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

**The OIE Regional Representation
for Asia and The Pacific**

Food Science Building 5F, The University Of
Tokyo, 1-1-1 Yayoi, Bunkyo-Ku
Tokyo 113-8657, Japan

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

Viale delle Terme di Caracalla
Rome 00100
Italy

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Foreword

Disease Advisory: Tilapia Lake Virus (TiLV) – an Emerging Threat to Farmed Tilapia in the Asia-Pacific Region

Tilapias are highly important (and inexpensive) source of fish protein in the world and are one of the most popular species for aquaculture in several regions including the Asia-Pacific. The top 10 producing-countries include China, Egypt, Philippines, Thailand, Indonesia, Lao PDR, Costa Rica, Ecuador, Colombia and Honduras. Since 2009, tilapia aquaculture has been threatened by mass die-offs of farmed fish in Israel and Ecuador (Bacharach et al., 2016). The aetiological agent causing this mass die-offs has been described and identified as a novel Orthomyxo-like (RNA) virus named as Tilapia lake virus (TiLV) (Eyngor et al. 2014; 2016; Bacharach et al., 2016). This has been reported as a newly emerging virus that causes syncytial hepatitis of tilapia (SHT). As of 2016, countries affected by this emerging disease of tilapia include Israel, Ecuador, Colombia and Egypt (Eyngor et al., 2014; Ferguson et al., 2014; Bacharach et al., 2016; Tsofack et al., 2016; Del-Pozo et al., 2017; Fathi et al., 2017).

Recently, disease outbreaks among cultured tilapias have occurred in Thailand, wherein high cumulative mortalities (20-90%) were observed and recorded (Dong et al., 2017a). Thirty-two outbreaks were investigated during 2015-2016 involving large number of deaths of unknown cause among farmed tilapia (*Oreochromis niloticus*) and red hybrid tilapia (*Oreochromis* spp.) (Suratchatpong et al., 2017). Histopathology (of the liver showing similar signs to SHT), transmission electron microscopy, in-situ hybridization and high nucleotide sequence identity to TiLV from Israel (Dong et al. 2017b) confirmed that these outbreaks were caused by TiLV.

Signs of the Disease

Mass mortality (20-90%) among cultured tilapias is an indicative sign of the disease. Gross signs include multifocal to coalescing dermal erosions and ulcers, ocular alterations including opacity of the lens and shrinkage of the eyes (Eyngor et al., 2014). Diseased fish also exhibit loss of appetite, pale color, gathering in the bottom, slow movement, and stopped schooling prior to death (Dong et al., 2017).

Histopathological lesions of the brain included edema, focal hemorrhages in the leptomeninges, and capillary congestion in both the white and gray matter (Eyngor et al., 2014). For the liver,

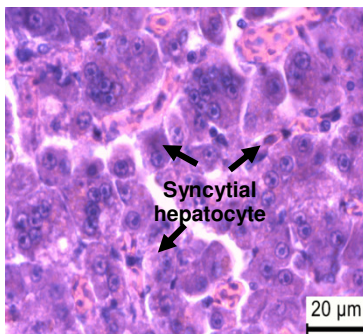


Figure 1. Photomicrograph of TiLV-infected liver tissue of tilapia revealed typical syncytial hepatitis (H&E). Photo courtesy of H. Dong.

histopathological changes include swollen and dissociated hepatocytes (Dong et al., 2017a) and typical feature of syncytial hepatitis as shown in Figure 1 (Dong et al., 2017b).

Intracytoplasmic viral particles can be observed in the infected tissues using transmission electron microscopy (Figure 2).

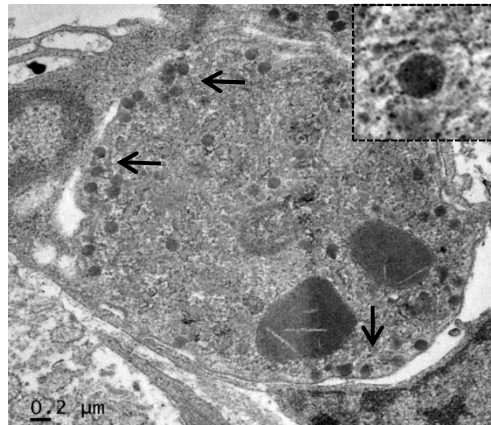


Figure 2. Transmission electron micrograph of intracytoplasmic viral particles of TiLV (arrows) from liver tissues. Photo courtesy of H. Dong.

PCR Detection Methods

Detection of the virus in infected tissues of tilapia is highly important in the confirmation of infection or the presence of the virus. Eyngor et al. (2014) developed an RT-PCR method for the detection of TiLV, while Tsofack et al. (2017) described a sensitive nested RT-PCR assay allowing the rapid detection of TiLV in fish organ. An improved PCR detection method for TiLV was published by Dong et al. (2017b) by modifying the nested RT-PCR protocols into a semi-nested RT-PCR by omitting the primer “Nested ext-2” to avoid false positive results. The semi-nested RT-PCR protocol may be used freely for non-commercial applications to detect TiLV. Heavily-infected samples will generate 2 amplicon bands of 415 bp and 250 bp while lightly-infected samples will generate a single 250-bp amplicon band. Please contact Centex Shrimp (saengchan@biotec.or.th) to obtain a free positive control plasmid (pGEM-415_bp).

Other important links:

FAO issues alert over lethal virus affecting popular tilapia fish.

<http://www.fao.org/news/story/en/item/888884/icode/>

TiLV Technical Disease Card

http://www.oie.int/fileadmin/Home/eng/International_Standard_Setting/docs/pdf/Aquatic_Commision/A_TiLV_disease_card.pdf

Tilapia Lake Virus: Literature Review

http://pubs.iclarm.net/resource_centre/FISH-2017-04.pdf

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Reports Received by the NACA and OIE-RRAP

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

Country: AUSTRALIA*

Period: January - March 2017

| Item | Disease status ^{a/} | | | Level of diagnosis | Epidemiological comment numbers |
|--|------------------------------|-------------|-------------|--------------------|---------------------------------|
| | Month | | | | |
| DISEASES PREVALENT IN THE REGION | January | February | March | | |
| FINFISH DISEASES | | | | | |
| OIE-listed diseases | | | | | |
| 1. Epizootic haematopoietic necrosis | -(2012) | -(2012) | -(2012) | | 1 |
| 2. Infectious haematopoietic necrosis | 0000 | 0000 | 0000 | | |
| 3. Spring viraemia of carp (SVC) | 0000 | 0000 | 0000 | | |
| 4. Viral haemorrhagic septicaemia (VHS) | 0000 | 0000 | 0000 | | |
| 5. Infection with <i>Aphanomyces invadans</i> (EUS) | -(2016) | -(2016) | -(2016) | | 2 |
| 6. Red seabream iridoviral disease (RSID) | 0000 | 0000 | 0000 | | |
| 7. Koi herpesvirus disease (KHV) | 0000 | 0000 | 0000 | | |
| Non OIE-listed diseases | | | | | |
| 8. Grouper iridoviral disease | 0000 | 0000 | 0000 | | |
| 9. Viral encephalopathy and retinopathy | -(2016) | + | -(2017) | III | 3 |
| 10. Enteric septicaemia of catfish | -(2014) | -(2014) | -(2014) | | 4 |
| 11. Carp edema virus disease | *** | *** | *** | | |
| MOLLUSC DISEASES | *** | *** | *** | | |
| OIE-listed diseases | | | | | |
| 1. Infection with <i>Bonamia exitiosa</i> | | | | | |
| 2. Infection with <i>Perkinsus olseni</i> | -(2016) | + | -(2017) | III | 5 |
| 3. Infection with abalone herpesvirus | -(2016) | + | -(2017) | III | 6 |
| 4. Infection with <i>Xenohaliotis californiensis</i> | -(2011) | -(2011) | -(2011) | | 7 |
| 5. Infection with <i>Bonamia ostreae</i> | 0000 | 0000 | 0000 | | |
| Non OIE-listed diseases | 0000 | 0000 | 0000 | | |
| 6. Infection with <i>Marteilioides chungmuensis</i> | | | | | |
| 7. Acute viral necrosis (in scallops) | 0000 | 0000 | 0000 | | |
| CRUSTACEAN DISEASES | | | | | |
| OIE-listed diseases | | | | | |
| 1. Taura syndrome (TS) | 0000 | 0000 | 0000 | | |
| 2. White spot disease (WSD) | + (S.E QLD) | + (S.E QLD) | + (S.E QLD) | III | 8 |
| 3. Yellowhead disease (YHD) | 0000 | 0000 | 0000 | | |
| 4. Infectious hypodermal and haematopoietic necrosis (IHHN) | -(2015) | -(2015) | + | III | 9 |
| 5. Infectious myonecrosis (IMN) | 0000 | 0000 | 0000 | | |
| 6. White tail disease (MrNV) | -(2008) | -(2008) | -(2008) | | 10 |
| 7. Necrotising hepatopancreatitis (NHP) | 0000 | 0000 | 0000 | | |
| 8. Acute hepatopancreatic necrosis disease (AHPND) | 0000 | 0000 | 0000 | | |
| 9. 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 | *** | *** | *** | | |
| 12. <i>Spiroplasma eriocheiris</i> infection | *** | *** | *** | | |
| 13. Iridovirus in crayfish | *** | *** | *** | | |

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

| AMPHIBIAN DISEASES | | | | | |
|---|---------|---------|---------|-----|----|
| OIE-listed diseases | | | | | |
| 1. Infection with Ranavirus | -(2008) | -(2008) | -(2008) | | 11 |
| 2. Infection with <i>Batrachochytrium dendrobatidis</i> | ? | -(2016) | -(2016) | | 12 |
| ANY OTHER DISEASES OF IMPORTANCE | | | | | |
| 1. <i>Hepatopancreatitis</i> in prawns | + | + | + | III | 13 |
| 2. <i>Tenacibaculum dicentrarchi</i> | + | -(2017) | -(2017) | II | 14 |

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|--------|---|--|--|---|---|------|---|----|---|-----|--------------------------|---|---|------|----------------|-----|-------------------------------------|---|--|-------|--|--------|-------------------------|
| <p>DISEASES PRESUMED EXOTIC TO THE REGION^b LISTED BY THE OIE Finfish: Infection with HPR-deleted of HPR0 salmon anemia virus, Infection with salmon pancreas disease virus; Infection with <i>Gyrodactylus salaris</i>. Molluscs: Infection with <i>Bonamia ostreae</i>; <i>Marteilia refringens</i>; <i>Perkinsus marinus</i>. Crustaceans: Crayfish plague (<i>Aphanomyces astaci</i>). NOT LISTED BY THE OIE Finfish: Channel catfish virus disease</p> | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>a/ Please use the following symbols:</p> <table style="width: 100%; border-collapse: collapse;"> <tbody> <tr> <td style="width: 10%; text-align: center;">+</td> <td style="width: 50%;">Disease reported or known to be present</td> <td style="width: 10%; text-align: center;">?()</td> <td style="width: 30%;">Presence of the disease suspected but not confirmed in a zone</td> </tr> <tr> <td style="text-align: center;">+?</td> <td>Serological evidence and/or isolation of causative agent but no clinical diseases</td> <td style="text-align: center;">***</td> <td>No information available</td> </tr> <tr> <td style="text-align: center;">?</td> <td>Suspected by reporting officer but presence not confirmed</td> <td style="text-align: center;">0000</td> <td>Never reported</td> </tr> <tr> <td style="text-align: center;">+()</td> <td>Occurrence limited to certain zones</td> <td style="text-align: center;">-</td> <td>Not reported (but disease is known to occur)</td> </tr> <tr> <td style="text-align: center;">+?()</td> <td>Confirmed infection/infestation limited to one or more zones of the country, but no clinical disease</td> <td style="text-align: center;">(year)</td> <td>Year of last occurrence</td> </tr> </tbody> </table> | | | | | | + | 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 |
| + | Disease reported or known to be present | ?() | Presence of the disease suspected but not confirmed in a zone | | | | | | | | | | | | | | | | | | | | | | |
| +? | Serological evidence and/or isolation of causative agent but no clinical diseases | *** | No information available | | | | | | | | | | | | | | | | | | | | | | |
| ? | Suspected by reporting officer but presence not confirmed | 0000 | Never reported | | | | | | | | | | | | | | | | | | | | | | |
| +() | Occurrence limited to certain zones | - | Not reported (but disease is known to occur) | | | | | | | | | | | | | | | | | | | | | | |
| +?() | Confirmed infection/infestation limited to one or more zones of the country, but no clinical disease | (year) | Year of last occurrence | | | | | | | | | | | | | | | | | | | | | | |
| <p>b/ If there is suspicion or confirmation of any of these diseases, they must be reported immediately, because the region is considered free of these diseases</p> | | | | | | | | | | | | | | | | | | | | | | | | | |

1. Epidemiological comments:

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

| Comment No. | |
|-------------|--|
| 1 | 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 march 2016), Queensland (last reported 2014), Western Australia (last reported 2013), the Northern Territory (last reported 2012), Victoria (last reported 2012), and South Australia (last reported 2008). Passive surveillance and never reported in Tasmania. No information available in the Australian Capital Territory. |

| | |
|----------|---|
| <p>3</p> | <p>Viral encephalopathy and retinopathy</p> <ol style="list-style-type: none"> 1. Reported in Queensland in February 2017; passive surveillance; 2. Species affected – Queensland groper (<i>Epinephelus lanceolatus</i>) juvenile, 6 months old; 3. Clinical signs – subclinical; 4. Pathogen – Betanodavirus; 5. Mortality rate – one fish; 6. Economic loss – N/A; 7. Geographic extent – one pond; 8. Containment measures – N/A; 9. Laboratory confirmation – histopathology, IHCT; 10. Publications – None. <p>Viral encephalopathy and retinopathy is known to have occurred previously in NSW (last reported in December 2016), the Northern Territory (last reported 2013), Western Australia (last reported 2013), South Australia (last reported 2010) and Tasmania (last reported 2000). Passive surveillance and never reported in Victoria. No information available this period in the Australian Capital Territory.</p> |
| <p>4</p> | <p>Enteric septicaemia of catfish (<i>Edwardsiella ictaluri</i>) was not reported this period despite pasive surveillance. It was reported from clinically normal fish from a single river in Queensland (October 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: Northern Territory in a closed aquarium (last reported 2011), and in PC2 containment facilities in Tasmania (last reported 2001) and Queensland (last reported 2008). Passive surveillance and never reported in New South Wales, South Australia, Victoria or Western Australia. No information available this period in the Australian Capital Territory.</p> |
| <p>5</p> | <p>Infection with <i>Bonamia exitiosa</i></p> <ol style="list-style-type: none"> 1. Reported in Western Australia in February 2017, active surveillance; South Australia in February 2017, passive surveillance 2. Species affected – flat oysters (<i>Ostrea angasi</i>); 3. Clinical signs – sub-clinical; 4. Pathogen – <i>Bonamia exitiosa</i>; 5. Mortality rate – N/A in Western Australia; no mortality in South Australia; 6. Economic loss – N/A; 7. Geographic extent – wild oysters and reef restoration project in Western Australia; oyster growing regions (sea-based farms) in South Asutralia; 8. Containment measures – N/A; 9. Laboratory confirmation – qPCR, PCR and histopathology, 10. Publications – nil. <p>Infection with <i>Bonamia exitiosa</i> was not reported this period despite passive surveillance in Victoria (last reported January 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> |

| | |
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| <p>6</p> | <p>Infection with <i>Perkinsus olseni</i></p> <ol style="list-style-type: none"> 1. Reported in Western Australia in February 2017, active surveillance; South Australia in February 2017, passive surveillance; 2. Species affected – farmed greenlip abalone (<i>Haliotis laevis</i>) in Western Australia; wild blacklip abalone (<i>Haliotis rubra</i>) in South Australia; 3. Clinical signs – subclinical in Western Australia; clinical in South Australia; 4. Pathogen – <i>Perkinsus olseni</i>; 5. Mortality rate – N/A in Western Australia; none in South Australia; 6. Economic loss – N/A; 7. Geographic extent – N/A in Western Australia; western zone fisheries in South Australia; 8. Containment measures – on-farm in Western Australia; none in South Australia; 9. Laboratory confirmation – PCR, RFTM and histopathology; 10. Publications – None. <p><i>Perkinsus olseni</i> was not reported this period despite passive surveillance in 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> |
| <p>7</p> | <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 for the Australian Capital Territory (no marine water responsibility).</p> |
| <p>8</p> | <p>White Spot Disease</p> <ol style="list-style-type: none"> 1. Reported in Queensland in January, February and March 2017, targeted surveillance; 2. Species affected – giant tiger prawn (<i>Penaeus monodon</i>) 28+ days of culture juveniles, <i>Penaeus</i> spp., crenate swimming crab (<i>Thalamita crenata</i>) wild; 3. Clinical signs – mortalities in farmed prawns; 4. Pathogen – White spot syndrome virus; 5. Mortality rate – total losses of prawns dying and destroyed through eradication; 6. Economic loss – > \$20 million; 7. Geographic extent – prawn farms on the Logan River catchment, Moreton Bay area; 8. Containment measures – no water discharge, quarantine, bird control, destruction of prawns, disinfection of water, movement control orders; 9. Laboratory confirmation – PCR, Real-time PCR, sequencing, histopathology; 10. Publications – OIE immediate and follow up notifications. <p>White spot disease was confirmed from a farm on the Logan River Catchment in South East Queensland on 1 December 2016. An emergency disease response to contain and eradicate the disease is ongoing. A movement control order has been implemented over the affected area of South East Queensland. White spot disease has never been reported despite active and passive surveillance in New South Wales, South Australia, Western Australia and Northern Territory. Passive surveillance and never reported in Victoria and Tasmania. No information available for the Australian Capital Territory (no marine water responsibility).</p> |

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| 9 | <p>Infectious hypodermal and haematopoietic necrosis virus (IHHNV)</p> <ol style="list-style-type: none"> 1. Reported in Queensland in March 2017, passive surveillance; 2. Species affected – giant tiger prawn (<i>Penaeus monodon</i>) 6 months; 3. Clinical signs – mortalities, role of IHHNV unknown; 4. Pathogen – IHHN virus; 5. Mortality rate – low levels of mortality; 6. Economic loss – N/A; 7. Geographic extent – one pond; 8. Containment measures – N/A; 9. Laboratory confirmation – PCR; 10. Publications – nil. <p>Infectious hypodermal and haematopoietic necrosis virus was not reported this period despite passive surveillance in the Northern Territory (last reported 2003). Passive surveillance and never reported in New South Wales, South Australia, Victoria and Western Australia. No information available this period in the Australian Capital Territory (no marine water responsibility) and Tasmania (susceptible species not present).</p> |
| 10 | <p>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 ranavirus was not reported this period despite passive surveillance in the Northern Territory (last reported 2008, prior to official reporting for ranavirus). Suspected but not confirmed through passive surveillance in Queensland. Passive surveillance and never reported in Tasmania. No information available this period in the Australian Capital Territory, New South Wales, South Australia, Victoria and Western Australia.</p> |
| 12 | <p>Infection with <i>Batrachochytrium dendrobatidis</i> was not reported this period despite passive surveillance in Victoria (last reported October 2016), Tasmania (last reported 2013), New South Wales (last reported 2012), Western Australia (last reported 2008) and Queensland (last reported 2004). Passive surveillance and never reported from the Northern Territory. No information available this period in the Australian Capital Territory and South Australia.</p> |
| 13 | <p>Hepatopancreatitis in prawns</p> <ol style="list-style-type: none"> 1. Reported in Queensland in January, February and March 2017, passive surveillance; 2. Species affected – giant tiger prawn (<i>Penaeus monodon</i>) 3+ months; 3. Clinical signs – mortalities, subclinical; 4. Pathogen – <i>Vibrio</i> sp, containing Pir-related toxin gene; 5. Mortality rate – N/A; 6. Economic loss – N/A; 7. Geographic extent – one pond on one farm, 14 ponds on another farm; 8. Containment measures – destocking and disinfection; 9. Laboratory confirmation – histopathology and PCR; 10. Publications – nil. <p>Passive surveillance and never reported in New South Wales. No information available this period in the Australian Capital Territory, Victoria, Northern Territory, South Australia, Western Australia and Tasmania.</p> |

| | |
|----|---|
| 14 | <p><i>Tenacibaculum dicentrarchi</i></p> <ol style="list-style-type: none"> 1. Reported in Tasmania in January 2017, passive surveillance; 2. Species affected – Atlantic salmon (<i>Salmo salar</i>) 750-1000g; 3. Clinical signs –subclinical; 4. Pathogen – <i>Tenacibaculum dicentrarchi</i>; 5. Mortality rate – N/A; 6. Economic loss – N/A; 7. Geographic extent – 7 sea cages, 130 000 fish per cage; 8. Containment measures – N/A; 9. Laboratory confirmation – histopathology; 10. Publications – nil. <p>No information available from the Australian Capital Territory, New South Wales, Victoria, Northern Territory, South Australia and Western Australia.</p> |
|----|---|

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

The Director of Biosecurity, under the Biosecurity Act 2015, made the Biosecurity (Suspended Goods–Uncooked Prawns) Determination 2017, suspending uncooked prawn imports into Australia effective from 9 January 2017. Amendments were issued to exempt certain low biosecurity risk prawn products from this suspension on 3 February 2017 (Biosecurity Amendment (Exceptions) Determination) and 27 February 2017 (Biosecurity Amendment (Exceptions) Determination No. 2).

Queensland and other states and territories have implemented new regulations restricting movement and sale of raw crustaceans such as prawns, crabs, yabbies and marine worms out of the Queensland movement control area.

The Aquaculture Farm Biosecurity Plan was published in January 2017 on the Department of Agriculture and Water Resources website (<http://www.agriculture.gov.au/fisheries/aquaculture/farm-biosecurity-plan>).

Country: **CHINESE TAIPEI**

 Period: **January - March 2017**

| Item | Disease status ^{al} | | | Level of diagnosis | Epidemiological comment numbers |
|--|------------------------------|----------|-------|--------------------|---------------------------------|
| | Month | | | | |
| DISEASES PREVALENT IN THE REGION | January | February | March | | |
| FINFISH DISEASES | | | | | |
| OIE-listed diseases | | | | | |
| 1. Epizootic haematopoietic necrosis | *** | *** | *** | | |
| 2. Infectious haematopoietic necrosis | *** | *** | *** | | |
| 3. Spring viraemia of carp (SVC) | *** | *** | *** | | |
| 4. Viral haemorrhagic septicaemia (VHS) | *** | *** | *** | | |
| 5. Infection with <i>Aphanomyces invadans</i> (EUS) | - | - | - | | |
| 6. Red seabream iridoviral disease (RSID) | - | - | - | | |
| 7. Koi herpesvirus disease (KHV) | - | - | - | | |
| Non OIE-listed diseases | | | | | |
| 8. Grouper iridoviral disease | + | + | + | LDCCs | 1 |
| 9. Viral encephalopathy and retinopathy | + | + | + | LDCCs | 2 |
| 10. Enteric septicaemia of catfish | *** | *** | *** | | |
| 11. Carp edema virus disease | *** | *** | *** | | |
| MOLLUSC DISEASES | | | | | |
| OIE-listed diseases | | | | | |
| 1. Infection with <i>Bonamia exitiosa</i> | *** | *** | *** | | |
| 2. Infection with <i>Perkinsus olseni</i> | *** | *** | *** | | |
| 3. Infection with abalone herpesvirus | - | - | - | | |
| 4. Infection with <i>Xenohalictis californiensis</i> | *** | *** | *** | | |
| 5. Infection with <i>Bonamia ostreae</i> | *** | *** | *** | | |
| Non OIE-listed diseases | | | | | |
| 6. Infection with <i>Marteilioides chungmuensis</i> | *** | *** | *** | | |
| 7. Acute viral necrosis (in scallops) | *** | *** | *** | | |
| CRUSTACEAN DISEASES | | | | | |
| OIE-listed diseases | | | | | |
| 1. Taura syndrome (TS) | - | - | - | | |
| 2. White spot disease (WSD) | - | + | + | LDCCs | 3 |
| 3. Yellowhead disease (YHD) | - | - | - | | |
| 4. Infectious hypodermal and haematopoietic necrosis (IHHN) | - | - | - | | |
| 5. Infectious myonecrosis (IMN) | *** | *** | *** | | |
| 6. White tail disease (MrNV) | - | - | - | | |
| 7. Necrotising hepatopancreatitis (NHP) | *** | *** | *** | | |
| 8. Acute hepatopancreatic necrosis disease (AHPND) | *** | *** | *** | | |
| 9. 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. Iridovirus in crayfish | *** | *** | *** | | |

| AMPHIBIAN DISEASES | | | | | |
|---|-----|-----|-----|--|--|
| OIE-listed diseases | | | | | |
| 1. Infection with Ranavirus | - | - | - | | |
| 2. Infection with <i>Batrachochytrium dendrobatidis</i> | *** | *** | *** | | |
| ANY OTHER DISEASES OF IMPORTANCE | | | | | |
| | | | | | |
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| | | | |
|--|--------|---|--|
| DISEASES PRESUMED EXOTIC TO THE REGION^b | | | |
| LISTED BY THE OIE | | | |
| Finfish: Infection with HPR-deleted of HPR0 salmon anemia virus; Infection with salmon pancreas disease virus; Infection with <i>Gyrodactylus salaris</i> . | | | |
| Molluscs: Infection with <i>Bonamia ostreae</i> ; <i>Marteilia refringens</i> ; <i>Perkinsus marinus</i> . | | | |
| Crustaceans: Crayfish plague (<i>Aphanomyces astaci</i>). | | | |
| NOT LISTED BY THE OIE | | | |
| Finfish: Channel catfish virus disease | | | |
| a/ Please use the following symbols: | | | |
| + Disease reported or known to be present | ?() | Presence of the disease suspected but not confirmed in a zone | |
| +? Serological evidence and/or isolation of causative agent but no clinical diseases | *** | No information available | |
| ? Suspected by reporting officer but presence not confirmed | 0000 | Never reported | |
| +() Occurrence limited to certain zones | - | Not reported (but disease is known to occur) | |
| +?() Confirmed infection/infestation limited to one or more zones of the country, but no clinical disease | (year) | Year of last occurrence | |
| b/ If there is suspicion or confirmation of any of these diseases, they must be reported immediately, because the region is considered free of these diseases | | | |

1. Epidemiological comments:

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

| Comment No. | |
|-------------|---|
| 1 | 1. Kaohsiung city. 5 outbreak reports from 4 farms. 2. Date: (1) Jan 13, (2) Jan 16, (3) Feb 6, (4) Feb 21, (5) Mar 30. 3. Species: (1) <i>Epinephelus lanceolatus</i> ; (2), (3), (5) <i>Lates calcarifer</i> ; (4) <i>Scatophagus argus</i> . 4. Mortality rate: low. 5. Total number of death: (1) 0/1000, (2) 0/35000, (3), (5) 0/40000, (4) 0/10000. |

| | |
|---|---|
| 2 | <p>1. Kaohsiung city, Pingtung county. 34 outbreak reports from 26 farms.</p> <p>2. Date: (1), (2) Jan 9; (3) Jan 12; (4), (5) Feb 6; (6) Feb 7; (7), (8) Feb 14; (9) Feb 17; (10), (11), (12) Feb 21; (13), (14) Mar 7; (15), (16), (17) Mar 8; (18), (19), (20), (21), (22) Mar 14; (23), (24), (25) Mar 16; (26), (27) Mar 17; (28) Mar 20; (29), (30) Mar 21; (31), (32) Mar 22; (33) Mar 23; (34) Mar 30.</p> <p>3. Species: (1), (3), (6), (7), (12), (13), (23), (27), (28), (30), (33), (34) <i>Epinephelus malabaricus</i>; (2), (5), (10), (15), (16), (21), (25), (26), (29) <i>Epinephelus lanceolatus</i>; (4), (8), (11), (14), (17), (18), (19), (20), (22), (24), (31), (32) <i>Epinephelus fuscoguttatus</i> x <i>Epinephelus lanceolatus</i>; (9) <i>Lateolabrax japonicus</i>.</p> <p>4. Mortality rate: low.</p> <p>5. Total number of death: (1), (3), (4), (6), (7), (11), (12), (13), (17), (24), (27), (28), (30), (33), (34) 0/10000; (2), (5), (8), (10), (14), (15), (16), (18), (19), (20), (21), (22), (25), (26), (29), (31), (32) 0/1000; (23) 0/20000; (9) 0/3750000.</p> |
| 3 | <p>1. Pingtung county, Tainan city. 6 outbreak reports from 6 farms.</p> <p>2. Date: (1), (2) Feb 15; (3) Mar 1; (4), (5) Mar 3; (6) Mar 8.</p> <p>3. Species: (1), (4), (5), (6) <i>Neocaridina denticulata sinensis</i>; (2), (3) Ornamental shrimps.</p> <p>4. Mortality rate: low.</p> <p>5. Total number of death: (1) 0/120000; (2) 0/150000; (3) 0/80000; (4) 0/100000; (5), (6) 0/96000.</p> |

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

Country: **HONG KONG SAR, CHINA***

 Period: **January - March 2017**

| Item | Disease status ^{al} | | | Level of diagnosis | Epidemiological comment numbers |
|--|------------------------------|----------|-------|--------------------|---------------------------------|
| | Month | | | | |
| DISEASES PREVALENT IN THE REGION | January | February | March | | |
| FINFISH DISEASES | | | | | |
| OIE-listed diseases | | | | | |
| 1. Epizootic haematopoietic necrosis | 0000 | 0000 | 0000 | II | |
| 2. Infectious haematopoietic necrosis | 0000 | 0000 | 0000 | III | |
| 3. Spring viraemia of carp (SVC) | 0000 | 0000 | 0000 | III | |
| 4. Viral haemorrhagic septicaemia (VHS) | 0000 | 0000 | 0000 | III | |
| 5. Infection with <i>Aphanomyces invadans</i> (EUS) | 0000 | 0000 | 0000 | III | |
| 6. Red seabream iridoviral disease (RSID) | - | - | - | III | |
| 7. Koi herpesvirus disease (KHV) | - | - | - | III | |
| Non OIE-listed diseases | | | | | |
| 8. Grouper iridoviral disease | - | - | - | III | |
| 9. Viral encephalopathy and retinopathy | - | - | - | III | |
| 10. Enteric septicaemia of catfish | 0000 | 0000 | 0000 | II | |
| 11. Carp edema virus disease | *** | *** | *** | | |
| 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>Xenohalictis 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. Taura syndrome (TS) | 0000 | 0000 | 0000 | III | |
| 2. White spot disease (WSD) | - | - | - | III | |
| 3. Yellowhead disease (YHD) | 0000 | 0000 | 0000 | III | |
| 4. Infectious hypodermal and haematopoietic necrosis (IHNN) | 0000 | 0000 | 0000 | II | |
| 5. Infectious myonecrosis (IMN) | 0000 | 0000 | 0000 | II | |
| 6. White tail disease (MrNV) | 0000 | 0000 | 0000 | II | |
| 7. Necrotising hepatopancreatitis (NHP) | *** | *** | *** | II | |
| 8. Acute hepatopancreatic necrosis disease (AHPND) | *** | *** | *** | II | |
| 9. 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 | *** | *** | *** | | |
| 12. <i>Spiroplasma eriocheiris</i> infection | *** | *** | *** | | |
| 13. Iridovirus in crayfish | *** | *** | *** | | |

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

| AMPHIBIAN DISEASES | | | | | |
|---|------|------|------|----|--|
| OIE-listed diseases | | | | | |
| 1. Infection with Ranavirus | 0000 | 0000 | 0000 | II | |
| 2. Infection with <i>Batrachochytrium dendrobatidis</i> | 0000 | 0000 | 0000 | II | |
| ANY OTHER DISEASES OF IMPORTANCE | | | | | |
| 1. | | | | | |
| 2. | | | | | |

| | | | | | |
|--|---|--|--|---|---|
| <p>DISEASES PRESUMED EXOTIC TO THE REGION^b LISTED BY THE OIE Finfish: Infection with HPR-deleted of HPR0 salmon anemia virus, Infection with salmon pancreas disease virus; Infection with <i>Gyrodactylus salaris</i>. Molluscs: Infection with <i>Bonamia ostreae</i>; <i>Marteilia refringens</i>; <i>Perkinsus marinus</i>. Crustaceans: Crayfish plague (<i>Aphanomyces astaci</i>). NOT LISTED BY THE OIE Finfish: Channel catfish virus disease</p> | | | | | |
| <p>a/ Please use the following symbols:</p> <table style="width: 100%; border-collapse: collapse;"> <tbody> <tr> <td style="width: 50%; vertical-align: top;"> <p>+ Disease reported or known to be present</p> <p>+? Serological evidence and/or isolation of causative agent but no clinical diseases</p> <p>? Suspected by reporting officer but presence not confirmed</p> <p>+() Occurrence limited to certain zones</p> <p>+?() Confirmed infection/infestation limited to one or more zones of the country, but no clinical disease</p> </td> <td style="width: 50%; vertical-align: top;"> <p>?() Presence of the disease suspected but not confirmed in a zone</p> <p>*** No information available</p> <p>0000 Never reported</p> <p>- Not reported (but disease is known to occur)</p> <p>(year) Year of last occurrence</p> </td> </tr> </tbody> </table> | | | | <p>+ Disease reported or known to be present</p> <p>+? Serological evidence and/or isolation of causative agent but no clinical diseases</p> <p>? Suspected by reporting officer but presence not confirmed</p> <p>+() Occurrence limited to certain zones</p> <p>+?() Confirmed infection/infestation limited to one or more zones of the country, but no clinical disease</p> | <p>?() Presence of the disease suspected but not confirmed in a zone</p> <p>*** No information available</p> <p>0000 Never reported</p> <p>- Not reported (but disease is known to occur)</p> <p>(year) Year of last occurrence</p> |
| <p>+ Disease reported or known to be present</p> <p>+? Serological evidence and/or isolation of causative agent but no clinical diseases</p> <p>? Suspected by reporting officer but presence not confirmed</p> <p>+() Occurrence limited to certain zones</p> <p>+?() Confirmed infection/infestation limited to one or more zones of the country, but no clinical disease</p> | <p>?() Presence of the disease suspected but not confirmed in a zone</p> <p>*** No information available</p> <p>0000 Never reported</p> <p>- Not reported (but disease is known to occur)</p> <p>(year) Year of last occurrence</p> | | | | |
| <p>b/ If there is suspicion or confirmation of any of these diseases, they must be reported immediately, because the region is considered free of these diseases</p> | | | | | |

1. Epidemiological comments:

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

| Comment No. | |
|-------------|--|
| 1 | |
| 2 | |
| 3 | |

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

Country: **INDIA***

 Period: **January - March 2017**

| Item | Disease status ^{al} | | | Level of diagnosis | Epidemiological comment numbers |
|--|------------------------------|----------|--------|--------------------|---------------------------------|
| | Month | | | | |
| DISEASES PREVALENT IN THE REGION | January | February | March | | |
| FINFISH DISEASES | | | | | |
| OIE-listed diseases | | | | | |
| 1. Epizootic haematopoietic necrosis | 0000 | 0000 | 0000 | | |
| 2. Infectious haematopoietic necrosis | 0000 | 0000 | 0000 | | |
| 3. Spring viraemia of carp (SVC) | 0000 | 0000 | 0000 | | |
| 4. Viral haemorrhagic septicaemia (VHS) | 0000 | 0000 | 0000 | | |
| 5. Infection with <i>Aphanomyces invadans</i> (EUS) | + | + | + | II,III | 1 |
| 6. Red seabream iridoviral disease (RSID) | 0000 | 0000 | 0000 | | |
| 7. Koi herpesvirus disease (KHV) | 0000 | 0000 | 0000 | | |
| Non OIE-listed diseases | | | | | |
| 8. Grouper iridoviral disease | 0000 | 0000 | 0000 | | |
| 9. Viral encephalopathy and retinopathy | - | - | - | | |
| 10. Enteric septicaemia of catfish | 0000 | 0000 | 0000 | | |
| 11. Carp edema virus disease | - | - | + | 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>Xenohalictis californiensis</i> | 0000 | 0000 | 0000 | | |
| 5. Infection with <i>Bonamia ostreae</i> | 0000 | 0000 | 0000 | | |
| Non OIE-listed diseases | | | | | |
| 6. Infection with <i>Marteilioides chungmuensis</i> | 0000 | 0000 | 0000 | | |
| 7. Acute viral necrosis (in scallops) | 0000 | 0000 | 0000 | | |
| CRUSTACEAN DISEASES | | | | | |
| OIE-listed diseases | | | | | |
| 1. Taura syndrome (TS) | 0000 | 0000 | 0000 | | |
| 2. White spot disease (WSD) | + | + | + | III | 4 |
| 3. Yellowhead disease (YHD) | *** | *** | *** | | |
| 4. Infectious hypodermal and haematopoietic necrosis (IHHN) | + | + | - | III | 5 |
| 5. Infectious myonecrosis (IMN) | (2016) | (2016) | (2016) | | |
| 6. White tail disease (MrNV) | - | - | - | | |
| 7. Necrotising hepatopancreatitis (NHP) | 0000 | 0000 | 0000 | | |
| 8. Acute hepatopancreatic necrosis disease (AHPND) | 0000 | 0000 | 0000 | | |
| 9. Crayfish plague | 0000 | 0000 | 0000 | | |
| Non OIE-listed diseases | | | | | |
| 10. Hepatopancreatic microsporidiosis caused by <i>Enterocytozoon hepatopenaei</i> (HPM-EHP) | + | + | + | III | 6 |
| 11. Viral covert mortality disease (VCMD) of shrimps | 0000 | 0000 | 0000 | | |
| 12. <i>Spiroplasma eriocheiris</i> infection | 0000 | 0000 | 0000 | | |
| 13. Iridovirus in crayfish | 0000 | 0000 | 0000 | | |

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

| AMPHIBIAN DISEASES | | | | | |
|---|------|------|------|--|--|
| OIE-listed diseases | | | | | |
| 1. Infection with Ranavirus | 0000 | 0000 | 0000 | | |
| 2. Infection with <i>Batrachochytrium dendrobatidis</i> | 0000 | 0000 | 0000 | | |
| ANY OTHER DISEASES OF IMPORTANCE | | | | | |
| 1. | | | | | |
| 2. | | | | | |

| | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|--------|---|--|--|---|---|-----|---|----|---|-----|--------------------------|---|---|------|----------------|-----|-------------------------------------|---|--|------|--|--------|-------------------------|
| <p>DISEASES PRESUMED EXOTIC TO THE REGION^b LISTED BY THE OIE Finfish: Infection with HPR-deleted of HPR0 salmon anemia virus, Infection with salmon pancreas disease virus; Infection with <i>Gyrodactylus salaris</i>. Molluscs: Infection with <i>Bonamia ostreae</i>; <i>Marteilia refringens</i>; <i>Perkinsus marinus</i>. Crustaceans: Crayfish plague (<i>Aphanomyces astaci</i>). NOT LISTED BY THE OIE Finfish: Channel catfish virus disease</p> | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>a/ Please use the following symbols:</p> <table style="width: 100%; border-collapse: collapse;"> <tbody> <tr> <td style="width: 10%; text-align: center;">+</td> <td style="width: 50%;">Disease reported or known to be present</td> <td style="width: 10%; text-align: center;">?()</td> <td style="width: 30%;">Presence of the disease suspected but not confirmed in a zone</td> </tr> <tr> <td style="text-align: center;">+?</td> <td>Serological evidence and/or isolation of causative agent but no clinical diseases</td> <td style="text-align: center;">***</td> <td>No information available</td> </tr> <tr> <td style="text-align: center;">?</td> <td>Suspected by reporting officer but presence not confirmed</td> <td style="text-align: center;">0000</td> <td>Never reported</td> </tr> <tr> <td style="text-align: center;">+()</td> <td>Occurrence limited to certain zones</td> <td style="text-align: center;">-</td> <td>Not reported (but disease is known to occur)</td> </tr> <tr> <td style="text-align: center;">+?()</td> <td>Confirmed infection/infestation limited to one or more zones of the country, but no clinical disease</td> <td style="text-align: center;">(year)</td> <td>Year of last occurrence</td> </tr> </tbody> </table> | | | | | | + | 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 |
| + | Disease reported or known to be present | ?() | Presence of the disease suspected but not confirmed in a zone | | | | | | | | | | | | | | | | | | | | | | |
| +? | Serological evidence and/or isolation of causative agent but no clinical diseases | *** | No information available | | | | | | | | | | | | | | | | | | | | | | |
| ? | Suspected by reporting officer but presence not confirmed | 0000 | Never reported | | | | | | | | | | | | | | | | | | | | | | |
| +() | Occurrence limited to certain zones | - | Not reported (but disease is known to occur) | | | | | | | | | | | | | | | | | | | | | | |
| +?() | Confirmed infection/infestation limited to one or more zones of the country, but no clinical disease | (year) | Year of last occurrence | | | | | | | | | | | | | | | | | | | | | | |
| <p>b/ If there is suspicion or confirmation of any of these diseases, they must be reported immediately, because the region is considered free of these diseases</p> | | | | | | | | | | | | | | | | | | | | | | | | | |

1. Epidemiological comments:

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

| Comment No. | |
|-------------|--|
| 1 | Infection with <i>Aphanomyces invadans</i> was reported from <i>Catla catla</i> , <i>Labeo rohita</i> , <i>L. bata</i> , <i>Cirrhinus mrigala</i> , <i>Puntius gonionotus</i> from Maharajganj and Barabanki districts in Uttar Pradesh; Lakhimpur in Assam; and West Tripura, South Tripura, Khowai, Sepahijala and Unakoti districts in Tripura. |
| 2 | Carp edema virus infection was reported in koi carps from Cuttack, Odisha. |
| 3 | Infection with <i>Perkinsus olseni</i> reported from farmed <i>Perna viridis</i> from Kasargod, Kannur and Thrissur districts of Kerala; wild samples of <i>Meretrix meretrix</i> and <i>Pinctada sugilatta</i> from Chilika, Odisha; wild samples of <i>Perna viridis</i> and <i>Paphia malabarica</i> from Kozhikode, Kasargod, Kannur and Kayamkulam districts of Kerala. |

| | |
|---|---|
| 4 | WSSV was detected from <i>P. monodon</i> in Alapuzha, Kollam, Ernakulam districts in Kerala; Uttara Kannada and Udupi districts of Karnataka. WSSV was also detected in <i>Litopenaeus vannamei</i> from Nagapattinam, Ramnad, Kanchipuram, Thiruvallur districts of Tamil Nadu; Thane district of Maharashtra; East Godavari, West Godavari, Srikakulam, Vizianagram and Guntur districts of Andhra Pradesh; Bhadrak district of Odisha; Udupi and Uttara Kannada district of Karnataka. |
| 5 | IHHNV was detected in <i>P. monodon</i> from Thrissur district of Kerala; Udupi and Uttara Kannada districts of Karnataka; <i>Litopenaeus vannamei</i> from Udupi and Uttara Kannada districts of Karnataka and East Godavari district of Andhra Pradesh. |
| 6 | Hepatopneumatic Microsporidiosis caused by <i>Enterocytozoon hepatopenaei</i> was reported in <i>Litopenaeus vannamei</i> from East Godavari, West Godavari, Visakhapatnam, Vizianagram, Srikakulam, Guntur and Nellore districts of Andhra Pradesh; Thoothukudi, Nagapattinam, Ramnad and Pudukkottai districts of Tamil Nadu; Udupi and Uttara Kannada districts of Karnataka. |

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

Country: **JAPAN***Period: **January - March 2017**

| Item | Disease status ^{al} | | | Level of diagnosis | Epidemiological comment numbers |
|--|------------------------------|----------|---------|--------------------|---------------------------------|
| | Month | | | | |
| DISEASES PREVALENT IN THE REGION | January | February | March | | |
| FINFISH DISEASES | | | | | |
| OIE-listed diseases | | | | | |
| 1. Epizootic haematopoietic necrosis | 0000 | 0000 | 0000 | I | |
| 2. Infectious haematopoietic necrosis | + | + | + | III | 1 |
| 3. Spring viraemia of carp (SVC) | 0000 | 0000 | 0000 | I | |
| 4. Viral haemorrhagic septicaemia (VHS) | -(2016) | + | + | III | 2 |
| 5. Infection with <i>Aphanomyces invadans</i> (EUS) | -(2015) | -(2015) | -(2015) | I | |
| 6. Red seabream iridoviral disease (RSID) | -(2016) | + | -(2017) | III | 3 |
| 7. Koi herpesvirus disease (KHV) | -(2016) | + | -(2017) | III | 4 |
| Non OIE-listed diseases | | | | | |
| 8. Grouper iridoviral disease | 0000 | 0000 | 0000 | I | |
| 9. Viral encephalopathy and retinopathy | + | -(2017) | -(2017) | III | 5 |
| 10. Enteric septicaemia of catfish | -(2010) | -(2010) | -(2010) | I | |
| 11. Carp edema virus disease | - | - | - | I | |
| MOLLUSC DISEASES | | | | | |
| OIE-listed diseases | | | | | |
| 1. Infection with <i>Bonamia exitiosa</i> | 0000 | 0000 | 0000 | I | |
| 2. Infection with <i>Perkinsus olseni</i> | -(2007) | -(2007) | -(2007) | I | |
| 3. Infection with abalone herpesvirus | 0000 | 0000 | 0000 | I | |
| 4. Infection with <i>Xenohaliotis californiensis</i> | -(2015) | -(2015) | -(2015) | I | |
| 5. Infection with <i>Bonamia ostreae</i> | 0000 | 0000 | 0000 | I | |
| Non OIE-listed diseases | | | | | |
| 6. Infection with <i>Marteilioides chungmuensis</i> | -(2014) | -(2014) | -(2014) | I | |
| 7. Acute viral necrosis (in scallops) | 0000 | 0000 | 0000 | I | |
| CRUSTACEAN DISEASES | | | | | |
| OIE-listed diseases | | | | | |
| 1. Taura syndrome (TS) | 0000 | 0000 | 0000 | I | |
| 2. White spot disease (WSD) | + | -(2017) | -(2017) | III | 6 |
| 3. Yellowhead disease (YHD) | 0000 | 0000 | 0000 | I | |
| 4. Infectious hypodermal and haematopoietic necrosis (IHHN) | 0000 | 0000 | 0000 | I | |
| 5. Infectious myonecrosis (IMN) | 0000 | 0000 | 0000 | I | |
| 6. White tail disease (MrNV) | 0000 | 0000 | 0000 | I | |
| 7. Necrotising hepatopancreatitis (NHP) | 0000 | 0000 | 0000 | I | |
| 8. Acute hepatopancreatic necrosis disease (AHPND) | 0000 | 0000 | 0000 | I | |
| 9. Crayfish plague | 0000 | 0000 | 0000 | I | |
| Non OIE-listed diseases | | | | | |
| 10. Hepatopancreatic microsporidiosis caused by <i>Enterocytozoon hepatopenaei</i> (HPM-EHP) | 0000 | 0000 | 0000 | I | |
| 11. Viral covert mortality disease (VCMD) of shrimps | 0000 | 0000 | 0000 | I | |
| 12. <i>Spiroplasma eriocheiris</i> infection | 0000 | 0000 | 0000 | I | |
| 13. Iridovirus in crayfish | 0000 | 0000 | 0000 | I | |

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

| AMPHIBIAN DISEASES | | | | | |
|---|---------|---------|---------|---|--|
| OIE-listed diseases | | | | | |
| 1. Infection with Ranavirus | -(2012) | -(2012) | -(2012) | I | |
| 2. Infection with <i>Batrachochytrium dendrobatidis</i> | -(2009) | -(2009) | -(2009) | I | |
| ANY OTHER DISEASES OF IMPORTANCE | | | | | |
| 1. | | | | | |
| 2. | | | | | |

| | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|--------|---|---|---|------|---|----|---|-----|--------------------------|---|---|------|----------------|------|-------------------------------------|---|--|-------|--|--------|-------------------------|
| <p>DISEASES PRESUMED EXOTIC TO THE REGION^b LISTED BY THE OIE Finfish: Infection with HPR-deleted of HPR0 salmon anemia virus, Infection with salmon pancreas disease virus; Infection with <i>Gyrodactylus salaris</i>. Molluscs: Infection with <i>Bonamia ostreae</i>; <i>Marteilia refringens</i>; <i>Perkinsus marinus</i>. Crustaceans: Crayfish plague (<i>Aphanomyces astaci</i>). NOT LISTED BY THE OIE Finfish: Channel catfish virus disease</p> | | | | | | | | | | | | | | | | | | | | | | | |
| <p>a/ Please use the following symbols:</p> <table style="width: 100%; border: none;"> <tbody> <tr> <td style="width: 15%; vertical-align: top;">+</td> <td style="width: 45%;">Disease reported or known to be present</td> <td style="width: 10%; vertical-align: top;">?()</td> <td style="width: 30%;">Presence of the disease suspected but not confirmed in a zone</td> </tr> <tr> <td style="vertical-align: top;">+?</td> <td>Serological evidence and/or isolation of causative agent but no clinical diseases</td> <td style="vertical-align: top;">***</td> <td>No information available</td> </tr> <tr> <td style="vertical-align: top;">?</td> <td>Suspected by reporting officer but presence not confirmed</td> <td style="vertical-align: top;">0000</td> <td>Never reported</td> </tr> <tr> <td style="vertical-align: top;">+()</td> <td>Occurrence limited to certain zones</td> <td style="vertical-align: top;">-</td> <td>Not reported (but disease is known to occur)</td> </tr> <tr> <td style="vertical-align: top;">+?()</td> <td>Confirmed infection/infestation limited to one or more zones of the country, but no clinical disease</td> <td style="vertical-align: top;">(year)</td> <td>Year of last occurrence</td> </tr> </tbody> </table> | | | | + | 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 |
| + | Disease reported or known to be present | ?() | Presence of the disease suspected but not confirmed in a zone | | | | | | | | | | | | | | | | | | | | |
| +? | Serological evidence and/or isolation of causative agent but no clinical diseases | *** | No information available | | | | | | | | | | | | | | | | | | | | |
| ? | Suspected by reporting officer but presence not confirmed | 0000 | Never reported | | | | | | | | | | | | | | | | | | | | |
| +() | Occurrence limited to certain zones | - | Not reported (but disease is known to occur) | | | | | | | | | | | | | | | | | | | | |
| +?() | Confirmed infection/infestation limited to one or more zones of the country, but no clinical disease | (year) | Year of last occurrence | | | | | | | | | | | | | | | | | | | | |
| <p>b/ If there is suspicion or confirmation of any of these diseases, they must be reported immediately, because the region is considered free of these diseases</p> | | | | | | | | | | | | | | | | | | | | | | | |

1. Epidemiological comments:

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

| Comment No. | |
|-------------|---|
| 1 | <p>Infectious haematopoietic necrosis (IHN)</p> <ol style="list-style-type: none"> 1. Reported in 7 prefectures; 2. Species affected – Amago (<i>Onchorynchus rhodorus</i>), yamame (<i>O. masou</i>), hybrid of rainbow trout; 3. Disease characteristics – Mortality, anemia, anemia of gills and kidney, anemia of viscera, threadbare fins, petechial haemorrhages; 4. Pathogen – Infectious haematopoietic necrosis virus; 5. Mortality rate – 1-70%; 6. Economic loss –; 7. Geographic extent – Honshu; 8. Preventive/control measures – feed restriction, disinfection of facilities and tools, notification to concerned authorities; 9. Laboratory confirmation – cell culture, Isolation of the virus by prefectural research laboratories; 10. Publications – None. |

| | |
|----------|--|
| <p>2</p> | <p>Viral Haemorrhagic Septicaemia (VHS)</p> <ol style="list-style-type: none"> 1. Reported in 2 prefectures; 2. Species affected – red sea bream (<i>Pagrus major</i>); 3. Disease characteristics – mortality, anemia of gills; 4. Pathogen – Viral haemorrhagic septicaemia virus; 5. Mortality rate – 1%; 6. Economic loss –; 7. Geographic extent – Honshu and Shikoku; 8. Preventive/control measures – feed restriction, removal of dead fish, notification to concerned authorities; 9. Laboratory confirmation – PCR by prefectural research laboratories; 10. Publications – None. |
| <p>3</p> | <p>Red Seabream Iridoviral Disease (RSIVD)</p> <ol style="list-style-type: none"> 1. Reported in 1 prefecture; 2. Species affected – Bluefin tuna (<i>Thunnus orientalis</i>); 3. Disease characteristics – mortality; 4. Pathogen – Red seabream iridovirus; 5. Mortality rate – 0.1-1%; 6. Economic loss –; 7. Geographic extent – Kyushu; 8. Preventive/control measures – removal of dead fish; 9. Laboratory confirmation – PCR by prefectural research laboratories; 10. Publications – None. |
| <p>4</p> | <p>Koi Herpesvirus Disease (KHV)</p> <ol style="list-style-type: none"> 1. Reported in 1 prefecture; 2. Species affected – Koi carp (<i>Cyprinus carpio</i>) 3. Disease characteristics – none; 4. Pathogen – Koi herpesvirus; 5. Mortality rate – 0%; 6. Economic loss –; 7. Geographic extent – Honshu; 8. Preventive/control measures – movement control, culling of infected fish, disinfection of ponds, notification to concerned authorities; 9. Laboratory confirmation – PCR by National Research Institute of Aquaculture; 10. Publications – none. |

| | |
|---|---|
| 5 | <p>Viral Encephalopathy and Retinopathy (VER)</p> <ol style="list-style-type: none"> 1. Reported in 1 prefecture; 2. Species affected – egg of wild olive flounder (<i>Paralichthys olivaceus</i>) 3. Disease characteristics – none; 4. Pathogen – Betanovirus; 5. Mortality rate – 0%; 6. Economic loss –; 7. Geographic extent – Honshu; 8. Preventive/control measures – disinfection of eggs; 9. Laboratory confirmation – PCR by prefectural research laboratory; 10. Publications – none. |
| 6 | <p>White Spot Disease (WSD)</p> <ol style="list-style-type: none"> 1. Reported in 1 prefecture; 2. Species affected – Kuruma prawn (<i>Penaeus japonicus</i>) 3. Disease characteristics – mortality, white spots on carapace; 4. Pathogen – White spot syndrome virus; 5. Mortality rate – 77%; 6. Economic loss –; 7. Geographic extent – Okinawa; 8. Preventive/control measures – notification to concerned authorities; 9. Laboratory confirmation – PCR by prefectural research laboratory; 10. Publications – none. |

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

Country: **MALDIVES ***

 Period: **January - March 2017**

| Item | Disease status ^{al} | | | Level of diagnosis | Epidemiological comment numbers |
|--|------------------------------|----------|-------|--------------------|---------------------------------|
| | Month | | | | |
| DISEASES PREVALENT IN THE REGION | January | February | March | | |
| FINFISH DISEASES | | | | | |
| OIE-listed diseases | | | | | |
| 1. Epizootic haematopoietic necrosis | 0000 | 0000 | 0000 | | |
| 2. Infectious haematopoietic necrosis | 0000 | 0000 | 0000 | | |
| 3. Spring viraemia of carp (SVC) | 0000 | 0000 | 0000 | | |
| 4. Viral haemorrhagic septicaemia (VHS) | 0000 | 0000 | 0000 | | |
| 5. Infection with <i>Aphanomyces invadans</i> (EUS) | 0000 | 0000 | 0000 | | |
| 6. Red seabream iridoviral disease (RSID) | 0000 | 0000 | 0000 | | |
| 7. Koi herpesvirus disease (KHV) | 0000 | 0000 | 0000 | | |
| Non OIE-listed diseases | | | | | |
| 8. Grouper iridoviral disease | 0000 | 0000 | 0000 | | |
| 9. Viral encephalopathy and retinopathy | 0000 | 0000 | 0000 | | |
| 10. Enteric septicaemia of catfish | 0000 | 0000 | 0000 | | |
| 11. Carp edema virus disease | 0000 | 0000 | 0000 | | |
| MOLLUSC DISEASES | | | | | |
| OIE-listed diseases | | | | | |
| 1. Infection with <i>Bonamia exitiosa</i> | 0000 | 0000 | 0000 | | |
| 2. Infection with <i>Perkinsus olseni</i> | 0000 | 0000 | 0000 | | |
| 3. Infection with abalone herpesvirus | 0000 | 0000 | 0000 | | |
| 4. Infection with <i>Xenohaliotis californiensis</i> | 0000 | 0000 | 0000 | | |
| 5. Infection with <i>Bonamia ostreae</i> | 0000 | 0000 | 0000 | | |
| Non OIE-listed diseases | | | | | |
| 6. Infection with <i>Marteilioides chungmuensis</i> | 0000 | 0000 | 0000 | | |
| 7. Acute viral necrosis (in scallops) | 0000 | 0000 | 0000 | | |
| CRUSTACEAN DISEASES | | | | | |
| OIE-listed diseases | | | | | |
| 1. Taura syndrome (TS) | 0000 | 0000 | 0000 | | |
| 2. White spot disease (WSD) | 0000 | 0000 | 0000 | | |
| 3. Yellowhead disease (YHD) | 0000 | 0000 | 0000 | | |
| 4. Infectious hypodermal and haematopoietic necrosis (IHHN) | 0000 | 0000 | 0000 | | |
| 5. Infectious myonecrosis (IMN) | 0000 | 0000 | 0000 | | |
| 6. White tail disease (MrNV) | 0000 | 0000 | 0000 | | |
| 7. Necrotising hepatopancreatitis (NHP) | 0000 | 0000 | 0000 | | |
| 8. Acute hepatopancreatic necrosis disease (AHPND) | 0000 | 0000 | 0000 | | |
| 9. Crayfish plague | 0000 | 0000 | 0000 | | |
| Non OIE-listed diseases | | | | | |
| 10. Hepatopancreatic microsporidiosis caused by <i>Enterocytozoon hepatopenaei</i> (HPM-EHP) | 0000 | 0000 | 0000 | | |
| 11. Viral covert mortality disease (VCMD) of shrimps | 0000 | 0000 | 0000 | | |
| 12. <i>Spiroplasma eriocheiris</i> infection | 0000 | 0000 | 0000 | | |
| 13. Iridovirus in crayfish | 0000 | 0000 | 0000 | | |

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

| AMPHIBIAN DISEASES | | | | | |
|---|------|------|------|--|--|
| OIE-listed diseases | | | | | |
| 1. Infection with Ranavirus | 0000 | 0000 | 0000 | | |
| 2. Infection with <i>Batrachochytrium dendrobatidis</i> | 0000 | 0000 | 0000 | | |
| ANY OTHER DISEASES OF IMPORTANCE | | | | | |
| 1. | | | | | |
| 2. | | | | | |

| | | | | | | | | | | | | | | | | | | | | | | | |
|---|--|--------|---|---|---|------|---|----|---|-----|--------------------------|---|---|------|----------------|-----|-------------------------------------|---|--|-------|--|--------|-------------------------|
| <p>DISEASES PRESUMED EXOTIC TO THE REGION^b LISTED BY THE OIE Finfish: Infection with HPR-deleted of HPR0 salmon anemia virus, Infection with salmon pancreas disease virus; Infection with <i>Gyrodactylus salaris</i>. Molluscs: Infection with <i>Bonamia ostreae</i>; <i>Marteilia refringens</i>; <i>Perkinsus marinus</i>. Crustaceans: Crayfish plague (<i>Aphanomyces astaci</i>). NOT LISTED BY THE OIE Finfish: Channel catfish virus disease</p> | | | | | | | | | | | | | | | | | | | | | | | |
| <p>a/ Please use the following symbols:</p> <table border="0"> <tr> <td style="padding-right: 20px;">+</td> <td style="padding-right: 20px;">Disease reported or known to be present</td> <td style="padding-right: 20px;">?()</td> <td>Presence of the disease suspected but not confirmed in a zone</td> </tr> <tr> <td>+?</td> <td>Serological evidence and/or isolation of causative agent but no clinical diseases</td> <td>***</td> <td>No information available</td> </tr> <tr> <td>?</td> <td>Suspected by reporting officer but presence not confirmed</td> <td>0000</td> <td>Never reported</td> </tr> <tr> <td>+()</td> <td>Occurrence limited to certain zones</td> <td>-</td> <td>Not reported (but disease is known to occur)</td> </tr> <tr> <td>+?()</td> <td>Confirmed infection/infestation limited to one or more zones of the country, but no clinical disease</td> <td>(year)</td> <td>Year of last occurrence</td> </tr> </table> | | | | + | 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 |
| + | Disease reported or known to be present | ?() | Presence of the disease suspected but not confirmed in a zone | | | | | | | | | | | | | | | | | | | | |
| +? | Serological evidence and/or isolation of causative agent but no clinical diseases | *** | No information available | | | | | | | | | | | | | | | | | | | | |
| ? | Suspected by reporting officer but presence not confirmed | 0000 | Never reported | | | | | | | | | | | | | | | | | | | | |
| +() | Occurrence limited to certain zones | - | Not reported (but disease is known to occur) | | | | | | | | | | | | | | | | | | | | |
| +?() | Confirmed infection/infestation limited to one or more zones of the country, but no clinical disease | (year) | Year of last occurrence | | | | | | | | | | | | | | | | | | | | |
| <p>b/ If there is suspicion or confirmation of any of these diseases, they must be reported immediately, because the region is considered free of these diseases</p> | | | | | | | | | | | | | | | | | | | | | | | |

1. Epidemiological comments:

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

| Comment No. | |
|-------------|--|
| 1 | |
| 2 | |
| 3 | |

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

Country: **MONGOLIA**

 Period: **January - March 2017**

| Item | Disease status ^{at} | | | Level of diagnosis | Epidemiological comment numbers |
|--|------------------------------|----------|-------|--------------------|---------------------------------|
| | Month | | | | |
| DISEASES PREVALENT IN THE REGION | January | February | March | | |
| FINFISH DISEASES | | | | | |
| OIE-listed diseases | | | | | |
| 1. Epizootic haematopoietic necrosis | 0000 | 0000 | 0000 | | |
| 2. Infectious haematopoietic necrosis | 0000 | 0000 | 0000 | | |
| 3. Spring viraemia of carp (SVC) | 0000 | 0000 | 0000 | | |
| 4. Viral haemorrhagic septicaemia (VHS) | 0000 | 0000 | 0000 | | |
| 5. Infection with <i>Aphanomyces invadans</i> (EUS) | 0000 | 0000 | 0000 | | |
| 6. Red seabream iridoviral disease (RSID) | 0000 | 0000 | 0000 | | |
| 7. Koi herpesvirus disease (KHV) | 0000 | 0000 | 0000 | | |
| Non OIE-listed diseases | | | | | |
| 8. Grouper iridoviral disease | 0000 | 0000 | 0000 | | |
| 9. Viral encephalopathy and retinopathy | 0000 | 0000 | 0000 | | |
| 10. Enteric septicaemia of catfish | 0000 | 0000 | 0000 | | |
| 11. Carp edema virus disease | 0000 | 0000 | 0000 | | |
| MOLLUSC DISEASES | | | | | |
| OIE-listed diseases | | | | | |
| 1. Infection with <i>Bonamia exitiosa</i> | 0000 | 0000 | 0000 | | |
| 2. Infection with <i>Perkinsus olseni</i> | 0000 | 0000 | 0000 | | |
| 3. Infection with abalone herpesvirus | 0000 | 0000 | 0000 | | |
| 4. Infection with <i>Xenohaliotis californiensis</i> | 0000 | 0000 | 0000 | | |
| 5. Infection with <i>Bonamia ostreae</i> | 0000 | 0000 | 0000 | | |
| Non OIE-listed diseases | | | | | |
| 6. Infection with <i>Marteilioides chungmuensis</i> | 0000 | 0000 | 0000 | | |
| 7. Acute viral necrosis (in scallops) | 0000 | 0000 | 0000 | | |
| CRUSTACEAN DISEASES | | | | | |
| OIE-listed diseases | | | | | |
| 1. Taura syndrome (TS) | 0000 | 0000 | 0000 | | |
| 2. White spot disease (WSD) | 0000 | 0000 | 0000 | | |
| 3. Yellowhead disease (YHD) | 0000 | 0000 | 0000 | | |
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| 8. Acute hepatopancreatic necrosis disease (AHPND) | 0000 | 0000 | 0000 | | |
| 9. Crayfish plague | 0000 | 0000 | 0000 | | |
| Non OIE-listed diseases | | | | | |
| 10. Hepatopancreatic microsporidiosis caused by <i>Enterocytozoon hepatopenaei</i> (HPM-EHP) | 0000 | 0000 | 0000 | | |
| 11. Viral covert mortality disease (VCMD) of shrimps | 0000 | 0000 | 0000 | | |
| 12. <i>Spiroplasma eriocheiris</i> infection | 0000 | 0000 | 0000 | | |
| 13. Iridovirus in crayfish | 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. | | | | | |
| 2. | | | | | |

| | | | | | |
|--|---|--|--|---|---|
| <p>DISEASES PRESUMED EXOTIC TO THE REGION^b LISTED BY THE OIE Finfish: Infection with HPR-deleted of HPR0 salmon anemia virus, Infection with salmon pancreas disease virus; Infection with <i>Gyrodactylus salaris</i>. Molluscs: Infection with <i>Bonamia ostreae</i>; <i>Marteilia refringens</i>; <i>Perkinsus marinus</i>. Crustaceans: Crayfish plague (<i>Aphanomyces astaci</i>). NOT LISTED BY THE OIE Finfish: Channel catfish virus disease</p> | | | | | |
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| <p>+ Disease reported or known to be present</p> <p>+? Serological evidence and/or isolation of causative agent but no clinical diseases</p> <p>? Suspected by reporting officer but presence not confirmed</p> <p>+() Occurrence limited to certain zones</p> <p>+?() Confirmed infection/infestation limited to one or more zones of the country, but no clinical disease</p> | <p>?() Presence of the disease suspected but not confirmed in a zone</p> <p>*** No information available</p> <p>0000 Never reported</p> <p>- Not reported (but disease is known to occur)</p> <p>(year) Year of last occurrence</p> | | | | |
| <p>b/ If there is suspicion or confirmation of any of these diseases, they must be reported immediately, because the region is considered free of these diseases</p> | | | | | |

1. Epidemiological comments:

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

| Comment No. | |
|-------------|--|
| 1 | |
| 2 | |
| 3 | |

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

Country: **MYANMAR***

 Period: **January - March 2016**

| Item | Disease status ^{al} | | | Level of diagnosis | Epidemiological comment numbers |
|--|------------------------------|----------|-------|--------------------|---------------------------------|
| | Month | | | | |
| DISEASES PREVALENT IN THE REGION | January | February | March | | |
| FINFISH DISEASES | | | | | |
| OIE-listed diseases | | | | | |
| 1. Epizootic haematopoietic necrosis | *** | *** | *** | | |
| 2. Infectious haematopoietic necrosis | *** | *** | *** | | |
| 3. Spring viraemia of carp (SVC) | *** | *** | *** | | |
| 4. Viral haemorrhagic septicaemia (VHS) | *** | *** | *** | | |
| 5. Infection with <i>Aphanomyces invadans</i> (EUS) | *** | *** | *** | | |
| 6. Red seabream iridoviral disease (RSID) | *** | *** | *** | | |
| 7. Koi herpesvirus disease (KHV) | | | | | |
| Non OIE-listed diseases | | | | | |
| 8. Grouper iridoviral disease | *** | *** | *** | | |
| 9. Viral encephalopathy and retinopathy | *** | *** | *** | | |
| 10. Enteric septicaemia of catfish | *** | *** | *** | | |
| 11. Carp edema virus disease | | | | | |
| 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. Taura syndrome (TS) | - | - | - | III | 1 |
| 2. White spot disease (WSD) | - | - | - | III | |
| 3. Yellowhead disease (YHD) | - | - | - | III | |
| 4. Infectious hypodermal and haematopoietic necrosis (IHHN) | - | - | - | III | |
| 5. Infectious myonecrosis (IMN) | - | - | - | III | |
| 6. White tail disease (MrNV) | +() | - | +() | III | |
| 7. Necrotising hepatopancreatitis (NHP) | *** | *** | *** | | |
| 8. Acute hepatopancreatic necrosis disease (AHPND) | - | - | - | III | |
| 9. 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. Iridovirus in crayfish | | | | | |

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

| AMPHIBIAN DISEASES | | | | | |
|---|--|--|--|--|---|
| OIE-listed diseases | | | | | |
| 1. Infection with Ranavirus | | | | | |
| 2. Infection with <i>Batrachochytrium dendrobatidis</i> | | | | | |
| ANY OTHER DISEASES OF IMPORTANCE | | | | | |
| 1. Parasitic disease | | | | | 2 |
| 2. | | | | | |

| | | | |
|--|--------|---|--|
| DISEASES PRESUMED EXOTIC TO THE REGION^b | | | |
| LISTED BY THE OIE | | | |
| Finfish: Infection with HPR-deleted of HPR0 salmon anemia virus, Infection with salmon pancreas disease virus; Infection with <i>Gyrodactylus salaris</i> . | | | |
| Molluscs: Infection with <i>Bonamia ostreae</i> ; <i>Marteilia refringens</i> ; <i>Perkinsus marinus</i> . | | | |
| Crustaceans: Crayfish plague (<i>Aphanomyces astaci</i>). | | | |
| NOT LISTED BY THE OIE | | | |
| Finfish: Channel catfish virus disease | | | |
| <u>a/</u> 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 | |
| <u>b/</u> 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 33 samples of crustaceans (5 frozen shrimp and 2 soft shell crab for export, and live PL samples of <i>P. vannamei</i> (14 samples), <i>P. monodon</i> (6 sample), live broodstock of <i>P. monodon</i> (4 samples) and <i>M. rosenbergii</i> (1 PL and 1 adult samples) for import and local use) for testing, and found that all samples were negative for WSSV, IHNV, MrNV, and TSV. Some <i>M. rosenbergii</i> samples were found positive for MrNV. |
| 2 | Visited some fish farms in Yangon, Mandalay and Ayeyarwaddy regions during this period. Parasitic infestations (<i>Dactylogyrus</i> spp; <i>Ergasilus</i> spp., and <i>Trichodina</i> spp.) were found in some farms due to poor water quality. |
| 3 | |

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

Country: **NEW CALEDONIA**

 Period: **January - March 2017**

| Item | Disease status ^{al} | | | Level of diagnosis | Epidemiological comment numbers |
|--|------------------------------|----------|-------|--------------------|---------------------------------|
| | Month | | | | |
| DISEASES PREVALENT IN THE REGION | January | February | March | | |
| FINFISH DISEASES | | | | | |
| OIE-listed diseases | | | | | |
| 1. Epizootic haematopoietic necrosis | *** | *** | *** | | |
| 2. Infectious haematopoietic necrosis | *** | *** | *** | | |
| 3. Spring viraemia of carp (SVC) | *** | *** | *** | | |
| 4. Viral haemorrhagic septicaemia (VHS) | *** | *** | *** | | |
| 5. Infection with <i>Aphanomyces invadans</i> (EUS) | *** | *** | *** | | |
| 6. Red seabream iridoviral disease (RSID) | *** | *** | *** | | |
| 7. Koi herpesvirus disease (KHV) | *** | *** | *** | | |
| Non OIE-listed diseases | | | | | |
| 8. Grouper iridoviral disease | *** | *** | *** | | |
| 9. Viral encephalopathy and retinopathy | *** | *** | *** | | |
| 10. Enteric septicaemia of catfish | *** | *** | *** | | |
| 11. Carp edema virus disease | *** | *** | *** | | |
| 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>Xenohalictis californiensis</i> | 0000 | 0000 | 0000 | II | |
| 5. Infection with <i>Bonamia ostreae</i> | 0000 | 0000 | 0000 | II | |
| Non OIE-listed diseases | | | | | |
| 6. Infection with <i>Marteilioides chungmuensis</i> | *** | *** | *** | | |
| 7. Acute viral necrosis (in scallops) | *** | *** | *** | | |
| CRUSTACEAN DISEASES | | | | | |
| OIE-listed diseases | | | | | |
| 1. Taura syndrome (TS) | 0000 | 0000 | 0000 | III | |
| 2. White spot disease (WSD) | 0000 | 0000 | 0000 | III | |
| 3. Yellowhead disease (YHD) | 0000 | 0000 | 0000 | III | |
| 4. Infectious hypodermal and haematopoietic necrosis (IHNN) | 2013 | 2013 | 2013 | III | |
| 5. Infectious myonecrosis (IMN) | 0000 | 0000 | 0000 | III | |
| 6. White tail disease (MrNV) | 0000 | 0000 | 0000 | III | |
| 7. Necrotising hepatopancreatitis (NHP) | 0000 | 0000 | 0000 | III | |
| 8. Acute hepatopancreatic necrosis disease (AHPND) | 0000 | 0000 | 0000 | III | |
| 9. Crayfish plague | 0000 | 0000 | 0000 | III | |
| Non OIE-listed diseases | | | | | |
| 10. Hepatopancreatic microsporidiosis caused by <i>Enterocytozoon hepatopenaei</i> (HPM-EHP) | 0000 | 0000 | 0000 | III | |
| 11. Viral covert mortality disease (VCMD) of shrimps | 0000 | 0000 | 0000 | III | |
| 12. <i>Spiroplasma eriocheiris</i> infection | *** | *** | *** | | |
| 13. Iridovirus in crayfish | *** | *** | *** | | |

| AMPHIBIAN DISEASES | | | | | |
|---|-----|-----|-----|--|--|
| OIE-listed diseases | | | | | |
| 1. Infection with Ranavirus | *** | *** | *** | | |
| 2. Infection with <i>Batrachochytrium dendrobatidis</i> | *** | *** | *** | | |
| ANY OTHER DISEASES OF IMPORTANCE | | | | | |
| 1. | | | | | |
| 2. | | | | | |

| | | | | | |
|--|--|--|--|---|--|
| <p>DISEASES PRESUMED EXOTIC TO THE REGION^b LISTED BY THE OIE Finfish: Infection with HPR-deleted of HPR0 salmon anemia virus, Infection with salmon pancreas disease virus; Infection with <i>Gyrodactylus salaris</i>. Molluscs: Infection with <i>Bonamia ostreae</i>; <i>Marteilia refringens</i>; <i>Perkinsus marinus</i>. Crustaceans: Crayfish plague (<i>Aphanomyces astaci</i>). NOT LISTED BY THE OIE Finfish: Channel catfish virus disease</p> | | | | | |
| <p>a/ Please use the following symbols:</p> <table style="width: 100%; border: none;"> <tbody> <tr> <td style="width: 50%; vertical-align: top;"> <p>+ Disease reported or known to be present +? Serological evidence and/or isolation of causative agent but no clinical diseases ? Suspected by reporting officer but presence not confirmed +() Occurrence limited to certain zones +?() Confirmed infection/infestation limited to one or more zones of the country, but no clinical disease</p> </td> <td style="width: 50%; vertical-align: top;"> <p>?() Presence of the disease suspected but not confirmed in a zone *** No information available 0000 Never reported - Not reported (but disease is known to occur) (year) Year of last occurrence</p> </td> </tr> </tbody> </table> | | | | <p>+ Disease reported or known to be present +? Serological evidence and/or isolation of causative agent but no clinical diseases ? Suspected by reporting officer but presence not confirmed +() Occurrence limited to certain zones +?() Confirmed infection/infestation limited to one or more zones of the country, but no clinical disease</p> | <p>?() Presence of the disease suspected but not confirmed in a zone *** No information available 0000 Never reported - Not reported (but disease is known to occur) (year) Year of last occurrence</p> |
| <p>+ Disease reported or known to be present +? Serological evidence and/or isolation of causative agent but no clinical diseases ? Suspected by reporting officer but presence not confirmed +() Occurrence limited to certain zones +?() Confirmed infection/infestation limited to one or more zones of the country, but no clinical disease</p> | <p>?() Presence of the disease suspected but not confirmed in a zone *** No information available 0000 Never reported - Not reported (but disease is known to occur) (year) Year of last occurrence</p> | | | | |
| <p>b/ If there is suspicion or confirmation of any of these diseases, they must be reported immediately, because the region is considered free of these diseases</p> | | | | | |

1. Epidemiological comments:

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

| Comment No. | |
|-------------|--|
| 1 | |
| 2 | |
| 3 | |

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

Country: NEW ZEALAND
Period: January - March 2017

| Item | Disease status ^{al} | | | Level of diagnosis | Epidemiological comment numbers |
|--|------------------------------|----------|----------|--------------------|---------------------------------|
| | Month | | | | |
| DISEASES PREVALENT IN THE REGION | January | February | March | | |
| FINFISH DISEASES | | | | | |
| OIE-listed diseases | | | | | |
| 1. Epizootic haematopoietic necrosis | 0000 | 0000 | 0000 | 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) | 0000 | 0000 | 0000 | III | |
| 6. Red seabream iridoviral disease (RSID) | 0000 | 0000 | 0000 | III | |
| 7. Koi herpesvirus disease (KHV) | 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 | |
| MOLLUSC DISEASES | | | | | |
| OIE-listed diseases | | | | | |
| 1. Infection with <i>Bonamia exitiosa</i> | - (2016) | - (2016) | - (2016) | III | 1 |
| 2. Infection with <i>Perkinsus olseni</i> | - (2016) | - (2016) | - (2016) | 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> | - (2016) | - (2016) | - (2016) | 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. Taura syndrome (TS) | 0000 | 0000 | 0000 | III | |
| 2. White spot disease (WSD) | 0000 | 0000 | 0000 | III | |
| 3. Yellowhead disease (YHD) | 0000 | 0000 | 0000 | III | |
| 4. Infectious hypodermal and haematopoietic necrosis (IHHN) | 0000 | 0000 | 0000 | III | |
| 5. Infectious myonecrosis (IMN) | 0000 | 0000 | 0000 | III | |
| 6. White tail disease (MrNV) | 0000 | 0000 | 0000 | III | |
| 7. Necrotising hepatopancreatitis (NHP) | 0000 | 0000 | 0000 | III | |
| 8. Acute hepatopancreatic necrosis disease (AHPND) | 0000 | 0000 | 0000 | III | |
| 9. 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. Iridovirus in crayfish | 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 |
| ANY OTHER DISEASES OF IMPORTANCE | | | | | |
| 1. | | | | | |
| 2. | | | | | |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|--|--------|---|--|--|--|--|---|---|-----|---|----|---|-----|--------------------------|---|---|------|----------------|-----|-------------------------------------|---|--|------|--|--------|-------------------------|
| <p>DISEASES PRESUMED EXOTIC TO THE REGION^b LISTED BY THE OIE Finfish: Infection with HPR-deleted of HPR0 salmon anemia virus; Infection with salmon pancreas disease virus; Infection with <i>Gyrodactylus salaris</i>. Molluscs: Infection with <i>Bonamia ostreae</i>; <i>Marteilia refringens</i>; <i>Perkinsus marinus</i>. Crustaceans: Crayfish plague (<i>Aphanomyces astaci</i>). NOT LISTED BY THE OIE Finfish: Channel catfish virus disease</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>a/ Please use the following symbols:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 15%;"></td> <td style="width: 45%;"></td> <td style="width: 15%;"></td> <td style="width: 25%;"></td> </tr> <tr> <td>+</td> <td>Disease reported or known to be present</td> <td>?()</td> <td>Presence of the disease suspected but not confirmed in a zone</td> </tr> <tr> <td>+?</td> <td>Serological evidence and/or isolation of causative agent but no clinical diseases</td> <td>***</td> <td>No information available</td> </tr> <tr> <td>?</td> <td>Suspected by reporting officer but presence not confirmed</td> <td>0000</td> <td>Never reported</td> </tr> <tr> <td>+()</td> <td>Occurrence limited to certain zones</td> <td>-</td> <td>Not reported (but disease is known to occur)</td> </tr> <tr> <td>+?()</td> <td>Confirmed infection/infestation limited to one or more zones of the country, but no clinical disease</td> <td>(year)</td> <td>Year of last occurrence</td> </tr> </table> | | | | | | | | + | 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 |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| + | Disease reported or known to be present | ?() | Presence of the disease suspected but not confirmed in a zone | | | | | | | | | | | | | | | | | | | | | | | | |
| +? | Serological evidence and/or isolation of causative agent but no clinical diseases | *** | No information available | | | | | | | | | | | | | | | | | | | | | | | | |
| ? | Suspected by reporting officer but presence not confirmed | 0000 | Never reported | | | | | | | | | | | | | | | | | | | | | | | | |
| +() | Occurrence limited to certain zones | - | Not reported (but disease is known to occur) | | | | | | | | | | | | | | | | | | | | | | | | |
| +?() | Confirmed infection/infestation limited to one or more zones of the country, but no clinical disease | (year) | Year of last occurrence | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>b/ If there is suspicion or confirmation of any of these diseases, they must be reported immediately, because the region is considered free of these diseases</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | |

1. Epidemiological comments:

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

| Comment No. | |
|-------------|--|
| 1 | <p><i>Bonamia exitiosa</i> occurs in commercial oyster beds in Foveaux Strait, where it is highly prevalent and associated with mortalities in mid to late summer. It occurs intermittently around the South Island and in Wellington Harbour (bottom of the North Island), and has been previously reported in <i>Ostrea chilensis</i> from Hauraki Gulf, Tauranga, 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>), a type of abalone native to New Zealand. Further detections were made in wild <i>H. iris</i> populations in 2014. These mollusc species occur widely around the coast of New Zealand, but to date <i>P. olseni</i> has only been detected in these species from the Auckland region northwards. <i>P. olseni</i> was found for the first time on the South Island in New Zealand green lipped mussels (<i>Perna canaliculus</i>) in a land based aquaculture facility in September 2014, and then in wild New Zealand scallops (<i>Pecten novaezelandiae</i>) in November 2014. Both of these findings were in the Marlborough region, and were incidental and not associated with mortality events.</p> |

| | |
|---|--|
| 3 | <p><i>Bonamia ostreae</i> was detected for the first time in New Zealand flat oysters (<i>Ostrea chilensis</i>) in January 2015 on one land based aquaculture facility in the upper South Island and on two marine oyster farms in the Marlborough Sounds (in the northern part of the South Island). New Zealand initiated a response with the objectives of restricting the spread and determining the geographical extent of the infection. Movement controls have been established to regulate the movement of susceptible shellfish species from the upper South Island to the key flat oyster areas of Southland, Otago and the Chatham Islands. Ongoing surveillance detected Infection with <i>Bonamia ostreae</i> in wild flat oysters within a movement control area in May of 2016, no clinical signs were associated with the finding.</p> |
| 4 | <p>The first isolation of <i>Batrachochytrium dendrobatidis</i> was made in 1999 in New Zealand. Since then the fungus has been detected both on the North and South Islands in both native and introduced frog species. 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: **SINGAPORE***

 Period: **January - March 2017**

| Item | Disease status ^{al} | | | Level of diagnosis | Epidemiological comment numbers |
|--|------------------------------|----------|--------|--------------------|---------------------------------|
| | Month | | | | |
| DISEASES PREVALENT IN THE REGION | January | February | March | | |
| FINFISH DISEASES | | | | | |
| OIE-listed diseases | | | | | |
| 1. Epizootic haematopoietic necrosis | 0000 | 0000 | 0000 | | |
| 2. Infectious haematopoietic necrosis | 0000 | 0000 | 0000 | | |
| 3. Spring viraemia of carp (SVC) | 0000 | 0000 | 0000 | | |
| 4. Viral haemorrhagic septicaemia (VHS) | 0000 | 0000 | 0000 | | |
| 5. Infection with <i>Aphanomyces invadans</i> (EUS) | 0000 | 0000 | 0000 | | |
| 6. Red seabream iridoviral disease (RSID) | (2016) | (2016) | (2016) | | |
| 7. Koi herpesvirus disease (KHV) | (2015) | (2015) | (2015) | | |
| Non OIE-listed diseases | | | | | |
| 8. Grouper iridoviral disease | (2014) | (2014) | (2014) | | |
| 9. Viral encephalopathy and retinopathy | (2016) | (2016) | (2016) | | |
| 10. Enteric septicaemia of catfish | *** | *** | *** | | |
| 11. Carp edema virus disease | *** | *** | *** | | |
| MOLLUSC DISEASES | | | | | |
| OIE-listed diseases | | | | | |
| 1. Infection with <i>Bonamia exitiosa</i> | *** | *** | *** | | |
| 2. Infection with <i>Perkinsus olseni</i> | *** | *** | *** | | |
| 3. Infection with abalone herpesvirus | *** | *** | *** | | |
| 4. Infection with <i>Xenohalictis californiensis</i> | *** | *** | *** | | |
| 5. Infection with <i>Bonamia ostreae</i> | *** | *** | *** | | |
| Non OIE-listed diseases | | | | | |
| 6. Infection with <i>Marteilioides chungmuensis</i> | *** | *** | *** | | |
| 7. Acute viral necrosis (in scallops) | *** | *** | *** | | |
| CRUSTACEAN DISEASES | | | | | |
| OIE-listed diseases | | | | | |
| 1. Taura syndrome (TS) | 0000 | 0000 | 0000 | | |
| 2. White spot disease (WSD) | (2016) | (2016) | (2016) | | |
| 3. Yellowhead disease (YHD) | 0000 | 0000 | 0000 | | |
| 4. Infectious hypodermal and haematopoietic necrosis (IHHN) | 0000 | 0000 | 0000 | | |
| 5. Infectious myonecrosis (IMN) | 0000 | 0000 | 0000 | | |
| 6. White tail disease (MrNV) | *** | *** | *** | | |
| 7. Necrotising hepatopancreatitis (NHP) | 0000 | 0000 | 0000 | | |
| 8. Acute hepatopancreatic necrosis disease (AHPND) | 0000 | 0000 | 0000 | | |
| 9. 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. Iridovirus in crayfish | *** | *** | *** | | |

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

| AMPHIBIAN DISEASES | | | | | |
|---|--------|--------|--------|-----|---|
| OIE-listed diseases | | | | | |
| 1. Infection with Ranavirus | **** | **** | **** | | |
| 2. Infection with <i>Batrachochytrium dendrobatidis</i> | (2016) | (2016) | (2016) | | |
| ANY OTHER DISEASES OF IMPORTANCE | | | | | |
| 1. Megalocytivirus (marine & ornamental fish) | (2016) | (2016) | (2016) | III | 1 |
| 2. <i>Aeromonas salmonicida</i> (in goldfish) | 0000 | 0000 | 0000 | | |

| | | | |
|---|--|--|--|
| <p>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 <i>Gyrodactylus salaris</i>. Molluscs: Infection with <i>Bonamia ostreae</i>; <i>Marteilia refringens</i>; <i>Perkinsus marinus</i>. Crustaceans: Crayfish plague (<i>Aphanomyces astaci</i>). NOT LISTED BY THE OIE Finfish: Channel catfish virus disease</p> | | | |
| <p>a/ Please use the following symbols:</p> <table style="width: 100%; border: none;"> <tbody> <tr> <td style="width: 50%; vertical-align: top;"> <p>+ Disease reported or known to be present</p> <p>+? Serological evidence and/or isolation of causative agent but no clinical diseases</p> <p>? Suspected by reporting officer but presence not confirmed</p> <p>+() Occurrence limited to certain zones</p> <p>+?() Confirmed infection/infestation limited to one or more zones of the country, but no clinical disease</p> </td> <td style="width: 50%; vertical-align: top;"> <p>?() Presence of the disease suspected but not confirmed in a zone</p> <p>*** No information available</p> <p>0000 Never reported</p> <p>- Not reported (but disease is known to occur)</p> <p>(year) Year of last occurrence</p> </td> </tr> </tbody> </table> | | <p>+ Disease reported or known to be present</p> <p>+? Serological evidence and/or isolation of causative agent but no clinical diseases</p> <p>? Suspected by reporting officer but presence not confirmed</p> <p>+() Occurrence limited to certain zones</p> <p>+?() Confirmed infection/infestation limited to one or more zones of the country, but no clinical disease</p> | <p>?() Presence of the disease suspected but not confirmed in a zone</p> <p>*** No information available</p> <p>0000 Never reported</p> <p>- Not reported (but disease is known to occur)</p> <p>(year) Year of last occurrence</p> |
| <p>+ Disease reported or known to be present</p> <p>+? Serological evidence and/or isolation of causative agent but no clinical diseases</p> <p>? Suspected by reporting officer but presence not confirmed</p> <p>+() Occurrence limited to certain zones</p> <p>+?() Confirmed infection/infestation limited to one or more zones of the country, but no clinical disease</p> | <p>?() Presence of the disease suspected but not confirmed in a zone</p> <p>*** No information available</p> <p>0000 Never reported</p> <p>- Not reported (but disease is known to occur)</p> <p>(year) Year of last occurrence</p> | | |
| <p>b/ If there is suspicion or confirmation of any of these diseases, they must be reported immediately, because the region is considered free of these diseases</p> | | | |

1. Epidemiological comments:

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

| Comment No. | |
|-------------|--|
| 1 | <p>Megalocytivirus was detected by real-time PCR in a batch of diseased seabass from a commercial fish farm. The farm had reported low-grade mortalities in this batch of fish. From post-mortem examination, the main findings were those of bacterial involvement; there was no evidence of lesions consistent with Megalocytivirus infection. Hence, it was thought that the PCR detection could possibly have been from previous vaccination.</p> |
| | |

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

Country: **THAILAND***

 Period: **January - March 2017**

| Item | Disease status ^{al} | | | Level of diagnosis | Epidemiological comment numbers |
|--|------------------------------|----------|--------|--------------------|---------------------------------|
| | Month | | | | |
| DISEASES PREVALENT IN THE REGION | January | February | March | | |
| FINFISH DISEASES | | | | | |
| OIE-listed diseases | | | | | |
| 1. Epizootic haematopoietic necrosis | 0000 | 0000 | 0000 | 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 | *** | *** | *** | | |
| 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) | *** | *** | *** | | |
| CRUSTACEAN DISEASES | | | | | |
| OIE-listed diseases | | | | | |
| 1. Taura syndrome (TS) | (2015) | (2015) | (2015) | III | |
| 2. White spot disease (WSD) | +() | +() | +() | III | 2 |
| 3. Yellowhead disease (YHD) | +() | +() | +() | III | 3 |
| 4. Infectious hypodermal and haematopoietic necrosis (IHNN) | +() | - | - | III | 4 |
| 5. Infectious myonecrosis (IMN) | 0000 | 0000 | 0000 | III | |
| 6. White tail disease (MrNV) | (2016) | (2016) | +() | III | 5 |
| 7. Necrotising hepatopancreatitis (NHP) | - | - | - | III | |
| 8. Acute hepatopancreatic necrosis disease (AHPND) | +() | +() | +() | III | 6 |
| 9. 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 | - | - | - | III | |
| 12. <i>Spiroplasma eriocheiris</i> infection | *** | *** | *** | | |
| 13. Iridovirus in crayfish | *** | *** | *** | | |

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| AMPHIBIAN DISEASES | | | | | |
|---|--------|--------|--------|-----|---|
| OIE-listed diseases | | | | | |
| 1. Infection with Ranavirus | (2016) | (2016) | (2016) | III | |
| 2. Infection with <i>Batrachochytrium dendrobatidis</i> | 0000 | 0000 | 0000 | | |
| ANY OTHER DISEASES OF IMPORTANCE | | | | | |
| 1. Tilapia lake virus (TiLV) | + | - | - | III | 8 |
| | | | | | |

| 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 <i>Gyrodactylus salaris</i> . | | | |
| Molluscs: Infection with <i>Bonamia ostreae</i> ; <i>Marteilia refringens</i> ; <i>Perkinsus marinus</i> . | | | |
| Crustaceans: Crayfish plague (<i>Aphanomyces astaci</i>). | | | |
| NOT LISTED BY THE OIE | | | |
| Finfish: Channel catfish virus disease | | | |
| a/ Please use the following symbols: | | | |
| + | Disease reported or known to be present | ? () | 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 828 fish samples from fish farms had been tested at PCR Laboratories of the DOF under active surveillance. 63 specimens or 7.61% recorded as PCR positive for Viral Encephalopathy and Retinopathy (VER) . Fish farm with positive testing results is subjected to health improvement, movement control, eradication and/or farm disinfection. |
| 2 | A total of 3,881 shrimp samples from shrimp farms had been tested at PCR Laboratories of the DOF under active surveillance. 38 specimens or 0.98% recorded as PCR positive or carrying White Spot Syndrome Virus (WSSV) genes. Shrimp farm with positive testing results is subjected to health improvement, movement control, eradication and/or farm disinfection. |
| 3 | A total of 3,881 shrimp samples from shrimp farms had been tested at PCR Laboratories of the DOF under active surveillance. 52 specimens or 1.34% recorded as PCR positive or carrying Yellow Head Virus (YHV) genes. Shrimp farm with positive testing results is subjected to health improvement, movement control, eradication and/or farm disinfection. |

| | |
|---|--|
| 4 | A total of 3,881 shrimp samples from shrimp farms had been tested at PCR Laboratories of the DOF under active surveillance. 36 specimens or 0.93% recorded as PCR positive or carrying Infectious Hypoderma and Haematopoietic Necrosis Vrus (IHHNV) genes. Shrimp farm with positive testing results is subjected to health improvement, movement control, eradication and/or farm disinfection. |
| 5 | A total of 105 shrimp samples from shrimp farms had been tested at PCR Laboratories of the DOF under active surveillance. 60 specimens or 57.14% recorded as PCR positive or carrying Macrobrachium rosenbergii Nodavirus (MrNV) genes. Shrimp farm with positive testing results is subjected to health improvement, movement control, eradication and/or farm disinfection. |
| 6 | A total of 3,881 shrimp samples from shrimp farms had been tested by PCR assay at the DOF's laboratories under active surveillance, 156 specimens or 4.02 % recorded as PCR positive for Acute Hepatopancreatic NecrosisDisease (AHPND) . Shrimp farms with positive testing results have been subjected to shrimp health management control and pond improvement. |
| 7 | A total of 3,881 shrimp samples from shrimp farms had been tested by PCR assay at the DOF's laboratories under active surveillance, 927 specimens or 23.89% recorded as PCR positive for Hepatopancreatic Microsporidiosis caused by Enterocytozoon hepatopenaei (HPM-EHP) . Shrimp farms with positive testing results have been subjected to shrimp health management control and pond improvement. |
| 8 | <p>Since October 2015 tilapia farms have experienced extensive losses, most losses occurred 1 month after transferring from hatchery to grow-out cages. The affected fish exhibited pale color, loss of appetite, gathering in the bottom, slow movement, stopped schooling and eventually died with cumulative mortality 20-90%. The diseased fish samples tested by RT-PCR were positive for TiLV (Orthomyxo-like virus), however most of them were also infected by bacteria and/or external parasites. Until now TiLV disease both in red tilapia (<i>Oreochromis</i> sp.) and Nile tilapia (<i>O. niloticus</i>) have been reported in 11 provinces namely Phetchaburi, Angthong, Chinat, Kanchanaburi, Nakhonratchasrima, Pathumthani, Chachoengsao, Ratchaburi, Samutsongkhram, Phitsanulok and Khonkaen (Dong et al., 2017; Surachetpong et al., 2017). To prevent the spread of the virus, biosecurity is encouraged to accomplish.</p> <p>Publications Dong, H.T., Siriroob, S., Meemetta, W., Santimanawong, W., Gangnonngiw, W., Pirarat, N., Khunrae, P., Rattanaojpong, T., Vanichviriyakit, R. and Senapin, S. 2017. Emergence of tilapia lake virus in Thailand and an alternative semi-nested RT-PCR for detection. <i>Aquaculture</i>, doi: 10.1016/j.aquaculture.2017.04.019</p> <p>Surachetpong, W., Janetanakit, T., Nonthabenjawan, N., Tattiyapong, P., Sirikanchana, K. and Amonsin, A. 2017. Outbreaks of tilapia lake virus infection, Thailand, 2015-2016. <i>Emerging Infectious Diseases</i>, https://dx.doi.org/10.3201/eid2306.161278</p> |

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

Country: VIETNAM*

Period: January - March 2017

| Item | Disease status ^{al} | | | Level of diagnosis | Epidemiological comment numbers |
|--|------------------------------|----------|-------|--------------------|---------------------------------|
| | Month | | | | |
| DISEASES PREVALENT IN THE REGION | January | February | March | | |
| FINFISH DISEASES | | | | | |
| OIE-listed diseases | | | | | |
| 1. Epizootic haematopoietic necrosis | 0000 | 0000 | 0000 | | |
| 2. Infectious haematopoietic necrosis | 0000 | 0000 | 0000 | | |
| 3. Spring viraemia of carp (SVC) | 0000 | 0000 | 0000 | | |
| 4. Viral haemorrhagic septicaemia (VHS) | 0000 | 0000 | 0000 | | |
| 5. Infection with <i>Aphanomyces invadans</i> (EUS) | - | - | - | | |
| 6. Red seabream iridoviral disease (RSID) | 0000 | 0000 | 0000 | | |
| 7. Koi herpesvirus disease (KHV) | 0000 | 0000 | 0000 | | |
| Non OIE-listed diseases | | | | | |
| 8. Grouper iridoviral disease | 0000 | 0000 | 0000 | | |
| 9. Viral encephalopathy and retinopathy | 0000 | 0000 | 0000 | | |
| 10. Enteric septicaemia of catfish | + | + | + | I, III | 1 |
| 11. Carp edema virus disease | 0000 | 0000 | 0000 | | |
| MOLLUSC DISEASES | | | | | |
| OIE-listed diseases | | | | | |
| 1. Infection with <i>Bonamia exitiosa</i> | 0000 | 0000 | 0000 | | |
| 2. Infection with <i>Perkinsus olseni</i> | - | - | - | | |
| 3. Infection with abalone herpesvirus | 0000 | 0000 | 0000 | | |
| 4. Infection with <i>Xenohalictis californiensis</i> | 0000 | 0000 | 0000 | | |
| 5. Infection with <i>Bonamia ostreae</i> | 0000 | 0000 | 0000 | | |
| Non OIE-listed diseases | | | | | |
| 6. Infection with <i>Marteilioides chungmuensis</i> | 0000 | 0000 | 0000 | | |
| 7. Acute viral necrosis (in scallops) | 0000 | 0000 | 0000 | | |
| CRUSTACEAN DISEASES | | | | | |
| OIE-listed diseases | | | | | |
| 1. Taura syndrome (TS) | 0000 | 0000 | 0000 | | |
| 2. White spot disease (WSD) | + | + | + | I, III | 2 |
| 3. Yellowhead disease (YHD) | - | - | - | | |
| 4. Infectious hypodermal and haematopoietic necrosis (IHHN) | 0000 | 0000 | 0000 | | |
| 5. Infectious myonecrosis (IMN) | 0000 | 0000 | 0000 | | |
| 6. White tail disease (MrNV) | - | - | - | | |
| 7. Necrotising hepatopancreatitis (NHP) | 0000 | 0000 | 0000 | | |
| 8. Acute hepatopancreatic necrosis disease (AHPND) | + | + | + | I, III | 3 |
| 9. Crayfish plague | 0000 | 0000 | 0000 | | |
| Non OIE-listed diseases | | | | | |
| 10. Hepatopancreatic microsporidiosis caused by <i>Enterocytozoon hepatopenaei</i> (HPM-EHP) | 0000 | 0000 | 0000 | | |
| 11. Viral covert mortality disease (VCMD) of shrimps | 0000 | 0000 | 0000 | | |
| 12. <i>Spiroplasma eriocheiris</i> infection | 0000 | 0000 | 0000 | | |
| 13. Iridovirus in crayfish | 0000 | 0000 | 0000 | | |

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

| 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 | | | | | |
| | | | | | |

| | | | |
|--|--|---|--|
| <p>DISEASES PRESUMED EXOTIC TO THE REGION^b LISTED BY THE OIE Finfish: Infection with HPR-deleted of HPR0 salmon anemia virus, Infection with salmon pancreas disease virus; Infection with <i>Gyrodactylus salaris</i>. Molluscs: Infection with <i>Bonamia ostreae</i>; <i>Marteilia refringens</i>; <i>Perkinsus marinus</i>. Crustaceans: Crayfish plague (<i>Aphanomyces astaci</i>). NOT LISTED BY THE OIE Finfish: Channel catfish virus disease</p> | | | |
| <p><u>a/</u> Please use the following symbols:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <p>+ Disease reported or known to be present +? Serological evidence and/or isolation of causative agent but no clinical diseases ? Suspected by reporting officer but presence not confirmed +() Occurrence limited to certain zones +?() Confirmed infection/infestation limited to one or more zones of the country, but no clinical disease</p> </td> <td style="width: 50%; vertical-align: top;"> <p>?() Presence of the disease suspected but not confirmed in a zone *** No information available 0000 Never reported - Not reported (but disease is known to occur) (year) Year of last occurrence</p> </td> </tr> </table> | | <p>+ Disease reported or known to be present +? Serological evidence and/or isolation of causative agent but no clinical diseases ? Suspected by reporting officer but presence not confirmed +() Occurrence limited to certain zones +?() Confirmed infection/infestation limited to one or more zones of the country, but no clinical disease</p> | <p>?() Presence of the disease suspected but not confirmed in a zone *** No information available 0000 Never reported - Not reported (but disease is known to occur) (year) Year of last occurrence</p> |
| <p>+ Disease reported or known to be present +? Serological evidence and/or isolation of causative agent but no clinical diseases ? Suspected by reporting officer but presence not confirmed +() Occurrence limited to certain zones +?() Confirmed infection/infestation limited to one or more zones of the country, but no clinical disease</p> | <p>?() Presence of the disease suspected but not confirmed in a zone *** No information available 0000 Never reported - Not reported (but disease is known to occur) (year) Year of last occurrence</p> | | |
| <p><u>b/</u> If there is suspicion or confirmation of any of these diseases, they must be reported immediately, because the region is considered free of these diseases</p> | | | |

1. Epidemiological comments:

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

| Comment No. | |
|-------------|---|
| 1 | <p>Enteric Septicaemia of Catfish (<i>Edwardsiella ictaluri</i>)</p> <p>Infection found in intensive catfish (<i>Pangasius micronema</i>, <i>P. hypophthalmus</i>) farms. The disease occurred in An Giang and Dong Thap province (16.6 ha).</p> |
| 2 | <p>White Spot Disease (WSD)</p> <p>Pathogen: White spot syndrome virus (WSSV) Species affected: <i>Penaeus monodon</i> and <i>Litopenaeus vannamei</i> (10-100 DOC) Name of affected area: reported in 16 provinces (total area 838.89 ha) including Nghe An, Ha Tinh, Quang Tri, Thua Thien Hue, Quang Nam, Ho Chi Minh, Ninh Thuan, Ba Ria-Vung Tau, Long An, Tien Giang, Ben Tre, Tra Vinh, Kien Giang, Soc Trang, Bac Lieu and Ca Mau. Mortality rate: average to high, 100% in some cases within 10 d. Clinical signs: lethargic or moribund shrimps aggregated at pond surface and edges, slow to erratic swimming behavior, overall body color often reddish, minute to large (0.5-2.0 mm diameter) white inclusions embedded in the cuticle; Control measures: early harvest, strict isolation of infected ponds from movement, strengthened control of transportation, disinfection of infected ponds using Calcium hypochlorite (chlorine).</p> |

| | |
|---|---|
| 3 | <p>Acute Hepatopancreatic Necrosis Disease (AHPND)</p> <p>Pathogen: <i>Vibrio parahaemolyticus</i> with Phage A3 Species affected: <i>Penaeus monodon</i> and <i>Litopenaeus vannamei</i> (10-45 DOC) Name of affected area: reported in 12 provinces and caused losses in total shrimp culture area of 543.76 ha. Affected provinces Quang Ninh, Nghe An, Quang Tri, Quang Nam, Ho Chi Minh, Tien Giang, Ben Tre, Tra Vinh, Kien Giang, Soc Trang, Bac Lieu and Ca Mau. Mortality rate: could reach 95% in intensive and semi-intensive farms; Clinical signs: shrimps become lethargic with soft, darkened shells, mottling of the carapace. Pathology is limited to hepatopancreas. Control measures: strict isolation of infected ponds from movement and transport controls, disinfection of infected ponds using Calcium hypochlorite (chlorine).</p> |
|---|---|

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

Country: FRENCH POLYNESIA
Period: January - March 2017

| Item | Disease status ^{al} | | | Level of diagnosis | Epidemiological comment numbers |
|--|------------------------------|----------|--------|--------------------|---------------------------------|
| | Month | | | | |
| DISEASES PREVALENT IN THE REGION | January | February | March | | |
| FINFISH DISEASES | | | | | |
| OIE-listed diseases | | | | | |
| 1. Epizootic haematopoietic necrosis | *** | *** | *** | | |
| 2. Infectious haematopoietic necrosis | *** | *** | *** | | |
| 3. Spring viraemia of carp (SVC) | *** | *** | *** | | |
| 4. Viral haemorrhagic septicaemia (VHS) | *** | *** | *** | | |
| 5. Infection with <i>Aphanomyces invadans</i> (EUS) | *** | *** | *** | | |
| 6. Red seabream iridoviral disease (RSID) | *** | *** | *** | III | |
| 7. Koi herpesvirus disease (KHV) | *** | *** | *** | | |
| Non OIE-listed diseases | | | | | |
| 8. Grouper iridoviral disease | *** | *** | *** | | |
| 9. Viral encephalopathy and retinopathy | (2005) | (2005) | (2005) | III | 1 |
| 10. Enteric septicaemia of catfish | *** | *** | *** | | |
| 11. Carp edema virus disease | *** | *** | *** | | |
| MOLLUSC DISEASES | | | | | |
| OIE-listed diseases | | | | | |
| 1. Infection with <i>Bonamia exitiosa</i> | 0000 | 0000 | 0000 | III | 2 |
| 2. Infection with <i>Perkinsus olseni</i> | + | + | + | III | 2 |
| 3. Infection with abalone herpesvirus | | | | | 4 |
| 4. Infection with <i>Xenohaliotis californiensis</i> | *** | *** | *** | | |
| 5. Infection with <i>Bonamia ostreae</i> | 0000 | 0000 | 0000 | III | 2 |
| Non OIE-listed diseases | | | | | |
| 6. Infection with <i>Marteilioides chungmuensis</i> | 0000 | 0000 | 0000 | II | 2 |
| 7. Acute viral necrosis (in scallops) | | | | | |
| CRUSTACEAN DISEASES | | | | | |
| OIE-listed diseases | | | | | |
| 1. Taura syndrome (TS) | 0000 | 0000 | 0000 | III | 3 |
| 2. White spot disease (WSD) | 0000 | 0000 | 0000 | III | 3 |
| 3. Yellowhead disease (YHD) | 0000 | 0000 | 0000 | III | 3 |
| 4. Infectious hypodermal and haematopoietic necrosis (IHHN) | (2008) | (2008) | (2008) | III | 3 |
| 5. Infectious myonecrosis (IMN) | 0000 | 0000 | 0000 | III | 3 |
| 6. White tail disease (MrNV) | 0000 | 0000 | 0000 | III | 3 |
| 7. Necrotising hepatopancreatitis (NHP) | 0000 | 0000 | 0000 | III | 3 |
| 8. Acute hepatopancreatic necrosis disease (AHPND) | *** | *** | *** | | |
| 9. Crayfish plague | | | | | 4 |
| Non OIE-listed diseases | | | | | |
| 10. Hepatopancreatic microsporidiosis caused by <i>Enterocytozoon hepatopenaei</i> (HPM-EHP) | | | | | 4 |
| 11. Viral covert mortality disease (VCMD) of shrimps | *** | *** | *** | | |
| 12. <i>Spiroplasma eriocheiris</i> infection | | | | | |
| 13. Iridovirus in crayfish | *** | *** | *** | | |

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| AMPHIBIAN DISEASES | | | | | |
| OIE-listed diseases | | | | | |
| 1. Infection with Ranavirus | | | | | 4 |
| 2. Infection with <i>Batrachochytrium dendrobatidis</i> | | | | | 4 |
| ANY OTHER DISEASES OF IMPORTANCE | | | | | |
| 1. | | | | | |
| 2. | | | | | |

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| <p>DISEASES PRESUMED EXOTIC TO THE REGION^b LISTED BY THE OIE Finfish: Infection with HPR-deleted of HPR0 salmon anemia virus, Infection with salmon pancreas disease virus; Infection with <i>Gyrodactylus salaris</i>. Molluscs: Infection with <i>Bonamia ostreae</i>; <i>Marteilia refringens</i>; <i>Perkinsus marinus</i>. Crustaceans: Crayfish plague (<i>Aphanomyces astaci</i>). NOT LISTED BY THE OIE Finfish: Channel catfish virus disease</p> | | | |
| <p>a/ Please use the following symbols:</p> | | | |
| + | Disease reported or known to be present | ?() | Presence of the disease suspected but not confirmed in a zone |
| +? | Serological evidence and/or isolation of causative agent but no clinical diseases | *** | No information available |
| ? | Suspected by reporting officer but presence not confirmed | 0000 | Never reported |
| +() | Occurrence limited to certain zones | - | Not reported (but disease is known to occur) |
| +?() | Confirmed infection/infestation limited to one or more zones of the country, but no clinical disease | (year) | Year of last occurrence |
| <p>b/ If there is suspicion or confirmation of any of these diseases, they must be reported immediately, because the region is considered free of these diseases</p> | | | |

1. Epidemiological comments:

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

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| Comment No. | |
| 1 | <p>Viral encephalopathy and retinopathy was first diagnosed in the breeders of <i>Lates calcarifer</i> (1989). In 2004, the disease caused mass mortality in <i>Platus orbicularis</i> and <i>Polydactylus sexifilis</i> breeders. Since 2005, the experimental hatchery of <i>P. orbicularis</i> is biosecured. Only broodstock (sourced from the wild) free of nodavirus are maintained. Annual check of all broodstok and larvae is made. Since 2005, no sample was found positive.</p> |
| 2 | <p>Bonamiosis and Marteiosis: not reported since the start of active surveillance in 2003 in <i>Pinctada margaritifera</i>.</p> <p>Since January 2012, pearl oyster network has been extended to giant clam and <i>Perkinsus olseni</i> was detected by PCR in wild specimen of <i>Tridacna maxima</i> (PYF 06-12-12 OIE Alert). <i>P. olseni</i> was also detected in <i>Pinctada margaritifera</i> (OIE Report 13451, May 14th 2013).</p> |

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| 3 | <p>In 2008 and 2010, a survey of all production units was conducted and samples (30/unit) were sent out for analysis to Aquaculture Pathology Laboratory, University of Arizona (Prof. Lightner). None of the important shrimp viruses was detected. Positive isolation was last reported in 2001 in <i>Penaeus vannamei</i>, a non-indigenous species which is no longer cultivated in the country and considered extinct since 2005. Similar survey was done in 2011 and 2012. In 2013, detection for TS, WSD and IHNV were done in the country, and all results were negative. No mortality was observed in <i>Litopenaeus stylirostris</i> during this period.</p> |
| 4 | <p>Susceptible species are not present in the country.</p> |

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

List of Diseases in the Asia-Pacific

Quarterly Aquatic Animal Disease Report (Beginning 2017)

| 1. DISEASES PREVALENT IN THE REGION | |
|---|---|
| 1.1 FINFISH DISEASES | |
| OIE-listed diseases | Non OIE-listed diseases |
| 1. Epizootic haematopoietic necrosis | 1. Grouper iridoviral disease |
| 2. Infectious haematopoietic necrosis | 2. Viral encephalopathy and retinopathy |
| 3. Spring viraemia of carp (SVC) | 3. Enteric septicaemia of catfish |
| 4. Viral haemorrhagic septicaemia (VHS) | 4. Carp edema virus disease |
| 5. Infection with <i>Aphanomyces invadans</i> (EUS) | |
| 6. Red seabream iridoviral disease (RSID) | |
| 7. Koi herpesvirus disease (KHV) | |
| 1.2 MOLLUSC DISEASES | |
| OIE-listed diseases | Non OIE-listed diseases |
| 1. Infection with <i>Bonamia exitiosa</i> | 1. Infection with <i>Marteilioides chungmuensis</i> |
| 2. Infection with <i>Perkinsus olseni</i> | 2. Acute viral necrosis (in scallops) |
| 3. Infection with abalone herpesvirus | |
| 4. Infection with <i>Xenohalotis californiensis</i> | |
| 5. Infection with <i>Bonamia ostreae</i> | |
| 1.3 CRUSTACEAN DISEASES | |
| OIE-listed diseases | Non OIE-listed diseases |
| 1. Taura syndrome (TS) | 1. Hepatopancreatic microsporidiosis caused by <i>Enterocytozoon hepatopenaei</i> (HPM-EHP) |
| 2. White spot disease (WSD) | 2. Viral covert mortality disease (VCMD) of shrimps |
| 3. Yellowhead disease (YHD) | 3. <i>Spiroplasma eriocheiris</i> infection |
| 4. Infectious hypodermal and haematopoietic necrosis (IHHN) | 4. Iridovirus in crayfish |
| 5. Infectious myonecrosis (IMN) | |
| 6. White tail disease (MrNV) | |
| 7. Necrotising hepatopancreatitis (NHP) | |
| 8. Acute hepatopancreatic necrosis disease (AHPND) | |
| 9. Crayfish plague | |
| 1.4 AMPHIBIAN DISEASES | |
| OIE-listed diseases | Non OIE-listed diseases |
| 1. Infection with Ranavirus | |
| 2. Infection with <i>Bachtracochytrium dendrobatidis</i> | |
| 2. DISEASES PRESUMED EXOTIC TO THE REGION | |
| 2.1 Finfish | |
| OIE-listed diseases | Non OIE-listed diseases |
| 1. Infection with HPRdeleted or HPR0 salmon anaemia virus | 1. Channel catfish virus disease |
| 2. Infection with salmon pancreas disease virus | |
| 3. Infection with <i>Gyrodactylus salaris</i> | |
| 2.2 Molluscs | |
| OIE-listed diseases | Non OIE-listed diseases |
| 1. Infection with <i>Marteilia refringens</i> | |
| 2. Infection with <i>Perkinsus marinus</i> | |

Recent Aquatic Animal Health Related Publications

OIE Aquatic Animal Health Code, 20th Edition, 2017. The OIE Aquatic Animal Health Code (the Aquatic Code) sets out standards for the improvement of aquatic animal health and welfare of farmed fish worldwide, and for safe international trade in aquatic animals (amphibians, crustaceans, fish and molluscs) and their products. The health measures in the Aquatic Code should be used by the Competent Authorities of importing and exporting countries for early detection, reporting and control of agents pathogenic to aquatic animals and to prevent their transfer 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 20th edition incorporates modifications to the Aquatic Code agreed at the 85th General Session in May 2017. It includes: revisions to several definitions in the glossary; Chapter 1.2. 'Criteria for listing aquatic animal diseases' has been extensively amended to align with the corresponding chapter in the OIE Terrestrial Animal Health Code; a new disease, *Batrachochytrium salamandrivorans*, has been added to Chapter 1.3. 'Diseases listed by the OIE' and some disease names have been amended; minor amendments have been made in Chapters 4.3. 'Disinfection of aquaculture establishments and equipment', 4.4. 'Recommendations for surface disinfection of salmonid eggs' and 5.1. 'General obligations related to certification'; a number of horizontal amendments were made in all crustacean disease-specific chapters, to improve readability. In addition, the list of susceptible species in Article X.X.2. in Chapters 9.2., 9.3., 9.4., 9.5., 9.6. and 9.8. was reviewed and amended, where relevant, after consideration of the application of the 'Criteria for listing species as susceptible to infection with a specific pathogen' (Chapter 1.5.); a new chapter on acute hepatopancreatic necrosis disease (Chapter 9.1.) has been added; Article X.X.8. in all disease-specific chapters was revised to more adequately describe the requirements for the importation of aquatic animals for aquaculture from a country, zone or compartment not declared free from disease X; the year that a chapter was first adopted and the year of last revision are noted at the end of each chapter. In this regard the OIE has made every endeavour to ensure the accuracy of this information based on our historical records. The Aquatic Animal Health Code is available for free download <http://www.oie.int/en/international-standard-setting/aquatic-code/access-online/>

OIE Manual of Diagnostic Tests for Aquatic Animals, 2017. The purpose of this Manual of Diagnostic Tests for Aquatic Animals (Aquatic Manual) is to provide a uniform approach to the detection of the diseases listed in the OIE Aquatic Code, so that the requirements for health certification in connection with disease prevention and control programmes, and trade in aquatic animals and aquatic animal products can be met. Although many publications exist on the detection and control of aquatic animal diseases, the Aquatic Manual is a key and unique document describing the methods that should be applied to the OIE-listed diseases in aquatic animal health laboratories all over the world, thus increasing efficiency and promoting improvements in aquatic animal health world-wide. The requirements published in this Aquatic Manual are recognised as international standards by the WTO. The manual is available for free download at <http://www.oie.int/international-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 |
|-------------------|---|
| Australia | <p>Dr. Ingo Ernst* Aquatic Animal Health Unit Office of the Chief Veterinary Officer Department of Agriculture, Fisheries and Forestry GPO Box 858, Canberra ACT 2601, Fax: +61-2-6272 3150; Tel: +61-2-6272 4328 Email: ingo.ernst@agriculture.gov.au</p> <p>Dr. Herbert Brett* Aquatic Animal Health Unit , Office of the Chief Veterinary Officer Department of Agriculture, Fisheries and Forestry GPO Box 858, Canberra ACT 2601 Fax: +61 2 6272 3150; tel: +61 2 6272 4009 E-mail: brett.herbert@agriculture.gov.au</p> <p>Dr. Yuko Hood** Principal Science Officer, Aquatic Pest and Health Policy Department of Agriculture and Water Resources GPO Box 858, 7 London Circuit Canberra, ACT 2601 Phone: +61 2 6272 3024 E-mail: yuko.hood@agriculture.gov.au</p> |
| Bangladesh | <p>Dr. M. G. Hussain* Director General, Bangladesh Fisheries Research Institute (BFRI) Mymensingh 2201, Bangladesh Fax: +880-91-66559, Tel: +880-91-65874 E-mail: hussain.bfri@gmail.com; dg@fri.gov.bd; dgbfri@gmail.com</p> <p>Dr. Md. Forhadul Alam** Assistant Director (Animal Health) Department of Livestock Services Ministry of Fisheries and Livestock Prani Sampad Bhaban, Krishikhamar Sarak Farmgate, Dhaka 1215 Tel: 880-2911-5968 E-mail: forhadul1961@gmail.com</p> |
| Bhutan | <p>Mr. Dorji Namgay** Program Director National Aquaculture Centre Department of Livestock Ministry of Agriculture and Forests Gelephu, Sarpang Tel: 975-625-1190 Fax: 975-625-1201 E-mail: namgaydorji@moaf.gov.bt; ricochets425@gmail.com</p> |

| | |
|-----------------------|---|
| Brunei | <p>Mr. Haji Hallidi Salleh** Acting Director of Fisheries Department of Fisheries Ministry of Industry and Primary Resources Menteri Besar Road, Bandar Seri Begawan Tel: 673-2383067 Fax: 6732382069 E-mail: halidi.salleh@fisheries.gov.bn</p> |
| Cambodia | <p>Mr. Chheng Phen* Acting Director Inland Fisheries Research and Development Institute (IFReDI) Fisheries Administration, # 186, Norodom Blvd., PO Box 582, Phnom Penh, Cambodia Phone: +855 23 221485 E-mail: chhengp@yahoo.com</p> <p>Dr. Chin Da** Director of the Aquatic Division of the Fisheries Administration of Cambodia P.O.Box: 2447, Phnom Penh-3 Tel: 855 23 996 380 E-mail: chinda77@yahoo.com</p> |
| P.R. China | <p>Dr. Dongyue Feng** Engineer National Fishery Technical Extension Center Building 18, Maizidian Street Chaoyang District Center Beijing 100125 Tel: 86-138-119-564-67 E-mail: fengdy76@sina.com</p> |
| Chinese Taipei | <p>Dr Heng Yi Wu** Specialist Bureau of Animal and Plant Health Inspection and Quarantine Council of Agriculture, Executive Yuan 10F, No.100, Sec. 2, Heping W. Rd, Zhongzheng Dist, Taipei City 10070 Tel: 886-2-8978-7925 E-mail: hanker@mail.baphiq.gov.tw</p> |
| Fiji | <p>Dr. Bhaheerathan Kanagasapapathy** Acting Chief Veterinary Officer Biosecurity Authority of Fiji Level 3, Provident Plaza 1, Ellery Street Suva Tel: 679 3312512 Fax: 679 33 05 043 E-mail: kanagasapapathy@baf.com.fj</p> |

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| <p>Hong Kong China</p> | <p>Ms Joanne On-on Lee* Fisheries Officer (Aquaculture Environment) Agriculture, Fisheries and Conservation Department 8/F, Cheung Sha Wan Government Offices 303 Cheung Sha Wan Road Fax: +852 21520383; Tel: +852 21506808 E-mail: joanne_oo_lee@afcd.gov.hk</p> |
| <p>India</p> | <p>Mr. Intisar Anees Siddiqui* Fisheries Research & Investigation Officer Department of Animal Husbandry, Dairying and Fisheries Ministry of Agriculture, Krishi Bhawan, New Delhi 110114 Tel: +91-11-23389419/23097013 Fax: +91-11-23070370/23384030 E-mail: intisarsiddiqui@yahoo.co.in</p> <p>Mr. Joshi Aditya Kumar** Joint Secretary (Fisheries) Department of Animal Husbandry, Dairying & Fisheries Ministry of Agriculture & Farmers Welfare Krishi Bhawan, New Delhi 110001 Tel: 91-11-23381994 Fax: 91-11-23070370 E-mail: jsfy@nic.in</p> |
| <p>Indonesia</p> | <p>Dr. Maskur* Director of, Fish Health and Environment Directorate General of Aquaculture Ministry of Marine Affairs and Fisheries Jl. TB. Simatupang Kav.1, JakartaHarsono RM No. 3, Gedung Ps. Minggu Jakarta Selatan Fax: +62 2129 40 6800; Tel: +62 2129 40 6800 E-mail: maskurfish@gmail.com</p> <p>Mr. Arik Hari Wibowo** Director of Aquaculture Regional Development and Fish Health Directorate General of Aquaculture Ministry of Marine Affairs and Fisheries Minabahari IV Lantai VI Jl. Medan Merdeka Timur No. 16, Jakarta Pusat, Jakarta Fax: +62 2135 14724; Tel.: +62 2135 19070 E-mail: hariwibowoarik@gmail.com</p> |
| <p>Iran</p> | <p>Dr. Kazem Abdi Khazineh Jadid*/** Director General, Aquatic Animal Health Department Iran Veterinary Organization Ministry of Jihad-E-Agriculture Seyed Jamaledin Asad-Abadi St., Vali-Asr Ave. P.O.Box 14155-6349, Tehran, Iran Tel: +98-21-88966877; Fax: +98-21-88957252 E-mail: kazemabdy@yahoo.com</p> |

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| <p>Japan</p> | <p>Ms. Hiroko Sakamoto** Director Fish and Fishery Products Safety Office Animal Products Safety Division Food Safety and Consumer Affairs Bureau Ministry of Agriculture, Forestry and Fisheries 1-2-1 Kasumigaseki, Chiyoda-ku Tokyo 100-8950 Tel: +81-3-3502-8098 Fax: +81-3-3501-2685 E-mail: suisan_boueki@maff.go.jp</p> |
| <p>DPR Korea</p> | <p>Mr. Chong Yong Ho* Director of Fish Farming Technical Department, Bureau of Freshwater Culture Sochangdong Central District, P.O.Box. 95 , Pyongyang, Fax: +850-2-814416; Tel: 3816001, 3816121</p> <p>Dr. Yun Ki Man** Veterinary Expert Veterinary and Anti-Epizootic Department Ministry of Agriculture Jungsong-Dong, Sungri Street Central District, Pyongyang Tel: 850-21-811-138-182-78 E-mail: MOAECD@silibank.com</p> |
| <p>Republic of Korea</p> | <p>Dr. Myoung Ae Park**/* Director, Pathology Division National Fisheries Research and Development Institute 152-1, Haeanro, Gijang-up Gijang-gun, Busan 619-705 Tel: +82-51-7202470 E-mail: mapark@nfrdi.go.kr</p> <p>Dr. Sung Hang Yoon** Quarantine Officer National Fisheries Products Quality Management Services 106 Haulmeaulro, Ilsandong-gu Goyang-si Tel: 82-31-929-4692 E-mail: ysha78@korea.kr</p> |

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| <p>Lao PDR</p> | <p>Mrs. Thongphoun Theungphachanh* Quality Control Animal Product Department of Livestock and Fisheries DLF PO Box 811, Lao PDR Fax : +856 21 216380; Tel: +856 21 216380 or Mobile: +856 20 772 1115 Email: theungphachan@yahoo.com</p> <p>Dr. Bounthong Saphakdy* Director of Fisheries Division Department of Livestock and Fisheries DLF P.O. Box 811, Lao PDR E-mail: saphakdy@yahoo.com</p> <p>Mr. Akhane Phomsouvanh** Deputy Director Division of Fisheries Department of Livestock and Fisheries P.O. Box 6644, Vientiane 01000 Tel: 856-2121-7869" E-mail: akhane@live.com</p> |
| <p>Malaysia</p> | <p>Dr. Kua Beng Chu*/** Director National Fish Health Reserach Division 11960 Batu Maung Penang Palau Pinang Tel: +604 626 3922 E-mail: kbengchu@yahoo.com</p> |
| <p>Maldives</p> | <p>Dr. Shafiya Naeem** Senior Research Officer Marine Research Center Ministry of Fisheries and Agriculture H. White Wave, Moonlight Higon Male' - 20096 Tel: 960-332-2242 Fax: 960-332-6558 E-mail: snaeem@mrc.gov.mv; shafiyanaeem@gmail.com</p> |
| <p>Micronesia, Fed. States of</p> | <p>Mr Valentin Martin** Deputy Assistant Secretary Marine Resources Unit Department of Resources & Development P.O Box PS-12 Palikir, Phonpei, FM96941 Tel: 691-320-2620/5133/2646 Fax: 691-320-5854 E-mail: fsmmrd@mail.fm</p> |
| <p>Mongolia</p> | <p>Dr Tsengee Sugir** State Central Veterinary Laboratory Khan-uul district, Zaisan P.O. Box 53/03 Ulaanbaatar 210153 Tel: 976-341651-18 Fax: 976-11-70111050 E-mail: ssugar352000@yahoo.com</p> |

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|-----------------------------|---|
| <p>Myanmar</p> | <p>Mr. U Saw Lah Pah Wah* Department of Fisheries, Ministry of Livestock and Fisheries Sin Minn Road, Alone Township, Yangon, Myanmar Fax: +95 01 228-253; Tel: +95 01 283-304/705-547 E-mail: dof@mptmail.net.mm</p> <p>Dr Kyaw Naing Oo** Director, Livestock Zone Livestock Breeding and Veterinary Department Ministry of Agriculture, Livestock and Irrigation Office No. (36), Yaza Thingaha Road, Ottaya Thiri Township Nay Pyi Taw Fax: +95 067 408342; Tel: +95 9250066212 E-mail: kyaw87vet@gmail.com</p> |
| <p>Nepal</p> | <p>Mr Ram Prasad Panta*/** Senior Fisheries Development Officer Central Fisheries Laboratory Central Fisheries Building Balaju, Machhapokhari, Kathmandu Tel: 977-1-4385854 Fax: 977-1-4350833 E-mail: rppanta13@gmail.com</p> <p>Mr Rama Nanda MISHRA** Program Director Directorate of Fisheries Development Central Fisheries Building Machhapokharia, Balau, Kathmandu Tel: 977-98-511-32-662 E-mail: aryanmishra017@gmail.com</p> |
| <p>New Caledonia</p> | <p>Dr. Stéphanie Sourget** Veterinarian Veterinary, Food and Rural Affairs Department Veterinary, Food and Phytosanitary Service B.P. 256, 98845 Noumea Tel: 687-24-37-45 / 79-83-64 Fax: 687-25-11-12 E-mail: stephanie.sourget@gouv.nc; davar.sivap@gouv.nc</p> |
| <p>New Zealand</p> | <p>Dr. Rissa Williams** Incursion Investigator Ministry for Primary Industries PO Box 40742, Upper Hutt 5140 Wellington Tel: +64 4 894 5698 E-mail: Rissa.Williams@mpi.govt.nz</p> |

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|--------------------------------|---|
| <p>Pakistan</p> | <p>Mr. Anser Mahmood Chatta* Deputy Fisheries Development Commissioner Livestock Division, Ministry of Food, Agriculture and Livestock 10th Floor, Shaheed-e-Millat Secretariat (Livestock Wing) I Islamabad, Pakistan Fax: +9251 9212630; Tel: +9251 9208267, ansermchatta@yahoo.com</p> <p>Dr. Mansood Hussan Khan** Research Officer Ministry of National Food Security and Research E-mail: khurshid_65@hotmail.com</p> |
| <p>Papua New Guinea</p> | <p>Mr. Wani Jacob Aruma** Advisor Aquaculture and Inland Fisheries Unit National Fisheries Authority P.O.Box 2016 Port Moresby, National Capital District Tel: 675-3090-444 Fax: 675-320-2061 E-mail: jwani@fisheries.gov.pg; jacobaruma.wani@gmail.com</p> |
| <p>Philippines</p> | <p>Dr. Joselito R. Somga*/** Aquaculturist II, Fish Health Section, BFAR 860 Arcadia Building, Quezon Avenue, Quezon City 1003 Fax: +63 2 3725055/4109987; Tel: +63 2 3723878 loc206 or 4109988 to 89 E-mail: jsomga@bfar.da.gov.ph</p> |
| <p>Singapore</p> | <p>Mr. Hanif Loo Jang Jing* Programme Executive (Aquaculture) Aquaculture Branch Food Supply & Technology Department Agri-Food & Veterinary Authority of Singapore 5 Maxwell Road, #01-00, Tower Block, MND Complex, Singapore 069110 Fax: +65 63257677; Tel: +65 63257636; Email: loo_jang_jing@ava.gov.sg</p> <p>Dr. Lijun Diana Marie Chee* Aquatic Animal Health Section Animal and Plant Health Centre 6 Perahu Road, Singapore 718827 Fax: +65 63161090; Tel: +65 63165140 E-mail: Diana_Chee@AVA.gov.sg</p> <p>Dr. Teo Xuan Hui** Senior Veterinarian Aquatic Animal Health Section Agri-Food & Veterinary Authority 6 Perahu Road, 718827 Tel: 65-6316-5164 E-mail: Tel_Xuan_Hui@ava.gov.sg</p> |

| | |
|--------------------|--|
| Sri Lanka | <p>Dr. Rajapaksa Arachilage Geetha Ramani*/** Veterinary Investigation Officer Veterinary Investigation Center Department of Animal Production and Health Welisara, Sri Lanka Tel: +94-112-9258213; +94-714-932169 E-mail: vic_welisara@yahoo.com</p> |
| Thailand | <p>Dr. Jaree Polchana*/** Aquatic Animal Health Research Institute (AAHRI) Department of Fisheries , Kasetsart University Campus Jatujak, Bangkok 10900, Thailand Fax: +66 2 5613993; Tel: +66 2 5794122, 5796977 E-mail: jpolchana@gmail.com</p> |
| Timor Leste | <p>Dr. Felisiano Da Conceição** National Directorate and Veterinary Services Ministry of Agriculture and Fisheries Rua de Presidente Nicolau Lobato No.5 Comoro, Dili Tel: 670-331-0518 Mobile: 670-772-68-637 E-mail: maularavets@yahoo.com; alvabeta@gmail.com</p> |
| Vanuatu | <p>Mr. Lency Dick** Senior Aquaculture Officer Department of Fisheries Ministry of Agriculture, Livestock, Forestry, Fisheries and Bio-Security PMB 9045 Port Vila Tel: 678 23 174 Fax: 678 23641 E-mail: lnc.dick@gmail.com; lnc.kukan@gmail.com</p> |
| Vietnam | <p>Dr. Nguyen Van Long*/** Vice Chief Aquatic Animal Health Division Department of Animal Health (DAH) 15/78 Giai Phong Street, Dong Da Hanoi, Vietnam Fax: +84 4 38685961; Tel: +84 4 38693605 E-mail: long.dahvn@gmail.com</p> |

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

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

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

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

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

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

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

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

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

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

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

Please use the following symbols to fill in the forms.

A. Symbols used for negative occurrence are as follows:

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

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

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

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

B. Symbols used for positive occurrence are shown below.

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

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

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

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

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

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

¹ Regional Advisory Group on Aquatic Animal Health (AG)

C. Levels of Diagnosis

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

D. Subjects to be covered in the Epidemiological Comments

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

IMPORTANT

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

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

OIE Regional Representation for Asia and the Pacific

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

NACA

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

FAO

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

Notes

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