



Project no. SSPE-CT-2003-502329

PANDA

Permanent network to strengthen expertise on infectious diseases of aquaculture species and scientific advice to EU policy

Coordination Action

Scientific support to policies

Work Package 2

Risk analysis of exotic, emerging and re-emerging disease hazards

Annex 2: External disease listings consulted

Start date of project: 01/01/04

Duration: 44 months

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Revision [1.0]

Project co-funded by the European Commission within the Sixth Framework Programme (2002-2006)		
Dissemination Level		
PU	Public	PU
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

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Annex 2 - External disease listings consulted

2.1 Diseases listed by the OIE at the start of the PANDA project

(* = disease not listed by EC Directive 91/67)

- i) Fish diseases
 - Epizootic haematopoietic necrosis*
 - Infectious haematopoietic necrosis
 - Oncorhynchus masou* virus disease (syn: salmonid herpesvirus type 2 disease)*
 - Spring viraemia of carp
 - Viral haemorrhagic septicaemia (synonym: Egtved disease)
 - Channel catfish virus disease (herpesvirus of Ictaluridae type 1)*
 - Viral encephalopathy and retinopathy*
 - Infectious pancreatic necrosis
 - Infectious salmon anaemia
 - Epizootic ulcerative syndrome*
 - Bacterial kidney disease (*Renibacterium salmoninarum*)
 - Enteric septicaemia of catfish (*Edwardsiella ictaluri*)*
 - Piscirickettsiosis (*Piscirickettsia salmonis*) *
 - Gyrodactylosis (*Gyrodactylus salaris*)
 - Red sea bream iridoviral disease*
 - White sturgeon iridoviral disease*
- ii) Mollusc infections
 - Bonamia ostreae*
 - Bonamia exitiosus**
 - Mikrocytos roughleyi**
 - Haplosporidium nelsoni**
 - Marteilia refringens*
 - Marteilia sydneyi**
 - Mikrocytos mackini**
 - Perkinsus marinus**
 - Perkinsus olseni/atlanticus**
 - Haplosporidium costale**
 - Candidatus Xenohalictis californiensis**
- iii) Crustacean diseases
 - Taura syndrome*
 - White spot disease*
 - Yellowhead disease*
 - Tetrahedral baculovirus (*Baculovirus penaei*)*
 - Spherical baculovirus (*Penaeus monodon*-type baculovirus)*
 - Infectious hypodermal and haematopoietic necrosis*
 - Crayfish plague (*Aphanomyces astaci*)
 - Spawner-isolated mortality virus disease*

2.2 Diseases listed by EC Directive 91/67/EC

(* = disease not listed by the OIE at the start of the PANDA project)

List I

Fish

Infectious salmon anaemia

List II

Fish

Infectious haematopoietic necrosis virus (IHN)

Viral haemorrhagic septicaemia virus (VHS)

Molluscs

Bonamia ostreae

Marteilia refringens

List III

Fish

Infectious pancreatic necrosis (IPN)

Spring viraemia of carp (SVC)

Bacterial kidney disease (BKD) - *Renibacterium salmoninarum*

Furunculosis - *Aeromonas salmonicida**

Enteric redmouth disease (ERM) - *Yersinia ruckeri**

Gyrodactylus salaris

Crustaceans

Crayfish plague - *Aphanomyces astaci*

2.3 Diseases listed by proposed EC Directive 2006/88/EC
(to apply from 1 August 2008)

EXOTIC DISEASES		
	DISEASE	SUSCEPTIBLE SPECIES
FISH	Epizootic haematopoietic necrosis	Redfin perch (<i>Perca fluviatilis</i>), rainbow trout (<i>Oncorhynchus mykiss</i>), Macquarie perch (<i>Macquaria australasica</i>), silver perch (<i>Bidyanus bidyanus</i>), mountain galaxias (<i>Galaxias olidus</i>), sheatfish (<i>Silurus glanis</i>), catfish (<i>Ictalurus melas</i>) and mosquito fish (<i>Gambusia affinis</i>) and other species belonging to the family Poeciliidae
	Epizootic ulcerative syndrome	Genera <i>Channa</i> , <i>Mastacembelus</i> , <i>Puntius</i> , <i>Trichogaster</i> , <i>Catla</i> , <i>Mugil</i> , <i>Labeo</i> .
MOLLUSCS	Infection with <i>Bonamia exitiosa</i>	<i>Ostrea chilensis</i> and <i>O. angasi</i>
	Infection with <i>Perkinsus marinus</i>	<i>Crassostrea virginica</i> and <i>C. gigas</i>
	Infection with <i>Microcytos mackini</i>	<i>Crassostrea gigas</i> , <i>C. virginica</i> , <i>Ostrea edulis</i> and <i>O. conchaphila</i> .
CRUSTACEANS	Taura syndrome	Pacific white shrimp (<i>Penaeus vannamei</i>), Pacific blue shrimp (<i>P. stylirostris</i>) and Gulf white shrimp (<i>P. setiferus</i>).
	Yellowhead disease	Black tiger shrimp (<i>Penaeus monodon</i>), Pacific white shrimp (<i>P. vannamei</i>), Pacific blue shrimp (<i>P. stylirostris</i>), Gulf white shrimp (<i>P. setiferus</i>), Gulf brown shrimp (<i>P. aztecus</i>), Gulf pink shrimp (<i>P. duorarum</i>), and Kuruma prawn (<i>P. japonicus</i>)

NON-EXOTIC DISEASES		
	DISEASE	SUSCEPTIBLE SPECIES
FISH	Spring viraemia of carp	Common carp and koi carp (<i>Cyprinus carpio</i>), grass carp (<i>Ctenopharyngodon idellus</i>), silver carp (<i>Hypophthalmichthys molitrix</i>), bighead carp (<i>Aristichthys nobilis</i>), crucian carp (<i>Carassius carassius</i>), goldfish (<i>Carassius auratus</i>), tench (<i>Tinca tinca</i>) and sheatfish (<i>Silurus glanis</i>)
	Viral haemorrhagic septicaemia	Fish belonging to the family <i>Salmonidae</i> , grayling (<i>Thymallus thymallus</i>), white fish (<i>Coregonus</i> spp.), pike (<i>Esox lucius</i>), turbot (<i>Scophthalmus maximus</i>), herring and sprat (<i>Clupea</i> spp.), Pacific salmon (<i>Oncorhynchus</i> spp.), Atlantic cod (<i>Gadus morhua</i>), Pacific cod (<i>G. macrocephalus</i>), haddock (<i>G. aeglefinus</i>) and rockling (<i>Onos mustelus</i>).
	Infectious haematopoietic necrosis	Fish belonging to the family <i>Salmonidae</i> , pike (<i>Esox lucius</i>)
	Koi herpes virus	Common carp and koi carp (<i>Cyprinus carpio</i>).
	Infectious salmon anaemia	Atlantic salmon (<i>Salmo salar</i>), rainbow trout (<i>Oncorhynchus mykiss</i>), brown trout (<i>Salmo trutta</i>),
MOLLUSCS	Infection with <i>Marteilia refringens</i>	<i>Ostrea edulis</i> , <i>O. angasi</i> and <i>Ostrea chilensis</i>
	Infection with <i>Bonamia ostreae</i>	<i>Ostrea edulis</i> , <i>O. angasi</i> , <i>O. denselammellosa</i> , <i>O. puelchana</i> , <i>Ostreola conchaphila</i> (= <i>O. lurida</i>) and <i>O. chilensis</i> (= <i>Tiostrea lutaria</i>),
CRUSTACEANS	White spot disease	Most commercially cultivated penaeid (Family Penaeidae) shrimps and prawns.

2.4 Additional fish viral disease agents considered by WP 2 (taken from AFFA, 2002a)

Anguillid herpesvirus
Birnavirus (non-EVE) infection
Bream rhabdovirus
Common carp coronavirus
Cyprinid herpesvirus
Eel rhabdovirus (AM92)
Eel virus European
Esox lymphosarcoma retrovirus
Esox sarcoma retrovirus
Gill lamellar pillar cell necrosis virus
Golden shiner virus
Grass carp reovirus
Herpesvirus of black catfish
Iridovirus group

- Japanese eel iridovirus
- Largemouth bass iridovirus
- Mandarin fish iridovirus

Marbled goby aquabirnavirus
Perch/pike perch rhabdovirus
Pike fry rhabdovirus
Snakehead rhabdovirus
Tilapia larvae encephalitis virus
Viral oedema of carp
Walleye sarcoma retrovirus
White sturgeon herpesvirus –1
White sturgeon herpesvirus –2

2.5 Additional mollusc diseases/conditions considered by WP 2 (taken from AFFA, 2002b)

Viral

Akoya oyster disease
Digestive epithelial virosis – small RNA viruses
Gill necrosis virus disease (GNV)
Haemocytic infection virus disease (HIV)
Herpes virus infection of larval *Crassostrea gigas*
Icosahedral virus-like disease of carpet-shell clams
Oyster velar virus disease (OVVD)
Viral gametocytic hypertrophy – Papova-like virus

Bacterial

Bacterial abscess disease (BAD)
Brown ring disease (BRD) – *Vibrio tapetis*
Extracellular giant “rickettsiae”
Giant clam rickettsiosis – Rickettsia-like organism (RLOs)
Hinge ligament disease – Cytophaga-like bacteria
Intracellular bacterial disease (Mycoplasmosis of scallops) – Mycoplasma-like organism
Juvenile oyster disease (JOD) – Rosebacter-group disease
Nuclear inclusion X (NIX) – large rickettsial-like organism
Pacific oyster nocardiosis (PON) – *Nocardia crassostreae*
Rickettsiales of scallops – Rickettsia-like organisms (RLOs) and Chlamydia-like organisms (CLOs)

Fungal

Larval mycosis – *Sirolopidium zoophthorum*
Shell disease – *Ostracoblabe implexa*

Protozoan

Apicomplexan parasite X (APX)
European oyster minchiniasis – *Haplosporidium armoricanum*
Haplosporidiosis of carpet clam – *Haplosporidium tapetis*
Haplosporidiosis of mussels – *Haplosporidium tumefacientis*
Marteiliosis of calico scallops – *Marteilia* sp.
Marteiliosis of giant clams – *Marteilia* sp.
Marteiliosis of mussels – *Marteilia maurini*
Marteilioides of oysters – *Marteilioides chungmuensis*
Microsporidiosis of dredge oysters – *Microsporidium rapuae*
Microsporidiosis of queen scallops – *Microsporidium* sp.
Perkinsosis of scallops (SPX) – *Perkinsus qugwadi*
Quahuag parasite unknown (QPX)

Shell Boring Sponges

Shell boring sponges – *Cliona* spp.

Annelida

Mud worm disease – *Polydora* spp., *Boccardia* spp., Sabellid worms.

Copepoda

Brood pouch copepod – *Pectenophilus ornatus*

Red worm disease – *Mytilicola intestinalis*

Poorly Defined Diseases

Agent is presumed to be viral

- Agemaki birnavirus
- *Hyriopsis cumingii* plague - Arenavirus
- Granulomacystosis of mussels – Picorna-like virus

Agent is presumed to be protozoan

- Possible Perkinsosis – *Pseudoperkinsus karlsoni*
- Scallop protozoan G (SPG)

No agent identified

- Malpeque disease