

Introduction

Aquatic animal health and welfare are of great importance to the World Organisation for Animal Health (WOAH), particularly in the context of our [Aquatic Animal Health Strategy launched in May 2021](#). Therefore, WOAH publishes regularly an aquatic animal health situation report highlighting information on 1) disease events reported by countries and territories through the [World Animal Health Information System \(WAHIS\)](#) and 2) antimicrobial agents intended for use in aquatic animals reported by countries and territories through the global database for [ANimal antiMicrobial USE \(ANIMUSE\)](#). This report is intended to be used as scientific communication material published on our website. It is produced quarterly, and each edition covers one of the four species categories of aquatic animals within the scope of WOAH's work: amphibians, crustaceans, fish and molluscs. This report provides information on WOAH-listed diseases of **crustaceans** as well as data on antimicrobial use.

Contextual data

By becoming a Member of WOAH, countries accept the legal obligation to share animal health data on listed and emerging diseases in accordance with our standards. Diseases included in this list meet the following criteria: 1) freedom at the level of country or zone by at least one country, and potential for international spread, 2) significant morbidity or mortality in animals (farmed or wild) or humans (for zoonotic diseases), and 3) reliable means for diagnosis and case definition is available. The list is revised annually and in 2023 comprises [31 aquatic animal diseases](#). Two other diseases are considered emerging and fall under the legal obligation of reporting.

The implementation of surveillance is essential for the detection of animal disease events, allowing for information sharing and response to the outbreak. However, not all countries and territories have the capacity to implement surveillance for all diseases listed by WOAH and therefore resources need to be prioritised. Figure 1 provides an overview of the number of listed diseases of crustaceans (N=9) for which surveillance activities have been reported by countries and territories via WAHIS in 2019 (the most recent year with over 100 countries and territories submitting information). In 2019, the list comprised 9 diseases of crustaceans.

This figure shows that of the 140 countries and territories that shared information via WAHIS, 31% reported no surveillance for the 9 diseases of crustaceans, 41% reported surveillance for some of the listed diseases of crustaceans, and 28% reported surveillance for all listed diseases of crustaceans. In some regions of the world, such as western Africa, middle Africa, eastern Africa, southern Asia, and central Asia, many reports were missing. This context, which highlights significant gaps in surveillance, must be considered when interpreting animal disease events reported to WOAH.

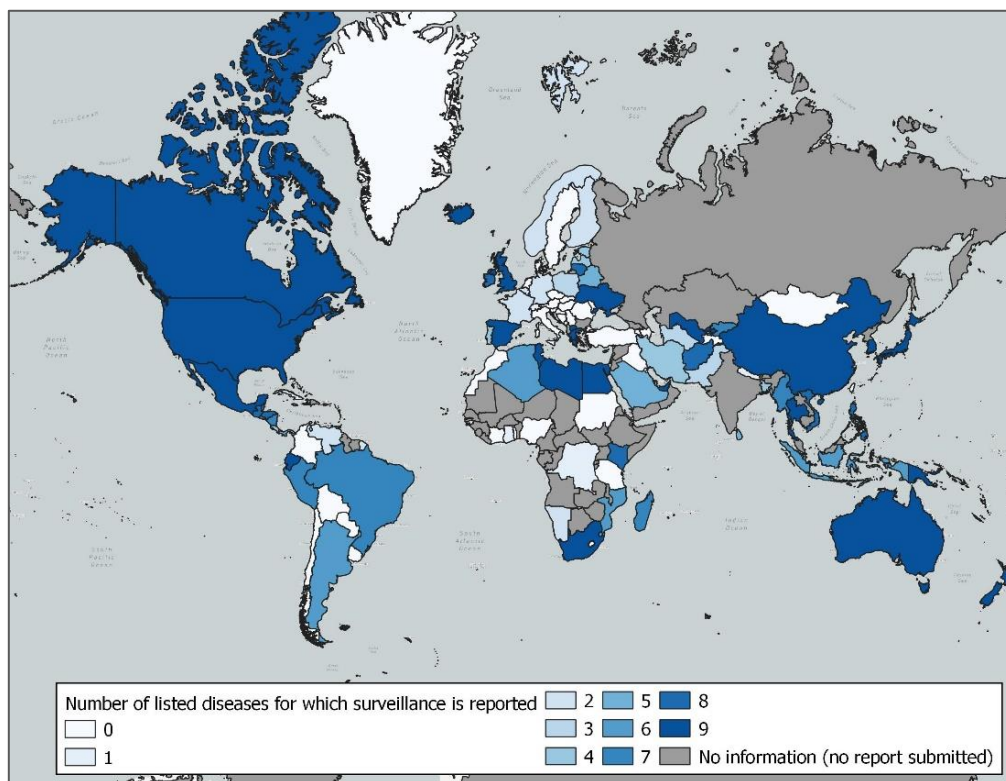


Figure 1. Number of listed diseases of crustaceans for which surveillance activities have been reported by countries and territories via WAHIS in 2019

Not all countries have significant crustaceans' production. Based on FAO figures for 2019, China (People's Rep. of) is the largest producer (over 5 million tonnes), followed by Indonesia, Vietnam, and India (over 1 million tonnes), then several countries and territories in the Americas, Asia and Europe (see Figure 2). Countries in the Middle East and Africa have lower production, and some countries have no production at all. This context, which highlights important disparities in crustaceans' production, must be considered when interpreting animal disease events reported to WOAH.

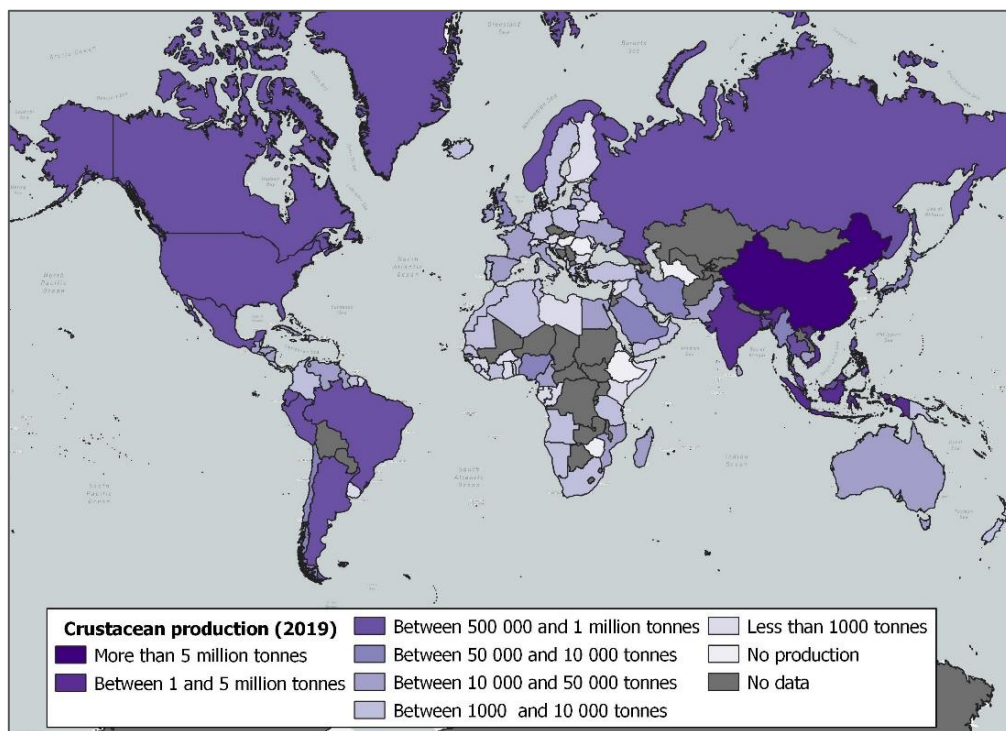


Figure 2. Crustaceans' production. Based on FAO figures for 2019 (Source: https://www.fao.org/fishery/statistics-query/en/global_production/global_production_quantity)

Disease situation in the past 5 years (2019-2023)

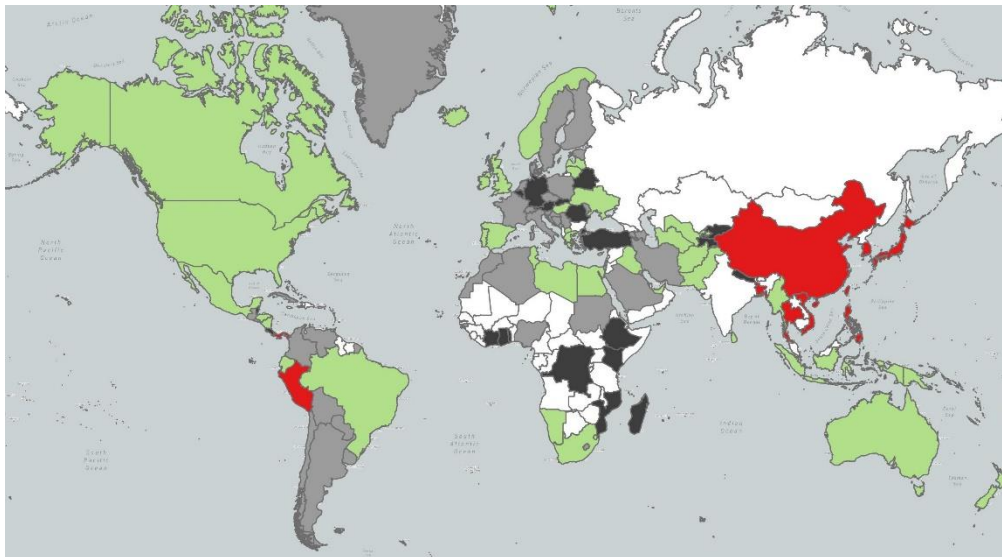
This section presents disease situations in crustaceans that have been reported by countries and territories through WAHIS. This reporting is a requirement for WOA's Members and covers listed diseases, for which information on presence/absence must be reported through six-monthly reports. Members are also requested to inform WOA if the epidemiological situation of the disease is unknown.

Although these data may have some bias, either because they are incomplete or because their granularity varies (depending on the reporting country/territory), they represent the reference information on animal health reported by the official services, using a standard template and a standard data format.

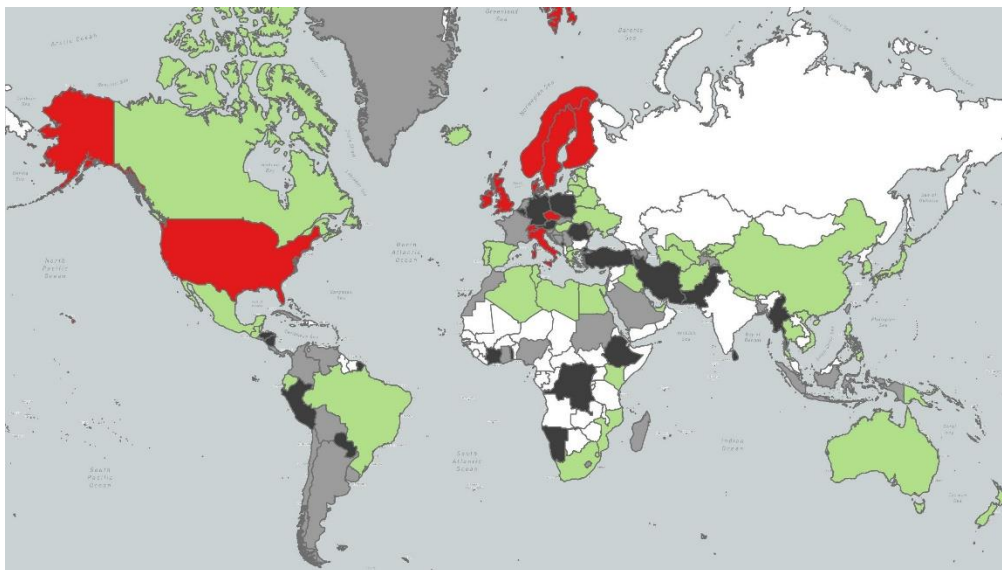
These maps show the situation reported for the ten listed diseases of crustaceans in the past five years (the same diseases than covered above and infection with decapod iridescent virus 1, which was added to the List in 2022).

“Presence or suspicion” is shown in red.
“Absence with surveillance activities” is shown in green.
“Absence with no surveillance activities” is shown in light grey.
“No information” is shown in dark grey.
“No report submitted” to WOA is shown in white.

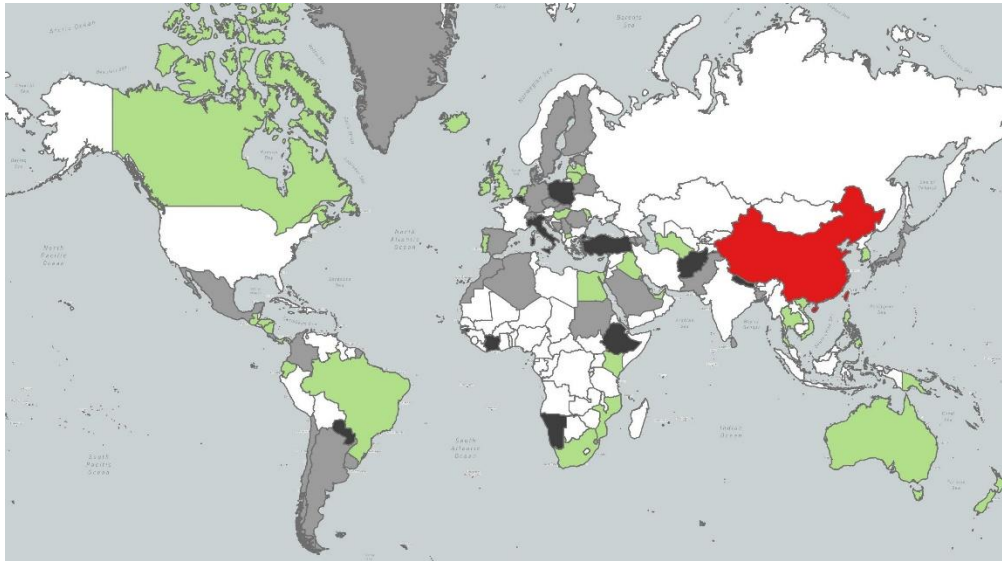
Acute hepatopancreatic necrosis disease has been reported present or suspected (see area in red) in 10 countries and territories (Bangladesh, China [People's Rep. of], Chinese Taipei, Japan, Korea (Rep. of), Panama, Peru, Philippines, Thailand, and Vietnam).



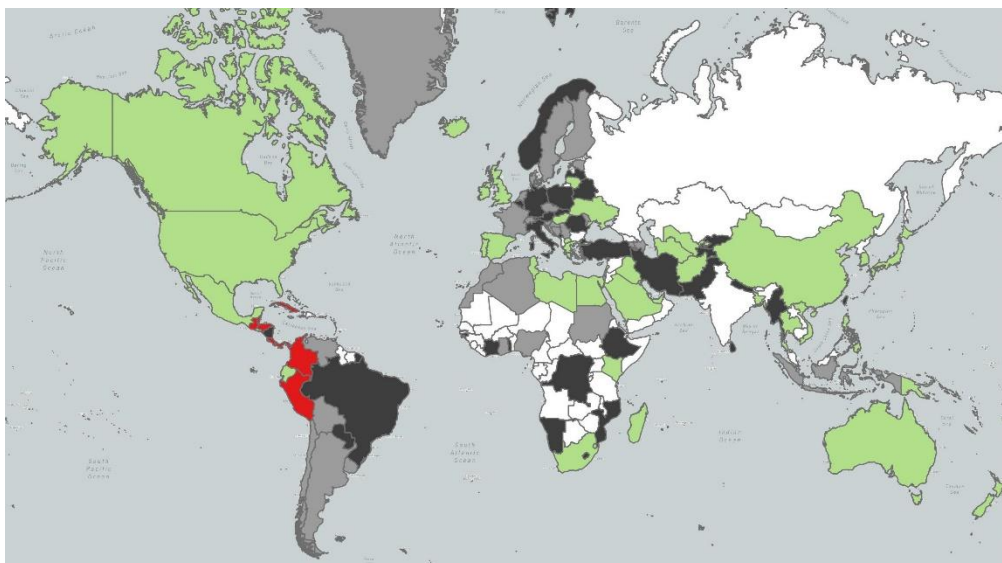
Infection with *Aphanomyces astaci* (crayfish plague) has been reported present or suspected (see areas in red) in 10 countries (Czech Republic, Denmark, Finland, Ireland, Italy, Norway, Sweden, Switzerland, United Kingdom and United States of America).



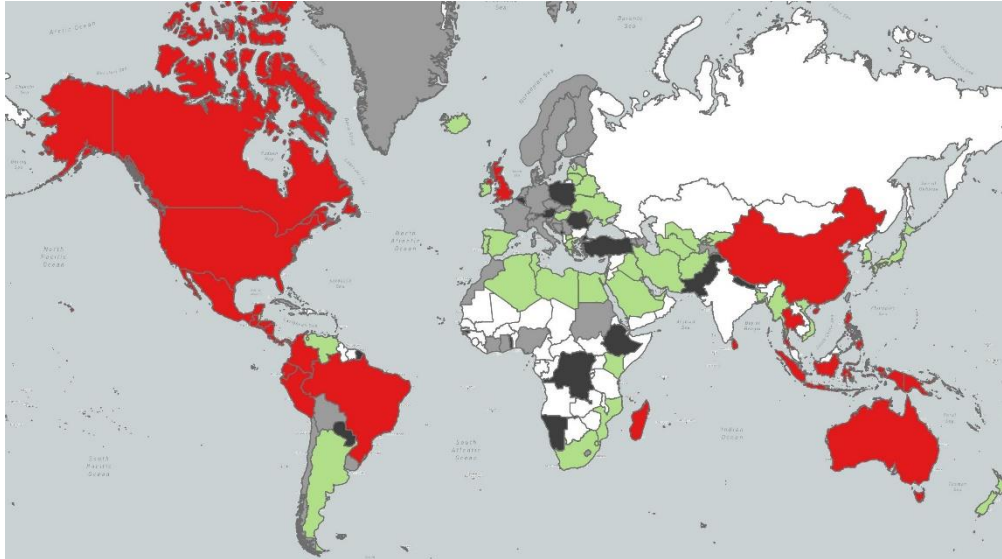
Infection with **decapod iridescent virus 1** has been listed in 2022. It has been reported present or suspected (see areas in red or light orange) in two countries and territories of Asia (China [People's Rep. of] and Chinese Taipei).



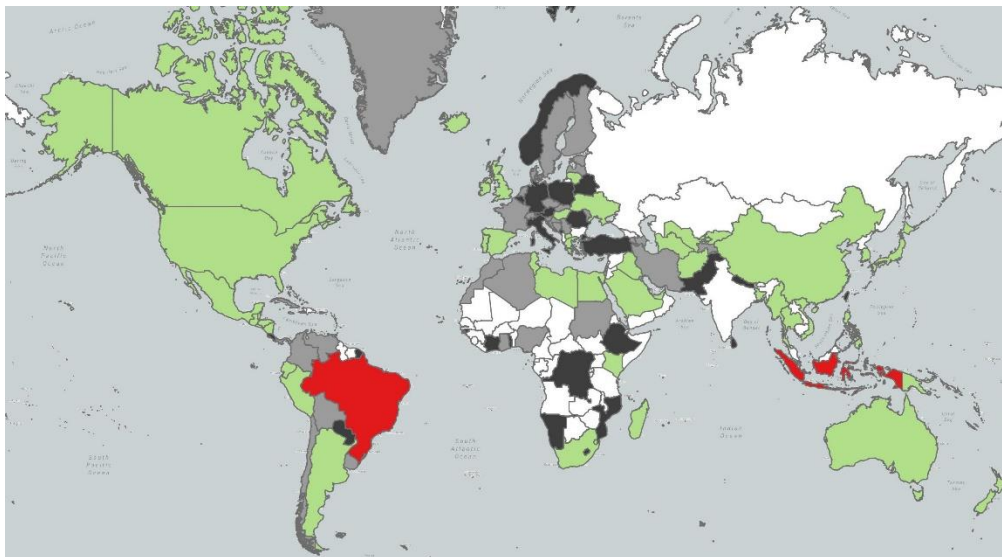
Infection with ***Hepatobacter penaei* (necrotising hepatopancreatitis)** has been reported present (see areas in red) in eight countries of the Americas (Belize, Colombia, Costa Rica, Cuba, Guatemala, Honduras, Panama, Peru).



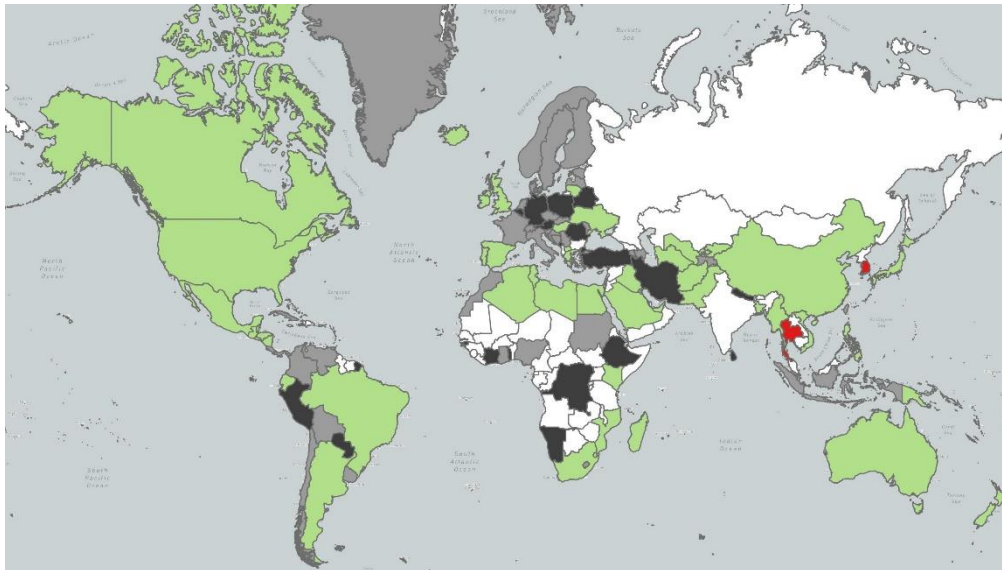
Infection with infectious hypodermal and haematopoietic necrosis virus has been reported present or suspected (see areas in red or light orange) in 22 countries (Australia, Brazil, Canada, China [People's Rep. of], Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Indonesia, Madagascar, Mexico, Nicaragua, Panama, Papua New Guinea, Peru, the Philippines, Sri Lanka, Thailand, United Kingdom and United States of America).



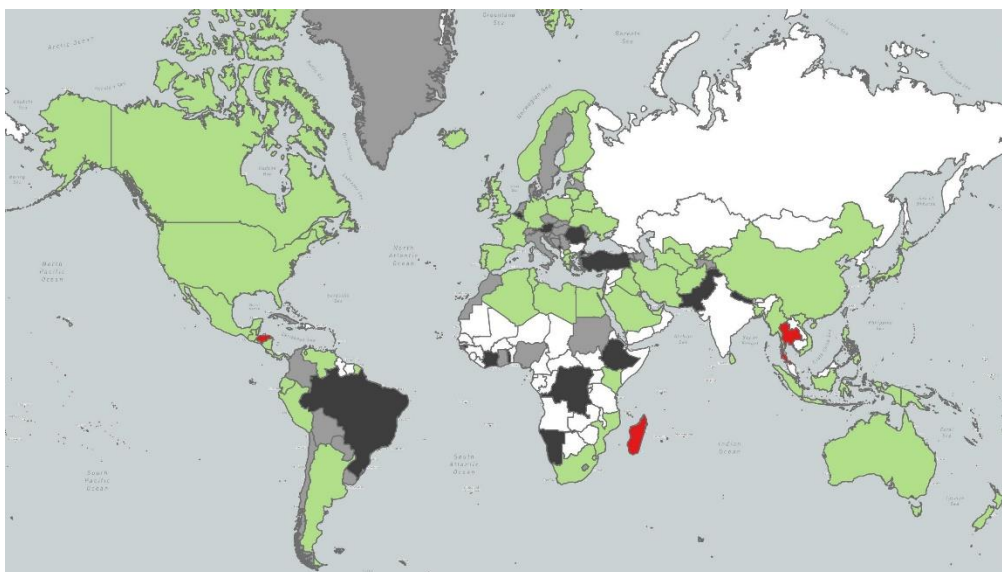
Infection with infectious myonecrosis virus has been reported present or suspected (see areas in red or light orange) in two countries (Brazil and Indonesia).



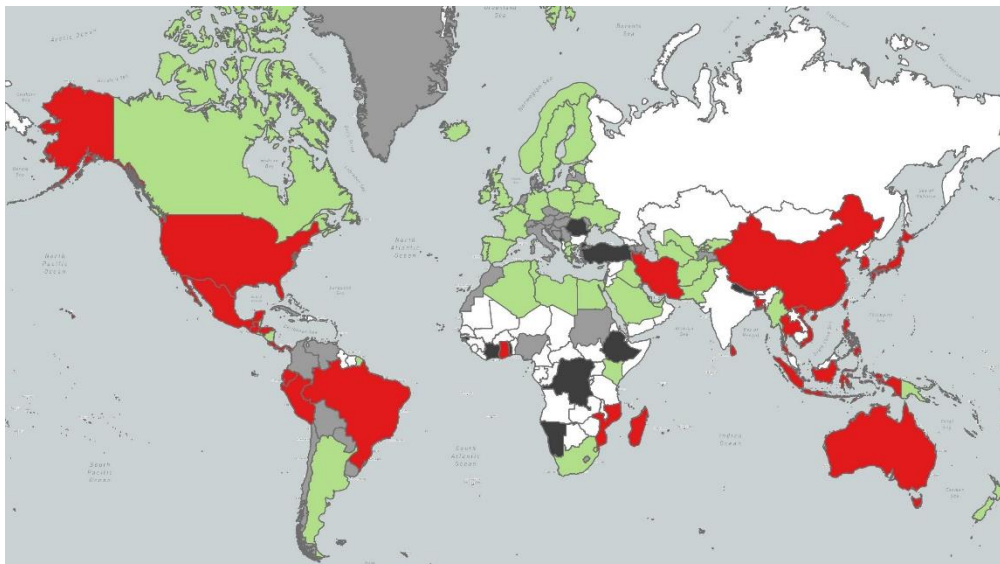
Infection with **Macrobrachium rosenbergii** nodavirus (white tail disease) has been reported present (see areas in red) in two countries (Korea [Rep. of], Thailand).



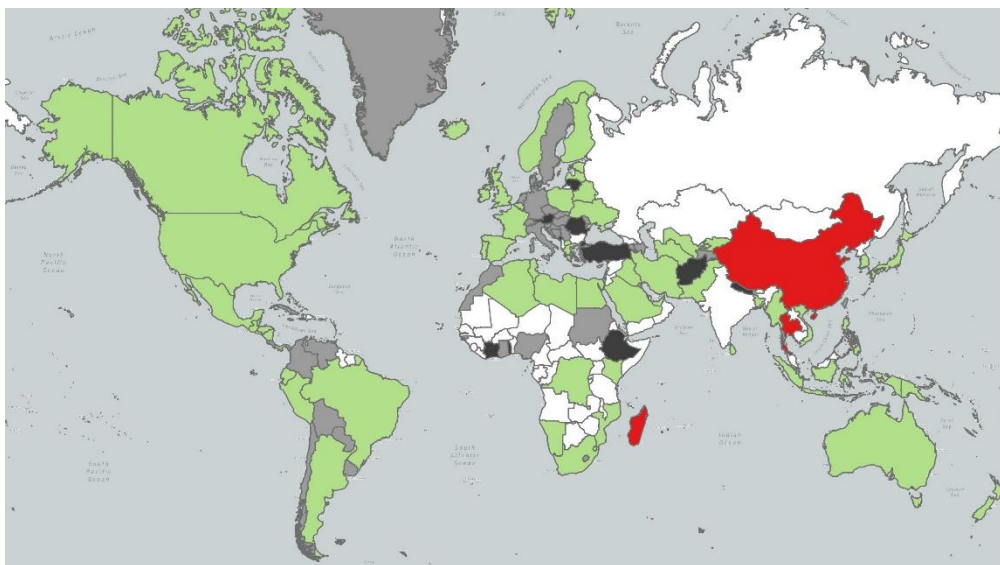
Infection with **Taura syndrome virus** has been reported present (see areas in red) in three countries (Honduras, Madagascar, Thailand).



Infection with white spot syndrome virus has been reported present (see areas in red) in 26 countries and territories (Australia, Bangladesh, Brazil, China [People's Rep. of], Chinese Taipei, Costa Rica, Ecuador, Ghana, Guatemala, Honduras, Hong Kong [SADC], Indonesia, Iran, Japan, Korea [Rep. of], Madagascar, Mexico, Mozambique, Panama, Peru, Philippines, Singapore, Sri Lanka, Thailand, United States of America, Vietnam).



Infection with yellow head virus genotype 1 has been reported present (see areas in red) in three countries (China [People's Rep. of], Madagascar, Thailand).



Exceptional events reported during the period of interest (13/10/2022 – 13/10/2023)

This section highlights exceptional disease events in crustaceans that have been reported by countries and territories through WAHIS. As noted above, this reporting is a requirement for WOA's Members and covers listed diseases as well as emerging diseases, for which exceptional events must be reported through immediate notification, followed by weekly follow-up reports until the situation has stabilised or resolved. Exceptional events include first occurrence, recurrences, detection of new strains, occurrence of the disease in new hosts, and unexpected changes in disease dynamics in the country. Stable situations are not covered in this section and are reported to WOA through another channel of WAHIS.

New events by world region (reported through immediate notifications)

Europe

Infection with *Aphanomyces astaci* (crayfish plague) in wild white clawed crayfish (*Austropotamobius pallipes*)

A recurrence started in Italy (Veneto) on 31 July 2023

A recurrence started in United Kingdom (Northern Ireland) on 4 September 2023

Africa, Americas, Asia, Oceania

No new events reported.

On-going events for which there were new reported outbreaks, by world region (reported through follow-up reports):

Oceania

Infection with white spot syndrome virus in farmed *Penaeus monodon*

Australia

Africa, Americas, Asia and Europe

No new outbreaks reported in the on-going events, or no on-going events

New outbreaks

During the period covered by this report, a total of 5 new outbreaks were reported by 3 countries for 3 diseases (Australia, Italy, United Kingdom). Details are presented in Figure 3.



Figure 3. Distribution of new outbreaks, by disease

Events which started before the period of interest but were reported during the period (reported through immediate notifications)

Africa, Americas, Asia, Europe and Oceania

No events reported

Self-declared Disease Status during the period of interest (13/10/2022 – 13/10/2023)

In accordance with the provisions of the *Aquatic Animal Health Code (Aquatic Code)*, Members may wish to [self-declare the freedom](#) of their country, zone or compartment from a disease. A Member wishing to publish a self-declaration for disease-freedom, should provide the relevant documented evidence of compliance with the provisions of the relevant chapters of the *Aquatic Code*.

No self-declaration was published for diseases of crustaceans during the period of interest.

The table below shows the self-declarations submitted by WOA Members for diseases of crustaceans that were still active as of 13 October 2023.

Member	Self-declared freedom from	From	Country/zone/ compartment
Brunei	Infectious myonecrosis virus (Inf. with)	01/01/2010	Country
Brunei	Taura syndrome virus (Inf. with)	01/01/2010	Country
Brunei	Yellow head disease	01/01/2010	Country
Colombia	White spot syndrome virus (Inf. with)	16/01/2015	Zone
Colombia	Yellow head disease	16/01/2015	Zone
Indonesia	Baculovirus penaei	21/02/2013	Compartment
Indonesia	Hepatobacter penaei (Inf. with)(Necrotising hepatopancreatitis)	21/02/2013	Compartment
Indonesia	Hepatopancreatic parvovirus	21/02/2013	Compartment
Indonesia	Infectious hypodermal and haematopoietic necrosis virus (Inf. with)	21/02/2013	Compartment
Indonesia	Infectious myonecrosis virus (Inf. with)	21/02/2013	Compartment
Indonesia	Spherical baculovirus (Penaeus monodon-type)	21/02/2013	Compartment
Indonesia	Taura syndrome virus (Inf. with)	21/02/2013	Compartment
Indonesia	White spot syndrome virus (Inf. with)	21/02/2013	Compartment
Indonesia	Yellow head disease	21/02/2013	Compartment
Korea (Rep. of)	Infectious hypodermal and haematopoietic necrosis virus (Inf. with)	29/08/2022	Country
New Caledonia	Taura syndrome virus (Inf. with)	01/10/2008	Country
Peru	Infectious myonecrosis virus (Inf. with)	31/01/2020	Country
Peru	Yellow head virus genotype 1 (Inf. with)	31/01/2020	Country

Antimicrobial use in crustaceans

In the past decades, a range of pathogens have been reported to develop resistance to antimicrobials. To make sure these key medicines remain efficient, WOA is gathering data on the amounts of antimicrobial use in animals worldwide. This information is an essential asset to reduce overuse and misuse of antimicrobials and to curb the spread of antimicrobial resistance (AMR).

Since 2015, WOA has taken the lead to build a global database on antimicrobial agents intended for use in animals collecting data from its Members. In 2022, the way antimicrobial use data is reported has been transformed with an online customised database system: [ANIMUSE Global Database](#) (ANImal antiMicrobial USE).

Based on the data reported, we produce annual reports on antimicrobial agents intended for use in animals. According to the [7th report](#), 69 countries reported quantities of antimicrobial agents intended for use in aquaculture in 2019. Thirty-six countries covered Penaeid crustaceans, among other animal species, in their total antimicrobial reported quantities, 4 of these countries reported differentiated quantities of antimicrobials for aquatic animals. WOA is working to raise awareness among its Members of the importance of collecting and sharing antimicrobial use data, and to understand the barriers to collecting and reporting this information. This will help WOA to further support its Members in building capacity and increasing reporting for better stewardship of antimicrobials globally. Antimicrobial use in crustacean aquaculture could have influence on AMR emergence, therefore it is critical to monitor it.

Conclusions

The distribution maps of the 10 selected crustacean diseases show a highly variable global distribution of disease presence. Five out of the 10 diseases (infection with decapod iridescent virus 1, infection with infectious myonecrosis virus, infection with Macrobrachium rosenbergii nodavirus [white tail disease], infection with Taura syndrome virus, infection with yellow head virus genotype 1) are reported in only 2 to 3 countries and territories, with very limited geographical distribution.

Three out of the 10 diseases (acute hepatopancreatic necrosis disease, infection with *Aphanomyces astaci* [crayfish plague], infection with Hepatobacter penaei [necrotising hepatopancreatitis]) are reported in 8 to 10 countries and territories.

Infection with infectious hypodermal and haematopoietic necrosis virus and infection with white spot syndrome virus are more extensively reported, with 22 to 26 countries and territories reporting their presence in the last five years.

From the point of view of the sensitivity of the international reporting system, it is worth highlighting that about 30% of countries and territories that share information via WAHIS declare no surveillance for listed crustacean diseases and a significant number of countries and territories report no detection for several aquatic diseases, without declaring any surveillance in place.

Finally, for several crustacean diseases, a large number of countries report that they have "no information" on the diseases, or, in alternative, they have not submitted any report to WAHIS in the last five years. This indicates an important gap in knowledge of disease occurrence.

To support Members in their surveillance efforts, Chapter 1.4. of the *Aquatic Animal Health Code* (entitled "Aquatic animal disease surveillance") has been updated in 2022. This chapter provides guidance on the surveillance approaches to be used by a Competent Authority to make and maintain a self-declaration of freedom from disease or to confirm the occurrence of a listed disease or an emerging disease.

Also, WOAAH is working to raise awareness among its Members of the importance of collecting and sharing antimicrobial use data, and to understand the barriers to collecting and reporting this information. This topic is of critical importance to animal health, including crustacean health.

Members are encouraged to continue their surveillance efforts and timely reporting to WOAAH.

Visit our [website](#) for more information. For any press inquiry on the disease, you can email us at media@woah.org