

AQUATIC ANIMAL DISEASE REPORT - 2024

Country/territory: **Singapore**

Item	Disease status/occurrence code a/c/												Level of diagnosis	Epidemiological comment numbers
	Month													
FINFISH DISEASES	January	February	March	April	May	June	July	August	September	October	November	December		
WOAH-listed diseases														
1. Infection with epizootic haematopoietic necrosis virus	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000		
2. Infection with infectious haematopoietic necrosis virus	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000		
3. Infection with spring viremia of carp virus	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000		
4. Infection with viral haemorrhagic septicaemia virus	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000		
5. Infection with <i>Aphanomyces invadans</i> (EUS)	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000		
6. Infection with red sea bream iridovirus	(2019)	(2019)	(2019)	(2019)	(2019)	(2019)	(2019)	(2019)	(2019)	(2019)	(2019)	(2019)		
7. Infection with koi herpesvirus	(2019)	(2019)	(2019)	(2019)	(2019)	(2019)	(2019)	(2019)	(2019)	(2019)	(2019)	(2019)	III	3
8. Infection with tilapia lake virus	+()	(2024)	(2024)	(2024)	(2024)	(2024)	(2024)	(2024)	(2024)	(2024)	(2024)	(2024)	III	1
Non WOAH-listed diseases														
9. Grouper iridoviral disease	(2014)	(2014)	(2014)	(2014)	(2014)	(2014)	(2014)	(2014)	(2014)	(2014)	(2014)	(2014)		
10. Viral encephalopathy and retinopathy	(2023)	(2023)	(2023)	(2023)	(2023)	(2023)	(2023)	(2023)	(2023)	(2023)	(2023)	(2023)		
11. Enteric septicemia of catfish	***	***	***	***	***	***	***	***	***	***	***	***		
12. Carp Edema Virus Disease	***	***	***	***	***	***	***	***	***	***	***	***		
MOLLUSC DISEASES														
WOAH-listed diseases														
1. Infection with <i>Bonamia exitiosa</i>	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000		
2. Infection with <i>Perkinsus olseni</i>	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000		
3. Infection with abalone herpesvirus	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000		
4. Infection with <i>Xenohaltosis californiensis</i>	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000		
5. Infection with <i>Bonamia ostreae</i>	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000		
Non WOAH-listed diseases														
6. Infection with <i>Marteilioides chungmuensis</i>	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000		
7. Acute viral necrosis (in scallops)	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000		
CRUSTACEAN DISEASES														
WOAH-listed diseases														
1. Infection with Taura syndrome virus	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000		
2. Infection with white spot syndrome virus	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)		
3. Infection with yellow head virus genotype 1	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000		
4. Infection with infectious hypodermal and haematopoietic necrosis virus	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000		
5. Infection with infectious myonecrosis virus	(2012)	(2012)	(2012)	(2012)	(2012)	(2012)	(2012)	(2012)	(2012)	(2012)	(2012)	(2012)		
6. Infection with <i>Macrobrachium rosenbergii</i> nodavirus (White Tail disease)	***	***	***	***	***	***	***	***	***	***	***	***		
7. Infection with <i>Hepatobacter penaei</i> (Necrotising hepatopancreatitis)	-	-	-	-	-	-	-	-	-	-	-	-		
8. Acute hepatopancreatic necrosis disease (AHPND)	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000		
9. Infection with <i>Aphanomyces astaci</i> (Crayfish plague)	***	***	***	***	***	***	***	***	***	***	***	***		
10. Infection with decapod iridescent virus 1 (DIV1)	***	***	***	***	***	***	***	***	***	***	***	***		
Non WOAH-listed diseases														
11. Hepatopancreatic Microsporidiosis caused by <i>Enterocytozoon hepatopenaei</i> (HPM-EHP)	***	***	***	***	***	***	***	***	***	***	***	***		
12. Viral covert mortality disease (VCMD) of shrimps	***	***	***	***	***	***	***	***	***	***	***	***		
13. <i>Spiroplasma eriocheiris</i> infection	***	***	***	***	***	***	***	***	***	***	***	***		
AMPHIBIAN DISEASES														
WOAH-listed diseases														
1. Infection with <i>Ranavirus</i> species	***	***	***	***	***	***	***	***	***	***	***	***		
2. Infection with <i>Batrachochytrium dendrobatidis</i>	(2020)	(2020)	(2020)	(2020)	(2020)	(2020)	(2020)	(2020)	(2020)	(2020)	(2020)	(2020)	III	4
3. Infection with <i>Batrachochytrium salamandrivorans</i>	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000		

Prepared by:
 Name:
 Position:
 Date:

ANY OTHER DISEASES OF IMPORTANCE														
1 Infection with Scale Drop Disease Virus (SDDV)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	
2 Infection with Big Belly bacterium	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	
3 Infection with Lymphocystis virus	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	
4 Infection with <i>Nocardia</i> sp.	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	
5 Infection with <i>Streptococcus iniae</i>	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	
6 Infection with <i>Tenacibaculum</i> sp.	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	
7 Infection with Lates Calcarifer Herpesvirus	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	(2021)	
8 Infection with Lates Calcarifer Bimavirus	(2022)	(2022)	(2022)	(2022)	(2022)	(2022)	(2022)	(2022)	(2022)	(2022)	(2022)	(2022)	(2022)	
9 Infection with Megalocytivirus (other than SDDV species and RSIV/ISKNV)	(2023)	(2023)	(2023)	(2023)	(2023)	(2023)	(2023)	(2023)	(2023)	(2023)	(2023)	(2023)	(2023)	
10 Infection with <i>Streptococcus agalactiae</i>	(2023)	(2023)	(2023)	(2023)	(2023)	(2023)	(2023)	(2023)	(2023)	(2023)	(2023)	(2023)	(2023)	
11 Infection with genogroup Infectious Spleen and Kidney Necrosis Virus (ISKNV)	+	(2024)	(2024)	(2024)	(2024)	(2024)	(2024)	(2024)	(2024)	(2024)	(2024)	(2024)	III	2

NOT LISTED BY THE WOA

Finfish: Channel catfish virus disease

a/ Please use the following occurrence code:

<u>Occurrence code and symbol</u>	<u>Definition</u>	<u>Occurrence code and symbol</u>	<u>Definition</u>
Disease present +	The disease is present with clinical signs in the whole country (in domestic species or wildlife)	Disease absent -	The disease was absent in the country during the reporting period (in domestic species or wildlife).
Disease limited to one or more zones +()	The disease is present with clinical signs, and limited to one or more zones/compartments (in domestic species or wildlife)	Never reported 0000	The disease has "never been reported" (historically absent) for the whole country in domestic species and wildlife.
Infection/infestation +?	Confirmed infestation or infection using diagnostic tests, but no clinical signs observed (in domestic species or wildlife)	No information ***	No information is available regarding the presence or the absence of this disease during the reporting period (in domestic species or wildlife).
Infection/infestation limited to one or more zones +?()	Confirmed infestation or infection using diagnostic tests, but no clinical signs observed and limited to one or more zones/compartments (in domestic species or wildlife)		
Disease suspected ?	The presence of the disease was suspected but not confirmed (in domestic species or wildlife)		
Disease suspected but not confirmed and limited to one or more zones ?()	The presence of the disease was suspected but not confirmed and limited to one or more zones/compartments (in domestic species or wildlife)		

b/ If there is any changes on historical data, please highlight in RED

1. Epidemiological comments:

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

Comment No.	
1	<p>The Animal & Veterinary Service, a cluster of the National Parks Board (NParks/AVS) was informed of the detection of tilapia lake virus (TiLV) by aquatic animal health veterinary service providers. This was detected in a diseased batch of marine tilapia from a local coastal food fish farm located just off the northwestern coast of Singapore, which had experienced 60% mortality in December 2023. The tilapia were sourced from a local broodstock farm and stocked on 19 Dec 2023. Mortalities increased significantly on 25 Dec 2023 with no clinical signs observed by the farmer. There have been 2 more batches of tilapia obtained from the local broodstock farm. Mortality rates in these 2 batches have been within normal limits. Confirmatory testing of the diagnostic samples taken from this affected batch, and resampling of the remaining affected batch of tilapia on the farm was conducted.</p> <p>In Jan 2024, detection of Tilapia lake virus (TiLV) viral RNA is confirmed by semi nested RT-PCR followed by amplicon sequencing. Samples taken from the other batches of fish on both the affected farm and the source broodstock farm have tested negative for the virus. The farms have been reminded to remove diseased fish from the population promptly so as to reduce spread of the disease. Early life stages of fry are highly susceptible to TiLV and thus precautions should be taken to ensure they are not exposed to environmental stressors. There is no vaccine available for TiLV. Surveillance is ongoing.</p>
2	<p>In the same local coastal food fish farm described above, Megalocytivirus (MCV) viral DNA was detected in diagnostic samples taken from resampling of the remaining affected batch of tilapia via PCR in Jan 2024. Further confirmation via virus isolation, MCV Major Capsid Protein (MCP) genotyping PCR and sequencing of the amplicon was performed and results indicated that the detection is Infectious Spleen and Kidney Necrosis Virus (ISKNV). The farms have been reminded to remove diseased fish from the population promptly so as to reduce spread of the disease.</p>

3	<p>In Nov 2024, Koi Herpesvirus (KHV) was detected in 30 imported koi that were submitted for routine testing for as part of the Ornamental Fish Surveillance for Trade Programme. Samples were collected from the koi in both quarantine and non-quarantine areas as part of the investigation. Koi from both areas were found to be infected with KHV. The premises were placed under an isolation order and all the koi (~7000 pc) were humanely culled. Cleaning and disinfection was carried out. The isolation order was lifted on 29 Nov 2024.</p> <p>In Dec 2024, KHV was again detected in koi at the same premises, which had been imported from the same overseas source farm. The premises were placed under an isolation order and all the koi (~3000 pc) were humanely culled. Cleaning and disinfection was carried out. The isolation order was lifted on 7 March 2025.</p>
4	<p>In Dec 2024, <i>Batrachochytrium dendrobatidis</i> was detected in a batch of 1500 Gold African Clawed Frog (<i>Xenopus laevis</i>) imported from an overseas supplier as part of the Ornamental Fish Surveillance for Trade Programme. To prevent spread of the disease, an isolation order was issued to the premises. Remaining animals in the affected batch (approximately 1300 pieces) were humanely culled on 24 Dec 2024. Disinfection of all affected equipment, areas and disposed of all the affected housing boxes and nets was carried out and verified before isolation was lifted.</p>

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