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QUARTERLY AQUATIC ANIMAL DISEASE REPORT (Asia and Pacific Region)

July-September 1998

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Contents

Introduction

Aquaculture is one of the fastest developing food producing sectors in the world and Asia presently contributes over 90% to the global production. However, disease outbreaks are a significant constraint to aquaculture production and trade and are affecting both the economic development and socio-economic revenue in many countries in the Asia-Pacific Region. The movement of living aquatic animals and the accompanying transfer of pathogens is one of the major causes of recent disease outbreak. This is also an important issue for preserving aquatic biological diversity.

Over the last decade considerable effort has been made by various national, regional, and international institutions to develop a cohesive strategy for aquatic animal health management in Asia-Pacific. In December 1997, upon request by NACA, FAO approved a regional Technical Co-operation Project, (TCP/RAS/6714), with the immediate objective of developing national and Asia regional technical guidelines on aquatic animal quarantine and health certification for the responsible movement of live aquatic animals. Through this project and with additional financial and technical assistance from various sources, FAO and NACA collaborate closely with the World Animal Health Organisation (OIE), with the specific objective of establishing a reliable fish disease reporting system. This publication, Asia-Pacific Quarterly Aquatic Animal Disease Report, is a result of this collaborative effort.

This publication contains the first quarterly aquatic animal disease reports, complied by the National Co-ordinators of the FAO/NACA Regional Project and subsequently sent to NACA Secretariat in Bangkok. The format of this report was agreed and adopted by 21 project member governments. FAO and NACA believe that this regular reporting mechanism will facilitate international movement of live aquatic animals in Asia-Pacific with reduced risk of introduction and transfer of associated pathogens.

Quarterly Aquatic Animal Disease Reports

July- September 1998

Country: **Australia** Period: **July-September 1998**

Item	Disease status *** July	August	September	Comment numbers
Diseases prevalent in some parts of the region				
1. Epizootic haematopoietic necrosis*	-(1996)	-(1996)	-(1997)	1
2. Infectious haematopoietic necrosis*	0000	0000	0000	
3. *Oncorhynchus masou* virus disease*	0000	0000	0000	
4. Infectious pancreatic necrosis	0000	0000	0000	3
5. Viral encephalopathy and retinopathy	+()	-(1998)	-(1998)	2
6. Epizootic ulcerative syndrome (EUS)	-(1998)	+()	+()	4
7. Bacterial kidney disease	0000	0000	0000	
Mollusc disease				
1. Bonamiosis (*Bonamia* sp., *B. ostreae*)*	-(1996)/0000	-(1996)/0000	-(1996)/0000	5
2. Marteiliosis (*Marteilia refringens, M. sydneyi*)*	0000/+()	0000/+()	0000/+()	6
3. Mikrocytosis (*Mikrocytos mackini, M. roughleyi*)*	0000/ -(1996)	0000/-(1996)	0000/-(1996)	7
4. Perkinsosis (*Perkinsus marinus, P. olseni*)*	-(1994)/-(1995)	-(1994)/-(1995)	-(1994)/-(1995)	8
Crustacean disease				
1. Yellowhead disease*	0000	0000	0000	
2. Infectious hypodermal and haematopoietic necrosis	0000	0000	0000	
3. White spot disease*	0000	0000	0000	
4. Baculoviral midgut gland necrosis	0000	0000	0000	
5. Gill associated virus (GAV)	…	…	…	9
6. Spawner mortality syndrome('Midcrop mortality syndrome')	…	…	…	10
Diseases presumed exotic to the region, but reportable to the OIE				
Finfish diseases				
1. Spring viraemia of carp*	0000	0000	0000	
2. Viral haemorrhagic septicaemia*	0000	0000	0000	
Mollusc diseases				
1. Haplosporidiosis (*Haplosporidium costale, H. nelsoni*)*	0000	0000	0000	
Any other diseases of importance**				
Unknown diseases of serious nature				

** In particular, these include the following diseases so far presumed, but not proven, to be exotic to this region:
Finfish: Channel catfish virus disease; Infectious salmon anaemia; Piscirickettsiosis; Gyrodactylosis (*Gyrodactylus salaris*); Enteric septicaemia of catfish
Molluscs: Iridovirosis (Oyster velar disease)
Crustaceans: Nuclear polyhedrosis baculovirosis (*Baculovirus penaei*); Crayfish plague (*Aphanomyces astaci*); Taura syndrome; Necrotising hepathopancreatitis

* OIE notifiable diseases

*** Please use the following symbols:

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

1. Epidemiological comments: Australia

Comment No.	
1	EHN not reported during this period but known to have occurred in Victoria (last year 1996), Australian Capital Territory (1997) and New South Wales (1996). Targeted active surveillance and zoning in NSW not reported but known to occur in South Australia. Targeted active surveillance and never reported in Tasmania and Western Australia. No information available from the Northern Territory. Passive surveillance and never reported in Queensland.
2	Suspected in one batch of barramundi, *Lates calcarifer*, in one facility in South Australia. Not reported but known to occur in Queensland. Passive surveillance and never reported in New South Wales, Tasmania, Victoria and Western Australia. No information available in the Australian Capital Territory and the Northern Territory.
3	Aquatic birnavirus of unknown virulence isolated from a limited geographical area in Tasmania. Pathogenicity trials underway.
4	Confirmed by histology in Western Australia (August 1998) and Queensland (September 1998). Not reported during this period but known to have occurred in NSW (last year 1997). Passive surveillance and never reported in South Australian and Victoria. Passive surveillance and last suspected but not confirmed in Tasmania in 1981. No information available in the northern Territory and the Australian Capital Territory.
5	***Bonamia ostrae**:* Passive surveillance and never reported in New South Wales, Queensland, South Australia, Victoria and Western Australia. Never reported in Tasmania (but not detectable at this time of the year). No information available in the Australian Capital Territory (no marine water responsibility) and the Northern Territory. ***Bonamia* sp**: Not reported during this period but known to have occurred in Victoria (last year 1993), Western Australia (last year 1995) and Tasmania (last year 1996). Regarded as enzootic in Tasmania but not detectable at this time of the year. Passive surveillance and never reported in New South Wales, Queensland and South Australia. No information available in the Australian Capital Territory (no marine water responsibility) and the Northern Territory.
6	***Marteilia refringens**:* ctive surveillance and never reported in Tasmania. Passive surveillance and never reported in New South Wales, Queensland, South Australia, Victoria and Western Australia. No information available in the Australian Capital Territory (no marine water responsibility) and the Northern Territory. ***Marteilia sydneyi***: Confirmed by laboratory diagnosis in New South Wales. Considered enzootic in Queensland but lack of diagnostic submissions. Not reported during this period but known to have occurred in Western Australia (last year 1994). Active surveillance and never reported in Tasmania. Passive surveillance and never reported in South Australia and Victoria. No information available in Australian Capital Territory (no marine water responsibility) and Northern Territory.
7	***Mykrocytos mackini***: Active surveillance and never reported in Tasmania. Passive surveillance and never reported in New South Wales, Queensland, South Australia, Victoria, and Western Australia. No information available in the Australian Capital Territory (no marine water responsibility) and the northern Territory. ***Mykrocytos roughleyi***: Not reported during this period but known to have occurred in New South Wales (last year 1996) and Western Australia (last year 1996). Considered enzootic in Queensland but lack of diagnostic submissions. Active surveillance and never reported in Tasmania. Passive surveillance and never reported in South Australia and Victoria. No information available in the Australian Capital Territory (no marine water responsibility) and the Northern Territory.
8	***Perkinsus marinus***: Erroneously reported to OIE as "Perkinsosis" based on a Western Australian 1994 report of *P. olseni*. Active surveillance and never reported in Tasmania. Passive surveillance and never reported in New South Wales, Queensland, South Australia and Victoria. No information available in the Australian Capital Territory (no marine water responsibility) and the Northern Territory.
9	The relationship between 'Gill Associated Virus' GAV and 'Lymphoid Organ Virus' LOV is unclear to the extent that even the existence of GAV-as a separate and distinguishable virus –isquestionable. There is no specific detection test for GAV. The research detection test (a RT-PCR test) recognised LOV. LOV appears widespread in healthy and wild Penaeus monodon in Queensland. LOV is considered part of the Mid-crop Mortality Sydrome, but its role in MCMS pathogenesis is unclear.
10	'Midcrop Mortality Syndrome' MCMS is general term used to describe presumed virus associated mortality in pond reared prawns. Several viral agents have been associated with MCMS outbreaks, including 'Spawner-isolated Mortality Virus' SMV ('Spawner Mortality Syndrome').

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

Country: **Hong Kong SAR** Period: **July-September 1998**

Item	Disease status *** July	August	September	Comment numbers
Diseases prevalent in some parts of the region				
1. Epizootic haematopoietic necrosis*	…	…	…	
2. Infectious haematopoietic necrosis*	…	…	…	
3. *Oncorhynchus masou* virus disease*	…	…	…	
4. Infectious pancreatic necrosis	…	…	…	
5. Viral encephalopathy and retinopathy	…	…	…	
6. Epizootic ulcerative syndrome (EUS)	…	…	…	
7. Bacterial kidney disease	…	…	…	
Mollusc disease				
1. Bonamiosis (*Bonamia* sp., *B. ostreae*)*	…	…	…	
2. Marteiliosis (*Marteilia refringens, M. sydneyi*)*	…	…	…	
3. Mikrocytosis (*Mikrocytos mackini, M. roughleyi*)*	…	…	…	
4. Perkinsosis (*Perkinsus marinus, P. olseni*)*	…	…	…	
Crustacean disease				
1. Yellowhead disease*	…	…	…	
2. Infectious hypodermal and haematopoietic necrosis	…	…	…	
3. White spot disease*	…	…	…	
4. Baculoviral midgut gland necrosis	…	…	…	
5. Gill associated virus (GAV)	…	…	…	
6. Spawner mortality syndrome('Midcrop mortality syndrome')	…	…	…	
Diseases presumed exotic to the region, but reportable to the OIE				
Finfish diseases				
1. Spring viraemia of carp*	…	…	…	
2. Viral haemorrhagic septicaemia*	…	…	…	
Mollusc diseases				
1. Haplosporidiosis (*Haplosporidium costale, H. nelsoni*)*	…	…	…	
Any other diseases of importance**				
Unknown diseases of serious nature				

** In particular, these include the following diseases so far presumed, but not proven, to be exotic to this region:
Finfish: Channel catfish virus disease; Infectious salmon anaemia; Piscirickettsiosis; Gyrodactylosis (*Gyrodactylus salaris*); Enteric septicaemia of catfish
Molluscs: Iridovirosis (Oyster velar disease)
Crustaceans: Nuclear polyhedrosis baculovirosis (*Baculovirus penaei*); Crayfish plague (*Aphanomyces astaci*); Taura syndrome; Necrotising hepathopancreatitis

* OIE notifiable diseases

*** Please use the following symbols:

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

1. Epidemiological comments:

Comment No.	

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

No new regulations introduced

Country: **India** Period: **July-September 1998**

Item	Disease status ***			Comment numbers
	July	August	September	
Diseases prevalent in some parts of the region				
1. Epizootic haematopoietic necrosis*	0000	0000	0000	
2. Infectious haematopoietic necrosis*	0000	0000	0000	
3. *Oncorhynchus masou* virus disease*	0000	0000	0000	
4. Infectious pancreatic necrosis	0000	0000	0000	
5. Viral encephalopathy and retinopathy	0000	0000	0000	
6. Epizootic ulcerative syndrome (EUS)	+()	+()	+()	
7. Bacterial kidney disease	0000	0000	0000	
Mollusc disease				
1. Bonamiosis (*Bonamia* sp., *B. ostreae*)*	0000	0000	0000	
2. Marteiliosis (*Marteilia refringens, M. sydneyi*)*	0000	0000	0000	
3. Mikrocytosis (*Mikrocytos mackini, M. roughleyi*)*	0000	0000	0000	
4. Perkinsosis (*Perkinsus marinus, P. olseni*)*	0000	0000	0000	
Crustacean disease				
1. Yellowhead disease*	0000	0000	0000	
2. Infectious hypodermal and haematopoietic necrosis	0000	0000	0000	
3. White spot disease*	+()	+()	+()	
4. Baculoviral midgut gland necrosis	0000	0000	0000	
5. Gill associated virus (GAV)	0000	0000	0000	
6. Spawner mortality syndrome('Midcrop mortality syndrome')				
Diseases presumed exotic to the region, but reportable to the OIE				
Finfish diseases				
1. Spring viraemia of carp*	0000	0000	0000	
2. Viral haemorrhagic septicaemia*	0000	0000	0000	
Mollusc diseases				
1. Haplosporidiosis (*Haplosporidium costale, H. nelsoni*)*	0000	0000	0000	
Any other diseases of importance**				
Unknown diseases of serious nature				

** In particular, these include the following diseases so far presumed, but not proven, to be exotic to this region:
Finfish: Channel catfish virus disease; Infectious salmon anaemia; Piscirickettsiosis; Gyrodactylosis (*Gyrodactylus salaris*); Enteric septicaemia of catfish
Molluscs: Iridovirosis (Oyster velar disease)
Crustaceans: Nuclear polyhedrosis baculovirosis (*Baculovirus penaei*); Crayfish plague (*Aphanomyces astaci*); Taura syndrome; Necrotising hepathopancreatitis

* OIE notifiable diseases

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+	Disease reported or known to be present
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?	Suspected by reporting officer but presence not confirmed
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…	No information available
0000	Never reported
-	Not reported (but disease is known to occur)
(year)	Year of last occurrence

1. Epidemiological comments:

Comment No.	

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

Country: **Republic of Korea** Period: **July-September 1998**

Item	Disease status *** July	August	September	Comment numbers
Diseases prevalent in some parts of the region				
1. Epizootic haematopoietic necrosis*	?	?	?	
2. Infectious haematopoietic necrosis*	-	-	-	
3. *Oncorhynchus masou* virus disease*	?	?	?	
4. Infectious pancreatic necrosis	?	?	?	
5. Viral encephalopathy and retinopathy	?	?	?	
6. Epizootic ulcerative syndrome (EUS)	0000	0000	0000	
7. Bacterial kidney disease	0000	0000	0000	
Mollusc disease				
1. Bonamiosis (*Bonamia* sp., *B. ostreae*)*	0000	0000	0000	
2. Marteiliosis (*Marteilia refringens, M. sydneyi*)*	0000	0000	0000	
3. Mikrocytosis (*Mikrocytos mackini, M. roughleyi*)*	0000	0000	0000	
4. Perkinsosis (*Perkinsus marinus, P. olseni*)*	?	?	?	
Crustacean disease				
1. Yellowhead disease*	0000	0000	0000	
2. Infectious hypodermal and haematopoietic necrosis	0000	0000	0000	
3. White spot disease*	+	+	+	
4. Baculoviral midgut gland necrosis	?	?	?	
5. Gill associated virus (GAV)	0000	0000	0000	
6. Spawner mortality syndrome(‘Midcrop mortality syndrome’)	0000	0000	0000	
Diseases presumed exotic to the region, but reportable to the OIE				
Finfish diseases				
1. Spring viraemia of carp*	0000	0000	0000	
2. Viral haemorrhagic septicaemia*	-	-	-	
Mollusc diseases				
1. Haplosporidiosis (*Haplosporidium costale, H. nelsoni*)*	0000	0000	0000	
Any other diseases of importance**				
Gyrodactylosis (*Gyrodactylus salaris*)	0000	0000	0000	
Iridovirus od cultured *Oplegnathus fasciatus*	+()	+()	+()	1
Unknown diseases of serious nature	+	+	+	2

** In particular, these include the following diseases so far presumed, but not proven, to be exotic to this region:
Finfish: Channel catfish virus disease; Infectious salmon anaemia; Piscirickettsiosis; Gyrodactylosis (*Gyrodactylus salaris*); Enteric septicaemia of catfish
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…	No information available
0000	Never reported
-	Not reported (but disease is known to occur)
(year)	Year of last occurrence

1. Epidemiological comments:

Comment No.	
1	Iridovirus of cultured *Oplegnathus fasciatus* made mass mortality more than 3,000,000 age 0+ and 1+ on the southern coast, mainly Kyoungnam Province
2	Unknown disease of cultured carp made mass mortality during this period. The epizootic was moved very rapidly by diseased fish and contaminant, but causative agents are not isolated.

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

Country: **Lao PDR** Period: **July-September 1998**

Item	Disease status *** July	August	September	Comment numbers
Diseases prevalent in some parts of the region				
1. Epizootic haematopoietic necrosis*	…	…	…	1
2. Infectious haematopoietic necrosis*	…	…	…	2
3. *Oncorhynchus masou* virus disease*	…	…	…	3
4. Infectious pancreatic necrosis	…	…	…	4
5. Viral encephalopathy and retinopathy	…	…	…	5
6. Epizootic ulcerative syndrome (EUS)	…	…	…	6
7. Bacterial kidney disease	…	…	…	7
Mollusc disease				
1. Bonamiosis (*Bonamia* sp., *B. ostreae*)*	…	…	…	8
2. Marteiliosis (*Marteilia refringens, M. sydneyi*)*	…	…	…	9
3. Mikrocytosis (*Mikrocytos mackini, M. roughleyi*)*	…	…	…	10
4. Perkinsosis (*Perkinsus marinus, P. olseni*)*	…	…	…	11
Crustacean disease				
1. Yellowhead disease*	…	…	…	12
2. Infectious hypodermal and haematopoietic necrosis	…	…	…	13
3. White spot disease*	…	…	…	14
4. Baculoviral midgut gland necrosis	…	…	…	15
5. Gill associated virus (GAV)	…	…	…	16
6. Spawner mortality syndrome('Midcrop mortality syndrome')	…	…	…	17
Diseases presumed exotic to the region, but reportable to the OIE				
Finfish diseases				
1. Spring viraemia of carp*	…	…	…	18
2. Viral haemorrhagic septicaemia*	…	…	…	19
Mollusc diseases				
1. Haplosporidiosis (*Haplosporidium costale, H. nelsoni*)*	…	…	…	20
Any other diseases of importance**	…	…	…	21
Unknown diseases of serious nature	…	…	…	22

** In particular, these include the following diseases so far presumed, but not proven, to be exotic to this region:
Finfish: Channel catfish virus disease; Infectious salmon anaemia; Piscirickettsiosis; Gyrodactylosis (*Gyrodactylus salaris*); Enteric septicaemia of catfish
Molluscs: Iridovirosis (Oyster velar disease)
Crustaceans: Nuclear polyhedrosis baculovirosis (*Baculovirus penaei*); Crayfish plague (*Aphanomyces astaci*); Taura syndrome; Necrotising hepathopancreatitis

* OIE notifiable diseases

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?	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

1. Epidemiological comments:

Comment No.	
1	Lack of laboratory and shortage of well trained technical know-how and professional skilled manpower.
2	Nos. 2 to 22 are similar to No.1

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

Country: **Malaysia** Period: **July-September 1998**

Item	Disease status *** July	August	September	Comment numbers
Diseases prevalent in some parts of the region				
1. Epizootic haematopoietic necrosis*	0000	0000	0000	
2. Infectious haematopoietic necrosis*	0000	0000	0000	
3. *Oncorhynchus masou* virus disease*	0000	0000	0000	
4. Infectious pancreatic necrosis	0000	0000	0000	
5. Viral encephalopathy and retinopathy	0000	0000	0000	
6. Epizootic ulcerative syndrome (EUS)	-	-	-	1
7. Bacterial kidney disease	0000	0000	0000	
Mollusc disease				
1. Bonamiosis (*Bonamia* sp., *B. ostreae*)*	…	…	…	
2. Marteiliosis (*Marteilia refringens, M. sydneyi*)*	…	…	…	
3. Mikrocytosis (*Mikrocytos mackini, M. roughleyi*)*	…	…	…	
4. Perkinsosis (*Perkinsus marinus, P. olseni*)*	…	…	…	
Crustacean disease				
1. Yellowhead disease*	-	-	-	2
2. Infectious hypodermal and haematopoietic necrosis	0000	0000	0000	
3. White spot disease*	+	+	+	3
4. Baculoviral midgut gland necrosis	0000	0000	0000	
5. Gill associated virus (GAV)	0000	0000	0000	
6. Spawner mortality syndrome(‘Midcrop mortality syndrome’)	0000	0000	0000	
Diseases presumed exotic to the region, but reportable to the OIE				
Finfish diseases				
1. Spring viraemia of carp*	0000	0000	0000	
2. Viral haemorrhagic septicaemia*	0000	0000	0000	
Mollusc diseases				
1. Haplosporidiosis (*Haplosporidium costale, H. nelsoni*)*	…	…	…	
Any other diseases of importance**				
1 Cyprinid Herpes virus	+			4
Unknown diseases of serious nature				

** In particular, these include the following diseases so far presumed, but not proven, to be exotic to this region:
Finfish: Channel catfish virus disease; Infectious salmon anaemia; Piscirickettsiosis; Gyrodactylosis (*Gyrodactylus salaris*); Enteric septicaemia of catfish
Molluscs: Iridovirosis (Oyster velar disease)
Crustaceans: Nuclear polyhedrosis baculovirosis (*Baculovirus penaei*); Crayfish plague (*Aphanomyces astaci*); Taura syndrome; Necrotising hepathopancreatitis

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

1. Epidemiological comments:

Comment No.	
1	Outbreaks were reported in the early eighties in paddy field fishes but the diseases occurrence is very low now. Only one suspected case was reported in Pahang in March 1997 in Toman (*Channa micropeltes*) culture with 60% morbidity and 10% mortality. Diagnosis was based on gross lesions and histopathology.
2	Outbreaks were reported in the early nineties but the disease occur was very low and not severe now.
3	Severe outbreaks was reported in *P. monodon* in Merbox, a shrimp culture area in Kedah, in July, and in *P.merguiensis* in Gelang Patah, Masai, and Sungai Danga in Johore Bahru in Johore between July and September 1998. Hatchery screening using PCR revealed very low percentage of PLs were positive to white spot virus from all over Malaysis.
4	Outbreaks were reported by the university and Cyprinid Herpes virus were isolated from five fish farms in Koi carp and gold fish in the State of Selangor in July.

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

Country: **Myanmar** Period: **July-September 1998**

Item	Disease status *** July	August	September	Comment numbers
Diseases prevalent in some parts of the region				
1. Epizootic haematopoietic necrosis*	…	…	…	
2. Infectious haematopoietic necrosis*	…	…	…	
3. *Oncorhynchus masou* virus disease*	…	…	…	
4. Infectious pancreatic necrosis	…	…	…	
5. Viral encephalopathy and retinopathy	…	…	…	
6. Epizootic ulcerative syndrome (EUS)	…	…	…	
7. Bacterial kidney disease	…	…	…	
Mollusc disease				
1. Bonamiosis (*Bonamia* sp., *B. ostreae*)*	…	…	…	
2. Marteiliosis (*Marteilia refringens, M. sydneyi*)*	…	…	…	
3. Mikrocytosis (*Mikrocytos mackini, M. roughleyi*)*	…	…	…	
4. Perkinsosis (*Perkinsus marinus, P. olseni*)*	…	…	…	
Crustacean disease				
1. Yellowhead disease*	…	…	?	On site (farm)
2. Infectious hypodermal and haematopoietic necrosis	…	…	…	
3. White spot disease*	…	…	…	
4. Baculoviral midgut gland necrosis	…	…	…	
5. Gill associated virus (GAV)	…	…	…	
6. Spawner mortality syndrome(‘Midcrop mortality syndrome’)	…	…	?	On site (farm)
Diseases presumed exotic to the region, but reportable to the OIE				
Finfish diseases				
1. Spring viraemia of carp*	…	…	…	
2. Viral haemorrhagic septicaemia*	…	…	…	
Mollusc diseases				
1. Haplosporidiosis (*Haplosporidium costale, H. nelsoni*)*	…	…	…	
Any other diseases of importance**				
1. Parasite (*Argulus* spp.)	…	…	+	On site (farm)
Unknown diseases of serious nature				

** In particular, these include the following diseases so far presumed, but not proven, to be exotic to this region:
Finfish: Channel catfish virus disease; Infectious salmon anaemia; Piscirickettsiosis; Gyrodactylosis (*Gyrodactylus salaris*); Enteric septicaemia of catfish
Molluscs: Iridovirosis (Oyster velar disease)
Crustaceans: Nuclear polyhedrosis baculovirosis (*Baculovirus penaei*); Crayfish plague (*Aphanomyces astaci*); Taura syndrome; Necrotising hepathopancreatitis

* OIE notifiable diseases

*** Please use the following symbols:

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

1. Epidemiological comments:

Comment No.	

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

Country: **Napal** Period: **July-September 1998**

Item	Disease status *** July	August	September	Comment numbers
Diseases prevalent in some parts of the region				
1. Epizootic haematopoietic necrosis*	…	…	…	
2. Infectious haematopoietic necrosis*	…	…	…	
3. *Oncorhynchus masou* virus disease*	…	…	…	
4. Infectious pancreatic necrosis	…	…	…	
5. Viral encephalopathy and retinopathy	…	…	…	
6. Epizootic ulcerative syndrome (EUS)	-	-	+	1
7. Bacterial kidney disease	…	…	…	
Mollusc disease				
1. Bonamiosis (*Bonamia* sp., *B. ostreae*)*	…	…	…	
2. Marteiliosis (*Marteilia refringens, M. sydneyi*)*	…	…	…	
3. Mikrocytosis (*Mikrocytos mackini, M. roughleyi*)*	…	…	…	
4. Perkinsosis (*Perkinsus marinus, P. olseni*)*	…	…	…	
Crustacean disease				
1. Yellowhead disease*	…	…	…	
2. Infectious hypodermal and haematopoietic necrosis	…	…	…	
3. White spot disease*	…	…	…	
4. Baculoviral midgut gland necrosis	…	…	…	
5. Gill associated virus (GAV)	…	…	…	
6. Spawner mortality syndrome('Midcrop mortality syndrome')	…	…	…	
Diseases presumed exotic to the region, but reportable to the OIE				
Finfish diseases				
1. Spring viraemia of carp*	…	…	…	
2. Viral haemorrhagic septicaemia*	…	…	…	
Mollusc diseases				
1. Haplosporidiosis (*Haplosporidium costale, H. nelsoni*)*	…	…	…	
Any other diseases of importance**				
Unknown diseases of serious nature				

** In particular, these include the following diseases so far presumed, but not proven, to be exotic to this region:
Finfish: Channel catfish virus disease; Infectious salmon anaemia; Piscirickettsiosis; Gyrodactylosis (*Gyrodactylus salaris*); Enteric septicaemia of catfish
Molluscs: Iridovirosis (Oyster velar disease)
Crustaceans: Nuclear polyhedrosis baculovirosis (*Baculovirus penaei*); Crayfish plague (*Aphanomyces astaci*); Taura syndrome; Necrotising hepathopancreatitis

* OIE notifiable diseases

*** Please use the following symbols:

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

1. Epidemiological comments:

Comment No.	
1	In the districts Bara, Parsa of Terai and in Kathmandu in the mid-hills, EUS infection was observed in *Puntius* sp., *Labeo rohita*, *Cirhirus mrigala* in Terai and *Ophicephalus* sp. in the mid-hill region in Nepal.

2. New aquatic animal health regulations introduced within past six months (with effective date):
No new aquatic animal health regulation was issued in the last six months

Country: **Pakistan** Period: **July-September 1998**

Item	Disease status *** July	August	September	Comment numbers
Diseases prevalent in some parts of the region				
1. Epizootic haematopoietic necrosis*	…	…	…	
2. Infectious haematopoietic necrosis*	?	?	?	1
3. *Oncorhynchus masou* virus disease*	0000	0000	0000	
4. Infectious pancreatic necrosis	…	…	…	
5. Viral encephalopathy and retinopathy	0000	0000	0000	
6. Epizootic ulcerative syndrome (EUS)	-	+()	+()	2
7. Bacterial kidney disease	?	?	…	
Mollusc disease				
1. Bonamiosis (*Bonamia* sp., *B. ostreae*)*	0000	0000	0000	
2. Marteiliosis (*Marteilia refringens, M. sydneyi*)*	0000	0000	0000	
3. Mikrocytosis (*Mikrocytos mackini, M. roughleyi*)*	0000	0000	0000	
4. Perkinsosis (*Perkinsus marinus, P. olseni*)*	0000	0000	0000	
Crustacean disease				
1. Yellowhead disease*	0000	0000	0000	
2. Infectious hypodermal and haematopoietic necrosis	0000	0000	0000	
3. White spot disease*	?	?	?	1
4. Baculoviral midgut gland necrosis	0000	0000	0000	
5. Gill associated virus (GAV)	…	…	…	
6. Spawner mortality syndrome('Midcrop mortality syndrome')	0000	0000	0000	
Diseases presumed exotic to the region, but reportable to the OIE				
Finfish diseases				
1. Spring viraemia of carp*	+	-	-	
2. Viral haemorrhagic septicaemia*	…	…	…	
Mollusc diseases				
1. Haplosporidiosis (*Haplosporidium costale, H. nelsoni*)*	0000	0000	0000	
Any other diseases of importance**				
	N/A	N/A	N/A	
Unknown diseases of serious nature	0000	0000	0000	

** In particular, these include the following diseases so far presumed, but not proven, to be exotic to this region:
Finfish: Channel catfish virus disease; Infectious salmon anaemia; Piscirickettsiosis; Gyrodactylosis (*Gyrodactylus salaris*); Enteric septicaemia of catfish
Molluscs: Iridovirosis (Oyster velar disease)
Crustaceans: Nuclear polyhedrosis baculovirosis (*Baculovirus penaei*); Crayfish plague (*Aphanomyces astaci*); Taura syndrome; Necrotising hepathopancreatitis

* OIE notifiable diseases

*** Please use the following symbols:

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

1. Epidemiological comments:

Comment No.	
1	The presence of disease could not be confirmed simply because of lack of diagnostic facilities.
2	Occurrence has been reported from restricted area of the provinces of Sindh and Punjab.

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

Country: **Philippines** Period: **July September 1998**

Item	Disease status *** July	August	September	Comment numbers
Diseases prevalent in some parts of the region				
1. Epizootic haematopoietic necrosis*	0000	0000	0000	
2. Infectious haematopoietic necrosis*	0000	0000	0000	
3. *Oncorhynchus masou* virus disease*	0000	0000	0000	
4. Infectious pancreatic necrosis	0000	0000	0000	
5. Viral encephalopathy and retinopathy	…	…	…	1
6. Epizootic ulcerative syndrome (EUS)	-	-	-	2
7. Bacterial kidney disease	0000	0000	0000	
Mollusc disease				
1. Bonamiosis (*Bonamia* sp., *B. ostreae*)*	0000	0000	0000	
2. Marteiliosis (*Marteilia refringens, M. sydneyi*)*	0000	0000	0000	
3. Mikrocytosis (*Mikrocytos mackini, M. roughleyi*)*	0000	0000	0000	
4. Perkinsosis (*Perkinsus marinus, P. olseni*)*	0000	0000	0000	
Crustacean disease				
1. Yellowhead disease*	+?	+?	+?	3
2. Infectious hypodermal and haematopoietic necrosis	-	-	-	4
3. White spot disease*	0000	0000	0000	5
4. Baculoviral midgut gland necrosis	0000	0000	0000	
5. Gill associated virus (GAV)	?	?	?	6
6. Spawner mortality syndrome('Midcrop mortality syndrome')	+?	+?	+?	7
Diseases presumed exotic to the region, but reportable to the OIE				
Finfish diseases				
1. Spring viraemia of carp*	0000	0000	0000	
2. Viral haemorrhagic septicaemia*	0000	0000	0000	
Mollusc diseases				
1. Haplosporidiosis (*Haplosporidium costale, H. nelsoni*)*	0000	0000	0000	
Any other diseases of importance**				
Unknown diseases of serious nature				

** In particular, these include the following diseases so far presumed, but not proven, to be exotic to this region:
Finfish: Channel catfish virus disease; Infectious salmon anaemia; Piscirickettsiosis; Gyrodactylosis (*Gyrodactylus salaris*); Enteric septicaemia of catfish
Molluscs: Iridovirosis (Oyster velar disease)
Crustaceans: Nuclear polyhedrosis baculovirosis (*Baculovirus penaei*); Crayfish plague (*Aphanomyces astaci*); Taura syndrome; Necrotising hepathopancreatitis

* OIE notifiable diseases

*** Please use the following symbols:

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

1. Epidemiological comments:

Comment No.	
1	Lack of surveillance system/programme. However the disease is suspected to be present in the country based on the literature reported by Chua et al, 1993
2	No reported case during the reporting period. The last occurrence of disease was in January 1998 in Lakes Lanao, Dapao and Maiinit, in Mindanao
3	Samples of *Peneaus monodon* from selected farms examined using combined SDS Western blot enzyme immunoassay showed positive results
4	Lack in monitoring and surveillance system
5	Regular monitoring of selected *P. monodon* farms is taking place using histopathology and occasionally PCR technique
6	Samples of *P.monodon* showed histopathological lesions associated with the disease. However, other tests (Transmission Electron Microscopy, PCR) are still needed for confirmation. Surveillance system also needed
7	Samples of *P. monodon* from selected farms subjected to *in situ* hybridisation using SMV probe produced positive results. Needs surveillance system/expertise

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

Draft Fisheries Administrative Order (FAO) on Live Fish Importation is being finalised

Country: **Singapore** Period: **July-September 1998**

Item	Disease status *** July	August	September	Comment numbers
Diseases prevalent in some parts of the region				
1. Epizootic haematopoietic necrosis*	0000	0000	0000	
2. Infectious haematopoietic necrosis*	0000	0000	0000	
3. *Oncorhynchus masou* virus disease*	0000	0000	0000	
4. Infectious pancreatic necrosis	0000	0000	0000	
5. Viral encephalopathy and retinopathy	-	-	-	
6. Epizootic ulcerative syndrome (EUS)	0000	0000	0000	
7. Bacterial kidney disease	0000	0000	0000	
Mollusc disease				
1. Bonamiosis (*Bonamia* sp., *B. ostreae*)*	0000	0000	0000	
2. Marteiliosis (*Marteilia refringens, M. sydneyi*)*	0000	0000	0000	
3. Mikrocytosis (*Mikrocytos mackini, M. roughleyi*)*	0000	0000	0000	
4. Perkinsosis (*Perkinsus marinus, P. olseni*)*	0000	0000	0000	
Crustacean disease				
1. Yellowhead disease*	0000	0000	0000	
2. Infectious hypodermal and haematopoietic necrosis	0000	0000	0000	
3. White spot disease*	-	-	-	
4. Baculoviral midgut gland necrosis	0000	0000	0000	
5. Gill associated virus (GAV)	0000	0000	0000	
6. Spawner mortality syndrome('Midcrop mortality syndrome')	0000	0000	0000	
Diseases presumed exotic to the region, but reportable to the OIE				
Finfish diseases				
1. Spring viraemia of carp*	0000	0000	0000	
2. Viral haemorrhagic septicaemia*	0000	0000	0000	
Mollusc diseases				
1. Haplosporidiosis (*Haplosporidium costale, H. nelsoni*)*	0000	0000	0000	
Any other diseases of importance**				
Unknown diseases of serious nature	nil	nil	nil	

** In particular, these include the following diseases so far presumed, but not proven, to be exotic to this region:
Finfish: Channel catfish virus disease; Infectious salmon anaemia; Piscirickettsiosis; Gyrodactylosis (*Gyrodactylus salaris*); Enteric septicaemia of catfish
Molluscs: Iridovirosis (Oyster velar disease)
Crustaceans: Nuclear polyhedrosis baculovirosis (*Baculovirus penaei*); Crayfish plague (*Aphanomyces astaci*); Taura syndrome; Necrotising hepathopancreatitis

* OIE notifiable diseases

*** Please use the following symbols:

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

1. Epidemiological comments:

Comment No.	

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

Country: **Sri Lanka** Period: **July-September 1998**

Item	Disease status *** July	August	September	Comment numbers
Diseases prevalent in some parts of the region				
1. Epizootic haematopoietic necrosis*				
2. Infectious haematopoietic necrosis*				
3. *Oncorhynchus masou* virus disease*				
4. Infectious pancreatic necrosis				
5. Viral encephalopathy and retinopathy				
6. Epizootic ulcerative syndrome (EUS)				
7. Bacterial kidney disease				
Mollusc disease				
1. Bonamiosis (*Bonamia* sp., *B. ostreae*)*				
2. Marteiliosis (*Marteilia refringens, M. sydneyi*)*				
3. Mikrocytosis (*Mikrocytos mackini, M. roughleyi*)*				
4. Perkinsosis (*Perkinsus marinus, P. olseni*)*				
Crustacean disease				
1. Yellowhead disease*		+()	+()	1
2. Infectious hypodermal and haematopoietic necrosis				
3. White spot disease*		+()	+()	2
4. Baculoviral midgut gland necrosis				
5. Gill associated virus (GAV)				
6. Spawner mortality syndrome('Midcrop mortality syndrome')				3
Diseases presumed exotic to the region, but reportable to the OIE				
Finfish diseases				
1. Spring viraemia of carp*				
2. Viral haemorrhagic septicaemia*				
Mollusc diseases				
1. Haplosporidiosis (*Haplosporidium costale, H. nelsoni*)*				
Any other diseases of importance**				
Unknown diseases of serious nature				

** In particular, these include the following diseases so far presumed, but not proven, to be exotic to this region:
Finfish: Channel catfish virus disease; Infectious salmon anaemia; Piscirickettsiosis; Gyrodactylosis (*Gyrodactylus salaris*); Enteric septicaemia of catfish
Molluscs: Iridovirosis (Oyster velar disease)
Crustaceans: Nuclear polyhedrosis baculovirosis (*Baculovirus penaei*); Crayfish plague (*Aphanomyces astaci*); Taura syndrome; Necrotising hepathopancreatitis

* OIE notifiable diseases

*** Please use the following symbols:

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

1. Epidemiological comments:

Comment No.	
1	Clear external clinical signs not observed. Confirmed by samples sent to AAHRI. Limited to Chilaw-Kusala area along the Dutch canal. First record in Sri Lanka.
2	Clear visual symptoms observed. Appeared in the same area with suspected Yellow Head Disease.
3	Large number of mortalities reported in spawners collected from South West Coastal areas in hatcheries.

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

Country: **Thailand** Period: **July-September 1998**

Item	Disease status *** July	August	September	Comment numbers
Diseases prevalent in some parts of the region				
1. Epizootic haematopoietic necrosis*	0000	0000	0000	
2. Infectious haematopoietic necrosis*	0000	0000	0000	
3. *Oncorhynchus masou* virus disease*	0000	0000	0000	
4. Infectious pancreatic necrosis	(1985)	(1985)	(1985)	1
5. Viral encephalopathy and retinopathy	-	-	-	
6. Epizootic ulcerative syndrome (EUS)	-	-	-	
7. Bacterial kidney disease	0000	0000	0000	
Mollusc disease				
1. Bonamiosis (*Bonamia* sp., *B. ostreae*)*	…	…	…	
2. Marteiliosis (*Marteilia refringens, M. sydneyi*)*	…	…	…	
3. Mikrocytosis (*Mikrocytos mackini, M. roughleyi*)*	…	…	…	
4. Perkinsosis (*Perkinsus marinus, P. olseni*)*	…	…	…	
Crustacean disease				
1. Yellowhead disease*	+	+	+	
2. Infectious hypodermal and haematopoietic necrosis	+	+	+	
3. White spot disease*	+	+	+	
4. Baculoviral midgut gland necrosis	0000	0000	0000	
5. Gill associated virus (GAV)	0000	0000	0000	
6. Spawner mortality syndrome(‘Midcrop mortality syndrome’)	0000	0000	0000	
Diseases presumed exotic to the region, but reportable to the OIE				
Finfish diseases				
1. Spring viraemia of carp*	0000	0000	0000	
2. Viral haemorrhagic septicaemia*	0000	0000	0000	
Mollusc diseases				
1. Haplosporidiosis (*Haplosporidium costale, H. nelsoni*)*	…	…	…	
Any other diseases of importance**				
Gyrodactylosis (*Gyrodactylus salaris*)				
Iridovirus od cultured *Oplegnathus fasciatus*				
Unknown diseases of serious nature				

** In particular, these include the following diseases so far presumed, but not proven, to be exotic to this region:
Finfish: Channel catfish virus disease; Infectious salmon anaemia; Piscirickettsiosis; Gyrodactylosis (*Gyrodactylus salaris*); Enteric septicaemia of catfish
Molluscs: Iridovirosis (Oyster velar disease)
Crustaceans: Nuclear polyhedrosis baculovirosis (*Baculovirus penaei*); Crayfish plague (*Aphanomyces astaci*); Taura syndrome; Necrotising hepathopancreatitis

* OIE notifiable diseases

*** Please use the following symbols:

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

1. Epidemiological comments:

Comment No.	
1	A birnavirus was isolated from EUS-diseased fish in 1985. This isolate was serologically similar to IPNV serotype sp. There has been no re-occurrence of this virus.

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

Country: **Vietnam** Period: **July-September 1998**

Item	Disease status *** July	August	September	Comment numbers
Diseases prevalent in some parts of the region				
1. Epizootic haematopoietic necrosis*	+	+	+	1
2. Infectious haematopoietic necrosis*	+	+	+	1
3. *Oncorhynchus masou* virus disease*				
4. Infectious pancreatic necrosis				
5. Viral encephalopathy and retinopathy				
6. Epizootic ulcerative syndrome (EUS)	?	?	?	2
7. Bacterial kidney disease	+	+	+	1
Mollusc disease	0000	0000	0000	
1. Bonamiosis (*Bonamia* sp., *B. ostreae*)*				
2. Marteiliosis (*Marteilia refringens, M. sydneyi*)*				
3. Mikrocytosis (*Mikrocytos mackini, M. roughleyi*)*				
4. Perkinsosis (*Perkinsus marinus, P. olseni*)*				
Crustacean disease				
1. Yellowhead disease*	-	-	-	3
2. Infectious hypodermal and haematopoietic necrosis				
3. White spot disease*	-	-	-	3
4. Baculoviral midgut gland necrosis				
5. Gill associated virus (GAV)				
6. Spawner mortality syndrome('Midcrop mortality syndrome')				
Diseases presumed exotic to the region, but reportable to the OIE				
Finfish diseases				
1. Spring viraemia of carp*				
2. Viral haemorrhagic septicaemia*				
Mollusc diseases				
1. Haplosporidiosis (*Haplosporidium costale, H. nelsoni*)*				
Any other diseases of importance**				
Red spot disease in grass carp				1
Disease of grouper cage cultured				4
Disease of turtle				5
Unknown diseases of serious nature				

** In particular, these include the following diseases so far presumed, but not proven, to be exotic to this region:
Finfish: Channel catfish virus disease; Infectious salmon anaemia; Piscirickettsiosis; Gyrodactylosis (*Gyrodactylus salaris*); Enteric septicaemia of catfish
Molluscs: Iridovirosis (Oyster velar disease)
Crustaceans: Nuclear polyhedrosis baculovirosis (*Baculovirus penaei*); Crayfish plague (*Aphanomyces astaci*); Taura syndrome; Necrotising hepathopancreatitis

* OIE notifiable diseases

*** Please use the following symbols:

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?	Suspected by reporting officer but presence not confirmed
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…	No information available
0000	Never reported
-	Not reported (but disease is known to occur)
(year)	Year of last occurrence

1. Epidemiological comments:

Comment No.	
1	Haemorrhagic Disease/Red Spot Disease is usually found in diseased grass carp and also in some other species (Indian carps, black carp, common carp, …) which are cultured in the same pond. There have been two different definitions of grass carp disease. One is Red Spot Disease (red spots and lesions have been mostly found on the body of the infected adult fish, with mortality between 30-70%). The other is known as Haemorrhagic Disease (mostly found in grass carp fingerlings with normal external body but the internal organs such as kidney, liver, intestine are haemorrhagic. There is a higher mortality than with Red Spot Disease). However, in both case, the pathogens which have been isolated are: *Aeromonas hydrophila* (66.16%); *A. caviae*; *A. sobria*; *Pseudomonas fluorescens*; *Vibrio cholerae*; *Mycobacterium* sp., *Seprolegnia*; *Achlya*; *Aphanomyces*.
2	EUS is possibly found in haemorrhagic diseased groupers in cages.
3	The information was collected from local authorities of the coastal provincial committee where tiger shrimp cultured movement has still developed (such as Thanh Hoa, Nghe Anh, Quang Binh, Thai Binh)
4	Pathogens isolated from diseased groupers are:Vibrio sp., *Pseudomonas* sp., *Chilonella*, Trematode
	Pathogens isolated from diseased turtles: *Zoothamnium*, *Epistylis*, *Tokophrya* and *Achlya*.

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

Related Events

5th International Symposium on Fish Parasites: 9-13 August 1999, Ceske Budejovice, Czech Republic

Information from:
The secretariat
Institute of Parasitology
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Branisovska 31, 370 05 Ceske Budejovice
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9th International Conference of the European Association of Fish Pathologists (EAFP)-"Diseases of Fish and Shellfish": 19-24th September 1999, Rhodes, Greece

Information from:
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Forth Symposium on Diseases in Asian Aquaculture: Cebu City, Philippines, 22-26 November 1999

Information from:
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International Conference on Risk Analysis in Aquatic Animal Health: Paris, 8-10 February 2000

Information from:
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5th International Symposium on Fish Parasites: 9-13 August 1999, Ceske Budejovice, Czech Republic

Information from:

The Secretariat

Institute of Parasitology

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