9. 'Infection with spring viraemia of carp virus'; Article X.X.8. of all disease-specific chapters (except for Article 10.3.8. of Chapter 10.3. 'Infection with *Gyrodactylus salaris*' due to the nature of the pathogenic agent) and Article 10.4.12. of Chapter 10.4. 'Infection with infectious salmon anaemia virus'. The Aquatic Animal Health Code is available for free download <http://www.oie.int/en/standard-setting/aquatic-code/access-online/>

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

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List of NACA National Coordinators (*) and OIE National Focal Points for Aquatic Animals (**)

| Country | Name and Address |
|-------------------|---|
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**Instructions on how to fill in the
QUARTERLY AQUATIC ANIMAL DISEASE REPORT**

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

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

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

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

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

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

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

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

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

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

Please use the following symbols to fill in the forms.

A. Symbols used for negative occurrence are as follows:

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

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

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

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

B. Symbols used for positive occurrence are shown below.

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

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

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

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

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

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

¹ Regional Advisory Group on Aquatic Animal Health (AG)

C. Levels of Diagnosis

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

D. Subjects to be covered in the Epidemiological Comments

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

IMPORTANT

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

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

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Notes

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