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FOR ANIMAL HEALTH (OIE)**

**REGIONAL AQUATIC ANIMAL  
DISEASE YEARBOOK**

**2013**

**(Asian and Pacific Region)**



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## CONTENTS

1.	Reports received by the OIE Regional Representation in Tokyo (by country/territory)	Page
	Australia.....	1
	Bhutan.....	11
	China, People's republic of.....	12
	Chinese Taipei.....	14
	Hong Kong SAR, China.....	21
	India.....	23
	Indonesia.....	25
	Iran.....	37
	Japan.....	40
	Korea, Republic of.....	42
	Laos.....	45
	Malaysia.....	46
	Myanmar.....	51
	Nepal.....	53
	New Caledonia.....	55
	New Zealand.....	57
	Philippines.....	60
	Singapore.....	68
	Sri Lanka.....	73
	Thailand.....	78
	Vietnam.....	82
	French Polynesia.....	86
2.	Reports received by the OIE Regional Representation in Tokyo (by disease)	
1)	<u>Finfish diseases</u>	
a)	Epizootic haematopoietic necrosis.....	88
	Infectious haematopoietic necrosis.....	88
	Spring viraemia of carp.....	89
	Viral haemorrhagic septicaemia.....	89
	Epizootic ulcerative syndrome.....	90
	Red seabream iridoviral disease.....	90
	Koi herpesvirus disease.....	91
b)	Grouper iridoviral disease.....	91
	Viral encephalopathy and retinopathy.....	92
	Enteric septicaemia of catfish.....	92
2)	<u>Mollusc diseases</u>	
a)	Infection with <i>Bonamia exitiosa</i> .....	93
	Infection with <i>Perkinsus olseni</i> .....	93
	Infection with abalone herpes-like virus.....	94
	Infection with <i>Xenohaliotis californiensis</i> .....	94
b)	Infection with <i>Marteilioides chungmuensis</i> .....	95
	Acute viral necrosis (in scallops).....	95

	Akoya oyster disease .....	96
3)	<u>Crustacean diseases</u>	
a)	Taura syndrome .....	96
	White spot disease .....	97
	Yellowhead disease .....	97
	Infectious hypodermal and haematopoietic necrosis .....	98
	Infectious myonecrosis .....	98
	White tail disease (MrNV) .....	99
b)	Necrotising hepatopancreatitis .....	99
	Milky haemolymph disease of spiny lobster ( <i>Panulirus</i> spp.) .....	100
	<i>Monodon</i> slow growth syndrome .....	100
	Acute hepatopancreatic necrosis syndrome .....	101
4)	<u>Amphibian diseases</u>	
a)	Infection with Ranavirus .....	101
	Infection with <i>Batrachochytrium dendrobatidis</i> .....	102
5)	Other diseases of importance .....	102
3.	List of OIE Delegates and veterinary contacts in Asia and the Pacific .....	103
4.	List of National Coordinators .....	108

- a) OIE-listed diseases  
b) Non OIE-listed diseases

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#### **Codes used in the Yearbook**

+	Disease reported or known to be present
+?	Serological evidence and/or isolation of causative agent but no clinical disease
?	Suspected by reporting officer but presence not confirmed
+ ( )	Occurrence limited to certain zones
...	No information available
0000	Never reported
-	Not reported (but disease is known to occur)
(year)	Year of last occurrence

AUSTRALIA												
Name of disease	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>DISEASES PREVALENT IN THE REGION</b>												
<b>FINFISH DISEASES</b>												
<b>OIE-listed diseases</b>												
Epizootic haematopoietic necrosis	-(2012)	-(2012)	-(2012)	-(2012)	-(2012)	-(2012)	-(2012)	-(2012)	-(2012)	-(2012)	-(2012)	-(2012)
Infectious haematopoietic necrosis	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
Spring viraemia of carp (SVC)	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
Viral haemorrhagic septicaemia (VHS)	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
Epizootic ulcerative syndrome (EUS)	-(2012)	-(2012)	-(2012)	-(2012)	-(2012)	-(2012)	-(2012)	+	-(2013)	+	-(2013)	+
Red seabream iridoviral disease (RSID)	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
Koi herpesvirus disease (KHV)	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
<b>Non OIE-listed diseases</b>												
Grouper iridoviral disease	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
Viral encephalopathy and retinopathy	-(2012)	-(2012)	+	-(2013)	-(2013)	+	-(2013)	-(2013)	-(2013)	-(2013)	-(2013)	+
Enteric septicaemia of catfish	(2011)	(2011)	(2011)	(2011)	(2011)	(2011)	(2011)	(2011)	(2011)	(2011)	(2011)	(2011)
<b>MOLLUSC DISEASES</b>												
<b>OIE-listed diseases</b>												
Infection with <i>Bonamia exitiosa</i>	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
Infection with <i>Perkinsus olseni</i>	-(2011)	-(2011)	-(2011)	-(2011)	+	-(2013)	-(2013)	-(2013)	-(2013)	-(2013)	-(2013)	-(2013)
Infection with abalone herpes-like virus	-(2011)	-(2011)	-(2011)	-(2011)	-(2011)	-(2011)	-(2011)	-(2011)	-(2011)	-(2011)	-(2011)	-(2011)
Infection with <i>Xenohaliotis californiensis</i>	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
<b>Non OIE-listed diseases</b>												
Infection with <i>Marteilioides chungmuensis</i>	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
Acute viral necrosis (in scallops)	***	***	***	***	***	***	***	***	***	***	***	***
Akoya oyster disease	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
<b>CRUSTACEAN DISEASES</b>												
<b>OIE-listed diseases</b>												
Taura syndrome (TS)	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
White spot disease (WSD)	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
Yellowhead disease (YHD)	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
Infectious hypodermal and haematopoietic necrosis (IHHN)	-(2008)	-(2008)	-(2008)	-(2008)	-(2008)	-(2008)	-(2008)	-(2008)	-(2008)	-(2008)	-(2008)	-(2008)
Infectious myonecrosis (IMN)	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
White tail disease (MrNV)	-(2008)	-(2008)	-(2008)	-(2008)	-(2008)	-(2008)	-(2008)	-(2008)	-(2008)	-(2008)	-(2008)	-(2008)
Necrotising hepatopancreatitis (NHP)	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
<b>Non OIE-listed diseases</b>												
Milky haemolymph disease of spiny lobster ( <i>Panulirus</i> )	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
<i>Monodon</i> slow growth syndrome	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
Acute hepatopancreatic necrosis syndrome (AHPNS)	***	***	***	***	***	***	***	***	***	***	***	***
<b>AMPHIBIAN DISEASES</b>												
<b>OIE-listed diseases</b>												
Infection with Ranavirus	-(2008)	-(2008)	-(2008)	-(2008)	-(2008)	-(2008)	-(2008)	-(2008)	-(2008)	-(2008)	-(2008)	-(2008)
Infection with <i>Batrachochytrium dendrobatidis</i>	-(2012)	-(2012)	-(2012)	-(2012)	+	-(2013)	-(2013)	-(2013)	-(2013)	-(2013)	-(2013)	-(2013)
<b>ANY OTHER DISEASES OF IMPORTANCE</b>												
Virus isolated from Atlantic salmon				-(2012)	-(2012)	+	-(2013)	-(2013)	+			

### **Epizootic haematopoietic necrosis**

#### **1Q**

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.

#### **2Q**

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.

#### **3Q**

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.

#### **4Q**

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.

### **Epizootic ulcerative syndrome**

#### **1Q**

Epizootic ulcerative syndrome was not reported this period despite passive surveillance in New South Wales (last reported 2012), the Northern Territory (last reported 2012), Queensland (last reported 2012), Victoria (last reported 2012), Western Australia (last reported 2012) and South Australia (last reported 2008). Passive surveillance and never reported in Tasmania. No information available this period in the Australian Capital Territory.

#### **2Q**

Epizootic ulcerative syndrome was not reported this period despite passive surveillance in New South Wales (last reported 2012), the Northern Territory (last reported 2012), Queensland (last reported 2012), Victoria (last reported 2012), Western Australia (last reported 2012) and South Australia (last reported 2008). Passive surveillance and never reported in Tasmania. No information available this period in the Australian Capital Territory.

#### **3Q**

Epizootic ulcerative syndrome

1. Reported in Queensland in August, screening;
2. Species affected – Spikey Bream (*Acanthopagrus* sp.);
3. Clinical signs – Skin ulcerations on the flank of several spikey bream caught;
4. Pathogen – *Aphanomyces invadans*;

5. Mortality rate – Nil;
6. Economic loss – Nil;
7. Geographic extent – Limited to waters close to Jumpinpin in southeast Queensland;
8. Containment measures – Not applicable;
9. Laboratory confirmation – Histopathology;
10. Publications – None.

Epizootic ulcerative syndrome is known to have occurred previously in New South Wales (last reported 2012), the Northern Territory (last reported 2012), Victoria (last reported 2012), Western Australia (last reported 2012) and South Australia (last reported 2008). Passive surveillance and never reported in Tasmania. No information available this period in the Australian Capital Territory.

#### 4Q

Epizootic ulcerative syndrome

1. Reported in Western Australia in October and December, passive surveillance;
2. Species affected – Black Bream (*Acanthopagrus butcheri*);
3. Clinical signs – Skin ulcerations on the body of the fish;
4. Pathogen – *Aphanomyces invadans*;
5. Mortality rate – Not available;
6. Economic loss – Nil;
7. Geographic extent – Limited to the Swan and Canning Rivers;
8. Containment measures – Not applicable;
9. Laboratory confirmation – PCR and histopathology;
10. Publications – None.

Epizootic ulcerative syndrome is known to have occurred previously in Queensland (last reported 2013), New South Wales (last reported 2012), 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 this period in the Australian Capital Territory.

#### Viral encephalopathy and retinopathy

##### 1Q

Viral encephalopathy and retinopathy

1. Reported in the Northern Territory in March, active surveillance;
2. Species affected – Barramundi (*Lates calcarifer*) fingerlings (21 day old);
3. Clinical signs – No clinical signs observed, subclinical infection was diagnosed in two contained tanks of susceptible fish through routine pre-translocation health certification testing;
4. Pathogen – Betanodavirus;
5. Mortality rate – Nil, prevalence of sub-clinical infection estimated at 5% - 10%;
6. Economic loss – Nil;
7. Geographic extent – Limited to two tanks within a partial recirculation system on a single property ;
8. Containment measures – Not applicable, limited translocation is only permitted within known nodavirus endemic zones (Barramundi Disease Control Zone 1) and following thorough decontamination of relevant tanks and equipment;

9. Laboratory confirmation – Nodavirus qPCR;

10. Publications – None.

1. Reported in Queensland in March, passive surveillance;

2. Species affected – Barramundi (*Lates calcarifer*) fingerlings (35mm, 50 day old);

3. Clinical signs – Anorexia, dark body colour and lethargy;

4. Pathogen – Betanodavirus;

5. Mortality rate – 10%;

6. Economic loss – Information not available;

7. Geographic extent – 50 nursery tanks over two sites owned by the same company;

8. Containment measures – Not applicable;

9. Laboratory confirmation – Histopathology and Nodavirus qPCR;

10. Publications – None.

Viral encephalopathy and retinopathy is known to have occurred previously in New South Wales (last reported 2010), South Australia (last reported 2010), Western Australia (last reported 2005) and Tasmania (last reported 2000). Passive surveillance and never reported in Victoria. No information available this period in the Australian Capital Territory.

## 2Q

Viral encephalopathy and retinopathy

1. Reported in Western Australia in June, screening;

2. Species affected – Barramundi (*Lates calcarifer*) (150 grams);

3. Clinical signs – No clinical signs observed, subclinical infection diagnosed following routine testing;

4. Pathogen – Betanodavirus;

5. Mortality rate – Nil;

6. Economic loss – Nil;

7. Geographic extent – Limited to one land based tank on a single property;

8. Containment measures – Not applicable;

9. Laboratory confirmation – Nodavirus qPCR;

10. Publications – None.

Viral encephalopathy and retinopathy is known to have occurred previously in the Northern Territory (last reported 2013), Queensland (last reported 2013), New South Wales (last reported 2010), 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.

## 3Q

Viral encephalopathy and retinopathy was not reported this period despite passive surveillance in Northern Territory (last reported 2013), Western Australia (last reported 2013), Queensland (last reported 2013), New South Wales (last reported 2010), 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.

## 4Q

Viral encephalopathy and retinopathy

1. Reported in Queensland in December, passive surveillance;



2. Species affected – 50 day old gold spot grouper fry (*Epinephelus coiodes*) and 54 day old Queensland grouper fry (*Epinephelus lanceolatus*);
3. Clinical signs – lethargy, erratic swimming, mortality;
4. Pathogen – Betanodavirus;
5. Mortality rate – Queensland grouper 200 (0.4%), gold spot grouper euthanised after diagnosis;
6. Economic loss – Nil;
7. Geographic extent – Limited to land based tanks on a single property;
8. Containment measures – Not applicable;
9. Laboratory confirmation – Histopathology;
10. Publications – None.

Viral encephalopathy and retinopathy is known to have occurred previously in the Northern Territory (last reported 2013), New South Wales (last reported 2010), 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.

### **Enteric septicaemia of catfish**

#### **1Q**

Enteric septicaemia of catfish was not reported this period and has never been reported from wild fish in Australia. Passive surveillance and reported previously in the Northern Territory [in a closed aquarium facility also holding imported ornamental fish] (last reported 2011), Queensland (last reported 2008) and Tasmania (last reported 2001) in zebrafish (*Brachydanio rerio*) held in PC2 containment facilities. 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.

#### **2Q**

Enteric septicaemia of catfish was not reported this period and has never been reported from wild fish in Australia. Passive surveillance and reported previously in the Northern Territory in a closed aquarium facility also holding imported ornamental fish (last reported 2011). Passive surveillance and reported previously in Queensland (last reported 2008) and Tasmania (last reported 2001) in zebrafish (*Brachydanio rerio*) held in PC2 containment facilities. 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.

#### **3Q**

Enteric septicaemia of catfish was not reported this period and has never been reported from wild fish in Australia. Passive surveillance and reported previously in the Northern Territory in a closed aquarium facility also holding imported ornamental fish (last reported 2011). Passive surveillance and reported previously in Queensland (last reported 2008) and Tasmania (last reported 2001) in imported zebrafish (*Brachydanio rerio*) held in PC2 containment facilities. 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.

#### **4Q**

Enteric septicaemia of catfish was not reported this period and has never been reported from wild fish in Australia. Passive surveillance and reported previously in the Northern Territory in a closed aquarium facility also holding imported ornamental fish (last reported 2011). Passive surveillance and reported previously in

Queensland (last reported 2008) and Tasmania (last reported 2001) in imported zebrafish (*Brachydanio rerio*) held in PC2 containment facilities. 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.

### Infection with *Perkinsus olseni*

#### 1Q

Infection with *Perkinsus olseni* was not reported this period despite passive surveillance in South Australia (last reported in 2011) and New South Wales (last reported 2005). Not reported despite targeted surveillance in Western Australia (last reported 2003). Passive surveillance and never reported in the Northern Territory, Queensland, Tasmania and Victoria. No information available for the Australian Capital Territory (no marine water responsibility).

#### 2Q

##### Infection with *Perkinsus olseni*

1. Reported in South Australia in May, passive surveillance;
2. Species affected – Blacklip abalone (*Haliotis rubra*);
3. Clinical signs – Lesions were observed in the foot and mantle;
4. Pathogen – *Perkinsus olseni*;
5. Mortality rate – No mortalities, lesions noted following wild capture;
6. Economic loss – Negligible;
7. Geographic extent – West coast abalone fishery;
8. Containment measures – Voluntary closure of the wild fishery;
9. Laboratory confirmation – PCR and 'Ray's Fluid Thioglycolate Medium' technique (RFTM) confirmed infection in sampled abalone;
10. Publications – None.

Infection with *Perkinsus olseni* is known to have occurred previously in New South Wales (last reported 2005). Not reported despite targeted surveillance in Western Australia (last reported 2003). Passive surveillance and never reported in the Northern Territory, Queensland, Tasmania and Victoria. No information available for the Australian Capital Territory (susceptible species not present and no marine water responsibility).

#### 3Q

Infection with *Perkinsus olseni* was not reported this quarter despite passive surveillance in South Australia (last reported 2013) and New South Wales (last reported 2005). Not reported despite targeted surveillance in Western Australia (last reported 2003). Passive surveillance and never reported in the Northern Territory, Queensland, Tasmania and Victoria. No information available for the Australian Capital Territory (susceptible species not present and no marine water responsibility).

#### 4Q

Infection with *Perkinsus olseni* was not reported this quarter despite passive surveillance in South Australia (last reported 2013) and New South Wales (last reported 2005). Not reported despite targeted surveillance in Western Australia (last reported 2003). Passive surveillance and never reported in the Northern Territory, Queensland, Tasmania and Victoria. No information available for the Australian Capital Territory (susceptible species not present and no marine water responsibility).

**Infection with abalone herpesvirus (abalone viral ganglioneuritis)****1Q**

Infection with abalone herpesvirus (abalone viral ganglioneuritis) was not reported this period despite targeted surveillance in Tasmania (last reported 2011) and passive surveillance in New South Wales (last reported 2011 and eradicated following detection in contained commercial live-holding facilities) and Victoria (last reported 2010). Passive surveillance and never reported in the Northern Territory, Queensland, South Australia and Western Australia. No information available this period in the Australian Capital Territory (no marine water responsibility).

**2Q**

Infection with abalone herpesvirus (abalone viral ganglioneuritis) was not reported this period despite targeted surveillance in Tasmania (last reported 2011) and passive surveillance in New South Wales (last reported 2011 and eradicated following detection in contained commercial live-holding facilities) and Victoria (last reported 2010). Passive surveillance and never reported in the Northern Territory, Queensland, South Australia and Western Australia. No information available this period in the Australian Capital Territory (no marine water responsibility).

**3Q**

Infection with abalone herpesvirus (abalone viral ganglioneuritis) was not reported this period despite targeted surveillance in Tasmania (last reported 2011) and passive surveillance in New South Wales (last reported 2011 and eradicated following detection in contained commercial live-holding facilities) and Victoria (last reported 2010). Passive surveillance and never reported in the Northern Territory, Queensland, South Australia and Western Australia. No information available this period in the Australian Capital Territory (no marine water responsibility).

**4Q**

Infection with abalone herpesvirus (abalone viral ganglioneuritis) was not reported this period despite targeted surveillance in Tasmania (last reported 2011) and passive surveillance in New South Wales (last reported 2011 and eradicated following detection in contained commercial live-holding facilities) and Victoria (last reported 2010). Passive surveillance and never reported in the Northern Territory, Queensland, South Australia and Western Australia. No information available this period in the Australian Capital Territory (no marine water responsibility).

**Infectious hypodermal and haematopoietic necrosis virus****1Q**

Infectious hypodermal and haematopoietic necrosis virus was not reported this period despite passive surveillance in Queensland (last reported 2008) and the Northern Territory (last reported 2003). Passive surveillance and never reported in New South Wales, South Australia, Victoria and Western Australia. No information available this period in the Australian Capital Territory (no marine water responsibility) and Tasmania (susceptible species not present).

**2Q**

Infectious hypodermal and haematopoietic necrosis virus was not reported this period despite passive surveillance in Queensland (last reported 2008) and the Northern Territory (last reported 2003). Passive surveillance and never reported in New South Wales, South Australia, Victoria and Western Australia. No

information available this period in the Australian Capital Territory (no marine water responsibility) and Tasmania (susceptible species not present).

### **3Q**

Infectious hypodermal and haematopoietic necrosis virus was not reported this period despite passive surveillance in Queensland (last reported 2008) and the Northern Territory (last reported 2003). Passive surveillance and never reported in New South Wales, South Australia, Victoria and Western Australia. No information available this period in the Australian Capital Territory (no marine water responsibility) and Tasmania (susceptible species not present).

### **4Q**

Infectious hypodermal and haematopoietic necrosis virus was not reported this period despite passive surveillance in Queensland (last reported 2008) and the Northern Territory (last reported 2003). Passive surveillance and never reported in New South Wales, South Australia, Victoria and Western Australia. No information available this period in the Australian Capital Territory (no marine water responsibility) and Tasmania (susceptible species not present).

## **White tail disease**

### **1Q**

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.

### **2Q**

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).

### **3Q**

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).

### **4Q**

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).

## **Infection with ranavirus**

### **1Q**

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.

#### 2Q

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.

#### 3Q

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.

#### 4Q

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.

### Infection with *Batrachochytrium dendrobatidis*

#### 1Q

Infection with *Batrachochytrium dendrobatidis* was not reported this period despite targeted surveillance in Tasmania (last reported 2012) and passive surveillance in Victoria (last reported 2011) and Western Australia (last reported 2008). Suspected but not confirmed through passive surveillance in Queensland. No information available this period in the Australian Capital Territory, New South Wales, the Northern Territory and South Australia.

#### 2Q

Infection with *Batrachochytrium dendrobatidis*

1. Reported in Tasmania in May, active surveillance;
2. Species affected – frogs;
3. Clinical signs – None;
4. Pathogen – *Batrachochytrium dendrobatidis*;
5. Mortality rate – No mortalities;
6. Economic loss – Negligible;
7. Geographic extent – Not reported;
8. Containment measures – Not applicable;
9. Laboratory confirmation – PCR confirmed infection in two of 27 samples;
10. Publications – None.

Infection with *Batrachochytrium dendrobatidis* is known to have occurred previously in Victoria (last reported 2011) and Western Australia (last reported 2008). Suspected but not confirmed through passive surveillance in Queensland. No information available this period in the Australian Capital Territory, New South Wales, the Northern Territory and South Australia.

**3Q**

Infection with *Batrachochytrium dendrobatidis* was not reported this period despite targeted surveillance in Tasmania (last reported 2013), passive surveillance in Victoria (last reported 2011) and passive surveillance in Western Australia (last reported 2008). Suspected but not confirmed through passive surveillance in Queensland. No information available this period in the Australian Capital Territory, New South Wales, the Northern Territory and South Australia.

**4Q**

Infection with *Batrachochytrium dendrobatidis* was not reported this period despite targeted surveillance in Tasmania (last reported 2013), passive surveillance in Victoria (last reported 2011) and passive surveillance in Western Australia (last reported 2008). Suspected but not confirmed through passive surveillance in Queensland. No information available this period in the Australian Capital Territory, New South Wales, the Northern Territory and South Australia.

**Virus isolated from Atlantic salmon****2Q**

Virus isolated from Atlantic salmon: A novel virus has been detected in association with mortalities of cage-cultured Atlantic salmon in south eastern Tasmania. The virus was initially considered to be an incidental finding; however, some sporadic detections have been made in association with variable mortality of smolt. Viral ultrastructure resembles that of the Orthomyxoviridae. Further characterisation, including sequencing, is pending. Infectious salmon anaemia virus has been excluded through OIE recommended assays. Investigations are ongoing to characterise the virus, better understand its epidemiology, and determine its significance as a pathogen of salmon.

**3Q**

Virus isolated from Atlantic salmon: A novel virus has been detected in association with mortalities of cage-cultured Atlantic salmon in south eastern Tasmania. The virus was initially considered to be an incidental finding; however, some sporadic detections have been made in association with variable mortality of smolt. Viral ultrastructure resembles that of the Orthomyxoviridae. Further characterisation, including sequencing, is pending. Infectious salmon anaemia virus has been excluded through OIE recommended assays. Investigations are ongoing to characterise the virus, better understand its epidemiology, and determine its significance as a pathogen of salmon.

**New aquatic animal health regulations introduced within past six months****1Q**

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

a) The Australian Government Department of Agriculture, Fisheries and Forestry (DAFF) released a new AQUAVETPLAN disease strategy manual for Piscirickettsiosis in January 2013. AQUAVETPLAN is the Australian Aquatic Veterinary Emergency Plan and comprises a series of technical response plans that describe the proposed Australian approach to the occurrence of an emergency aquatic animal disease. The new manual can be accessed on the Australian Government DAFF website: <http://www.daff.gov.au/animal-plant-health/aquatic/aquavetplan/piscirickettsiosis>







**White spot disease****1Q**

White spot disease was detected in shrimp aquaculture of Guangdong province on January, February, March 2013. The average mortality rate reached to 15 %. Some farms take culling measures.

**2Q**

White spot syndrome virus was detected in broodstock *L. vannamei* from Guangdong Province (GD) in March 2013 by the Mariculture Organism Diseases Control and Molecular Pathology Laboratory (MODCAMPL) of YSFRI. PCR method of the OIE Aquatic Manual 2012 was used. Occurrence limited to certain zones,

**Acute hepatopancreatic necrosis syndrome****2Q**

Suspected Acute hepatopancreatic necrosis syndrome (AHPNS) was observed in juveniles *L. vannamei* from Fujian Province (FJ) in January 2013 and broodstock *L. vannamei* from Guangdong Province (GD) in March 2013. Mortality was reported for these farms. A new genotype of YHV was detected by MODCAMPL from these samples by nested RT-PCR and a new YHV kit developed by MODCAMPL.



**Red seabream iridoviral disease (RSID)****1Q**

Reported from 1 farm.

Date: (1) January 14.

Species: (1) *Epinephelus lanceolatus*.

Total number of death: (1) 8.

**2Q**

Reported from 3 farms.

Date: (1) May 2; (2) May 17; (3) May 27.

Species: (1), (2), (3) *Lateolabra xjaponicus*.

Total number of death: (1), (2), (3) 0.

**3Q**

Reported from 3 farms.

Date: (1) July 23; (2) August 4; (3) August 5.

Species: (1) *Epinephelus lanceolatus* (Giant grouper) ; (2) *Oxyeleotris marmorata*; (3) *Trachinotus blochii*.

Total number of death: (1), (3) 0; (2) 400.

**Koi herpesvirus disease (KHV)****1Q**

Reported from 2 farms.

Date: (1) January 8; . (2) January 9.

Species: (1) *Cyprinus carpio koi*; (2) *Cyprinus carpio* (Common carp) .

Total number of death: (1)(2) 0.

**3Q**

Reported from 2 farms.

Date: (1) July 4; (2) August 5.

Species: (1), (2) *Cyprinus carpio*.

Total number of death: (1) 30; (2) 0.

**Grouper iridoviral disease****1Q**

Reported from 62 different farms.

Date: (1),(2) February 7; (3),(4),(5),(6) February 19; (7) February 20; (8),(9),(10), (11) February 21; (12),(13) February 25; (14),(15),(16) February 26; (17), (18) February 27; (19),(20),(21),(22),(23) March 5; (24) March 6; (25),(26) March 7; (27),(28) March 8; (29),(30),(31),(32),(33) March 12; (34),(35),(36) March 14; (37) March 15; (38),(39) March 18; (40),(41),(42),(43), (44),(45),(46), (47), (48) March 19; (49),(50) March 21; (51) March 22; (52),(53),(54) March 25; (55) March 26; (56),(57) March 27; (58),(59),(60) March 28; (61),(62) March 29.

Species: (1),(2),(3),(4),(5),(8),(10),(11),(14),(15),(16),(18),(20),(21),(22),(23),(26), (29),(30),(31),(32),(33),(34),(35),(36),(41),(42),(43),(44),(45),(46),(48),(49),(50),

(55),(57),(58),(59),(60) *Epinephelus coioides* ( Orange-spotted grouper ) ;  
 (6),(7), (9),(19),(25),(47) *Epinephelus lanceolatus* ( Giant grouper ) ; (12),(13),  
 (24),(27), (38),(39),(40),(54),(56),(61),(62) *Lateolabrax japonicus*;  
 (17) *Epinephelus taurina* ( Greasy grouper ) ; (28),(37),(51),(52),(53) *Lates calcarifer*.  
 Total number of death: (1),(2),(9),(11),(16) 2; (3) 15; (4),(32) 4; (5) 30; (6),(15) 5;  
 (7) 150; (8) 12; (10) 6; (12),(18),(24),(27),(28),(38),(39),(40),(54),(56),(57),(61),  
 (62) 0; (13) 50; (14),(26),(34),(41),(43),(48) 1; (17),(49) 20;(19) 220; (20) 270;  
 (21) 450; (22),(33) 42; (23) 36; (25) 240; (29) 13; (30),(51),(52) 200; (31) 8; (35),  
 (42) 60; (36) 286; (37) 1000; (44) 48; (45) 300; (46) 1615; (47) 180; (50) 10;  
 (53) 700; (55) 75; (58) 1300; (59) 72; (60) 160.

## 2Q

Reported from 208 farms.

Date: (1), (2) April 1; (3), (4), (5), (6) April 7; (7), (8), (9), (10) April 8; (11), (12), (13), (14)  
 April 9; (15), (16), (17) April 10; (18), (19), (20), (21) April 11; (22), (23) April 12; (24),  
 (25) April 15; (26), (27) April 16; (28), (29), (30), (31), (32) April 17; (33), (34), (35),  
 (36) April 18; (37), (38), (39), (40), (41) April 19; (42), (43), (44), (45), (46) April 22;  
 (47), (48), (49), (50) April 23; (51), (52) April 24; (53), (54),(55), (56), (57), (58) April 25;  
 (59), (60), (61), (62), (63), (64) April 26; (65), (66), (67), (68), (69), (70), (71), (72), (73),  
 (74), (75), (76), (77) April 29; (78), (79), (80), (81), (82) April 30; (83), (84), (85) May 1;  
 (86), (87), (88), (89), (90), (91) May 2; (92), (93), (94), (95), (96) May 3; (97), (98), (99),  
 (100), (101) May 6; (102) May 7; (103), (104), (105) May 8; (106), (107), (108) May 9;  
 (109), (110), (111), (112), (113) May 10; (114), (115) May 12; (116), (117), (118), (119),  
 (120), (121), (122) May 13; (123), (124), (125), (126), (127), (128), (129) May 14; (130),  
 (131), (132), (133) May 15; (134), (135), (136), (137), (138) May 17; (139) May 18; (140),  
 (141), (142), (143), (144) May 20; (145), (146), (147), (148), (149) May 21; (150),  
 (151) May 22; (152), (153), (154), (155) May 23; (156), (157), (158), (159), (160),  
 (161) May 24; (162) May 25; (163), (164), (165), (166), (167), (168), (169), (170), (171),  
 (172) May 27; (173), (174), (175), (176) May 28; (177) May 29; (178) May 30;  
 (179) May 31; (180) June 3; (181), (182), (183), (184), (185) June 6; (186) June 10; (187),  
 (188) June 11; (189) June 14; (190), (191), (192) June 17; (193), (194), (195), (196) June 18;  
 (197) June 20; (198), (199) June 25; (200), (201), (202), (203), (204), (205) June 26;  
 (206) June 27; (207), (208) June 28.

Species: (1), (3), (4), (7), (11), (15), (16), (18), (19), (24), (25), (26), (27), (28), (29), (30),  
 (31), (32), (33), (34), (37), (42), (43), (44), (45), (47), (51), (52), (53), (54), (55), (56),  
 (59), (65), (66), (67), (68), (69), (70), (71), (72), (73), (74), (75), (76), (83), (84), (85),  
 (86), (87), (88), (92), (93), (94), (95), (96), (97), (98), (99), (100), (101), (102), (109),  
 (110), (111), (112), (113), (116), (117), (118), (119), (120), (121), (123), (124), (125),  
 (130), (131), (132), (133), (134), (135), (136), (140), (141), (142), (143), (144), (145),  
 (146), (147), (148), (150), (151), (152), (153), (154), (155), (156), (157), (158), (159),  
 (163), (164), (165), (166), (167), (168), (169), (170), (177), (179), (186), (200), (201),

(202), (207) *Lates calcarifer*; (5), (12), (13), (14), (17), (21), (35), (36), (38), (50), (57), (58), (60), (77), (78), (89), (114), (115), (122), (126), (127), (128), (129), (162), (171), (173), (174), (175), (176), (178), (181), (182), (183), (184), (187), (188), (189), (190), (193), (194), (195), (196), (197), (198), (199), (203), (204), (205), (206), (208) *Epinephelus coioides* (Orange-spotted grouper) ; (6), (39), (79), (80), (81), (82), (90), (91), (149), (185), (191), (192) *Epinephelus lanceolatus* (Giant grouper) ; (8) , (9), (10), (20), (22), (23), (40), (41), (48), (49), (61), (62), (63), (64), (103), (104), (105), (106), (107), (108) , (137), (138), (139), (160), (161), (172), (180) *Lateolabrax japonicus*; (2), (46) *Epinephelus taurina* (Greasy grouper) .

Total number of death: (1), (7), (25), (101), (132), (138), (144), (148), (152) , (156), (163), (164), (177), (180), (204) 100; (6) 165; (10), (20), (22), (23), (28), (29), (30), (33), (34), (37), (38), (39), (40), (41), (42), (44), (45), (48), (49), (51), (52), (53), (56), (60), (61), (62), (63), (64) , (65), (70), (76), (84), (85), (87), (88), (93), (96), (97), (98), (99), (100), (102), (109), (116), (117), (118), (119), (120), (122), (137), (146), (153), (158), (159), (186), (187), (190), (191), (192) 0; (13), (89), (197) 15; (14), (82), (182), (185), (188), (193), (206) 1; (17) 1500; (19), (95), (104), (147) 1000; (27) 16; (43), (149) 160; (47), (67), (127), (145), (174), (178), (201) 10; (58) 1050; (69), (78), (129), (203) 150; (80) 140; (91), (126) 120; (131) 1600; (136), (194) 1200; (170) 15000; (181) 180; (199) 13.

### 3Q

Reported from 66 farms.

Date: (1), (2) July 4; (3), (4), (5), (6), (7) July 9; (8) July 10; (9), (10), (11), (13), (14), (15), (16) July 11; (17), (18) July 13; (19), (20), (21), (22) July 18; (23) July 23; (24) July 30; (25), (26) Aug 1; (27), (28), (29) Aug 6; (30), (31) Aug 8; (32), (33), (34) Aug 13; (35) Aug 15; (36), (37) Aug 20; (38), (39), (40), (41) Aug 22; (42), (43), (44), (45), (46), (47) Aug 27; (48) Sep 5; (49), (50) Sep 10; (51) Sep 11; (52), (53), (54), (55) Sep 12; (56), (57), (58), (59), (60), (61) Sep 17; (62) Sep 23; (63), (64), (65), (66) Sep 24.

Species: (1), (12), (26), (29), (30), (31), (32), (34), (37), (39), (47), (62) *Epinephelus lanceolatus* (Giant grouper) ; (2) , (3), (4), (5), (6), (7), (8), (9), (10), (11), (13), (14), (15), (16), (17), (18), (19), (20), (21), (22), (23), (24), (25), (27), (28), (33), (35), (36), (38), (40), (41), (42), (43), (44), (45), (46), (48), (49), (50), (51), (52), (53), (54), (55), (56), (57), (58), (59), (60), (61), (62), (64), (65), (66) *Epinephelus awoara*.

Total number of death: (1)160; (2), (44) 60; (3), (56), (57) 20; (4), (6), (12) 50; (5), (20), (52), (66) 2 ;(7) 5; (8), (13), (14), (51) 1; (9) 300; (10), (15), (19), (59) 500; (11), (29), (37), (46), (64) 30; (16) 55; (17), (21) 150; (18) 2000; (22) 80; (23) 250; (24) 165; (25), (40), (49), (53), (54) 0; (26) 420; (27), (34) , (50), (58), (60) 100; (28) 2700; (30) 8; (31) 480; (32) 64; (33) 1400; (35) 120; (36) 5200; (38) 3; (39) 272; (41), (63) 40; (42), (45) 7; (43) 122; (47) 39; (48) 10; (55) 16000; (61) 600; (62) 32; (65) 200.

### Viral encephalopathy and retinopathy

**1Q**

Reported from 60 different farms.

Date: (1) January 2; (2),(3),(4) January 4; (5) January 6; (6),(7),(8),(9) January 7; (10), (11) January 8; (12) January 9; (13),(14),(15) January 10; (16),(17),(18) January 11; (19),(20),(21) January 14; (22),(23) January 15; (24) January 18; (25),(26) January 30; (27) February 1; (28) February 4; (29) February 5; (30) February 6; (31) February 7; (32) February 8; (33) February 18; (34) February 19; (35) February 22; (39) February 23; (37),(38) February 26; (39) February 27; (40) March 1; (41) March 4; (42),(43),(44) March 5; (45),(46),(47) March 8; (48),(49) March 12; (50) March 13; (51),(52) March 18; (53), (54) March 20; (55) March 22; (56) March 25; (57) March 26; (58) March 28; (59), (60) March 29.

Species:(1),(5),(6),(13),(14),(15),(17),(18),(21),(25),(26),(34),(38),(43),(47),(51), (54), (59) *Epinephelus lanceolatus* (Giant grouper) ; (2),(3),(11),(12),(30), (32),(33),(35), (36),(42),(55) *Epinephelus taurina* (Greasy grouper) ; (4),(7),(8),(9),(10),(19),(20), (22),(23),(24),(27),(28),(31),(37),(40),(41),(44),(45), (46),(48),(49),(52),(53),(57), (58) *Epinephelus coioides* (Orange-spotted grouper) ; (16), (29) *Epinephelus salmonoides* (Giant grouper) ; (39) *Micropterus salmoides*; (50),(56), (60) *Lates calcarifer*.

Total number of death: (1) 50; (2), (3),(30),(60) 100; (4), (14),(15),(23) 500; (5), (16), (56) 1000; (6),(13),(17),(22),(24),(27),(28),(29),(32),(40),(41),(43),(44),(45), (46),(48), (49),(51),(52),(53),(54),(59) 0; (7),(8),(9),(42) 250; (10) 40000; (11),(35), (36),(55) 200; (12),(21),(25),(33) 20; (18),(26) 10; (19),(20),(37) 400;(31),(50) 5; (34) 150; (38) 2; (39) 18000; (47) 4000; (57) 12; (58) 450.

**2Q**

Reported from 89 farms.

Date: (1), (2) April 1; (3) April 3; (4) April 12; (5), (6), (7) April 15; (8), (9), (10) April 16; (11) April 17; (12) April 19; (13) April 20; (14), (15) April 24; (16) April 25; (17) April 26; (18), (19), (20) April 29; (21), (22), (23) May 1; (24) May 3; (25) May 6; (26) May 10; (27) May 11; (28), (29) May 13; (30) May 15; (31), (32), (33) May 17; (34) May 20; (35), (36) May 21; (37), (38) May 22; (39), (40), (41), (42), (43) May 23; (44), (45), (46), (47) May 24; (48) May 25; (49), (50), (51) May 27; (52) May 28; (53), (54), (55) May 29; (56), (57) May 30; (58) May 31; (59) June 3; (60), (61), (62), (63) June 4; (64), (65), (66), (67) June 6; (68) June 7; (69), (70), (71), (72) June 10; (73), (74), (75), (76) June 11; (77) June 13; (78), (79), (80) June 14; (81), (82), (83) June 17; (84) June 18; (85), (86), (87), (88) June 19; (89) June 25;

Species: (1), (5) *Micropterus salmoides* ; (2), (6), (14), (30), (31), (48), (78) *Lates calcarifer*; (3), (8), (9), (11), (12), (15), (17), (18), (19), (20), (21), (22), (24), (25), (26), (27), (28), (29), (32), (33), (35), (37), (38), (39), (40), (41), (42), (43), (44), (45), (46), (47), (49), (52), (53), (54), (56), (57), (58), (60), (61), (62), (64), (65), (66), (67), (68), (69), (70), (71), (73), (74), (75), (76), (79), (80), (81), (82), (83), (84), (85),

(86), (87), (88), (89) *Epinephelus coioides* (Orange-spotted grouper) ;  
 (4) *Epinephelus taurina* (Greasy grouper) ; (7), (16) *Rachycentronc anadum*  
 ; (13), (23), (36), (50), (51), (55), (59), (63), (72), (77) *Epinephelus lanceolatus*  
 (Giant grouper) ; (34) *Trachinotus blochii*

Total number of death: (1) 7500; (2), (54) 8; (3), (39), (40), (51) , (74) 2; (4), (5), (69),  
 (88), (89) 20; (6) 800; (7), (44) 30; (8), (14), (31), (63) 5; (9) 85; (10), (11), (12), (13),  
 (15), (17), (19), (22), (25), (28), (29), (30), (53), (55), (68), (70), (71), (72), (79), (80),  
 (82), (83) 0; (16), (20), (85) 1000; (18) 2500; (21), (60) 300; (23), (38), (67) 10; (24),  
 (64), (77), (81) 200; (26), (33), (37), (86), (87) 100; (27) 240; (32) 600; (34), (57) 60;  
 (35) 500; (36) 14; (41) 25; (42), (43) 3; (45), (33), (37), (86), (87) 150; (46) 140;  
 (47) 100000; (48), (73) 4; (49) 10000; (50), (52) 20000; (56) 70000; (58) 90000;  
 (59) 360; (61), (75), (76) 1; (62), (65) 50; (66) 7; (78) 12; (84) 700.

### 3Q

Reported from 43 farms.

Date: (1), (2) July 3; (3), (4), (5) July 5; (6), (7) July 8; (8), (9) July 10; (10), (11), (12), (13) July 15; (14)  
 July 16; (15) July 23; (16), (17) July 24; (18) July 25; (19) July 27; (20), (21) July 30; (22) Aug 2; (23)  
 Aug 5; (24), (25) Aug 6; (26), (27), (28), (29) Aug 7; (30), (31) Aug 9; (32) Aug 13; (33) Aug 14; (34) Aug  
 20; (35) Aug 26; (36) Sep 5; (37), (38), (39) Sep 6; (40) Sep 11; (41) Sep 16; (42), (43) Sep 17.

Species: (1), (8), (15), (20), (21), (23), (27), (29), (36), (41) *Epinephelus lanceolatus* (Giant grouper) ; (2),  
 (3), (4), (5), (6), (7), (9), (10), (11), (12), (13), (14), (15), (16), (17), (18), (19), (22), (24), (25), (26), (28),  
 (30), (31), (32), (33), (34), (35), (37), (38), (39), (4), (42), (43) *Epinephelus awoara*.

Total number of death: (1) 30; (2) 100; (3) 80; (4) 150; (5), (6), (7), (8), (10), (11), (12), (14), (15),  
 (16), (18), (19), (20), (21), (23), (24), (25), (29), (30), (31), (33), (35), (36), (38), (42), (43) 0; (9), (32)  
 24; (13) 9; (17), (40) 20; (22) 50; (26), (27) 60; (28) 40; (34) 45; (37), (39) 50; (41) 250.

### Taura syndrome (TS)

#### 2Q

Reported from 1 different farm.

Date: (1) April 1.

Species: (1) Ornamental shrimp.

Total number of death: (1) 30.

### White spot disease (WSD)

#### 1Q

Reported from 10 different farms.

Date: (1) January 14; (2) January 17; (3) January 24; (4) January 25; (5), (6), (7), (8), (9) March 21; (10)  
 March 30.

Species: (1), (2), (3), (4), (5), (6), (7), (8), (9), (10) Ornamental shrimp.

Total number of death: (1), (2), (3), (4), (5), (6), (7), (8), (9), (10) 0.

**2Q**

Reported from 9 different farms.

Date: (1) April 3; (2) April 17; (3), (4), (5), (6) April 23; (7) May 3; (8) May 9; (9) May 28.

Species: (1),(2),(3),(4),(5),(6),(7),(8),(9) Ornamental shrimp.

Total number of death: (1),(3),(4) 30; (2) 20; (5), (6), (7), (8), (9) 0.

**3Q**

Reported from 13 different farms.

Date: (1) July 8; (2) July 12; (3) July 31; (4), (5), (6) Aug 2; (7) Aug 9; (8) Aug 13; (9) Aug 26; (10) Sep 6; (11) Sep 13; (12) Sep 20; (13) Sep 24.

Species: (1), (2), (3), (4), (5), (6), (13) *Caridina serrata* var. red; (7) *Litopenaeus vannamei*; (8), (12) *Penaeus monodon*; (9), (10), (11) *Caridina serrata* var. red.

Total number of death: (1), (2), (3), (4), (5), (6), (7), (8), (9), (10), (11), (12), (13) 0.





**Koi herpesvirus disease (KHV)****1Q**

Koi herpesvirus disease was detected from a group of assorted koi that had been submitted for health certification.

**Red seabream iridoviral disease (RSID)****3Q**

Infectious spleen and kidney necrosis virus was detected in a group of jade perches with 2% mortality and 2% morbidity reported.

Infectious spleen and kidney necrosis virus and red sea beam iridovirus were detected in a group of giant groupers with 20% mortality and 50% morbidity reported.



**White spot disease (WSD)****1Q**

WSD was reported from very limited areas in Nellore and Bhimawaram districts of Andhara Pradesh; Udupi district of Karnataka, Kannur district of Kerala; Nagapattinam, Ramanathapuram and Pudukkottai districts of Tamil Nadu during different months under the reporting period.

*P. monodon* and *L. vannamei* were affected by WSD.

**2Q**

WSD was reported from very limited areas in Prakasam and Vijayawada districts of Andhra Pradesh; Udupi and Uttar Kannada districts of Karnataka; Ernakulam district of Kerala; Ganjam, Jagatsingpur, Kendrapada, Bhadrak, and Balasore districts of Odisha during different months under the reporting period.

*P. monodon* and *L. vannamei* were affected by WSD.

**3Q**

WSD was reported from very limited areas in Bhimavaram and Vijawada districts of Andhara Pradesh; Udupi district of Karnataka, Thane districts of Maharashtra and Nagapattinam district of Tamil Nadu during different months under the reporting period.

*P. monodon* and *L. vannamei* were affected by WSD.

**4Q**

WSD was reported from *P. monodon* and *L. vannamei* samples from very limited areas in Bhimavaram and Vijayawada districts of Andhra Pradesh; Udupi and Uttar Kannada districts of Karnataka; Kanchipuram and Nagapattinam districts of Tamil Nadu and Mednipur district of West Bengal during different months under the reporting period, on the basis of level-1 diagnosis.

WSSV was detected from *L. vannamei* samples from Kanchipuram, Nagapattinam and Puddukotai districts of Tamil Nadu.

**Infectious hypodermal and haematopoietic necrosis (IHHNV)****4Q**

IHHNV was detected in *L. vannamei* samples from Kanchipuram district of Tamil Nadu.



**Red seabream iridoviral disease****4Q**

- 1). Origin of the disease or pathogen: Kalianda (Lampung Province)
- 2). Species affected: *Cromileptes altivelis*
- 3). Clinical sign: -
- 4). Pathogen: iridovirus
- 5). Mortality rate : > 30%
- 6). Death toll (Economic loss) : -
- 7). Name of infected areas : Kalianda ( Lampung Province )
- 8). Preventive/control measures taken: Biosecurity
- 9). laboratories for confirmation: Center of Fish Diseases and Environment Investigation Banten laboratory
- 10) Not published: -
- 11) Unknown diseases:

**Koi herpesvirus disease****1Q**

- 1) Origin of the diseases or pathogen: South Kalimantan.
- 2) Species affected: *Cyprinus carpio*, *Cyprinus carpio koi*
- 3) Clinical sign: haemorrhage, peled gill and gill rat, damaged gills, scales off, weak fish condition , gills damaged, ulcers in the gills and head, red spots on the body surface.
- 4) Pathogen: Koi herpesvirus
- 5) Mortality rate: low to high (West Java), 50% - 70 % (South Kalimantan).
- 6) Economic loss: 8750 kg (South Kalimantan)
- 7) Name of infected areas: West Java, South Kalimantan .
- 8) Preventive/control measures: Eradicated of infected fish and quarantine of non Infected fishes (moved to another pond), Vitamin and immunostimulant. Temperatur controlling > 26°C (West Java), harves of the infected fish (South Kalimantan).
- 9) Laboratory confirmation: Freshwater Aquaculture Development Center Mandiangin Laboratory, Main Center Freshwater Aquaculture Development Sukabumi Laboratory.
- 10) Not published: -

**2Q**

- 1) Origin of the disease or pathogen: Hulu Sungai Tengah , Hulu Sungai Utara, BanjarBaru ( South Kalimantan ), Sukabumi, Kuningan (West Java)
- 2) Species affected: *Cyprinus carpio*,
- 3) Clinical sign: wounded body, red spots on the body surface, gills damaged, most of the body surface flaking, hemorrhage,
- 4) Pathogen: KHV,
- 5) Mortality rate : > 50% ( Hulu Sungai Tengah ), 10% - 50% ( Hulu Sungai Utara).  
< 30% ( Banjar Baru), Low to high ( Sukabumi and Kuningan)
- 6) Death toll (Economic loss): -
- 7) Name of infected areas: Hulu Sungai Tengah, Hulu Sungai Utara, Banjar Baru (South Kalimantan),

Sukabumi (West Java)

- 8) Preventive/control measures taken: eradication to fish infected, vaccine, vitamin applied
- 9) Laboratory for confirmation: Freshwater Aquaculture Development Center Mandiangin Laboratory. Main Center Freshwater Aquaculture Development Sukabumi Laboratory.
- 10) Not published:-
- 11) Unknown diseases: -

### 3Q

- 1) Origin of the disease or pathogen: Hulu Sungai Utara. Banjar (South Kalimantan Province ). Purwakarta. Sukabum (West Java Province ). Kutai Kartanegara (East Kalimantan Province ).
- 2) Species affected: *Cyprinus carpio*, *Cyprinus carpio koi*.
- 3) Disease characteristics: gill rot. wounded on the body surface, redness on the body surface, haemorrhage.
- 4) Pathogen: KHV
- 5) Mortality rate: >70% Hulu Sungai Utara (South Kalimantan Province).
- 6) Death toll (economic loss. etc):Rp 5,000,000 - Rp 20,000,000 HulusungaiUtara ( South KalimantanProvince ). Rp. 10,000,000 *Cyprinus carpio koi* (West Java Province).
- 7) Names of infected areas: Hulu Sungai Utara. Banjar (South Kalimantan Province). Kutai Kartanegar (East Kalimantan Province ).
- 8) Preventive/control measures taken: Eradication. Vitamin. Herbal. Transfer to another pond
- 9) Laboratories for confirmation: Fresh Water Aquaculture Development Center Mandiangin Laboratory. Main Center Freshwater Aquaculture Development Sukabumi Laboratory.
- 10) Published paper: -
- 11) Unknown diseases: -

### 4Q

- 1). Origin of the disease or pathogen : Sukabumi Cirata Cianjur (West Java Province)
- 2). Species affected: *Cyprinus carpio koi*, *Cyprinus carpio*
- 3). Clinical sign: gill rot, weak, irritation, wounds, scales drop
- 4). Pathogen: KHV,
- 5). Mortality rate : > 30%
- 6) .Death toll (Economic loss): Rp 5.000.000,- - Rp.10.000.000
- 7). Name of infected areas: Sukabumi (West Java Province)
- 8).Preventive/control measures taken: Displacement of fish in the control tanks, conditioning temperature 26<sup>0</sup> C, vitamin applied
- 9) Laboratory for confirmation: Visual observation of clinical symptom
- 10) Not published: -
- 11) Unknown diseases: -

## Grouper iridoviral disease

### 1Q

- 1) Origin of the disease or pathogen: Batam (Kepulauan Riau Province), Teluk Harun (Lampung Province).
- 2) Species affected: *Traschinotus blochi*, *Cobia*, *Cromileptes altivelis*
- 3) Clinical sign: werling swim, body color to the base of the tail section partly black color, decreased appetite.

Melanosis, macroscopic, pale liver. settles at the bottom of tub

- 4) Pathogen: Iridovirus
- 5) Mortality rate: 60% Batam (Kepulauan Riau Province), 20% (Lampung Province)
- 6) Economic loss:
- 7) Names of infected areas: Batam (Kepulauan Riau Province)
- 8) Preventive/control measures: vitamin C ,immunostimulan, water quality control.
- 9) Laboratory confirmation: Mariculture Development Center Batam Laboratory, Main Center Mariculture Development Lampung Laboratory
- 10) Not published: -

#### 2Q

- 1) Origin of the disease or pathogen: Mariculture Development Center Lombok
- 2) Species affected: *Ephinephelus fuscogutatus*,
- 3) Clinical sign: decreased appetite, melanosis.
- 4) Pathogen: iridovirus;
- 5) Mortality rate: 30-60% (West Lombok)
- 6) Economic loss: -
- 7) Names of infected areas: West Lombok
- 8) Preventive/control measures taken: reduce density, vaccination
- 9) Laboratory for confirmation: Mariculture Development Center Lombok Laboratory.
- 10) Not published: -
- 11) Unknown diseases: -

#### 3Q

- 1) Origin of the disease or pathogen : Batam. Tanjung Balai Karimun(Riau Island Province). South Lampung (Lampung Province ). West Lombok (West Nusa Tenggara Province)
- 2) Species affected: *Trachinotus blochii*. *Lates calcarifer*. *Oreochromis niloticus*. *Chromileptis altivelis*
- 3) Disease characteristics: body blackened, irregular swimming, lack of appetite, skinny, White eye ring mass mortality.
- 4) Pathogen: multi infection (Iridovirus. *Vibrio* sp. and *Dieplectanum* sp in gill). Iridovirus
- 5) Mortality rate: 1200 pcs/ month (Riau Island Province), >60% (West Nusa Tenggara Province)
- 6) Death toll (economic loss. etc) :Rp. 8000,000 /8000 pcs (Batam Province) , Rp. 16,800,000 ,(Tanjung Balai ).
- 7) Names of infected areas: Batam Tanjung Balai Karimun Berundung (Lampung Province). West Lombok (West Nusa Tenggara Province ).
- 8) Preventive/control measures taken: Vitamine, Imunostimulan
- 9) laboratories for confirmation: Mariculture Development Center Batam Laboratory. Main Center Mariculture: Development Lampung Laboratory). Mariculture Development Center Lombok Laboratory.
- 10) Published paper
- 11) Unknown diseases

#### 4Q

- 1) Origin of the disease or pathogen: (Lampung Province) , Batam (Riau Island Province )
- 2) Species affected: *Chromileptes altivelis*, *Epinephelus fuscoguttatus*, *Lates calcarifer* Bloch (Lampung



Province ), *Epinephelus fuscoguttatus* (Batam – Riau Island Province )

- 3) Disease characteristics: changes in anatomic pathology macroscopically and microscopy ( Lampung Province ) Black bodies, mass mortality ( Riau Island Province )
- 4) Pathogen: Iridovirus
- 5) Mortality rate: 20 % (Lampung Province), >60% ( Riau Island Province ).
- 6) Death toll (economic loss, etc): -Rp 12,000,000,- ( Riau Island Province )
- 7) Names of infected areas: Pesawaran and East Lampung (Lampung Province), Barelang I Batam ( Riau Island Province )
- 8) Preventive/control measures taken: Vitamin, quarantine. good feed management
- 9) Laboratories for confirmation: Main Center Mariculture Development Lampung Laboratory, Mariculture Development Center Batam Laboratory.
- 10) Published paper: -
- 11) Unknown diseases: -

### **Viral encephalopathy and retinopathy**

#### **2Q**

- 1) Origin of the disease or pathogen: Puhawang Island (Lampung Province),
- 2) Species affected: *Chromileptes altivelis*, *Epinephelus fuscoguttatus*
- 3) Clinical sign: fin rot
- 4) Pathogen: VNN
- 5) Mortality rate: < 30%
- 6) Economic loss: -
- 7) Names of infected areas: Pesawaran (Lampung Province)
- 8) Preventive/control measures taken: quarantine the sick fish and who showed symptoms of illness, Vitamins, good feed, imunostimulan.
- 9) Laboratory for confirmation: Main Center Mariculture Development Lampung Laboratory
- 10) Not published: -
- 11) Unknown diseases: -

#### **3Q**

- 1) Origin of the disease or pathogen: Teluk Harun (Lampung Province)
- 2) Species affected: *Epinephelus fuscoguttatus*.
- 3) Disease characteristics: hemorrhage at the bottom of the mouth and the base of the anal fin rot . multifocal necrosis of the liver, spleen and kidneys to swell. Lesions and ulcers in the mouth, abdominal distention, spleen and kidney swelling
- 4) Pathogen: VNN
- 5) Mortality rate: 20%
- 6) Death toll (economic loss. etc): -
- 7) Names of infected areas: Teluk Harun (Lampung Province)
- 8) Preventive/control measures taken: Vitamin. quarantine. Immersion in fresh water
- 9) Laboratories for confirmation: Main Center Mariculture Development Lampung Laboratory

10) Published paper: -

11) Unknown diseases: -

#### 4Q

- 1) Origin of the disease or pathogen: Batam ( Riau Island Province ), Lampung ( Lampung Province )
- 2) Species affected: *Trachinotus blochi* (Bantam), *Chromileptes altivelis*, *Epinephelus fuscoguttatus*, *Epinephelus tauvina* (Lampung Province).
- 3) Disease characteristics: Abnormal swimming
- 4) Pathogen: VNN
- 5) Mortality rate : >30% (Batam).
- 6) Death toll (economic loss, etc): -
- 7) Names of infected areas: Mariculture Development Center Batam (Riau Island Province), Pesawaran (Lampung Province)
- 8) Preventive/control measures taken: Vitamine, quarantine, good feed management
- 9) Laboratories for confirmation: Mariculture Development Center Batam Laboratory, Main Center Mariculture Development Lampung Laboratory,
- 10) Published paper: -
- 11) Unknown diseases: -

#### Enteric septicaemia of catfish

##### 4Q

- 1) Origin of the disease or pathogen; fingerling *Pangasius* sp. from Bogor ( West Java Province )
- 2) Species affected: *Pangasius* sp.
- 3) Disease characteristics: red spots
- 4) Pathogen: *Edwardsiella* sp.
- 5) Mortality rate : > 70 %
- 6) Death toll (economic loss, etc): > Rp.5,000,000,-
- 7) Names of infected areas: Palangkaraya (Central Kalimantan Province)
- 8) Preventive/control measures taken: -
- 9) Laboratories for confirmation: Fresh Water Aquaculture Development Center Mandiangin laboratory,
- 10) Published paper: -
- 11) Unknown diseases: -

#### Taura syndrome

##### 1Q

- 1) Origin of the disease or pathogen Karawang ( West Java ), Lampung ( Lampung Province ).
- 2) Species affected: *L. vannamei*
- 3) Clinical sign: decreased appetite.
- 4) Pathogen: multi infection Taura syndrome virus and White spot syndrome virus.
- 5) Mortality rate: 100 %
- 6) Economic loss: -
- 7) Names of infected area: Karawang(West Java), Lampung (Lampung Province).

8) Preventive/control measures: eradications.

9) Laboratory confirmation: Aquaculture Sussines Develepment Center Karawang Laboratory, Main center Mariculture Development Lampung Laboratory,

10) Not published:-

## 2Q

1) Origin of the disease or pathogen: Tangerang ( Banten Province ). Pinrang, Maros (South Sulawesi Province). SouthLampung (LampungProvince)

2) Species affected: *Litopenaeus vannamei*

3) Disease characteristics:-

4) Pathogen: TSV

5) Mortalityrate: <30% (Banten Province). (South Sulawesi Province).

6) Death toll (economic loss. etc): -

7) Names of infected areas: Tangerang (Banten Province), Pinrang, Maros (South Sulawesi Province ),Ketapang ( Lampung Province)

8) Preventive/controlmeasures taken: Biosecurity

9) Laboratories for confirmation: Center of Fish Diseases and Environment Investigation Banten Laboratory). Brakhiswater Aquaculture Development Center Takalaar Laboratory. Main Center Mariculture Development Lampung Laboratory.

10) Published paper:-

11) Unknown diseases: -

## White spot disease (WSSV)

### 1Q

1) Origin of the disease or pathogen: Kota baru (South Kalimantan) ,(South Sulawesi), Cirebon, Indramayu, Kerawang, (West Java), Serang, Pandeglang (Banten Province), Semarang (Central Java), Bandar Lampung, Kalianda (Lampung Province).

2) Species affected: *Penaeus monodon*, *Liptopeneaus vannamei*

3) Clinical sign: no clinical sign, shrimp weak condition, white spots on the carapace, decreased appetite.

4) Pathogen: positif white spot syndrome virus, White spot baculavirus complex.

5) Mortality rate: 15 % (South Kalimantan), low 10 % (South Sulawesi ), 50 %

- 70 % in Cirebon, Indramayu (West Java), 100% (Karawang), < 30 % in Serang and Pandeglang (BantenProvince).

6) Economic loss: high> 60 % ( West Java) ,70.000 pcs (South Kalimantan).

7) Infected area: Cirebon, Karawang, Serang, Kota baru, Pangkep, Semarang, Bandar Lampung.

8) Preventive/Control measurement: desinfected of water supply and washing to prevent vertical transmission Cirebon (West Java), Eradications, Biosecurity.

9) Laboratory confirmation: Freshwater Aquaculture Development Center Mandiangin Laboratory, Brakhiswater Aquaculture Development Center Takalaar Laboratory, Main Center Mariculture Development Lampung laboratory, Main Center Brakhiswater Aquaculture Development Laboratory Jepara. Aquaculture Bussines Develepment Center Karawang Laboratory. Center of Fish Disease and Environment Investigation

Serang Laboratory.

10) Not published: -

### 2Q

1) Origin of the disease or pathogen: Hanura (Lampung Province),

2) Species affected: *Liptopenaeus vanamei*

3) Clinical sign: -

4) Pathogen: WSD, .

5) Mortality rate: < 30 %

6) Economic loss: -

7) Names of infected areas: Hanura

8) Preventive /control measures taken: early harvest

9) Laboratory for confirmation: Main Center Mariculture Development Lampung

Laboratory

10) Not published: -

11) Unknown diseases: -

### 3Q

1) Origin of the disease or pathogen : Tangerang. Pandeglang (Banten Province). South Lampung (Lampung Province). Kota Baru (South Kalimantan Province). West Sumbawa (West Nusa Tenggara Province)

2) Species affected: *Litopenaeus vannamei* Tangerang, Pandeglang (Banten Province). Jepara ( Central Java Province). West Sumbawa( West Nusa Tenggara Province), *Penaeus monodon* Kota baru (South Kalimantan Province ), Jepara (Central Java Province) .

3) Disease characteristics: soft carapace, mass mortality (kota baru South Kalimantan Province), White spots on carapace of infected shrimp, shrimp becoming weak and swimming on the surface of water (Jepara Central Java Province)

4) Pathogen: WSSV

5) Mortality rate: < 30% (Tangerang. Pandeglang Banten Province ). > 70% Kota Baru (South Kalimantan Province). 100% (Jepara Central Java Province). > 80% (West Nusa Tenggara Province)

6) Death toll (economic loss. etc):-

7) Names of infected areas: Tangerang. Pandeglang ( Banten Province ). Pangkep ( South Sulawesi Province ). South Lampung (Lampung Province). Kota Baru ( South Kalimantan Province ). Jepara (Central Java Province ). West Sumbawa (West Nusa Tenggara Province)

8) Preventive/control measures taken: Biosecurity. Vitamin C. Immunostimulants. Early harvest.

9) Laboratories for confirmation: Centre of Fish Diseases and Environment Investigation Banten Laboratory. Brankhis water Aquaculture Development Center Takalaar Laboratory. Main Center Mariculture Development Lampung Laboratory, Fresh Water Aquaculture Development Center Lombok Laboratory

10) Published paper:-

11) Unknown diseases:-

### 4Q

1) Origin of the disease or pathogen:: Tanjung Luar West Lombok Regency, Sumbawa , ( West Nusa Tenggara Province ), Cipucuk - Karawang ( West Java ) , Aceh , Pidie jaya ( Aceh Province ), Situbondo ( East Java Province ), Kota Baru. (South Kalimantan Province )

- 2) Species affected : *L. vannamei* (West Nusa Tenggara Province and East Java Province) , *Penaeus monodon* (South Sulawesi Province and Aceh Province and South Kalimantan Province )
- 3) Disease characteristics : loss of appetite, reddish, white spots on the carapace, high mortality, (West Nusa Tenggara Province), swimming on the water surface (Kerawang West Java), reddish of body and gills, necrosis on the uropod and between segments (South Sulawesi Province) weak (Aceh Province). shrimp swim on the surface, last of appetite, pale (East Java Province) Soft carapace, white spots, ( South Kalimantan Province )
- 4) Pathogen: White spot baculovirus complex, WSSV
- 5) Mortality rate: > 80% (West Nusatenggara Province) > 20% in October 100% In November (West Java Province) 70% (South Sulawesi Province and Aceh Province) , 25% (Aceh Province) , Low (East Java Province)
- 6) Death toll (economic loss, etc): Rp. 1,000,000 – Rp. 15,000,000, - (West Nusatenggara Province), > Rp. 20,000,000, - (South Sulawesi Province), Rp 2,000,000,- ( Aceh Province ) , > 50% ( South Kalimantan Province ), Rp. 9,500,00,- in November ( West Java Province )
- 7) Names of infected areas: West Nusatenggara Province , Cipucuk Kerawang ( West Java Province ) , Takalaar ( South Sulawesi Province ) , Pidie Jaya ( Aceh Province ) , Sidoarjo ( East Java Province ) , Kota Baru ( South Kalimantan Province )
- 8) Preventive/control measures taken: using virus free seeds, reduce stress or, contamination prevention, Vitamin C, early harvest. Quarantine, eradication
- 9) Laboratories for confirmation: Mariculture Development Center Lombok Laboratory, Aquaculture Bussines Development Center Kerawang Laboratory, Brakhiswater Aquaculture Development Center Takalaar Laboratory. Fresh Water Aquaculture Development Center Mandiangin laboratory,. Brakhiswater Development Center Aceh Laboratory, Brakhiswater Aquaculture Development Center Situbondo Laboratory,
- 10) Published paper: -
- 11) Unknown diseases: -

### **Infectious hypodermal and haematopoietic necrosis (IHHNV)**

#### **1Q**

- 1) Origin of the disease or pathogen: Kota baru (South Kalimantan), Barru (South Sulawesi, Tarakan ( East Kalimantan) , Bandar Lampung (Lampung Province).
- 2) Species affected: *Penaeus monodon*, *L. vannamei*
- 3) Clinical sign: shrimp weak condition.
- 4) Pathogen: Infectious Hypodermal and Haematophatic Necrosis Virus
- 5) Mortality rate: 15% (South Kalimantan), Low (South Sulawesi) < 30 (Tarakan)
- 6) Economic loss: 70,000 psc (South Kalimantan).
- 7) Preventive / control measurement: -
- 8) Name of infected area: Kota baru (South Kalimantan), Harchery in Takalaar (South Sulawesi), Tarakan (East Kalimantan) , Bandar Lampung (Lampung Province).
- 9) Laboratory confirmation: Brakhiswater Aquaculture Development Center Takalaar Laboratory, Main Center Brakhiswater Aquaculture Development Jepara Laboratory, Center of Fish Disease and Environment Investigation Serang Laboratory.
- 10) Not published: -

**2Q**

- 1) Origin of the disease or pathogen. Serang (Banten Province)
- 2) Species affected: *L. vannamei*
- 3) Disease characteristics: tail shrimp white spot appears, dwarf
- 4) Pathogen: IHHNV
- 5) Mortality rate: < 30% Serang (Banten Province). Jepara. Pati( Central Java Province).
- 6) Death toll (economic loss. etc): -
- 7) Names of infected areas: Serang (Banten Province) Jepara, Pati (Central Java Province)
- 8) Preventive/ control measures taken: Biosecurity. Disinfection of egg and larva
- 9) Laboratories for confirmation: Center of Fish Diseases and Environment Investigation Banten Laboratory. Main Center Brakhiswater Development Jepara Laboratory.
- 10) Published paper: -
- 11) Unknown diseases: -

**3Q**

- 1) Origin of the disease or pathogen. Serang (Banten Province)
- 2) Species affected: *L. vannamei*
- 3) Disease characteristics: tail shrimp white spot appears, dwarf
- 4) Pathogen: IHHNV
- 5) Mortality rate: < 30% Serang (Banten Province). Jepara. Pati( Central Java Province).
- 6) Death toll (economic loss. etc): -
- 7) Names of infected areas: Serang (Banten Province) Jepara, Pati (Central Java Province)
- 8) Preventive/ control measures taken: Biosecurity. Disinfection of egg and larva
- 9) Laboratories for confirmation: Center of Fish Diseases and Environment Investigation Banten Laboratory. Main Center Brakhiswater Development Jepara Laboratory.
- 10) Published paper: -
- 11) Unknown diseases: -

**4Q**

- 1) Origin of the disease or pathogen: Kalianda ( Lampung Province )
- 2) Species affected: *Litopenaeus vannamei*
- 3) Disease characteristics: no physical changes
- 4) Pathogen: IHHNV
- 5) Mortality rate : < 30%
- 6) Death toll (economic loss, etc) : -
- 7) Names of infected areas: Kalianda ( Lampung Province )
- 8) Preventive/control measures taken:.. early harvest
- 9) Laboratories for confirmation: Main Center Mariculture Development Lampung Laboratory,
- 10) Published paper: -
- 11) Unknown diseases: -

**Infectious myonecrosis ( IMN)****1Q**

- 1) Origin of the disease or pathogen: Tradisional farm Tarakan (East Kalimantan), Serang (Banten Province), Pandeglang (West Java), Bandar Lampung (Lampung Province), Banyuwangi (East Java), Gondol (Bali).
- 2) Species affected: *L. vannamei*, *Penaeus monodon*.
- 3) Clinical sign: reddish color, shrimp body damaged (Semarang Central Java), decreased appetite, changes in behavior, whitish abdominal muscle (Cirebon Central Java), Serang (Banten Province).
- 4) Pathogen: Infectious Myonecrosis Virus
- 5) Mortality rate : 60% - 80 % (Semarang), 50% (Jepara), 20% (Indramayu), < 30% (Pandeglang)
- 6) Economic loss: -
- 7) Preventive/ Control: avoid stress, immunostimulan (Vitamin C), probiotic, eradications, maintaining water quality
- 8) Infected area: Semarang (Central Java), Tarakan (East Kalimantan), Pandeglang (Banten Province), Banyuwangi (East Java).
- 9) Laboratory confirmation: Main Center Brocswater Aquaculture Development Jepara Laboratory. Main Center Mariculture Development Lampung. Brakhiswater Aquaculture Development Center Situbondo Laboratory. Center of Fish Disease and Environment Investigation Serang Laboratory.
- 10) Not published -

## 2Q

- 1) Origin of the disease or pathogen: Tanggamus (Lampung Province)
- 2) Species affected: *L. vannamei*
- 3) Clinical sign: -
- 4) Pathogen: IMN
- 5) Mortality rate: -
- 6) Death toll (Economic loss) : -
- 7) Name of infected areas: Tanggamus ( Lampung Province ).
- 8) Preventive/control measures taken: early harvest
- 9) Laboratory for confirmation: Main Center Mariculture Development Lampung Laboratory
- 10) Not published: -
- 11) Unknown diseases: -

## 3Q

- 1) Origin of the disease or pathogen: Tangerang (Banten Province). South Lampung (Lampung Province). Probolinggo (East Java Province)
- 2) Species affected: *Litopenaeus vannamei*.
- 3) Disease characteristics: shrimp in the acute phase of IMN disease will present focal to extensive white necrotic areas in striated (skeletal) muscles. Especially in the distal abdominal segments and tail fan. Wich can become necrotic and reddened in some individual shrimp (Jepara, patiCentral Java Province).
- 4) Pathogen: IMNV
- 5) Mortality rate : < 30% Tangerang (Banten Province)
- 6) Death toll (economic loss. etc): -
- 7) Names of infected areas: Berunding and Padang Cermin (Lampung Province)

- 8) Preventive/ control measures taken: Biosecurity, early harvest, Disinfection, good management.
- 9) Laboratories for confirmation: Center of Fish Diseases and Environment Investigation Banten Laboratory. Main Center Mariculture Development Lampung Laboratory, Main Center Brakhiswater Development Jepara Laboratory, Brakhiswater Aquaculture Development Center Situbondo Laboratory
- 10) Published paper:-
- 11) Unknown diseases: -

#### 4Q

- 1) Origin of the disease or pathogen: Kalianda ( Lampung Province ), Cinangka Serang ( Banten Province )
- 2) Species affected: *Litopenaeus vannamei*.
- 3) Disease characteristics: -
- 4) Pathogen: IMNV
- 5) Mortality rate : <30% Serang ( Banten Province )
- 6) Death toll (economic loss, etc): -
- 7) Names of infected areas: Kalianda ( Lampung Province ) , Serang ( Banten Province ) .
- 8) Preventive/control measures taken: Biosecurity ( Serang – Banten Province ) , early harvest ( Lampung Province ) .
- 9) Laboratories for confirmation: Center of Fish Diseases and Environment Investigation Banten Main Center Mariculture Development Lampung Laboratory,
- 10) Published paper: -
- 11) Unknown diseases: -





**Viral haemorrhagic septicaemia (VHS)****4Q**

VHS reported in 11 farms of the Fish (*O. mykiss*) culture in Kordestan (1 Farm), Chahar mahal bakhtiari (6 Farms), Lorestan (4 Farms)

- 1 – The origin of disease still is unknown, but it is under study
- 2 – Affected species were *O. mykiss* (Rainbow Trout)
- 3 – The disease occurred in Dec 2013
- 4 – Clinical signs were bleeding under skin around base of pectoral and pelvic fins ,pale gills with pinpoint hemorrhages ,bleeding around eyes, liver pale(Yellow & grey), with evidence of hemorrhages on surface, pinpoint hemorrhages in the fatty tissue
- 5 – The pathogen was detected by Real Time PCR & Cell Culture and confirmed by CVL (Centre of veterinary laboratory )
- 6 – Morbidity rate was near to 50%
- 7 – Mortality rate was more than 30%
- 8 – Age of affected Fish were Juvenile and adult
- 9 – Economic loss undetermined.
- 10 – All affected farms were quarantined and disinfected

**White spot disease (WSD)****2Q**

WSSV was detected in one of the shrimp hatchery in choebdehregion (Abadan)

- 1 – The Origin of wssv was unknown.
- 2 – Affected species were *L. vannamei* .
- 3 – Wssv was detected in June 2013.
- 4 – The name of infected area is choebdeh in khozestan province.
- 5 – Clinical signs: no clinical signs found.
- 6 – The pathogen was detected by nested-PCR.
- 7 – Morbidity rate undetermind.
- 8 – One pond was disinfected with 40 ppm calcium choloride

**3Q**

WSSV reported in 2 farms of the shrimp culture in Goatr origin (chabahar)

- 1 – The Origin of disease still is unknown, but it is under study
- 2 – Affected species were *L. vannamei*.
- 3 – The disease occurred in October 2013.
- 4 – Clinical signs were sudden decrease in feeding swimming near the edge of pond, sudden dead .
- 5 – The pathogen was detected by nested-PCR and confirmed by national shrimp laboratory in blusher.
- 6 – Morbidity rate was near to 100%.
- 7 – Mortality rate was more than 80%
- 8 – Age of affected shrimp was 45 days
- 9 – Economic loss undetermined .
- 10 – All of the two farms and ponds were disinfected with 40 ppm calcium chloride and all of infected shrimp

were eradicated.



**Infection with *Xenohaliotis californiensis*****2Q**

DNA of *Xenohaliotis californiensis* was detected by PCR from *Haliotis discus hannai* (Aomori prefecture) and *Haliotis diversicolor diversicolor* (Kagoshima prefecture) without any clinical symptom. Diagnosis was made by National Research Institute of Aquaculture Fisheries Research Agency. Stamping out and disinfection of infected premises were implemented in response to the outbreak.

**3Q**

DNA of *Xenohaliotis californiensis* was detected by PCR from *Haliotis diversicolor aquatilis* (Kanagawa prefecture) and *Haliotis diversicolor diversicolor* (Kagoshima prefecture) without any clinical symptom. Diagnosis was made by National Research Institute of Aquaculture Fisheries Research Agency. Stamping out and disinfection of infected premises were implemented in response to the outbreak.



**Viral haemorrhagic septicaemia (VHS)****1Q**

Viral haemorrhagic septicaemia virus detected from Olive Flounder, (*Paralichthys olivaceus*) from a culture facility in Pohang. The confirmation diagnosis was performed by National Fisheries Research and Development Institute, Aqua-life disease control division. The standstill of VHSV-detected fish was declared for control.

**2Q**

Viral haemorrhagic septicaemia virus was detected in cultured olive flounder (*Paralichthys olivaceus*) of total 7 culture facilities in Jeju during 2 months (May and June). The confirmation diagnosis was performed by National Fisheries Research and Development Institute, Aqua-life disease control division. The standstill of VHSV-detected fish was declared for control.

**4Q**

Viral haemorrhagic septicaemia (VHS) was reported;

1. in Seogwipo of Jeju-do in December,
2. Olive flounder (*Paralichthys olivaceus*)
3. Clinical signs; haemorrhage at the base of the fins, oedema in the peritoneal cavity
4. VHSV (combined with bacteria, parasite)
5. Mortality rate; low (3%), decreasing
6. Death total; information not available
7. Geographic extent; limited to one farm
8. Control measures; prohibition of movement, disinfection of equipment and facilities
9. Laboratory Confirmation; PCR method and sequencing by National Fisheries Research and Development Institute (NFRDI)
10. Publication; None

**White spot disease (WSD)****2Q**

White spot disease virus was detected from supertexta (*Sulculus diversicolor supertexta*) in a hatchery in Jeju. No clinical signs and mortality were shown. The confirmation diagnosis was performed by National Fisheries Research and Development Institute, Aqua-life disease control division. The standstill of WSDV-detected fleshy supertexta was declared for control.

**3Q**

White spot disease virus was detected from whiteleg shrimp (*Litopenaeus vannamei*) in 2 farms in Taean-gun, Chungcheongnam-do. No clinical signs and mortality were shown. The confirmation diagnosis was performed by National Fisheries Research and Development Institute, Aqua-life disease control division. The standstill of WSDV-detected whiteleg shrimp was declared for control.

**Red seabream iridovial disease (RSID)****3Q**

Red sea bream iridovirus (RSIV) was detected in cultured mullet (*Chelon haematocheilus*) and starry flounder (*Platichthys stellatus*) in Sachen of Gyeongsangnam-do and Gangneung Gangwon-do, respectively. No clinical

signs and mortality were shown. The confirmation diagnosis was performed by National Fisheries Research and Development Institute, Aqua-life disease control division. The standstill of RSIV-detected fish was declared for control.

#### 4Q

Red sea bream iridovirus (RSIV) was reported;

1. Species and area affected;

A. sea bass (*Lateolabrax japonicus*) in Tongyoung of Gyeongsangnam-do and

B. starry flounder (*Platichthys stellatus*) in Gangneung of Gangwon-do

C. rock bream (*Oplegnathus fasciatus*) in Yeosu of Jeollanam-do and Jeju-do, respectively

D. Olive flounder (*Paralichthys olivaceus*) in Geoje of Gyeongsangnam-do.

2. Species affect; sea bass, starry flounder, rock bream and olive flounder

3. No clinical signs and mortality were shown

4. Pathogens; RSIV

5. Mortality rate; -

6. Death total; information not available

7. Geographic extent; limited to one farm

8. Containment measures; prohibition of movement, disinfection of equipment and facilities

9. Laboratory confirmation; PCR method and sequencing by NFRDI

10. Publication; None







**Spring viraemia of carp****1Q**

1. No positive cases were detected (PCR) during DoF active surveillance programme

**2Q**

No positive cases were detected (PCR) during DoF active surveillance programme

**3Q**

1. No positive cases were detected (PCR) during DoF active surveillance programme

**Koi herpesvirus disease****1Q**

2. No positive cases were detected (PCR) during DoF active surveillance programme

**2Q**

One positive cases were detected (PCR) during DoF active surveillance programme

**3Q**

One positive cases were detected (PCR) during DoF active surveillance programme

**Grouper Iridoviral disease (GIV)****1Q**

1. Grouper fish samples from Kedah were negative for Irido tested in Fisheries Research Institute (FRI) Pulau Sayak, Kedah for diagnostic cases.

Baramundi fish samples from Penang were negative for Irido tested in Fisheries Biosecurity Penang for disease surveillance.

**2Q**

1. Baramundi fish samples from Penang were positive for Irido tested in Fisheries Biosecurity Penang for disease surveillance.

**3Q**

Baramundi fish samples from Penang were positive for Irido tested in Fisheries Biosecurity Penang for disease surveillance.

**Viral encephalopathy and retinopathy****1Q**

1. All fish samples from Kedah were negative for VNN tested in NaFiSH for diagnostic cases

**2Q**

All fish samples from Kedah were negative for VNN tested in NaFiSH for diagnostic cases

**3Q**

1. All fish samples from Kedah were negative for VNN tested in NaFiSH for diagnostic cases

**Taura syndrome virus (TSV) (*Penaeus monodon*, *Litopenaeus vannamei*)****1Q**

2. TSV was not detected in all the 26 samples of post-larvae sent to Lab Industrial Resources laboratory (LIR) for routine and monitoring purposes.

3. No positive on reported cases detected by PCR although active surveillance was conducted by DOF in West and East Malaysia.

**2Q**

2. TSV was not detected in all the 28 samples of post-larvae sent to Private laboratory for routine and monitoring purposes.

3. No positive on reported cases detected by PCR although active surveillance was conducted by DOF in West and East Malaysia.

**3Q**

2. TSV was not detected in all the 28 samples of post-larvae sent to Private for routine and monitoring purposes.

3. No positive on reported cases detected by PCR although active surveillance was conducted by DOF in West and East Malaysia.

**White Spot Syndrome Virus (WSSV)**

**1Q**

Eight (8) cases of WSSV were detected in the samples sent to Private Laboratory for routine and monitoring purposes. It involve seven (7) of juvenile of *Penaeus monodon* and one (1) post-larvae of *P. vannamei*

**2Q**

One (1) cases of WSSV were detected in the samples sent to Private Laboratory for routine and monitoring purposes. It involve one (1) of juvenile of *Penaeus monodon*

**3Q**

One (1) cases of WSSV were detected in the samples sent to Private Laboratory for routine and monitoring purposes. It involve one (1) of juvenile of *Penaeus monodon*.

**Yellow head disease (YHV) (*Penaeus monodon*, *Litopenaeus vannamei*)**

**1Q**

1. YHV was not detected in all the nine (9) samples sent to Private Laboratory for routine and monitoring purposes.

2. No positive cases detected (PCR) although active surveillance was conducted by DOF in East Malaysia

**2Q**

1. YHV was not detected in all the 24 samples sent to Private Laboratory for routine and monitoring purposes.

2. No positive cases detected (PCR) although active surveillance was conducted by DOF in East Malaysia

**3Q**

1. YHV was not detected in all the 24 samples sent to Private Laboratory for routine and monitoring purposes.

2. No positive cases detected (PCR) although active surveillance was conducted by DOF in East Malaysia

**Infectious hypodermal and haematopoietic necrosis virus (IHHNV) (*Macrobrachium rosenbergii*, *Penaeus monodon*, *Litopenaeus vannamei*)**

**1Q**

1. IHHNV were detected in three (3) *P. vannamei* post-larvae samples sent to Private Laboratory for routine and

monitoring purposes.

2. No positive on reported cases detected by PCR although active surveillance was conducted by DOF in West and East Malaysia.

### 2Q

1. IHNV were detected in three (3) *P. vannamei* post-larvae samples sent to Private Laboratory for routine and monitoring purposes.

2. No positive on reported cases detected by PCR although active surveillance was conducted by DOF in West and East Malaysia.

### 3Q

1. IHNV were detected in three (3) *P. vannamei* post-larvae samples sent to Private Laboratory for routine and monitoring purposes.

2. No positive on reported cases detected by PCR although active surveillance was conducted by DOF in West and East Malaysia.

## Infectious Myonecrosis (IMNV)

### 1Q

1. IMNV was not detected in all fourteen (14) samples of *Penaeus monodon* and *Litopenaeus vannamei* post-larvae and juvenile sent to Private Laboratory for routine and monitoring purposes.

2. No positive on reported cases detected by PCR although active surveillance was conducted by

### 2Q

1. IMNV was not detected in all 43 samples of *Penaeus monodon* and *Litopenaeus vannamei* post-larvae and juvenile sent to Private Laboratory for routine and monitoring purposes.

2. No positive on reported cases detected by PCR although active surveillance was conducted by DOF in West and East Malaysia

### 3Q

1. IMNV was not detected in all 43 samples of *Penaeus monodon* and *Litopenaeus vannamei* post-larvae and juvenile sent to Private Laboratory for routine and monitoring purposes.

2. No positive on reported cases detected by PCR although active surveillance was conducted by DOF in West and East Malaysia

## *Macrobrachium rosenbergii* Nodavirus (MrNV)

### 1Q

No samples were tested for MrNV

### 2Q

No samples were tested for MrNV

### 3Q

No samples were tested for MrNV

## Necrotising hepatopancreatitis (NHPB) no sample

### 1Q

1. No samples were tested for NHPB

**2Q**

1. No samples were tested for NHPB

**3Q**

2. No samples were tested for NHPB

**Hepatopancreaticparvo virus disease (HPV) (*Penaeus monodon*. *Litopenaeus vannamei*)****1Q**

1. 18 positive (out of 46 of post-larvae samples of *P. Monodon*) were tested positive for HPV in by Private Laboratory for routine and monitoring purposes.

**2Q**

1. 5 positive (out of 46of post-larvae samples of *P. Monodon*) were tested positive for HPV in by Private Laboratory for routine and monitoring purposes.

**3Q**

1. 5 positive (out of 46 of post-larvae samples of *P. Monodon*) were tested positive for HPV in by Private Laboratory for routine and monitoring purposes.

**Acute Hepatopancreatic Necrosis Disease (AHPND)****3Q**

1. 6 positive cases from the outbreak of 8 pond in Sarawak; tested positive by National Fish Disease Research Institute (NaFisH) Penang in April and 1 out of 5 pond in Terengganu; 3 out of 3 in Kedah positive in Kedah and 2 out of 5 suspected in Kedah and 2 out of 2 suspected in Jun 2013



**White spot disease (WSD) / Infectious hypodermal and haematopoietic necrosis (IHHN) / Taura syndrome (TS)****Q1**

During this period, we have received 4 samples of shrimps, (2 Frozen and 2 Alive shrimp for export) for testing, WSSV, IHHNV and TSV and found that all are negative.

**Q2**

During this period, we have received 4 samples of shrimps, (2 Frozen and 2 Alive shrimp for export) for testing, WSSV, IHHNV and TSV and found that all are negative.

**Q3**

During this period, we have received 7 samples of shrimps, (2 Frozen and 5 Alive shrimp and soft shell crab for export) for testing, WSSV, IHHNV and TSV and found that all are negative.

**Q4**

During this period, we have received 15 samples of shrimps, (11 Frozen and 4 Alive shrimp for export) for testing, WSSV, IHHNV and TSV and found that all are negative.

**Parasite disease****Q1**

Visited to some fish farms in Yangon, Ayeyarwaddy and Bago Regions during this period. Due to water quality parasite disease was found at some farms.

**Q4**

Visited some fish farms in Yangon and Ayeyarwaddy Regions during this period. Due to poor water quality, parasite disease was found at some farm.

**Others****Q2**

Ministry of Livestock and Fisheries received a report of motilities in freshwater prawn hatcheries from local fisheries authority in Twantay and Kyauktan townships, Yangon Region, during this period.

The clinical symptom showed changes of color began at larvae stage 4-5 (10 day old) followed by loss of uniform growth in survivors.

**Q2**

Laboratory test indentifies poor water quality and isolated *vibrio* spp. bacteria from some water samples.





**Epizootic ulcerative syndrome (EUS)****1Q**

1) Seen in Bara and Chitawan district during December and November. 2) Mostly *C. mrigala*, *L. rohita* and catfishes. 3) Red spots and wounds like ulcer on body. 4) Eye observation  
5) 200- 500 gm size in 10 ha. Pond. 6) Liming @500 kg/ha and some ponds used Toximar @  
7) Now controlled both treatment case . 8) reported 500 kg loss. 9) No publication.

**2Q**

1) Seen in Chitawan, Rupandehi and Kathmandu district during April and June. 2) Mostly Indian carps and Catfishes. 3) Wounds like ulcer on body and brownish patch colour in different parts of the body. 4) Eye observation. 5) 200-700 gm size of Indian Carps in 25 ha. ponds and 75-200 gm size of Catfishes in 100 of small kitchen ponds. 6) Liming @ 500kg/ha and Toximar 20-40kg/ha. 7) Now controlled both treatment case. 8) Reported 1 ton Indian carps and 200kg Catfishes losses. No publication but internally reported.

**3Q**

1) Seen in Chitawan and Rupandehi district during September. 2) Mostly Chinese carps. 3) Drop out the scales, Hemorrhage on fin base, on operculum edge. 4) Eye observation, Water quality parameter check-up. 5) 200-1000gm.sized Chinese Carps 6) Potassium permagnet @ 500kg/ha for 7-10 days and 500kg lime per hac. 7) Now controlled both treatment case. 8) Reported 1 ton in Chitwan and 1.5 Ton in rupandehi District Chinese carps losses. No publication but internally reported.

**4Q**

1) Seen in rupandehi, Parsa and Kavre Districts during November. 2) Mostly Indian carps in Terai Districts and Chinese carps in Mid hills. Same symptoms appear like before month in terai and DO problem in mid hill. 4) Eye observation, Sample collection for Lab Test and water quality check-up. 5) 150- 400gm Indian carps and 500-800gm chainease carps. 6) 500 kg lime used and o2max 20kg per hac. 7) Indian Carps are little bit affects till now but chainease carps control. 8) Reported 1 Ton loss in Terai and 100kg in mid hill. 9) No publications but internally reported.



**3Q**

No evolution since the previous semester

**Infectious hypodermal and haematopoietic necrosis (IHHN)**

**4Q**

A positive IHHN result was found by PCR in august (auto control with no clinical sign) while all the controls were negatives since june 2011



### Infection with *Bonamia exitiosa*

#### 1Q

The *Bonamia* that occurs in New Zealand is *Bonamia exitiosa*. *Bonamia ostreae* has never been reported in New Zealand. *B. exitiosa* occurs in commercial 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 *Ostera* sp. from Tauranga, North Island. Annual monitoring of the presence of *B. exitiosa* infection is undertaken in the dredge oyster (*O. chilensis*) population in the Foveaux Strait.

#### 2Q

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#### 3Q

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#### 4Q

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### Infection with *Perkinsus olseni*

#### 1Q

*Perkinsus olseni* occurs in wild populations in New Zealand cockles, *Austrovenus stutchburyi* (Veneridae), and 3 other bivalve species, *Macomona lilliana* (Tellinidae), *Barbatia novae-zelandiae* (Arcidae), and *Paphies australis* (Mesodesmatidae). These mollusc species occur widely around the coast of New Zealand. Affected locations are from Waitemata Harbour (Auckland) northwards. The organism is probably enzootic, and is confined to the warmer waters of northern New Zealand.

#### 2Q

*Perkinsus olseni* occurs in wild populations of New Zealand cockles, *Austrovenus stutchburyi* (Veneridae), and 3 other bivalve species, *Macomona lilliana* (Tellinidae), *Barbatia novae-zelandiae* (Arcidae), and *Paphies australis* (Mesodesmatidae). These mollusc species occur widely around the coast of New Zealand. Affected

locations are from Waitemata Harbour (Auckland) northwards. The organism is probably enzootic, and is confined to the warmer waters of northern New Zealand.

### 3Q

*Perkinsus olseni* was detected in New Zealand pāua (*Haliotis iris*) in July 2013. This is the first report of *P. olseni* in this species, and also the first report in farmed animals in New Zealand. *P. olseni* occurs in wild populations of New Zealand cockles, *Austrovenus stutchburyi* (Veneridae), and 3 other bivalve species, *Macomona liliiana* (Tellinidae), *Barbatia novae-zelandiae* (Arcidae), and *Paphies australis* (Mesodesmatidae). These mollusc species occur widely around the coast of New Zealand. Affected locations are from the Waitemata Harbour (Auckland) northwards. The single infected farm was a semi-closed land-based system in the same region. Clinical signs (mantle retraction in shell) and gross pathology (nodules) were observed in animals greater than 72mm during routine checks and at harvest. No elevated mortality was observed in the affected farm.

### 4Q

*Perkinsus olseni* was detected in New Zealand paua (*Haliotis iris*) in July 2013. This is the first report of *P. olseni* in this species, and also the first report in farmed animals in New Zealand. *P. olseni* occurs in wild populations of New Zealand cockles, *Austrovenus stutchburyi* (Veneridae), and 3 other bivalve species, *Macomona liliiana* (Tellinidae), *Barbatia novae-zelandiae* (Arcidae), and *Paphies australis* (Mesodesmatidae). These mollusc species occur widely around the coast of New Zealand. Affected locations are from Waitemata Harbour (Auckland) northwards. The single infected farm was a semi-closed land-based system in the same region. Clinical signs (mantle retraction in shell) and gross pathology (nodules) were observed in animals greater than 72mm during routine checks and at harvest. Mortality in the affected farm was not elevated.

PHILIPPINES												
Name of disease	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>DISEASES PREVALENT IN THE REGION</b>												
<b>FINFISH DISEASES</b>												
<b>OIE-listed diseases</b>												
Epizootic haematopoietic necrosis	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
Infectious haematopoietic necrosis	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
Spring viraemia of carp (SVC)	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
Viral haemorrhagic septicaemia (VHS)	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
Epizootic ulcerative syndrome (EUS)	-(2002)	-(2002)	-(2002)	-(2002)	-(2002)	-(2002)	-(2002)	-(2002)	-(2002)	-(2002)	-(2002)	-(2002)
Red seabream iridoviral disease (RSID)	***	***	***	***	***	***	***	***	***	***	***	***
Koi herpesvirus disease (KHV)	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
<b>Non OIE-listed diseases</b>												
Grouper iridoviral disease	-(2008)	-(2008)	-(2008)	-(2008)	-(2008)	-(2008)	-(2008)	-(2008)	-(2008)	-(2008)	-(2008)	-(2008)
Viral encephalopathy and retinopathy	-(2007)	-(2007)	-(2007)	+	+	+	+	+	+	+	-	+
Enteric septicaemia of catfish	***	***	***	***	***	***	***	***	***	***	***	***
<b>MOLLUSC DISEASES</b>												
<b>OIE-listed diseases</b>												
Infection with <i>Bonamia exitiosa</i>	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
Infection with <i>Perkinsus olseni</i>	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
Infection with abalone herpes-like virus	***	***	***	***	***	***	***	***	***	***	***	***
Infection with <i>Xenohaliotis californiensis</i>	***	***	***	***	***	***	***	***	***	***	***	***
<b>Non OIE-listed diseases</b>												
Infection with <i>Martellioides chungmuensis</i>	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
Acute viral necrosis (in scallops)	***	***	***	***	***	***	***	***	***	***	***	***
Akoya oyster disease	***	***	***	***	***	***	***	***	***	***	***	***
<b>CRUSTACEAN DISEASES</b>												
<b>OIE-listed diseases</b>												
Taura syndrome (TS)	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
White spot disease (WSD)	+	+	+	+	+	+	+	+	+	+	+	+
Yellowhead disease (YHD)	-(1999)	-(1999)	-(1999)	-(1999)	-(1999)	-(1999)	-(1999)	-(1999)	-(1999)	-(1999)	-(1999)	-(1999)
Infectious hypodermal and haematopoietic necrosis (IHHN)	-	+	+	+	-	+	+	+	+	+	+	+
Infectious myonecrosis (IMN)	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
White tail disease (MrNV)	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
Necrotising hepatopancreatitis (NHP)	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
<b>Non OIE-listed diseases</b>												
Milky haemolymph disease of spiny lobster ( <i>Panulirus</i> )	***	***	***	***	***	***	***	***	***	***	***	***
<i>Monodon</i> slow growth syndrome	***	***	***	***	***	***	***	***	***	***	***	***
Acute hepatopancreatic necrosis syndrome (AHPNS)	***	***	***	0000	0000	0000	0000	0000	0000	0000	0000	0000
<b>AMPHIBIAN DISEASES</b>												
<b>OIE-listed diseases</b>												
Infection with Ranavirus	***	***	***	***	***	***	***	***	***	***	***	***
Infection with <i>Batrachochytrium dendrobatidis</i>	***	***	***	***	***	***	***	***	***	***	***	***
<b>ANY OTHER DISEASES OF IMPORTANCE</b>												
Monodon Baculovirus				+	-	-	-	-	-			



**Epizootic ulcerative syndrome (EUS)****2Q**

Three hundred eight (308) pieces of eels (*Anguilla* spp. and *Monopterus albus*) were negative for Epizootic Ulcerative Syndrome by gross morphological examination. Samples were from Pila Laguna, Parañaque City and General Santos City. Examination was conducted by the Bureau of Fisheries and Aquatic Resources (BFAR) Central Office Fish Health Laboratory.

**3Q**

Sixty five (65) pieces of eels (*Anguilla* spp.) were negative for Epizootic Ulcerative Syndrome by gross morphological examination. Samples were from Laguna and Cotabato City. Examination was conducted by the Bureau of Fisheries and Aquatic Resources (BFAR) Central Office Fish Health Laboratory.

**4Q**

Ninety (90) samples of eels-(60 *Monopterus albus* and 30 *Anguilla* spp.) were negative for Epizootic Ulcerative Syndrome by gross morphological examination. Samples were from Cagayan Valley, Nueva Viscaya and Pampanga. Examination was conducted by the Bureau of Fisheries and Aquatic Resources (BFAR) Central Office Fish Health Laboratory.

**Koi herpesvirus disease (KHV)****2Q**

One sample of common koi (*Cyprinus carpio koi*) was tested for Koi Herpes Virus using PCR. The result of the test was negative. The sample was from General Trias Cavite. Examination was conducted by BFAR Central Office Fish Health Laboratory.

**Grouper iridoviral disease****3Q**

Four (4) samples - (3 grouper, 1 snapper) were analyzed using Polymerase Chain Reaction (PCR) test. All samples showed negative results for Iridoviral Disease. The samples were collected from Sarangani Province, Sorsogon and Nueva Ecija. Examination was conducted by BFAR Central Office Fish Health Laboratory and Southeast Asian Fisheries and Development Center/ Aquaculture Department (SEAFDEC/ AQD) Laboratory.

**4Q**

Nine (9) samples – (5 grouper, 3 snapper and 1 pompano) were analyzed using Polymerase Chain Reaction (PCR) test. All samples showed negative results for Iridoviral Disease. The samples were collected from Camarines Norte and Sarangani Province. Examination was conducted by BFAR Central Office Fish Health Laboratory and Southeast Asian Fisheries and Development Center/ Aquaculture Department (SEAFDEC/AQD) Laboratory.

**Viral encephalopathy and retinopathy****2Q**

Seven (7) samples - (3 grouper, 2 seabass, 1 pompano, 1 mangrove jack) were analyzed using PCR test. Four (3 grouper, 1 seabass) showed positive result for Viral Encephalopathy and Retinopathy. The positive samples were collected from Iloilo, Sarangani Province and Guimaras. Examination was conducted by the SEAFDEC-AQD Fish Health Laboratory.

**3Q**

Twenty (20) samples - (6 grouper, 6 pompano, 5 snapper, 2 siganid and 1 seabass) were analyzed using PCR test. Twelve (12) samples- (6 Grouper, 4 Pompano and 2 Saganid) showed positive result for Viral Encephalopathy and Retinopathy. The positive samples were collected from Sorsogon, Guimaras and Iloilo. Examination was conducted by the BFAR Central Office and SEAFDEC/AQD Laboratories.

**4Q**

Twenty-nine (29) samples- (5 grouper, 13 pompano, 6 siganid and 5 snapper) were analyzed using PCR test. Nine (3 pompano, 4 siganid, 1 grouper and 1 snapper) showed positive results for Viral Encephalopathy and Retinopathy. The positive samples were collected from Sarangani, Iloilo, Aklan and Guimaras. Examination was conducted by the BFAR Central Office and SEAFDEC/AQD Laboratories.

**Tuara Syndorome****1Q**

Taura Syndrome was never reported despite surveillance. Forty six (46) *Penaeus vannamei*, Eleven (11) *Penaeus monodon* and one (1) *M. rosenbergii* of different stages (brood stock, adult, fry, juvenile) were analyzed using PCR test. All 58 samples showed negative results. The samples were collected from Cebu City, General Santos City, Sarangani Province, Binangonan Rizal, Davao del Sur, Pangasinan, Occidental Mindoro, Pagbilao Quezon, Sorsogon, Camarines Sur, Calaca Batangas, Lemery Batangas, Camarines Norte, Tagkawayan Quezon, Antipolo Rizal. Other samples tested were imported from Singapore, Thailand, Hawaii and USA. Examinations/Tests were conducted by the Bureau of Fisheries and Aquatic Resources (BFAR) Central Office Fish Health Laboratory.

**2Q**

One hundred twenty five (125) samples - (109 *Penaeus vannamei*, 16 *Penaeus monodon*) of different stages (brood stock, adult, fry, juvenile) were analyzed using PCR test. All samples showed negative results for Taura Syndrome. The samples were collected from Iloilo, Davao, Negros Occidental, Aklan, Pampanga, Zambales, Bohol, Lapu-lapu City Cebu, Sarangani Province, General Santos City, Tacloban City, Zamboanga del Sur, Dapitan City, Bulacan, Villareal Samar, Pangasinan and Bataan. Other samples tested were imported from Hawaii, USA. Examinations were conducted by BFAR Central Office, BFAR Region III and SEAFDEC-AQD Fish Health Laboratories.

**3Q**

One hundred sixty five (165) samples - (137 *Penaeus vannamei*, 27 *Penaeus monodon* and 1 *M. rosenbergii*) of different stages (brood stock, adult, fry, juvenile) were analyzed using PCR test. All samples showed negative results for Taura Syndrome. The samples were collected from Bohol, Sorsogon, Zamboanga City, Sarangani Province, Surigao del Sur, Cotabato City, General Santos City, Quezon, Batangas, Samar, Ormoc City, Tacloban, Iloilo, Rizal, Cebu, Misamis Occidental, Lanao del Norte, Davao Oriental, Aurora, Bataan and Dapitan. Other samples were imported from Hawaii and Florida, USA. Examinations were conducted by BFAR Central Office, BFAR Region III, BFAR Region VI, BFAR Region VII and BFAR Region VIII and SEAFDEC/AQD Laboratories.

**4Q**

One hundred sixty-four (164) samples - (124 *Penaeus vannamei*, 26 *Penaeus monodon*, 11 *S. serrata* 3 crabs) of different stages (brood stock, adult, fry, juvenile) were analyzed using PCR test. All samples showed

negative results for Taura Syndrome. The samples were collected from Cebu, Bohol, Lanao del Norte, Batangas, Iloilo City, Sorsogon, Pangasinan, Zambales, Camarines Sur, Misamis Occidental, Zamboanga, Sarangani Province, Oriental Mindoro, Agusan del Norte, Dagupan City, Bulacan, General Santos City, Pampanga, Quezon Province and Cagayan. Other samples were imported from Hawaii, USA. Examinations were conducted by BFAR Central Office, BFAR Region III, BFAR Region VII, BFAR Region VIII and SEAFDEC/AQD Laboratories.

### White Spot Disease

#### 1Q

Three hundred twenty-four (324) samples of *P. vannamei*, *P. monodon*, *M. rosenbergii*. crabs and shells of different stages (fry, juvenile, adult and brood stock) were tested using PCR. Forty five (16 *P. vannamei*, 3 *P. monodon*, 26 crabs) were positive for White Spot Syndrome Virus. The positive samples were from Sarangani province, General Santos City, Davao Oriental, Pagbilao Quezon, Camarines Sur, Sorsogon, Palawan and Cebu City. Examinations/Tests were conducted by the Bureau of Fisheries and Aquatic Resources (BFAR) Central Office Fish Health Laboratory and Negros Prawn Producers Cooperative.

#### 2Q

Five hundred forty-four (544) samples of *P. vannamei*, *P. monodon*, and crabs of different stages (fry, juvenile, adult and brood stock) were tested using PCR. Thirty-nine - (6 *P. vannamei*, 11 *P. monodon*, 22 crabs) were positive for White Spot Syndrome Virus. The positive samples were from Iloilo, Negros Oriental, Bohol, Batangas, Bacolod, General Santos City, Camarines Sur, Samar and Davao del Sur. Examinations were conducted by BFAR Central Office, BFAR Region III, BFAR Region VI, Negros Prawn Producers Cooperative and SEAFDEC-AQD Fish Health Laboratories.

#### 3Q

Four hundred ninety-five (495) samples of *P. vannamei*, *P. monodon*, *S. serrata*, artemia and crabs of different stages (fry, juvenile, adult and brood stock) were tested using PCR. Twenty-one – (10 *P. vannamei*, 8 *P. monodon*, 3 crabs) were positive for White Spot Syndrome Virus. The positive samples were from Bohol, Cotabato City, Sorsogon, Samar, Sarangani, Camarines Sur, General Santos and Cebu. Examinations were conducted by BFAR Central Office, BFAR Region III, BFAR Region VI, BFAR Region VII, BFAR Region VIII, Negros Prawn Producers Cooperative and SEAFDEC/AQD Laboratories.

#### 4Q

Four hundred seventy-six (476) samples of *P. vannamei*, *P. monodon*, *S. serrata*, shells and slugs of different stages (fry, juvenile, adult and brood stock) were tested using PCR. Forty eight (23 *P. vannamei*, 23 *P. monodon* and 2 *S. serrata*) were positive for White Spot Syndrome Virus. The positive samples were from Iloilo, Negros Oriental, Aklan, Cebu, General Santos City, Bohol, Lanao del Norte, Sorsogon, Pangasinan, Camarines Sur, Dagupan City, Bulacan and Sarangani Province. Examinations were conducted by BFAR Central Office, BFAR Region III, BFAR Region VI, BFAR Region VII, BFAR Region VIII, BFAR Region XI, Negros Prawn Producers Cooperative and SEAFDEC/AQD Laboratories.

### Yellowhead Disease

#### 1Q

Yellowhead Disease was not reported at this period despite surveillance. Forty five (45) *P. vannamei*, Three (3)

*P. monodon* and one (1) *M. rosenbergii* of different stages (fry, juvenile, grow out, adult and brood stock) were tested using PCR. All 49 samples showed negative results. The samples were collected from Cebu City, General Santos City, Zambales, Binangonan Rizal, Davao del Sur, Pangasinan, Occidental Mindoro, Pagbilao Quezon, Magallanes Sorsogon, Batangas. Other samples were imported from Singapore, Thailand, Hawaii and USA. Examinations/Tests were conducted by the Bureau of Fisheries and Aquatic Resources (BFAR) Central Office Fish Health Laboratory.

#### 2Q

Fifty seven (57) samples - (48 *P. vannamei*, 9 *P. monodon*) of different stages (fry, juvenile, grow out, adult and brood stock) were tested using PCR. All samples showed negative results for Yellowhead Disease. The samples were collected from Bohol, Tacloban City, Camarines Sur, Sarangani Province, Iloilo City, Batangas, Bulacan, Samar, Pangasinan and Bataan. Other samples were imported from Hawaii, USA. . Examinations were conducted by BFAR Central Office and SEAFDEC-AQD Fish Health Laboratories.

#### 3Q

One hundred forty (140) samples - (112 *P. vannamei*, 27 *P. monodon* and 1 *M. rosenbergii*) of different stages (fry, juvenile, grow out, adult and brood stock) were tested using PCR. All samples showed negative results for Yellowhead Disease. The samples were collected from Sorsogon, Zamboanga City, Sarangani, Surigao del Sur, Cotabato City, General Santos City, Quezon Province, Zambales, Batangas, Samar, Ormoc City, Tacloban City, Iloilo, Cebu, Rizal, Bohol, Misamis Occidental, Lanao del Norte, Davao Oriental, Dapitan City and Aurora. Other samples were imported from Hawaii and Florida, USA. Examinations were conducted by BFAR Central Office, BFAR Region III, BFAR Region VI, BFAR Region VII, BFAR Region VIII and SEAFDEC/AQD Laboratories.

#### 4Q

One hundred twenty-five (125) samples - (97 *P. vannamei*, 17 *P. monodon* and 11 *S. serrata*) of different stages (fry, juvenile, grow out, adult and brood stock) were tested using PCR. All samples showed negative results for Yellowhead Disease. The samples were collected from Cebu, Bohol, Lanao del Norte, Batangas, Iloilo City, Sorsogon, Pangasinan, Zambales, Camarines Sur, Misamis Occidental, Zamboanga, Sarangani Province, Oriental Mindoro, Agusan del Norte, Dagupan City, General Santos City, Quezon Province and Cagayan. Other samples were imported from Hawaii, USA. Examinations were conducted by BFAR Central Office and SEAFDEC/AQD Laboratories.

### Infectious hypodermal and haematopoietic necrosis (IHHN)

#### 1Q

Eighty-six (86) samples (12 *P. monodon*, 73 *P. vannamei*, 1 *M. roenbergii*) of different stages (fry, juvenile, adult, brood stock) were 4 analyzed using the PCR Test. Five (5) showed positive result for Infectious Hypodermal and Haematopoietic Necrosis Virus. The positive samples were collected from Pagbilao Quezon, Palawan, Tagkawayan Quezon and Antipolo Rizal. Examinations/Tests were conducted by the Bureau of Fisheries and Aquatic Resources (BFAR) Central Office Fish Health Laboratory.

#### 2Q

One hundred thirty-one (131) samples - (35 *P. monodon*, 94 *P. vannamei*, 2 *P. indicus*) of different stages (fry, juvenile, adult, brood stock) were analyzed using the PCR Test. Six (3 *P. vannamei*, 3 *P. monodon*,) showed positive result for Infectious Hypodermal and Haematopoietic Necrosis Virus. The positive samples

were collected from Bohol, Tacloban City, Sarangani Province, Camarines Sur, Bulacan and Pangasinan. Examinations were conducted by BFAR Central Office and SEAFDEC-AQD Fish Health Laboratories.

### 3Q

One hundred ninety-seven (197) samples - (52 *P. monodon*, 143 *P. vannamei*, 1 *M. rosenbergii* and 1 artemia) of different stages (fry, juvenile, adult, brood stock) were analyzed using the PCR Test. Eleven (7 *P. vannamei*, 4 *P. monodon*.) showed positive result for Infectious Hypodermal and Haematopoietic Necrosis Virus. The positive samples were collected from Samar, Iloilo and Batangas. Examinations were conducted by BFAR Central Office, BFAR Region III, BFAR Region VI, BFAR Region VII, BFAR Region VIII and SEAFDEC/AQD Laboratories.

### 4Q

One hundred ninety-four (194) samples – (53 *P. monodon*, 130 *P. vannamei* and 11 *S. serrata*) of different stages (fry, juvenile, adult, brood stock) were analyzed using the PCR Test. Twenty (6 *P. vannamei*, 14 *P. monodon*) showed positive result for Infectious Hypodermal and Haematopoietic Necrosis Virus. The positive samples were collected from Bohol, Agusan del Norte, Zambales, Misamis Occidental, Bulacan, Sorsogon, Iloilo, Negros Occidental and Camarines Sur. Examinations were conducted by BFAR Central Office, BFAR Region III, BFAR Region VII and SEAFDEC/AQD Laboratories.

## Infectious myonecrosis (IMN)

### 1Q

Infectious Myonecrosis was not reported despite surveillance. Forty five (45) *P. vannamei*, Two (2) *P. monodon* and one (1) *M. rosenbergii* of different stages (fry, juvenile, adult and bloodstock) were tested using PCR. All 48 samples showed negative results. The samples were collected from Cebu City, Zambales, General Santos City, Binangonan Rizal, Davao del Sur, Pagbilao Quezon and Occidental Mindoro. Other samples were imported from Singapore, Thailand and Hawaii. Examinations/Tests were conducted by the Bureau of Fisheries and Aquatic Resources (BFAR) Central Office Fish Health Laboratory.

### 2Q

Eighty four (84) samples - (58 *P. vannamei*, 26 *P. monodon*) of different stages (fry, juvenile, adult and bloodstock) were tested using PCR. All samples showed negative results for Infectious Myonecrosis. The samples were collected from Bohol, Lapu-lapu Cebu, Davao del Sur, Davao City, Batangas, Iloilo City, Zambales, Camarines Sur, Sarangani Province, General Santos City, Batangas, Tacloban City, Zamboanga del Sur, Dapitan, Bulacan and Samar. Other samples were imported from Hawaii, USA. Examinations were conducted by BFAR Central Office and SEAFDEC-AQD Fish Health Laboratories.

### 3Q

One hundred sixty-five (165) samples - (137 *P. vannamei*, 27 *P. monodon*, and 1 *M. rosenbergii*) of different stages (fry, juvenile, adult and bloodstock) were tested using PCR. All samples showed negative results for Infectious Myonecrosis. The samples were collected from Sorsogon, Zamboanga City, Sarangani Province, Surigao del Sur, Cotabato City, General Santos City, Quezon Province, Zambales, Batangas, Samar, Ormoc City, Tacloban City, Iloilo, Cebu, Rizal, Bohol and Bataan. Other samples were imported from Hawaii, USA. Examinations were conducted by BFAR Central Office, BFAR Region III, BFAR Region VI, BFAR Region VII, BFAR Region VIII and SEAFDEC/AQD Laboratories.

### 4Q

One hundred sixty-three (163) samples - (126 *P. vannamei*, 26 *P. monodon* and 11 *S. serrata*) of different stages (fry, juvenile, adult and bloodstock) were tested using PCR. All samples showed negative results for Infectious Myonecrosis. The samples were collected from Cebu, Bohol, Lanao del Norte, Batangas, Iloilo City, Sorsogon,, Pangasinan, Zambales, Camarines Sur, Misamis Occidental, Zamboanga, Sarangani Province, Batangas, Oriental Mindoro, Agusan del Norte, Dagupan City, Bulacan, General Santos City, Quezon Province and Cagayan. Other samples were imported from Hawaii, USA. Examinations were conducted by BFAR Central Office, BFAR Region VII and SEAFDEC/AQD Laboratories.

#### **White tail disease (MrNV)**

##### **3Q**

One (1) sample of *M. rosenbergii* was tested using PCR. The sample showed negative results for White Tail Disease. The sample was collected from Rizal. Examination was conducted by BFAR Central Office Fish Health Laboratory.

##### **4Q**

Four (4) samples of *P. monodon* were tested using PCR. The sample showed negative results or White Tail Disease. The samples were collected from Lanao del Norte and Agusan del norte. Examination was conducted by BFAR Central Office Fish Health Laboratory.

#### **Necrotising hepatopancreatitis (NHP)**

##### **1Q**

Necrotising Hepatopancreatitis was not reported despite surveillance. Fifty four (54) *P. vannamei*, Eleven (11) *P. monodon* and one (1) *M. rosenbergii* of various stages ( fry, juvenile, adult and brood stock) were tested using PCR. All 66 samples showed negative results. The samples were collected from Cebu City, Zambales, General Santos City, Binangonan Rizal. Davao del Sur, Occidental Mindoro, Davao Oriental, Sarangani Province, Bulacan, Batangas, Camarines Norte and Tagkawayan Quezon. Other samples were imported from Singapore, Thailand and Hawaii. Examinations/Tests were conducted by the Bureau of Fisheries and Aquatic Resources (BFAR) Central Office Fish Health Laboratory.

##### **2Q**

Eighty three (83) samples - (73 *P. vannamei*, 10 *P. monodon*) of various stages (fry, juvenile, adult and brood stock) were tested using PCR. All samples showed negative results for Necrotising Hepatopancreatitis. The samples were collected from Bohol, Lapu-lapu Cty, Cebu, Davao del Sur, Davao City, Sarangani Province, Camarines Sur, Batangas, Quezon, General Santos City, Tacloban City, Zamboanga del Sur, Dapitan City, Bulacan and Samar. Other samples were imported from Hawaii, USA. Examination was conducted by BFAR Central Office Fish Health Laboratory.

##### **3Q**

One hundred fourteen (114) samples - (86 *P. vannamei*, 27 *P. monodon* and 1 *M. rosenbergii*) of various stages (fry, juvenile, adult and brood stock) were tested using PCR. All samples showed negative results for Necrotising Hepatopancreatitis. The samples were collected from Sorsogon, Zamboanga City, Sarangani Province, Surigao del Sur, Cotabato City, General Santos City, Quezon Province, Zambales, Batangas, Samar, Ormoc City, Iloilo, Rizal, Cebu, Bohol, Davao del Sur and Dapitan City. Other samples were imported from Hawaii and Florida, USA. Examination was conducted by BFAR Central Office, BFAR Region III, BFAR Region

VI, BFAR Region VII and BFAR Region VIII Laboratories.

#### 4Q

One hundred fourteen (114) samples - (97 *P. vannamei* and 17 *P. monodon*) of various stages (fry, juvenile, adult and brood stock) were tested using PCR. All samples showed negative results for Necrotising Hepatopancreatitis. The samples were collected from Cebu, Bohol, Lanao del Norte, Batangas, Iloilo City, Sorsogon, Pangasinan, Zambales, Camarines Sur, Misamis Occidental, Zamboanga, Sarangani Province, Oriental Mindoro, Agusan del Norte, Dagupan City, Bulacan, General Santos City, Zambales and Sarangani Province. Other samples were imported from Hawaii, USA. Examination was conducted by BFAR Central Office and BFAR Region VII Laboratories.

#### Monodon Baculovirus

#### 2Q

Twenty (20) samples of *P. monodon* of different stages (fry, grow-out and adult) were tested using PCR. Six (6) were positive for Monodon Baculovirus. The positive samples were from Tacloban City, Bohol. Examination was conducted by BFAR Central Office Fish Health Laboratory.





### **Red seabream iridoviral disease (RSID)**

#### **1Q**

Red sea bream iridovirus (RSIV) was not detected in 17 batches of marine food fish this quarter. Infectious spleen and kidney necrosis virus (ISKNV) was detected in a batch of hybrid grouper from a coastal netcage farm on 5 March 2013. Skin ulcers from a leech infestation, and protozoal parasites were seen in these fish.

#### **2Q**

Infectious spleen and kidney necrosis virus (ISKNV) was detected in a batch of diseased threadfin and 3 batches of diseased gourami in June. Red sea bream iridovirus (RSIV) was detected in a batch of seabass fingerlings this quarter from a landbased seabass nursery, which had been experiencing low grade mortality in their stock. RSIV was not detected in the other batch of seabass on the farm. The farm has since culled all diseased fish and vaccinated the clinically healthy ones to control the spread of the disease.

### **Koi herpesvirus disease (KHV)**

#### **1Q**

Koi herpesvirus (KHV) was not detected in 29 batches of ornamental koi this quarter by real-time PCR. Fish tested were from surveillance programs on imported and locally farmed ornamental fish, and voluntary submissions.

#### **2Q**

Koi herpesvirus (KHV) was not detected in 46 batches of ornamental koi this quarter by real-time PCR. Fish tested were from surveillance programs on imported and locally farmed ornamental fish, and voluntary submissions.

#### **3Q**

Koi herpesvirus (KHV) was not detected in one batch of koi submitted on 26th Sept with slight reddening of the body and lethargy by real-time PCR. Anti-KHV antibodies were not detected in serum of these koi by serology. Monogenean parasites were detected in skin and gills of these koi, and virus isolation for SVCV is in progress. 31 batches of imported and locally farmed ornamental koi from surveillance programs and voluntary submissions tested negative by real-time PCR this quarter.

#### **4Q**

Koi herpesvirus (KHV) DNA was not detected in 34 batches of imported and 1 batch of locally farmed ornamental koi from surveillance programs this quarter. KHV DNA was detected in one batch of healthy imported koi by real-time PCR while fish were in quarantine. As the exporter's premise was unable to demonstrate clear segregation of the infected batch from other batches of koi in the quarantine area, all koi in the quarantine area (an estimated 7000pcs) were culled.

### **Grouper iridoviral disease**

#### **1Q**

Red sea bream iridovirus (RSIV) was not detected in 17 batches of marine food fish this quarter. Infectious spleen and kidney necrosis virus (ISKNV) was detected in a batch of hybrid grouper from a coastal netcage farm on 5 March 2013. Skin ulcers from a leech infestation, and protozoal parasites were seen in these fish.

#### **2Q**

Infectious spleen and kidney necrosis virus (ISKNV) was detected in a batch of diseased threadfin and 3

batches of diseased gourami in June. Red sea bream iridovirus (RSIV) was detected in a batch of seabass fingerlings this quarter from a landbased seabass nursery, which had been experiencing low grade mortality in their stock. RSIV was not detected in the other batch of seabass on the farm. The farm has since culled all diseased fish and vaccinated the clinically healthy ones to control the spread of the disease.

### 3Q

Singapore grouper iridovirus (SGIV) was detected by PCR in 1 out of 2 batches of diseased, imported Pearl Grouper (*E. lanceolatus* x *E. fuscoguttatus*) fingerlings in August. Infection with Viral nervous necrosis (VNNV) was confirmed by histopathological findings and qPCR in these fish (see comment 3). Singapore grouper iridovirus (SGIV) was not detected in 1 batch of local Pearl grouper.

### 4Q

Singapore grouper iridovirus (SGIV) and Infectious Spleen and Kidney Necrosis Virus (ISKNV) was detected by PCR in 1 batch of diseased, imported Black Grouper fingerlings in October. Infection with Viral nervous necrosis (VNNV) was confirmed by histopathological findings and PCR in these fish (see comment 3).

## Viral encephalopathy and retinopathy

### 1Q

Viral nervous necrosis virus (VNNV) was detected in a batch of diseased, imported black grouper fingerlings from a landbased nursery using a recirculating aquaculture system. The farmer was advised to remove moribund fish from the tanks. VNNV was also detected in a batch of diseased hybrid grouper juveniles from a coastal netcage farm. Multifocal to coalescing, reddened, raised masses and blisters observed in the oral cavity and tongue of these fish were shown to be associated with an arthropod-like organism. The farmer was advised to treat the fish to remove the oral parasites, and to remove all moribund fish so as to control the spread of disease.

### 2Q

Viral nervous necrosis virus (VNNV) was detected in a batch of diseased, giant grouper submitted in May. The fish weighed more than 300g and had hyperinflated swim bladders. They were also infected with leeches, lice and monogenean parasites. The farmer was advised to treat the parasite infection in the fish and remove moribund fish from the nets to decrease the spread of the virus to naïve fish. VNNV was also detected in imported hybrid grouper fry and imported pompano in June.

### 3Q

Viral nervous necrosis virus (VNNV) was detected in a batch of locally bred Pearl grouper in July, which were also infected with ISKNV (see comment 6). In August, VNNV was detected in 5 batches of local and imported Pearl Grouper from landbased hatcheries and floating net cage farms, and one batch of hybrid pompano from a land-based fish hatchery. Viral nervous necrosis virus (VNNV) was also detected in 1 out of 2 batches of yellowtail scad submitted from a private aquaria in September. All detections of VNNV were confirmed by histopathological examination and qPCR.

### 4Q

Viral nervous necrosis virus (VNNV) was detected in a batch of imported black grouper in October, which were also infected with SGIV and ISKNV (see comment 6). In the same month, VNNV was detected in a batch of 23 day old Red snapper from a local landbased hatchery. All detections of VNNV were confirmed by

histopathological examination and PCR. VNNV was not detected in 13 batches of imported marine fish fingerlings and diseased marine fish this quarter.

### **White spot disease (WSD)**

#### **1Q**

There were no positive detections of White spot syndrome virus (WSSV) in 32 batches of crustaceans submitted this quarter, from targeted surveillance and voluntary samples.

#### **2Q**

White spot syndrome virus (WSSV) was detected in a batch of imported *P. monodon* during grow-out in earth ponds on a local farm. The farm had poor biosecurity and husbandry practices, and used unfiltered and untreated seawater in their ponds. It was possible that the virus was present in wild crabs introduced via this route. As the farm experienced 100% mortality in all 4 batches of shrimp, there were no suitable samples for further confirmatory tests. Pond water was treated with bleach for 3 days, then drained and left to dry in the sun. The farm has since ceased operations.

WSSV was not detected in 31 batches of ornamental crustaceans submitted from targeted surveillance programs, and voluntary submission of 165 shrimp from a local farm.

#### **3Q**

White spot syndrome virus (WSSV) was not detected in 24 batches of ornamental crustaceans submitted from targeted surveillance programs, 1 voluntary submission of ornamental crustaceans by an exporter, and in 120 *Litopaneus vannamei* submitted from a local broodstock farm this quarter.

#### **4Q**

White spot syndrome virus (WSSV) was detected by qPCR and histopathological examination in diseased lobsters submitted by the aquaculture research facility of a tertiary institute in December. All lobsters in the research facility were culled. WSSV was not detected in 28 batches of ornamental crustaceans submitted from targeted surveillance programs and in approximately 226 *Litopaneus vannamei* submitted from a local broodstock farm this quarter.

### **Infection with *Batrachochytrium dendrobatidis***

#### **1Q**

A study carried out by the Wildlife Conservation Society and the National University of Singapore detected *Batrachochytrium dendrobatidis* in 4 species of frogs from aquariums shops, and ponds at Upper Pierce Rd and Windsor-Venus Drive in 2011. A second survey conducted from 2011 – 2012, with 494 frogs collected from the wild, nature reserves and parks, tested negative for the fungus and Ranavirus. Validation of the diagnostic assay for *B. dendrobatidis* by the Animal Health Laboratory Department is currently underway. Surveillance of *B. dendrobatidis* in farmed and ornamental frogs will be included in the National Aquatic Animal Health surveillance programs by end-2013.

#### **3Q**

112 frog swab samples were submitted from June to September for validation of the *Batrachochytrium dendrobatidis* (Bd) real-time PCR protocol. Reactors and negative samples will be submitted to a diagnostic laboratory for confirmation. Surveillance in imported ornamental frogs, and imported and locally farmed food frogs will start in end-November.

**4Q**

36 swab samples from imported frogs were submitted in November and December for *Batrachochytrium dendrobatidis* (Bd) testing by qPCR. Validation of the assay is in progress.

**Infectious spleen and kidney necrosis virus (ISKNV) (marine & ornamental fish)****1Q**

Red sea bream iridovirus (RSIV) was not detected in 17 batches of marine food fish this quarter. Infectious spleen and kidney necrosis virus (ISKNV) was detected in a batch of hybrid grouper from a coastal netcage farm on 5 March 2013. Skin ulcers from a leech infestation, and protozoal parasites were seen in these fish.

**2Q**

Infectious spleen and kidney necrosis virus (ISKNV) was detected in a batch of diseased threadfin and 3 batches of diseased gourami in June. Red sea bream iridovirus (RSIV) was detected in a batch of seabass fingerlings this quarter from a landbased seabass nursery, which had been experiencing low grade mortality in their stock. RSIV was not detected in the other batch of seabass on the farm. The farm has since culled all diseased fish and vaccinated the clinically healthy ones to control the spread of the disease.

**3Q**

Infectious spleen and kidney necrosis virus (ISKNV) was detected in a batch of diseased pearl grouper in July which were also infected with VNNV (see comment 3), and 1 batch of diseased gourami in August. *Edwardsiella* sp. and *Plesiomonas shigelloides* was isolated from the gourami. One batch of imported pompano tested positive for ISKNV. All detections of ISKNV were confirmed by histopathological examination and PCR.

**4Q**

**Infectious spleen and kidney necrosis virus (ISKNV)** was detected by histopathological examination and qPCR in a batch of diseased, imported Black Grouper fingerlings in October. SGIV (see comment 2) and VNNV (see comment 3) were also detected in this batch of fish. ISKNV was not detected in 10 batches of imported marine fish fingerlings and diseased marine fish this quarter.

**Aeromonas salmonicida (in goldfish)****1Q**

*Aeromonas salmonicida* was not detected this quarter in all 12 batches of goldfish submitted under a targeted surveillance program for goldfish exported to Australia.

**2Q**

*Aeromonas salmonicida* was not detected this quarter in all 4 batches of goldfish submitted under a targeted surveillance program for goldfish exported to Australia.

**3Q**

*Aeromonas salmonicida* was not detected this quarter in all 15 batches of goldfish submitted under a targeted surveillance program for goldfish exported to Australia.

**4Q**

*Aeromonas salmonicida* was not detected this quarter in 2 batches of goldfish submitted under a targeted surveillance program for goldfish exported to Australia.

SRI LANKA												
Name of disease	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<b>DISEASES PREVALENT IN THE REGION</b>												
<b>FINFISH DISEASES</b>												
<b>OIE-listed diseases</b>												
Epizootic haematopoietic necrosis	***	***	***	0000	0000	0000	0000	0000	0000	0000	0000	0000
Infectious haematopoietic necrosis	***	***	***	***	***	***	***	***	***	***	***	***
Spring viraemia of carp (SVC)	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
Viral haemorrhagic septicaemia (VHS)	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
Epizootic ulcerative syndrome (EUS)	***	***	***	***	***	***	***	***	***	***	***	***
Red seabream iridoviral disease (RSID)	***	***	***	***	***	***	***	***	***	***	***	***
Koi herpesvirus disease (KHV)				0000	0000	0000	0000	0000	0000	0000	0000	0000
<b>Non OIE-listed diseases</b>												
Grouper iridoviral disease	***	***	***	***	***	***	***	***	***	***	***	***
Viral encephalopathy and retinopathy	***	***	***	***	***	***	***	***	***	***	***	***
Enteric septicaemia of catfish	***	***	***	***	***	***	***	***	***	***	***	***
<b>MOLLUSC DISEASES</b>												
<b>OIE-listed diseases</b>												
Infection with <i>Bonamia exitiosa</i>	***	***	***	***	***	***	***	***	***	***	***	***
Infection with <i>Perkinsus olseni</i>	***	***	***	***	***	***	***	***	***	***	***	***
Infection with abalone herpes-like virus	***	***	***	***	***	***	***	***	***	***	***	***
Infection with <i>Xenohalotis californiensis</i>	***	***	***	***	***	***	***	***	***	***	***	***
<b>Non OIE-listed diseases</b>												
Infection with <i>Marteilioides chungmuensis</i>	***	***	***	***	***	***	***	***	***	***	***	***
Acute viral necrosis (in scallops)	***	***	***	***	***	***	***	***	***	***	***	***
Akoya oyster disease	***	***	***	***	***	***	***	***	***	***	***	***
<b>CRUSTACEAN DISEASES</b>												
<b>OIE-listed diseases</b>												
Taura syndrome (TS)	***	***	***	***	***	***	***	***	***	***	***	***
White spot disease (WSD)	+( )	+( )	+( )	+( )	+( )	+( )	+( )	+( )	+( )	+( )	+( )	+( )
Yellowhead disease (YHD)	?( )	?( )	?( )	?( )	?( )	?( )	+( )	?( )	?( )	?( )	+( )	?( )
Infectious hypodermal and haematopoietic necrosis (IHHN)	?( )	?( )	?( )	+( )	+( )	+( )	?( )	?( )	?( )	?( )	?( )	?( )
Infectious myonecrosis (IMN)	***	***	***	***	***	***	***	***	***	***	***	***
White tail disease (MrNV)	***	***	***	***	***	***	***	***	***	***	***	***
Necrotising hepatopancreatitis (NHP)	***	***	***	***	***	***	***	***	***	***	***	***
<b>Non OIE-listed diseases</b>												
Milky haemolymph disease of spiny lobster ( <i>Panulirus</i> )	***	***	***	***	***	***	***	***	***	***	***	***
<i>Monodon</i> slow growth syndrome	***	***	***	***	***	***	***	***	***	***	***	***
Acute hepatopancreatic necrosis syndrome (AHPNS)	***	***	***	***	***	***	***	***	***	***	***	***
<b>AMPHIBIAN DISEASES</b>												
<b>OIE-listed diseases</b>												
Infection with Ranavirus	***	***	***	***	***	***	***	***	***	***	***	***
Infection with <i>Batrachochytrium dendrobatidis</i>												
<b>ANY OTHER DISEASES OF IMPORTANCE</b>												
Laem Singh Virus (LSV)	?( )	?( )	?( )	?( )	?( )	?( )	?( )	?( )	?( )	?( )	?( )	?( )
Monodon Baculovirus (MBV)	+( )	?( )	?( )	+( )	?( )	?( )	?( )	?( )	+( )	+( )	-	+( )

**Epizootichaematopietic necrosis****1Q**

At Central Veterinary Investigation Centre (CVIC) PCR has been developed for EHN. Samples were not tested.

**2Q**

At the Central Veterinary Investigation Centre (CVIC) PCR technique has been developed for EHN. Samples were not tested for the period from April to June 2013.

**3Q**

At the Central Veterinary Investigation Centre (CVIC) PCR technique has been developed for EHN. Samples were not tested for the period from July to September 2013.

**4Q**

Samples were not tested for EHN during the period from October to December 2013. At the Central Veterinary Investigation Centre (CVIC) PCR technique has been developed for EHN.

**Spring viraemia of carp (SVC)****1Q**

22 samples of guppy and 16 samples of carp were tested by PCR for SVC at CVIC. All the samples gave the negative result. These samples were taken from aquariums of western, central and north western provinces and these are from export samples.

**2Q**

Total no. of 28 samples were tested by PCR for SVC at CVIC in the month of April and May. Samples were not tested in the month of June. All the samples gave the negative result. The tested samples include 13 nos. of carp and 15 nos. of guppy and these samples were taken from aquariums of western, central and north eastern provinces and these are from export samples.

**3Q**

For SVC a total No. of 68 samples have been tested by PCR at CVIC and none of the sample gave positive reaction. No. of samples include 22 Nos of carp, 08 Nos of Koi carp and 38 Nos. of Guppy. These were the export samples collected from aquariums of western and north western provinces.

**4Q**

150 samples of Gold fish has been tested from a fish breeding Centre belonging to National Aquaculture Development Authority for SVC and *Aeromonas salmonicida* and all the samples gave negative reaction. A total no. of 14 samples were tested for SVC and none of the samples were found positive. These 14 samples include 4 numbers of guppy, 4 numbers of common carp and 6 numbers of koi carp.

**Viral haemorrhagic septicaemia (VHS)****1Q**

PCR has been developed for VHS at Central Veterinary Investigation Centre (CVIC) and samples were not tested during the period of three months.

**2Q**

PCR has been developed for VHS at CVIC and samples were not tested during the period of three months.

**3Q**

During the period of three months samples were not tested. PCR has been developed for VHS at CVIC.

**4Q**

During the period of three months samples were not tested. PCR technique has been developed for VHS at CVIC.

**Koi herpesvirus disease (KHV)****1Q**

A total no. of 56 samples from 15 batches have been tested for koi herpesvirus by PCR method at Centre for Aquatic Disease Diagnosis and Research(CADDAR). These samples were received from the quarantine station and all the samples were negative. The samples include 45 nos. of carp, 8 nos. of guppy and 3 nos. of gold fish.

**2Q**

A total no. of 20 samples from 07 batches have been tested for koi herpes virus by PCR method at Centre for Aquatic Disease Diagnosis and Research (CADDAR). These samples were received from the quarantine station, North western, Central and Eastern provinces. All the samples were found negative and these were carps.

**3Q**

23 numbers of koi carp have been tested for koi herpes virus disease at Centre for Aquatic Disease Diagnosis and Research (CAD DAR) and all the samples were found negative. Export samples were received from western province and other samples were from farmers at North Central province.

**4Q**

At the Centre for Aquatic Disease Diagnosis and Research (CADDAR) 17 numbers of koi carp have been tested for koi herpes virus disease and all the samples were found negative. Export samples were received from the Quarantine station.

**White spot disease (WSD)****1Q**

For WSSV a total no. of 470 samples of *P. monodon* were tested by PCR method and 230 samples were found positive. The testing has been carried out in Laboratories of National Aquatic Research Agency (NARA) and National Aquatic Development Authority (NAQDA)

**2Q**

For WSSV a total no. of 112 samples of *P. monodon* were tested by PCR method and 99 samples were found positive. The testing has been carried out in Laboratories of National Aquatic Research Agency (NARA) and National Aquatic Development Authority (NAQDA). Spp. *P. monodon*

**3Q**

PCR technique has been carried out in Laboratories of National Aquatic Research Agency (NARA) and National Aquatic Development Authority (NAQDA) for WSSV. A total no. of 865 samples of *P. monodon* were tested and 148 samples were found positive.

**4Q**

A total no. of 476 samples of *P. monodon* were tested in the Laboratories of National Aquatic Resources Research and Development Agency (NARA) and National Aquatic Development Authority (NAQDA) for WSS and 91 samples were found positive. These samples were from North western Province.

**Yellowhead disease (YHD)****1Q**

Testing of 19 samples for YHC has been carried out by PCR method in Laboratory of NAQDA and none of the samples gave positive reaction.

**2Q**

15 samples of *P. monodon* has been tested for YSD by PCR method in the Laboratory of NARA during the months from April to June and none of the samples gave positive reaction. Spp. *P. monodon*

**3Q**

A total No. of 10 samples have been tested by PCR method for YHD in the Laboratory of NARA and one sample gave a positive reaction in the month of July. Spp. *P. monodon*.

**4Q**

18 samples of *P. monodon* have been tested by PCR method for YHD in the laboratory of NARA and one sample gave a positive reaction the month of November.

**Infectious hypodermal and haematopoietic necrosis (IHHN)****1Q**

No samples gave the positive reaction after testing of 19 samples for IHHN by PCR method. The testing was carried out in NAQDA laboratory. Spp. *P. monodon*.

**2Q**

For IHHN 15 samples have been tested by PCR and 4 samples were found positive in the month of April and June. Testing has been carried out in NARA laboratory. Spp. *P. monodon*.

**3Q**

For IHHN 13 samples have been tested by PCR and no samples were found positive. Testing has been carried out in NARA laboratory. Spp. *P. monodon*.

**4Q**

For IHHN 19 samples have been tested by PCR method and no samples were found positive. Testing has been carried out in NARA laboratory. Spp. *P. monodon*.

**Laemsingh virus (LSV)****2Q**

During the period of 3 months positive samples were not found for LSV out of 15 samples. PCR method was used in the laboratory of NARA for LSV. Spp. *P. monodon*.

**3Q**

Out of 11 samples positive samples were not found for LSV during the period of 3 months. PCR method was used in the laboratory of NARA for LSV. Spp. *P. monodon*.

**4Q**

Out of 18 samples positive samples were not found for LSV during the period of 3 months. PCR method was used in the laboratory of NARA for LSV. Spp. *P. monodon*.

**Monodon Baculovirus (MBV)****2Q**



For MBV 16 samples gave the positive reaction. During the period of 3 months 28 samples have been tested by PCR method in the laboratories of NARA & NAQDA. Spp. *P. monodon*

**3Q**

A total No. of 65 samples were tested for MBV and 10 samples gave the positive reaction in the month of September. This has been tested by PCR method in the laboratories of NARA & NAQDA. Spp. *P. monodon*.

**4Q**

A total no. of 35 samples were tested for MBV and 3 samples gave the positive reaction in the month of October and December. Samples were not tested in the month of November. This has been tested by PCR method in the laboratories of NARA & NAQDA. Spp. *P. monodon*.



**Taura syndrome (TS)****2Q**

A total of 2,230 shrimp samples from shrimp farms had been tested at PCR Laboratories of the DOF under active surveillance. 6 specimens or 0.27 % recorded as PCR positive or carrying TSV genes. Shrimp farm with positive testing results is subjected to health improvement, movement control, eradication and/or farm disinfection.

**3Q**

A total of 1,508 shrimp samples from shrimp farms had been tested at PCR Laboratories of the DOF under active surveillance. 4 specimens or 0.26 % recorded as PCR positive or carrying TSV genes. Shrimp farm with positive testing results is subjected to health improvement, movement control, eradication and/or farm disinfection.

**White spot disease (WSD)****1Q**

A total of 2,169 shrimp samples from shrimp farms had been tested at PCR Laboratories of the DOF under active surveillance. 52 specimens or 2.39 % recorded as PCR positive or carrying WSSV genes. Shrimp farm with positive testing results is subjected to health improvement, movement control, eradication and/or farm disinfection.

**2Q**

A total of 2,151 shrimp samples from shrimp farms had been tested at PCR Laboratories of the DOF under active surveillance. 98 specimens or 4.56 % recorded as PCR positive or carrying WSSV genes. Shrimp farm with positive testing results is subjected to health improvement, movement control, eradication and/or farm disinfection.

**3Q**

A total of 1,502 shrimp samples from shrimp farms had been tested at PCR Laboratories of the DOF under active surveillance. 56 specimens or 3.73 % recorded as PCR positive or carrying WSSV genes. Shrimp farm with positive testing results is subjected to health improvement, movement control, eradication and/or farm disinfection.

**4Q**

A total of 656 shrimp samples from shrimp farms had been tested at PCR Laboratories of the DOF under active surveillance. 16 specimens or 2.44 % recorded as PCR positive or carrying WSSV genes. Shrimp farm with positive testing results is subjected to health improvement, movement control, eradication and/or farm disinfection.

**Yellowhead disease (YHD)****1Q**

A total of 2,169 shrimp samples from shrimp farms had been tested at PCR Laboratories of the DOF under active surveillance. 71 specimens or 3.27 % recorded as RT-PCR positive or carrying YHV genes. Shrimp farms with positive testing results are subjected to health improvement, movement control, eradication and/or farm disinfection.

**2Q**

A total of 2,224 shrimp samples from shrimp farms had been tested at PCR Laboratories of the DOF under active surveillance. 41 specimens or 1.84 % recorded as RT-PCR positive or carrying YHV genes. Shrimp farms with positive testing results are subjected to health improvement, movement control, eradication and/or farm disinfection.

**3Q**

A total of 1,507 shrimp samples from shrimp farms had been tested at PCR Laboratories of the DOF under active surveillance. 21 specimens or 1.79 % recorded as RT-PCR positive or carrying YHV genes. Shrimp farms with positive testing results are subjected to health improvement, movement control, eradication and/or farm disinfection.

**4Q**

A total of 667 shrimp samples from shrimp farms had been tested at PCR Laboratories of the DOF under active surveillance. 4 specimens or 0.60 % recorded as RT-PCR positive or carrying YHV genes. Shrimp farms with positive testing results are subjected to health improvement, movement control, eradication and/or farm disinfection.

**Infectious hypodermal and haematopoietic necrosis (IHHN)****1Q**

A total of 2,232 shrimp samples from shrimp farms had been tested at PCR Laboratories of the DOF under active surveillance. 65 specimens or 2.91 % recorded as PCR positive or carrying IHHNV genes. Shrimp farms with positive testing results will subject to health improvement, movement control, eradication and/or farm disinfection.

**2Q**

A total of 2,337 shrimp samples from shrimp farms had been tested at PCR Laboratories of the DOF under active surveillance. 50 specimens or 2.14 % recorded as PCR positive or carrying IHHNV genes. Shrimp farms with positive testing results will subject to health improvement, movement control, eradication and/or farm disinfection.

**3Q**

A total of 2,083 shrimp samples from shrimp farms had been tested at PCR Laboratories of the DOF under active surveillance. 26 specimens or 1.25 % recorded as PCR positive or carrying IHHNV genes. Shrimp farms with positive testing results will subject to health improvement, movement control, eradication and/or farm disinfection.

**4Q**

A total of 864 shrimp samples from shrimp farms had been tested at PCR Laboratories of the DOF under active surveillance. 18 specimens or 2.08 % recorded as PCR positive or carrying IHHNV genes. Shrimp farms with positive testing results will subject to health improvement, movement control, eradication and/or farm disinfection.

**White tail disease (MrNV)****1Q**

A total of 450 shrimp samples from shrimp farms had been tested at PCR Laboratories of the DOF under active surveillance. 15 specimens or 3.33 % recorded as PCR positive or carrying MrNV genes. Shrimp farms

with positive testing results will subject to health improvement, movement control, eradication and/or farm disinfection.

**2Q**

A total of 189 shrimp samples from shrimp farms had been tested at PCR Laboratories of the DOF under active surveillance. 62 specimens or 32.8 % recorded as PCR positive or carrying MrNV genes. Shrimp farms with positive testing results will subject to health improvement, movement control, eradication and/or farm disinfection.

**3Q**

A total of 186 shrimp samples from shrimp farms had been tested at PCR Laboratories of the DOF under active surveillance. 63 specimens or 33.87 % recorded as PCR positive or carrying MrNV genes. Shrimp farms with positive testing results will subject to health improvement, movement control, eradication and/or farm disinfection.

**4Q**

A total of 29 shrimp samples from shrimp farms had been tested at PCR Laboratories of the DOF under active surveillance. 20 specimens or 68.97 % recorded as PCR positive or carrying MrNV genes. Shrimp farms with positive testing results will subject to health improvement, movement control, eradication and/or farm disinfection.

**Acute hepatopancreatic necrosis syndrome (AHPNS)****1Q**

A total of 647 shrimp samples from shrimp farms had been tested at Histopathology Laboratories of the DOF under passive surveillance. 23 specimens or 3.55 % recorded AHPNS positives. Shrimp farms with positive testing results will subject to health improvement, movement control, eradication and/or farm disinfection

**2Q**

A total of 1,259 shrimp samples from shrimp farms had been tested at Histopathology Laboratories of the DOF under passive surveillance. 23 specimens or 1.83 % recorded AHPNS positives. Shrimp farms with positive testing results will subject to health improvement, movement control, eradication and/or farm disinfection.

**3Q**

A total of 68 shrimp samples from shrimp farms had been tested at Histopathology Laboratories of the DOF under passive surveillance. 7 specimens or 10.29 % recorded AHPNS positives. Shrimp farms with positive testing results will subject to health improvement, movement control, eradication and/or farm disinfection.

**4Q**

A total of 20 shrimp samples from shrimp farms had been tested at Histopathology Laboratories of the DOF under passive surveillance. 4 specimens or 20 % recorded AHPNS positives. Shrimp farms with positive testing results will subject to health improvement, movement control, eradication and/or farm disinfection.



### Infection with *Perkinsus olsenii*

#### 2Q

Pathogen: *Perkinsus* sp.

One disease outbreak in *Meretrix lyrata* was reported in Nghi Thiet commune, Nghi Loc district in Nghe An province in April. The affected area was 2.5ha.

Control measures: Disinfection of affected area.

### White spot disease (WSD)

#### 1Q

Pathogen: White Spot Syndrome Virus (WSSV).

Disease was found in black tiger shrimp (*Penaeus monodon*) and white leg shrimp (*Litopenaeus vannamei*).

The disease was reported in 10 provinces, including Quang Nam, Phu Yen, Khanh Hoa, Ninh Thuan, Ho Chi Minh City, Tien Giang, Kien Giang, Tra Vinh, Soc Trang and Ca Mau provinces. Shrimps were affected from 15-50 days after stocking.

Mortality rate: medium to high, 100% in some cases within 10 days.

Clinical signs: Lethargic or moribund shrimp accumulated at pond surface and edges, slow to erratic swimming behavior. Overall body color often reddish. Minute to large (0.5-2 mm diameter) white inclusions embedded in the cuticle, especially in the removed carapace held to the light after scraping off attached tissue (not always seen).

Control measures: Early harvest, strict isolation of infectious ponds with movement controls and control of transportation. Disinfection of infected ponds using Calcium hypochlorite (Chlorine).

#### 2Q

Pathogen: White Spot Syndrome Virus (WSSV).

Disease was found in black tiger shrimp (*Penaeus monodon*) and white leg shrimp (*Litopenaeus vannamei*).

The disease was reported in 20 provinces, including Thai Binh, Thanh Hoa, Nghe An, Ha Tinh, Quang Binh, Quang Tri, Quang Nam, Quang Ngai, TT Hue, Binh Dinh, Phu Yen, Ho Chi Minh city, Long An, Tien Giang, Kien Giang, Ben Tre, Soc Trang, Tra Vinh, Bac Lieu and Ca Mau provinces. Shrimps were affected from 15-50 days after stocking.

Mortality rate: medium to high, 100% in some cases within 10 days.

Clinical signs: Lethargic or moribund shrimp accumulated at pond surface and edges, slow to erratic swimming behavior. Overall body color often reddish. Minute to large (0.5-2 mm diameter) white inclusions embedded in the cuticle, especially in the removed carapace held to the light after scraping off attached tissue (not always seen).

Control measures: Early harvest, strict isolation of infectious ponds with movement controls and control of transportation. Disinfection of infected ponds using Calcium hypochlorite (Chlorine).

#### 3Q

Pathogen: White Spot Syndrome Virus (WSSV).

Disease was found in black tiger shrimp (*Penaeus monodon*) and white leg shrimp (*Litopenaeus vannamei*).

The disease was reported in 14 provinces, including Nam Dinh, Nghe An, Ha Tinh, Quang Tri, Quang Ngai, Ninh Thuan, Ho Chi Minh city, Tien Giang, Ben Tre, Tra Vinh, Kien Giang, Soc Trang, Bac Lieu, and Ca Mau provinces. Shrimps were affected from 15-50 days after stocking.

Mortality rate: medium to high, 100% in some cases within 10 days.

Clinical signs: Lethargic or moribund shrimp accumulated at pond surface and edges, slow to erratic swimming behavior. Overall body color often reddish. Minute to large (0.5-2 mm diameter) white inclusions embedded in the cuticle, especially in the removed carapace held to the light after scraping off attached tissue (not always seen).

Control measures: Early harvest, strict isolation of infectious ponds with movement controls and control of transportation. Disinfection of infected ponds using Calcium hypochlorite (Chlorine).

#### 4Q

Pathogen: White Spot Syndrome Virus (WSSV).

The disease was found in black tiger shrimp (*Penaeus monodon*) and white leg shrimp (*Litopenaeus vannamei*).

Disease outbreaks were reported in 5 provinces, including Ha Tinh, Long An, Tien Giang, Ben Tre, and Ca Mau. Affected shrimps were recorded from 15-50 days after stocking.

Mortality rate from average to high, up to 100% in some severe cases within 10 days.

Clinical signs: Lethargic or moribund shrimps accumulated at ponds' surfaces and edges, slow to erratic swimming behavior. Overall body color became reddish. Minute to large (0.5-2 mm in diameter) white spots embedded in the cuticle, especially in the removed carapace held to the light after scraping off attached tissue (not always seen).

Control measures: Early harvests, strict isolation of infectious ponds with movement controls and control of transportation. Disinfection of infected ponds by Calcium hypochlorite (Chlorine).

#### Yellowhead disease (YHD)

##### 1Q

The disease was not reported in this period.

#### Acute hepatopancreatic necrosis syndrome (AHPNS)

##### 1Q

Pathogen: *Vibrio parahaemolyticus*

The disease is still affecting in Mekong Delta area, particularly in the following provinces: Tien Giang (1.12 ha), Long An (0.9 ha) and Ca Mau (133.75 ha). The disease also found in two South Central coastal provinces: Phu Yen (6.1 ha) and Ninh Thuan (24.74 ha). Mortality recorded at 20-80 days post stocking in both *P. monodon* and *Litopenaeus vanamei* in intensive and semi-intensive farming system were died up to 95% mortality.

Disease characteristics: lethargy; soft, darken shells, and mottling of the carapace; pathology appears to be limited to the hepatopancreas.

Recently, the pathogen was confirmed by Professor Donald V. Lightner in the University of Arizona (USA).

Control measures: Strict isolation of infectious ponds with movement controls and control of transportation. Using Calcium hypochlorite (Chlorine) to disinfect infected ponds.

##### 2Q

Pathogen: *Vibrio parahaemolyticus* with Phage A3

The disease is still affecting in 12 provinces and caused losses around 1,700 ha shrimp culture, including



Nam Dinh province (in the North), Nghe An, Quang Binh, Quang Tri, Phu Yen, Ninh Thuan (in the Central coast) and Ba Ria-Vung Tau, Ho Chi Minh city, Ben Tre, Tra Vinh, Bac Lieu and Ca Mau (in the Mekong River Delta). Diverse mortality recorded but focused on shrimps 10-45 days post stocking in both *Penaeus monodon* and *Litopenaeus vanamei* in intensive and semi-intensive farming system were died upto 95% mortality.

Disease characteristics: lethargy; soft, darken shells, and mottling of the carapace; pathology appears to be limited to the hepatopancreas.

Control measures: Strict isolation of infectious ponds with movement and transportation controls.

Using Calcium hypochlorite (Chlorine) to disinfect infected ponds.

### 3Q

Pathogen: *Vibrio parahaemolyticus* with Phage A3

The disease is still affecting in 11 provinces and caused losses around 1,700 ha shrimp culture, including Quang Ninh (in the North), Nghe An, Ha Tinh, Phu Yen, Ninh Thuan (in the Central coast) and Ho Chi Minh city, Ben Tre, Tien Giang, Tra Vinh, Bac Lieu and Ca Mau (in the South). Mortality recorded diversely but focus on shrimp from 10-45 days post stocking in both *Penaeus monodon* and *Litopenaeus vanamei* in intensive and semi-intensive farming system were up to 95% mortality.

Disease characteristics: lethargy; soft, darken shells, and mottling of the carapace; pathology appears to be limited to the hepatopancreas.

Control measures: Strict isolation of infectious ponds with movement and transportation controls.

Using Calcium hypochlorite (Chlorine) to disinfect infected ponds.

### 4Q

Pathogen: *Vibrio parahaemolyticus* with Phage A3

The disease occurred in 3 provinces and caused losses to the shrimp culture areas of 112 ha in Phu Yen, Ben Tre, and Ca Mau provinces. There had been a wide range of mortality rates and they were popular in 10-45 days post stocking in both *Penaeus monodon* and *Litopenaeus vanamei* shrimps. The rate might reach 95% in intensive and semi-intensive farming areas.

Disease characteristics: shrimps become lethargy with soft, darken shells, and mottling of the carapace. The symptoms were only observed in hepatopancreas organs.

Control measures: Strict isolation of infected ponds and movement and transportation controls.

Using Calcium hypochlorite (Chlorine) to disinfect diseased ponds.



### Infection with *Bonamia exitiosa*, *Perkinsus olseni* and *Marteilioides chungmuensis*

4Q

Bonamiosis and Marteilliosis diseases: no reported in French Polynesia since the start of active surveillance network in 2003, in *Pinctada margaritifera*.

Since January 2012, pearl oyster network has been extended to giant clam and *Perkinsus olseni* was revealed on wild specimen of *Tridacna maxima* by PCR (PYF 06-12-12 OIE Alert).

*Perkinsus olseni* was also detected in *Pinctada margaritifera* by PCR (OIE Report 13451, may 14th 2013)

### Akoya oyster disease

4Q

Akoya oyster disease: not reported in French Polynesia since the start of active surveillance network in 2003, in *Pinctada margaritifera*

### Viral encephalopathy and retinopathy

4Q

The disease was diagnosed first in the breedings of *Lates calacarifer* (1989). In 2004 the disease cause mass mortality in *Platax orbicularis* and *Polydactylus sexifilis* breeding. Since 2005 the experimental hatchery of *Platax orbicularis* is biosecured. Only unhurt broodstock (wild origin) of nodavirus are maintained. An annual check of all broodstock and larvae is made. Since 2005, no sample is positive.

### Taura syndrome (TS), White spot disease (WSD), Yellowhead disease (YHD), Infectious hypodermal and haematopoietic necrosis (IHHN), Infectious myonecrosis (IMN), White tail disease (MrNV) and Necrotising hepatopancreatitis (NHP)

4Q

In 2008 and 2010, a survey including all production units was conducted and samples (30 per unit) were sent out for analysis to Aquaculture Pathology Laboratory University of Arizona (Pr Lighthner). None of those viruses was detected. Positive isolation was last reported in 2001 on *Penaeus vannamei*, a non indigeneous specie no longer cultivated in French Polynesia and extinct since 2005. For 2011 and 2012, the same survey will be done. In 2013 some analyses (for TS, WSD and IHHN) were realized in French Polynesia laboratory, they are all negative. We did not observe abnormal mortalities of the livestocks of *Litopenaeus stylirostris* during all this period.

### *Monodon* slow growth syndrome, Infection with Ranavirus and Infection with *Batrachochytrium dendrobatidis*

4Q

Susceptible species are not present in French Polynesia.

## Epizootic haematopoietic necrosis

Country/territory	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
AUSTRALIA	-(2012)	-(2012)	-(2012)	-(2012)	-(2012)	-(2012)	-(2012)	-(2012)	-(2012)	-(2012)	-(2012)	-(2012)
BHUTAN							0000	0000	0000	0000	0000	0000
CHINA, PEOPLE'S REPUBLIC OF	0000	0000	0000	0000	0000	0000						
CHINESE TAIPEI	***	***	***	***	***	***	***	***	***			
HONG KONG SAR, CHINA	0000	0000	0000				0000	0000	0000	0000	0000	0000
INDIA	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
INDONESIA	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
IRAN	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
JAPAN	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
KOREA, REPUBLIC OF	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
LAOS	0000	0000	0000				***	***	***	***	***	***
MALAYSIA	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
MYANMAR	***	***	***	***	***	***	***	***	***	***	***	***
NEPAL	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
NEW CALEDONIA	***	***	***	***	***	***	***	***	***	***	***	***
NEW ZEALAND	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
PHILIPPINES	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
SINGAPORE	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
SRI LANKA	***	***	***	0000	0000	0000	0000	0000	0000	0000	0000	0000
THAILAND	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
VIETNAM	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
FRENCH POLYNESIA							***	***	***	***	***	***

## Infectious haematopoietic necrosis

Country/territory	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
AUSTRALIA	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
BHUTAN							0000	0000	0000	0000	0000	0000
CHINA, PEOPLE'S REPUBLIC OF	***	***	***	0000	+ ( )	+ ( )						
CHINESE TAIPEI	***	***	***	***	***	***	***	***	***			
HONG KONG SAR, CHINA	0000	0000	0000				0000	0000	0000	0000	0000	0000
INDIA	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
INDONESIA	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
IRAN	-	-	-	-	-	-	-	-	-	-	-	-
JAPAN	+	+	+	+	+	+	+	+	+	+	+	+
KOREA, REPUBLIC OF	-	-	-	-	-	-	-	-	-	-	-	-
LAOS	0000	0000	0000				***	***	***	***	***	***
MALAYSIA	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
MYANMAR	***	***	***	***	***	***	***	***	***	***	***	***
NEPAL	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
NEW CALEDONIA	***	***	***	***	***	***	***	***	***	***	***	***
NEW ZEALAND	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
PHILIPPINES	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
SINGAPORE	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
SRI LANKA	***	***	***	***	***	***	***	***	***	***	***	***
THAILAND	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
VIETNAM	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
FRENCH POLYNESIA							***	***	***	***	***	***

## Spring viraemia of carp (SVC)

Country/territory	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
AUSTRALIA	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
BHUTAN							0000	0000	0000	0000	0000	0000
CHINA, PEOPLE'S REPUBLIC OF	***	***	***	+?()	+?()	+?()						
CHINESE TAIPEI	***	***	***	***	***	***	***	***	***			
HONG KONG SAR, CHINA	0000	0000	0000				0000	0000	0000	0000	0000	0000
INDIA	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
INDONESIA	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
IRAN	-	-	-	-	-	-	-	-	-	-	-	-
JAPAN	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
KOREA, REPUBLIC OF	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
LAOS	0000	0000	0000				***	***	***	***	***	***
MALAYSIA	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
MYANMAR	***	***	***	***	***	***	***	***	***	***	***	***
NEPAL	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
NEW CALEDONIA	***	***	***	***	***	***	***	***	***	***	***	***
NEW ZEALAND	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
PHILIPPINES	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
SINGAPORE	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
SRI LANKA	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
THAILAND	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
VIETNAM	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
FRENCH POLYNESIA							***	***	***	***	***	***

## Viral haemorrhagic septicaemia (VHS)

Country/territory	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
AUSTRALIA	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
BHUTAN							0000	0000	0000	0000	0000	0000
CHINA, PEOPLE'S REPUBLIC OF	0000	0000	0000	0000	0000	0000						
CHINESE TAIPEI	***	***	***	***	***	***	***	***	***			
HONG KONG SAR, CHINA	0000	0000	0000				0000	0000	0000	0000	0000	0000
INDIA	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
INDONESIA	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
IRAN	-	-	-	-	-	-	-	-	-	-	-	+
JAPAN	+	+	+	+	-	-	-	-	-	-	-	-
KOREA, REPUBLIC OF	-	-	+	-	+	+	-	-	-	-	-	+
LAOS	0000	0000	0000				***	***	***	***	***	***
MALAYSIA	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
MYANMAR	***	***	***	***	***	***	***	***	***	***	***	***
NEPAL	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
NEW CALEDONIA	***	***	***	***	***	***	***	***	***	***	***	***
NEW ZEALAND	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
PHILIPPINES	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
SINGAPORE	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
SRI LANKA	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
THAILAND	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
VIETNAM	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
FRENCH POLYNESIA							***	***	***	***	***	***

## Epizootic ulcerative syndrome (EUS)

Country/territory	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
AUSTRALIA	-(2012)	-(2012)	-(2012)	-(2012)	-(2012)	-(2012)	-(2012)	+	-(2013)	+	-(2013)	+
BHUTAN							0000	0000	0000	0000	0000	0000
CHINA, PEOPLE'S REPUBLIC OF	0000	0000	0000	0000	0000	0000						
CHINESE TAIPEI	0000	0000	0000	0000	0000	0000	0000	0000	0000			
HONG KONG SAR, CHINA	0000	0000	0000				0000	0000	0000	0000	0000	0000
INDIA	-	-	-	-	-	-	-	-	-	-	-	-
INDONESIA	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
IRAN	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
JAPAN	-	-	-	-	+	-	-	-	+	-	-	-
KOREA, REPUBLIC OF	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
LAOS	0000	0000	0000				***	***	***	***	***	***
MALAYSIA	(1986)	(1986)	(1986)	(1986)	(1986)	(1986)	(1986)	(1986)	(1986)	(1986)	(1986)	(1986)
MYANMAR	***	***	***	***	***	***	***	***	***	***	***	***
NEPAL	-	-	-	-	-	-	-	-	-	-	-	-
NEW CALEDONIA	***	***	***	***	***	***	***	***	***	***	***	***
NEW ZEALAND	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
PHILIPPINES	-(2002)	-(2002)	-(2002)	-(2002)	-(2002)	-(2002)	-(2002)	-(2002)	-(2002)	-(2002)	-(2002)	-(2002)
SINGAPORE	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
SRI LANKA	***	***	***	***	***	***	***	***	***	***	***	***
THAILAND	(2009)	(2009)	(2009)	(2009)	(2009)	(2009)	(2009)	(2009)	(2009)	(2009)	(2009)	(2009)
VIETNAM	-	-	-	-	-	-	-	-	-	-	-	-
FRENCH POLYNESIA							***	***	***	***	***	***

## Red seabream iridoviral disease (RSID)

Country/territory	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
AUSTRALIA	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
BHUTAN							0000	0000	0000	0000	0000	0000
CHINA, PEOPLE'S REPUBLIC OF	0000	0000	0000	0000	0000	0000						
CHINESE TAIPEI	+	-	-	-	+	-	+	+	-			
HONG KONG SAR, CHINA	-	-	-				-	+	-	-	-	-
INDIA	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
INDONESIA	***	***	***	***	***	***	0000	0000	0000	+( )	****	****
IRAN	***	***	***	***	***	***	***	***	***	***	***	***
JAPAN	-	-	-	-	-	+	+	+	+	+	+	+
KOREA, REPUBLIC OF	-	-	-	-	-	-	-	+	+	+	-	-
LAOS	0000	0000	0000				***	***	***	***	***	***
MALAYSIA	-	-	-	-	-	-	-	-	-	-	-	+
MYANMAR	***	***	***	***	***	***	***	***	***	***	***	***
NEPAL	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
NEW CALEDONIA	***	***	***	***	***	***	***	***	***	***	***	***
NEW ZEALAND	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
PHILIPPINES	***	***	***	***	***	***	***	***	***	***	***	***
SINGAPORE	(2012)	(2012)	(2012)	(2012)	(2012)	+	(2013)	(2013)	(2013)	(2013)	(2013)	(2013)
SRI LANKA	***	***	***	***	***	***	***	***	***	***	***	***
THAILAND	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
VIETNAM	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
FRENCH POLYNESIA							***	***	***	0000	0000	0000

## Koi herpesvirus disease (KHV)

Country/territory	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
AUSTRALIA	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
BHUTAN							0000	0000	0000	0000	0000	0000
CHINA, PEOPLE'S REPUBLIC OF	***	***	***	0000	+( )	0000						
CHINESE TAIPEI	+	-	-	-	-	-	+	+	-			
HONG KONG SAR, CHINA	+	-	-				-	-	-	-	-	-
INDIA	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
INDONESIA	+( )	+( )	***	+( )	***	+( )	+( )	+( )	+( )	+( )	+( )	****
IRAN	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
JAPAN	-	+	-	-	+	+	+	+	+	+	+	+
KOREA, REPUBLIC OF	-	-	-	-	-	-	-	-	-	-	-	-
LAOS	0000	0000	0000				***	***	***	***	***	***
MALAYSIA	-	-	-	-	-	-	-	-	-	-	-	-
MYANMAR	***	***	***	***	***	***	***	***	***	***	***	***
NEPAL	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
NEW CALEDONIA	***	***	***	***	***	***	***	***	***	***	***	***
NEW ZEALAND	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
PHILIPPINES	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
SINGAPORE	(2012)	(2012)	(2012)	(2012)	(2012)	(2012)	(2012)	(2012)	(2012)	(2012)	(2012)	(2012)
SRI LANKA				0000	0000	0000	0000	0000	0000	0000	0000	0000
THAILAND	(2011)	(2011)	(2011)	(2011)	(2011)	(2011)	(2011)	(2011)	(2011)	(2011)	(2011)	(2011)
VIETNAM	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
FRENCH POLYNESIA							***	***	***	***	***	***

## Grouper iridoviral disease

Country/territory	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
AUSTRALIA	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
BHUTAN							0000	0000	0000	0000	0000	0000
CHINA, PEOPLE'S REPUBLIC OF	0000	0000	0000	0000	0000	0000						
CHINESE TAIPEI	-	+	+	+	+	+	+	+	+			
HONG KONG SAR, CHINA	-	-	-				-	-	-	-	-	-
INDIA	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
INDONESIA	+( )	+( )	+( )	+( )	***	***	+( )	+( )	+( )	+( )	****	+( )
IRAN	***	***	***	***	***	***	***	***	***	***	***	***
JAPAN	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
KOREA, REPUBLIC OF	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
LAOS	0000	0000	0000				***	***	***	***	***	***
MALAYSIA	-	-	-	-	-	-	-	-	-	+	-	+
MYANMAR	***	***	***	***	***	***	***	***	***	***	***	***
NEPAL	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
NEW CALEDONIA	***	***	***	***	***	***	***	***	***	***	***	***
NEW ZEALAND	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
PHILIPPINES	-(2008)	-(2008)	-(2008)	-(2008)	-(2008)	-(2008)	-(2008)	-(2008)	-(2008)	-(2008)	-(2008)	-(2008)
SINGAPORE	(2012)	(2012)	+	(2012)	(2012)	+	(2013)	+	(2013)	+	(2013)	(2013)
SRI LANKA	***	***	***	***	***	***	***	***	***	***	***	***
THAILAND	-	-	-	-	-	-	-	-	-	***	***	***
VIETNAM	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
FRENCH POLYNESIA							***	***	***	***	***	***

## Viral encephalopathy and retinopathy

Country/territory	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
AUSTRALIA	-(2012)	-(2012)	+	-(2013)	-(2013)	+	-(2013)	-(2013)	-(2013)	-(2013)	-(2013)	+
BHUTAN							0000	0000	0000	0000	0000	0000
CHINA, PEOPLE'S REPUBLIC OF	0000	0000	0000	0000	0000	0000						
CHINESE TAIPEI	+	+	+	+	+	+	+	+	+			
HONG KONG SAR, CHINA	-	-	-				-	-	-	-	-	-
INDIA	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
INDONESIA	***	***	***	+( )	***	***	***	+( )	***	+( )	****	****
IRAN	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
JAPAN	-	-	-	-	-	-	-	+	+	+	+	-
KOREA, REPUBLIC OF	-	-	-	-	-	-	-	-	-	-	-	-
LAOS	0000	0000	0000				***	***	***	***	***	***
MALAYSIA	-	-	-	-	-	-	-	-	-	-	-	+
MYANMAR	***	***	***	***	***	***	***	***	***	***	***	***
NEPAL	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
NEW CALEDONIA	***	***	***	***	***	***	***	***	***	***	***	***
NEW ZEALAND	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
PHILIPPINES	-(2007)	-(2007)	-(2007)	+	+	+	+	+	+	+	-	+
SINGAPORE	(2012)	(2012)	+	(2012)	+	+	+	+	+	+	(2013)	(2013)
SRI LANKA	***	***	***	***	***	***	***	***	***	***	***	***
THAILAND	-	-	-	-	-	-	-	-	-	-	-	-
VIETNAM	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
FRENCH POLYNESIA							(2005)	(2005)	(2005)	(2005)	(2005)	(2005)

## Enteric septicaemia of catfish

Country/territory	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
AUSTRALIA	(2011)	(2011)	(2011)	(2011)	(2011)	(2011)	(2011)	(2011)	(2011)	(2011)	(2011)	(2011)
BHUTAN							0000	0000	0000	0000	0000	0000
CHINA, PEOPLE'S REPUBLIC OF	0000	0000	0000	0000	0000	0000						
CHINESE TAIPEI	***	***	***	***	***	***	***	***	***			
HONG KONG SAR, CHINA	0000	0000	0000				0000	0000	0000	0000	0000	0000
INDIA	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
INDONESIA	***	***	***	***	***	***	***	***	***	****	+( )	****
IRAN	***	***	***	***	***	***	***	***	***	***	***	***
JAPAN	-	-	-	-	-	-	-	-	-	-	-	-
KOREA, REPUBLIC OF	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
LAOS	0000	0000	0000				***	***	***	***	***	***
MALAYSIA	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
MYANMAR	***	***	***	***	***	***	***	***	***	***	***	***
NEPAL	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
NEW CALEDONIA	***	***	***	***	***	***	***	***	***	***	***	***
NEW ZEALAND	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
PHILIPPINES	***	***	***	***	***	***	***	***	***	***	***	***
SINGAPORE	***	***	***	***	***	***	***	***	***	***	***	***
SRI LANKA	***	***	***	***	***	***	***	***	***	***	***	***
THAILAND	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
VIETNAM	-	-	-	-	-	-	-	-	-	-	-	-
FRENCH POLYNESIA							***	***	***	***	***	***



Infection with *Bonamia exitiosa*

Country/territory	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
AUSTRALIA	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
BHUTAN							0000	0000	0000	0000	0000	0000
CHINA, PEOPLE'S REPUBLIC OF	0000	0000	0000	0000	0000	0000						
CHINESE TAIPEI	***	***	***	***	***	***	***	***	***			
HONG KONG SAR, CHINA	0000	0000	0000				0000	0000	0000	0000	0000	0000
INDIA	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
INDONESIA	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
IRAN	***	***	***	***	***	***	***	***	***	***	***	***
JAPAN	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
KOREA, REPUBLIC OF	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
LAOS	0000	0000	0000				***	***	***	***	***	***
MALAYSIA	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
MYANMAR												
NEPAL	***	***	***	***	***	***	***	***	***	***	***	***
NEW CALEDONIA	***	***	***	***	***	***	***	***	***	***	***	***
NEW ZEALAND	0000/ -(2012)	0000/ -(2012)	0000/ -(2012)	0000/ -(2013)	0000/ -(2013)	0000/ -(2013)	0000/ -(2013)	0000/ -(2013)	0000/ -(2013)	0000/ -(2013)	0000/ -(2013)	0000/ -(2013)
PHILIPPINES	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
SINGAPORE	***	***	***	***	***	***	***	***	***	***	***	***
SRI LANKA	***	***	***	***	***	***	***	***	***	***	***	***
THAILAND	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
VIETNAM	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
FRENCH POLYNESIA							0000	0000	0000	0000	0000	0000

Infection with *Perkinsus olseni*

Country/territory	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
AUSTRALIA	-(2011)	-(2011)	-(2011)	-(2011)	+	-(2013)	-(2013)	-(2013)	-(2013)	-(2013)	-(2013)	-(2013)
BHUTAN							0000	0000	0000	0000	0000	0000
CHINA, PEOPLE'S REPUBLIC OF	0000	0000	0000	0000	0000	0000						
CHINESE TAIPEI	***	***	***	***	***	***	***	***	***			
HONG KONG SAR, CHINA	0000	0000	0000				0000	0000	0000	0000	0000	0000
INDIA	-	-	-	-	-	-	-	-	-	-	-	-
INDONESIA	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
IRAN	***	***	***	***	***	***	***	***	***	***	***	***
JAPAN	-	-	-	-	-	-	-	-	-	-	-	-
KOREA, REPUBLIC OF	0000	0000	0000	0000	0000	0000	0000	0000	0000	-	-	-
LAOS	0000	0000	0000				***	***	***	***	***	***
MALAYSIA	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
MYANMAR												
NEPAL	***	***	***	***	***	***	***	***	***	***	***	***
NEW CALEDONIA	***	***	***	***	***	***	***	***	***	***	***	***
NEW ZEALAND	0000/ -(2002)	0000/ -(2002)	0000/ -(2002)	0000/ -(2002)	0000/ -(2002)	0000/ -(2002)	+( )	-(2013)	-(2013)	0000/ -(2013)	0000/ -(2013)	0000/ -(2013)
PHILIPPINES	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
SINGAPORE	***	***	***	***	***	***	***	***	***	***	***	***
SRI LANKA	***	***	***	***	***	***	***	***	***	***	***	***
THAILAND	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
VIETNAM	0000	0000	0000	+( )	-	-	-	-	-	-	-	-
FRENCH POLYNESIA							+	+	+	+	+	+













Milky haemolymph disease of spiny lobster (*Panulirus* spp.)

Country/territory	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
AUSTRALIA	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
BHUTAN							0000	0000	0000	0000	0000	0000
CHINA, PEOPLE'S REPUBLIC OF	0000	0000	0000	0000	0000	0000						
CHINESE TAIPEI	***	***	***	***	***	***	***	***	***			
HONG KONG SAR, CHINA	0000	0000	0000				0000	0000	0000	0000	0000	0000
INDIA	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
INDONESIA	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
IRAN	***	***	***	***	***	***	***	***	***	***	***	***
JAPAN	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
KOREA, REPUBLIC OF	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
LAOS	0000	0000	0000				***	***	***	***	***	***
MALAYSIA	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
MYANMAR	***	***	***	***	***	***	***	***	***	***	***	***
NEPAL	***	***	***	***	***	***	***	***	***	***	***	***
NEW CALEDONIA	***	***	***	***	***	***	***	***	***	***	***	***
NEW ZEALAND	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
PHILIPPINES	***	***	***	***	***	***	***	***	***	***	***	***
SINGAPORE	***	***	***	***	***	***	***	***	***	***	***	***
SRI LANKA	***	***	***	***	***	***	***	***	***	***	***	***
THAILAND	***	***	***	***	***	***	***	***	***	***	***	***
VIETNAM	-	-	-	-	-	-	-	-	-	-	-	-
FRENCH POLYNESIA							0000	0000	0000	0000	0000	0000

*Monodon* slow growth syndrome

Country/territory	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
AUSTRALIA	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
BHUTAN							0000	0000	0000	0000	0000	0000
CHINA, PEOPLE'S REPUBLIC OF	0000	0000	0000	0000	0000	0000						
CHINESE TAIPEI	***	***	***	***	***	***	***	***	***			
HONG KONG SAR, CHINA	0000	0000	0000				0000	0000	0000	0000	0000	0000
INDIA	-	-	-	-	-	-	-	-	-	-	-	-
INDONESIA	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
IRAN	***	***	***	***	***	***	***	***	***	***	***	***
JAPAN	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
KOREA, REPUBLIC OF	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
LAOS	0000	0000	0000				***	***	***	***	***	***
MALAYSIA	-	-	-	-	-	-	-	-	-	-	-	-
MYANMAR	***	***	***	***	***	***	***	***	***	***	***	***
NEPAL	***	***	***	***	***	***	***	***	***	***	***	***
NEW CALEDONIA	***	***	***	***	***	***	***	***	***	***	***	***
NEW ZEALAND	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
PHILIPPINES	***	***	***	***	***	***	***	***	***	***	***	***
SINGAPORE	***	***	***	***	***	***	***	***	***	***	***	***
SRI LANKA	***	***	***	***	***	***	***	***	***	***	***	***
THAILAND	***	***	***	***	***	***	***	***	***	***	***	***
VIETNAM	-	-	-	-	-	-	-	-	-	-	-	-
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