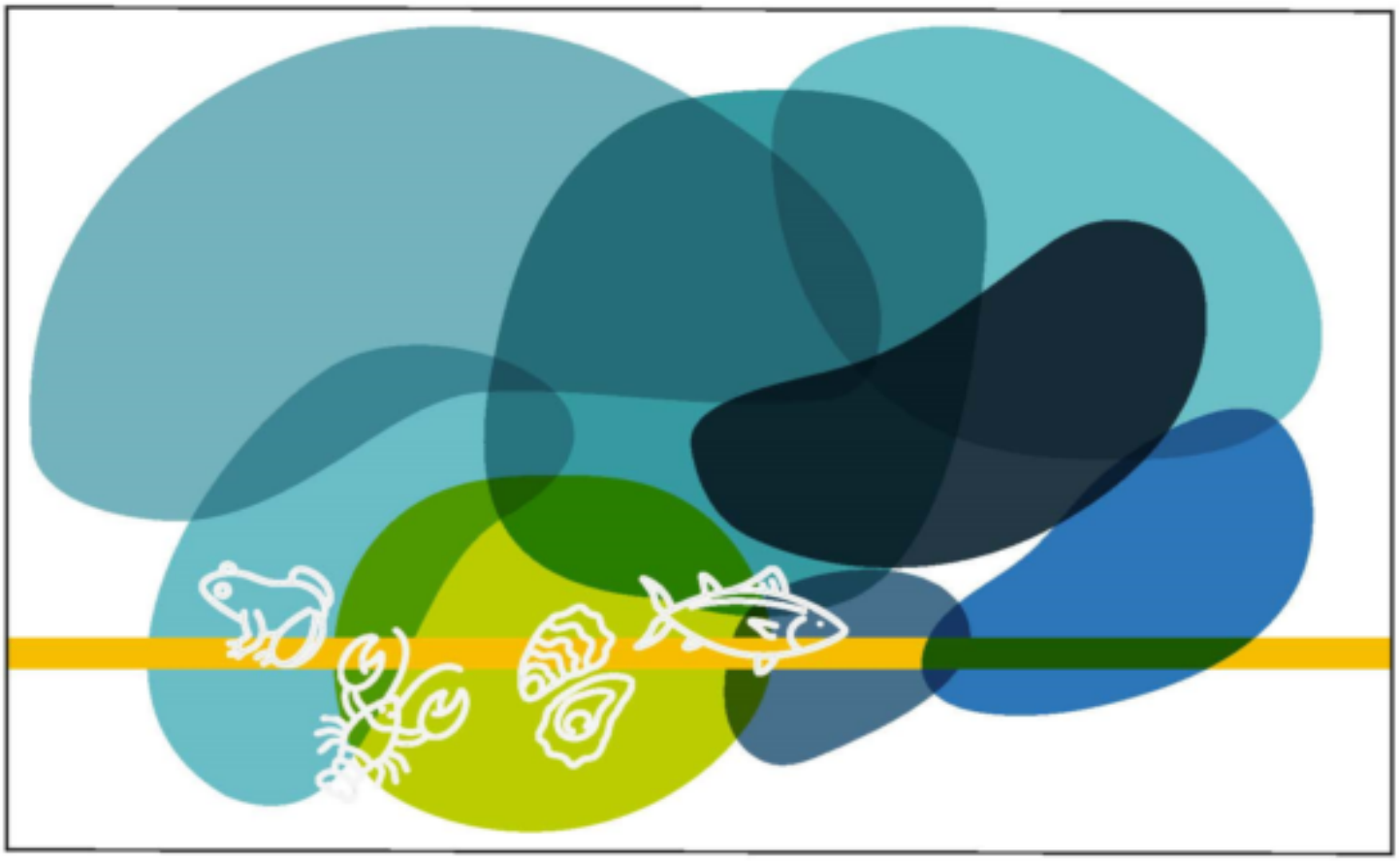
Panorama

Bulletin 2023-2

Editorial
Perspectives
Dossier
Around the World
Resources



Improving aquatic animal health and welfare worldwide

World Organisation for Animal Health
Founded as OIE

bulletin.woah.org

Animal health issues are often seen as relating to livestock. However, it is well recognised that aquaculture production is the fastest-growing food production sector, now accounting for almost 50% of the aquatic animals consumed worldwide. When we know that disease outbreaks are the greatest threat to aquatic animal production globally, the involvement of the World Organisation for Animal Health (WOAH) should be obvious.

Unfortunately, due to the shortcomings of veterinary education in this area as well as a lack of resources, aquatic animal health and welfare are not properly addressed. Changing this paradigm is the ambitious challenge of the Aquatic Animal Health Strategy, launched by our Organisation in 2021 and based on the outcomes of a Global Conference held in Santiago, Chile, in 2019.

The WOAH Aquatic Animal Health Strategy is a call to action to address some of the greatest challenges in aquatic animal health and welfare. The Strategy has four objectives:

- Standards
- Capacity Building
- Resilience
- Leadership.

These four interconnected components must be considered within a framework of priority actions that need to be either implemented or intensified to underpin a sustainable global increase in aquatic animal production. Only then can we hope to mitigate the aquatic animal health and welfare risks that come with such rapid growth.

The holistic approach we have chosen means that several departments of the Organisation are involved, both at our Headquarters in Paris and in the Regional /Sub-Regional Representations. In this way, we can offer the sector support from the full diversity of our programmes and work as closely on the ground as possible with our WOAH Members. Our collaboration with Members, partners and relevant stakeholders, such as other international organisations, reference laboratories and the private sector, is a vital part of our agenda to ensure that we are fully engaged with all those who either need support or can offer it.

Through its activities, WOAH will support national, regional and international efforts to improve aquatic animal health, aiming to meet the world's growing need for aquatic animal products.

We are convinced that improving aquatic animal health and welfare worldwide contributes to sustainable economic growth, poverty alleviation and food security, thereby supporting the achievement of the United Nations Sustainable Development Goals. Our aim is to balance our commitment across all four objectives of the Strategy and the support of our financial partners is essential for its full implementation.

I hope that you will enjoy this new edition of Panorama, dedicated to our WOAH Aquatic Animal Health Strategy. We have tried to highlight what has already been achieved, as well as reporting work in progress, exciting new initiatives and some of the challenges that we must address together in the coming years.

Monique Éloit, Director General
World Organisation for Animal Health (WOAH, founded as OIE)

https://doi.org/10.20506/bull.2023.2.3401

EDITORIAL

1-1 The World Organisation for Animal Health's mission to improve aquatic animal health and welfare worldwide

KEYWORDS

#aquaculture, #capacity building, #food security, #international standard, #resilience, #strategy, #WOAH Aquatic Animal Health Strategy, #World Organisation for Animal Health (WOAH)

© Getty Images

The mission of the World Organisation for Animal Health (WOAH) is to foster global commitment to improving animal and aquatic health and welfare and veterinary public health worldwide. The development of WOAH's first Aquatic Animal Health Strategy (AAHS) responds to this mission; in particular, it aims to enable Veterinary Services or Aquatic Animal Health Services to meet both the opportunities and the challenges facing the aquaculture sector.

It is with great enthusiasm that I see the delivery of this edition of *Panorama*. The AAHS was adopted in 2021. It has now been two years since it commenced, and what better way to understand it than to see examples of its activities?

I invite you to read this edition, which will walk you through the different activities that are currently being implemented under the AAHS.

You will see that this strategy is not a group of isolated activities but, in line with the implementation of WOAH's Seventh Strategic Plan, it coordinates a global framework that is supporting Veterinary and Aquatic Animal Health Services by integrating diverse components for standard setting, information management, sustainable capacity building and facilitating international collaboration.

This strategy promotes and facilitates increased communication, networking and implementation of activities among the WOAH community (WOAH Members, staff, public and private sectors, WOAH Reference Laboratories and Collaborating Centres and WOAH international partners) and involves them in the improvement of aquatic animal health and welfare globally.

This edition of *Panorama* gives us a glimpse into some of these activities.

Montserrat Arroyo, Deputy Director General
World Organisation for Animal Health (WOAH, founded as OIE)

https://doi.org/10.20506/bull.2023.2.3402

EDITORIAL

1-2: The Aquatic Animal Health Strategy, a WOAH global strategy

SUMMARY
How the Aquatic Animal Health Strategy is supporting the mission and vision of WOAH's Seventh Strategic Plan.

KEYWORDS

#aquaculture, #capacity building, #food security, #international standard, #resilience, #strategy, #WOAH Aquatic Animal Health Strategy, #World Organisation for Animal Health (WOAH)

© Getty Images

The launch of the Aquatic Animal Health Strategy in May 2021 answered calls from Members for a coordinated approach to the management of aquatic animal health and welfare worldwide.

The strategy addresses the growing importance of aquatic animal health and its impact on global food security and public health. It was designed to help prevent and control aquatic animal diseases through international collaboration and scientific advances. Thus far, efforts to manage global aquatic animal health and welfare have not kept pace with the rapid growth of aquatic animal production and the increased risk of disease.

WOAH put several initiatives into action to increase and improve the support provided to Members, by recruiting staff who specialise in aquatic animal production, developing new strategies, seeking more funding in this area and promoting better communication of knowledge on aquatic animal health and welfare. This culminated in the 4th Global Conference on Aquatic Animal Health in Santiago, Chile, in 2019. During this conference, the WOAH Director General, Dr Monique Éloit, made a commitment to develop an aquatic animal health strategy to meet both the opportunities and challenges offered by the growth in aquaculture.

The strategy was developed step by step, a process that involved input and collaboration from our Members, partners and scientific institutions. The following are some of the key steps involved in the development of the strategy:

1. Establishing the need: WOAH recognised the need to develop a strategy to address the growing importance of aquatic animal health, and to ensure sustainable development of the aquaculture industry.
2. Identifying key issues: a survey was conducted to identify the major challenges and needs of aquatic animal production. These findings were used by WOAH and the Aquatic Animal Health Standards Commission to start drafting the strategy.
3. Development of the strategy: based on the feedback and analysis gathered during the consultation process, WOAH developed its Aquatic Animal Health Strategy.
4. Implementation: WOAH has identified potential strategy activities and projects, and created plans on how to carry them out.

https://doi.org/10.20506/bull.2023.2.3403

EDITORIAL

1-3: How the WOAH Aquatic Strategy came to be

KEYWORDS

#food security, #public health, #WOAH Aquatic Animal Health Strategy

AUTHORS

Stian Johnsen, World Organisation for Animal Health

© Getty Images

Aquaculture is the fastest-growing sector of food production and arguably one of the most innovative. It originated with rudimentary carp production in China more than 2,000 years ago, but began in earnest only as hauls from capture fisheries started to plateau in the 1970s. By 2016, the production of aquatic animals for human consumption surpassed that of capture fisheries [1]. The projected demand for seafood is increasing due to growing populations and per capita consumption. Kobayashi et al. estimated that the global seafood supply will increase from 154 million tons in 2011 to 186 million tons in 2030, and aquaculture will be entirely responsible for the increase [2].

Global food production systems

Global food production systems are one of the largest drivers of climate change, accounting for 21–37% of total net anthropogenic greenhouse gas emissions [3]. They are also a major cause of biodiversity loss and environmental degradation. By the year 2050, the world population is expected to reach 9.8 billion and food demand to increase by 50%. Current food production systems cannot be scaled to meet future demand without exacerbating environmental issues.

The EAT Lancet Commission evaluated the health benefits and environmental costs of various food groups [4]. To stay within planetary boundaries, it recommended a shift toward largely plant-based diets, a reduction in beef, poultry, pork and eggs, and an increase in seafood. In short, food production will be a defining issue of the 21st century, and aquaculture has a crucial role to play.

Aquaculture challenges

For aquaculture to meet the global demand for seafood without exacerbating environmental impacts will require: a) improved control to reduce disease risks and environmental impact; b) improved efficiency to produce more with less land, less energy, less water, feed and labour; and c) improved trust to achieve market acceptance. These challenges will require advances at each step in the production chain.

Animal health is a prerequisite for advances in production. Improved disease control is being achieved by more sensitive and rapid diagnostics, improved biosecurity, better vaccines, probiotics, and bacteriophages. Fish welfare is also improving, with new techniques for humane slaughter and stress reduction. WOAH can advance progress by facilitating closer collaboration between governmental zone management systems and industry biosecurity programmes at the regional and farm level.

Breeding is one of the key drivers of performance in aquaculture. Typical gains of 10–15% per generation can be achieved for selected traits such as growth, multi-pathogen resistance, reproductive performance, and dietary soy tolerance. These gains are increasing with genomic selection and will likely improve further if gene editing becomes accepted.

Feeds are the single largest contributor to greenhouse gas emissions in animal production. Reducing emissions associated with feed ingredients will be crucial through improved farming practices, such as carbon farming to sequester CO2. At the aquaculture farm level, feed efficiency is being greatly improved through more sophisticated delivery systems.

Innovations and certifications

Fascinating innovations are occurring in grow-out systems, including open-ocean platforms, land-based recirculating aquaculture systems, semi-closed net-pen systems, and intensive, self-cleaning ponds. Effluent wastes are being captured through re-use systems, integrated multi-trophic aquaculture, and the use of artificial wetlands. Seafood processing is also being transformed through automation, mechanisation and digital traceability.

Third-party certification has become a mainstream tool for market acceptance by providing credible assurances of environmental, social, food safety and animal welfare compliance. The next challenge is to extend these assurance programmes to smallholder farms through clusters and improvement programmes.

Key message

Food production will be a defining issue of the 21st century and aquaculture has a vital role to play. Innovation is needed at every step of the value chain. WOAH can advance progress in animal health by facilitating closer hierarchical collaboration between governmental zone management systems and industry biosecurity programmes at the regional and farm level.

https://doi.org/10.20506/bull.2023.2.3404

EDITORIAL

1-4: The Global Seafood Revolution

KEYWORDS

#aquaculture, #WOAH Aquatic Animal Health Strategy, #aquatic animal, #prevention

AUTHORS

George Chamberlain, Global Aquaculture Alliance

© Getty Images

REFERENCES

1. Food and Agriculture Organization of the United Nations (FAO) (2020). – The state of world fisheries and aquaculture. Sustainability in action.
2. Kobayashi M., Msangi S., Batka M., Vannuccini S., Dey M.M. & Anderson J.L. (2015). – Fish to 2030: The role and opportunity for aquaculture. *Aquacult. Econ. Manag.*, **19** (3), 282–300. https://doi.org/10.1080/13657305.2015.994240.
3. Intergovernmental Panel on Climate Change (IPCC) (2019). – Climate change and land. An IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems [P.R. Shukla, J. Skea, E. Calvo Buendia, V. Masson-Delmotte, H.-O. Pörtner, D. C. Roberts, P. Zhai, R. Slade, S. Connors, R. van Diemen, M. Ferrat, E. Haughey, S. Luz, S. Neogi, M. Pathak, J. Petzold, J. Portugal Pereira, P. Vyas, E. Huntley, K. Kissick, M. Belkacemi & J. Malley, (eds.)].
4. Willett W., Rockström, J. Loken B., Springmann M., Lang T., Vermeulen S., Garnett T., Tilman D., DeClerck F., Wood A., Jonell M., Clark M., Gordon L.J., Fanzo J., Hawkes C., Zurayk R., Rivera J.A., De Vries W., Sibanda L.M., Afshin A., Chaudhary A., Herrero M., Agustina R., Branca F., Lartey A., Fan S., Crona B., Fox E., Bignet V., Troell M., Lindahl T., Singh S., Cornell S.E., Reddy K.S., Narain S., Nishtar S. & Murray C.J.L. (2019). – Food in the Anthropocene: the EAT–Lancet Commission on healthy diets from sustainable food systems. https://doi.org/10.1016/S0140-6736(18)31788-4, https://ec.europa.eu/knowledge4policy/publication/summary-report-eat-lancet-commission_en

Global context

Aquatic animal production is essential to achieving many of the United Nations Sustainable Development Goals [1]. Taking into account that at least 17% of animal products and 7% of all protein currently consumed globally is from aquatic animals [2], sustainable production is of worldwide importance.

Disease poses a threat to sustainable production

Disease outbreaks present a significant threat to the sustainable production of aquatic animals. The prevention or appropriate management of such outbreaks is, therefore, critically important to the achievement of global food security, as the population of the world continues to grow and is expected to approach 10 billion by 2050.

How can aquatic animal health standards help to ensure sustainable production?

Given that more than 500 aquatic species are farmed worldwide, and many more are harvested from wild fisheries, international trade in aquatic animals and products is substantial. Consequently, the spread of transboundary diseases represents a significant threat to global aquatic animal production, and cooperation between countries to manage such risks is crucially important.

To be effective, such cooperation should be based on the International Aquatic Animal Health Standards set by the World Organisation for Animal Health (WOAH). Their objectives are to manage disease risk through prevention, early detection, and appropriate disease control and risk mitigation measures for listed and emerging diseases, and thus ensure safe international trade.

The ongoing development of scientifically sound international standards, and their implementation by WOAH Members in collaboration with all stakeholders, will undoubtedly protect and improve animal health worldwide, thereby underpinning the sustainable production of aquatic animals and products, now and into the future.

https://doi.org/10.20506/bull.2023.2.3414

PERSPECTIVES

OPINIONS AND STRATEGIES

2-2-1: The importance of standards to support Members' needs: A perspective

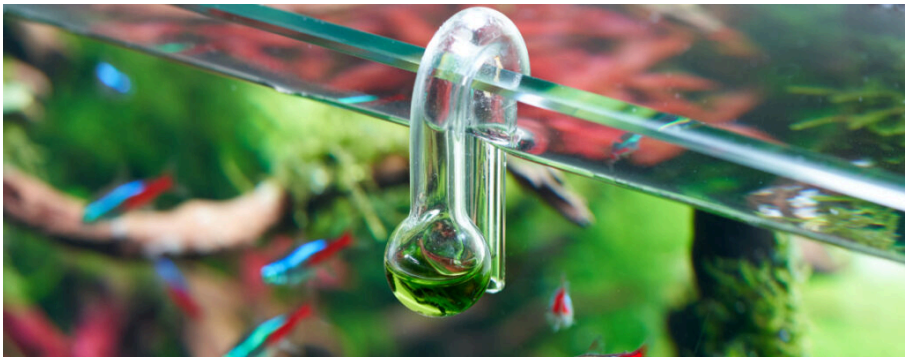
KEYWORDS

#Aquatic Animal Health, #disease prevention, #sustainable development, #World Organisation for Animal Health (WOAH)

AUTHORS

Dr. Fiona Geoghegan, European Commission, DG SANTE

The designations and denominations employed and the presentation of the material in this article do not imply the expression of any opinion whatsoever on the part of WOAH concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers and boundaries.
The views expressed in this article are solely the responsibility of the author(s). The mention of specific companies or products of manufacturers, whether or not these have been patented, does not imply that these have been endorsed or recommended by WOAH in preference to others of a similar nature that are not mentioned.



© Getty Images

REFERENCES

1. United Nations Sustainable Development Goals https://sustainabledevelopment.un.org/sdgs
2. Food and Agriculture Organisation of the United Nations (FAO)(2020). The State of World Fisheries and Aquaculture 2020. Sustainability in action. Rome, 224 pp. Available at http://www.fao.org/documents/card/en/c/ca9229en (accessed 9 June 2020)

The Food and Agriculture Organization (FAO) and the World Organisation for Animal Health (WOAH) work together to promote animal health and welfare as well as to ensure food safety.

This collaboration is based on the organisations' shared mandate and common goal: to ensure the sustainable development of animal production and address global challenges such as zoonotic diseases.

By sharing their knowledge, expertise and resources, FAO and WOAH are better equipped to deal with the issues confronting the aquaculture sector, such as the emergence of new diseases, climate change, and changing consumer preferences.

The collaboration between FAO and WOAH involves a wide range of activities, including joint projects, technical assistance and capacity-building programmes. The two organisations work together to develop and implement standards and guidelines for the management of aquatic animal health and welfare, as well as for dealing with antimicrobial resistance and preventing and controlling animal diseases.

The FAO Progressive Management Pathway for Improving Aquaculture Biosecurity (PMP/AB)

The Progressive Management Pathway (PMP) is a tool developed by the FAO to help countries improve their aquaculture biosecurity (AB). The PMP provides a step-by-step approach to assess and manage the risks associated with aquatic animal diseases. The aim is to prevent their spread and minimise their impact on the aquaculture industry.

By following the PMP/AB, countries can progressively improve their aquaculture biosecurity management and lessen the risks associated with aquatic animal diseases. This can help to promote sustainable aquaculture development, protect the health and welfare of aquatic animals, and safeguard public health.

The PMP/AB consists of four stages:

(1) defining biosecurity risks

(2) initiating biosecurity systems

(3) enhancing biosecurity systems and preparedness

(4) establishing sustainable biosecurity and health management systems.

There are three principles that guide every stage: risk-based analysis, collaboration, and progression along a pathway that builds on the steps already achieved.

A good understanding of the epidemiological triad is also essential, i.e. the relationship between the pathogen and susceptible aquatic population in a suitable environment that allows the transmission of the pathogen and spread of the disease.

WOAH has been involved in the development of the PMP/AB since 2018, and currently has a member on the Technical Working Group, which is developing guidance on the application of the tool. The pathway uses the WOAH standards as

the reference. Member Countries who wish to apply the PMP/AB in their country should use the WOAH evaluation of Aquatic Animal Health Services as their primary fact-finding tool to identify gaps and pinpoint their level of advancement.

FishVet dialogue

In 2021, WOAH and FAO established a new platform for Competent Authorities in aquatic animal health and welfare in Member Countries, called the FishVet+ dialogue. The objective is to establish a permanent platform for Members to exchange experiences and discuss how best to ensure collaboration on aquatic animal health. A start-up meeting has been held and there are plans for regular meetings on specific topics in the near future.

https://doi.org/10.20506/bull.2023.2.3415

PERSPECTIVES

OPINIONS AND STRATEGIES

2-2-2: Collaboration between WOAH and FAO on aquatic animal health

AUTHORS

Stian Johnsen* , Melba Reantaso, the World Organisation for Animal Health (WOAH), The Food and Agriculture Organization (FAO)

*Corresponding author: Stian Johnsen

© Getty Images

The World Organisation for Animal Health (WOAH) is the international standard-setting body for animal health recognised by the Sanitary and Phytosanitary Agreement of the World Trade Organization. This establishes the Standards in the Aquatic Animal Health Code for WOAH Members as the basis for national aquatic animal health programmes and international trade. These Standards are scientifically based and designed to meet Members' needs for managing aquatic animal disease risks, facilitating safe trade and improving aquatic animal health and welfare.

The first objective of the WOAH Aquatic Animal Health Strategy is the development and amendment of Standards. The primary support to achieve this objective is obtained through a core activity of WOAH's Aquatic Animals Health Standards Commission (the Commission) which involves development and amendment of evidence-based Standards.

At every meeting, the Commission reviews the priority of Standards to be revised and the development of new Standards, while taking into consideration the goals of the Aquatic Animal Health Strategy.

The Commission has prioritised the revision of several Standards of great importance to WOAH Members:

- The assessment of susceptible species and updates to the disease-specific chapters of the *Aquatic Animal Health Code* ensure that all Standards are only applied to those species that pose a risk for the spread of disease.
- The development of two new chapters on emergency disease preparedness and disease outbreak management will provide Members with additional guidance on how to prepare for disease incursions and how to react if a disease incursion occurs.
- The Commission has also prioritised the development of new chapters on ornamental aquatic animals and trade in genetic materials, based on Members' feedback. These chapters will provide new Standards where previously guidance was lacking and will assist Members with risk mitigation for these specific commodities.

The development of the Standards is led by the Commission, which presents the revised and new texts to the Members for their review and comments. It is the Members that adopt the texts at the end of the standard-setting process.

Together, through the development and implementation of Standards, we can achieve improved aquatic animal health and welfare.

https://doi.org/10.20506/bull.2023.2.3405

PERSPECTIVES

WOAH ACTIONS

2-1-01 Importance of WOAH Standards and the prioritised Standards under the Strategy

KEYWORDS

#international standard, #risk, #safe trade, #WOAH Aquatic Animal Health Strategy, #World Organisation for Animal Health (WOAH)

AUTHORS

Bernita Giffin, Scientific coordinator for aquatic animal health, World Organisation for Animal Health (WOAH).

© Getty Images

The World Organisation for Animal Health (WOAH) Standards aim to improve animal health and welfare as well as the safety of the international trade in animal products. A better understanding of the challenges faced by WOAH Members when implementing WOAH Aquatic Animal Standards will guide WOAH teams in identifying areas for improvement and taking appropriate measures to provide targeted support to Members.

Importance of Standards and their implementation

WOAH develops International Standards to improve aquatic animal health and welfare as well as the safety of the international trade in aquatic animals and their products. These Standards are compiled in the *Aquatic Animal Health Code* and the *Manual of Diagnostic Tests for Aquatic Animals* and provide specific recommendations to Members on:

- Members' obligations to notify WOAH of aquatic animal diseases
- the prevention, early detection and control of diseases
- disease-specific recommendations for safe trade in aquatic animals and aquatic animal products
- antimicrobial use
- standardised approaches to the diagnosis of diseases.

A survey to better understand the challenges in implementing WOAH Standards

WOAH conducted a 48-question survey in April 2022 to better understand the barriers to implementation of standards and transparency in disease reporting. WOAH National Focal Points for Aquatic Animals were consulted and 65% of them contributed to the survey.

The main findings identified in the survey are provided below.

- A lack of resources and expertise in aquatic animal health was cited as the most common barrier to the implementation of standards.
- Members with limited access to relevant training and education on aquatic animal health and welfare reported more barriers to the implementation of WOAH Standards.
- The impact of disease notification on regional and international trade was considered an important barrier to the notification of diseases to WOAH.
- Many Members noted a lack of national legislation and regulations and/or national legislation and regulations developed with limited consideration of WOAH standards.

From the identification of challenges to actions

Following the analysis of the survey, key recommendations are being proposed: capacity-building activities targeting different areas, communication and advocacy campaigns, and clarification of roles and responsibilities in the Aquatic Animal Health Services. Some recommendations target WOAH and have been integrated into the WOAH Aquatic Animal Health Strategy, while some are suggestions for our Members wishing to develop their aquaculture sector or

access trade markets through an enhanced implementation of WOAH Standards.

Main findings and recommendations of the survey will be made publicly available in the coming months.

https://doi.org/10.20506/bull.2023.2.3406

PERSPECTIVES

WOAH ACTIONS

2-1-02: Understanding why implementation of WOAH standards can be challenging

KEYWORDS

#data integration department, #international standard, #recommendation, #survey, #WOAH Aquatic Animal Health Strategy

AUTHORS

L. Weber-Vintzel, Data Integration Department, World Organisation for Animal Health

© Getty Images

Emerging infectious diseases (EIDs) are a significant animal and public health threat [1,2]. Several authors have described an increasing occurrence of EIDs, most of them with zoonotic origins (60.3%), and the majority of those (71.8%) originating in wildlife [2,3]. This article describes key elements in the reporting of emerging diseases to the World Organisation for Animal Health (WOAH), explaining the criteria by which a disease is considered emerging and presenting some statistics on reporting from WOAH Members.

In addition to the 117 terrestrial and aquatic listed diseases, WOAH Members have an obligation to report information on diseases of particular epidemiological relevance, even if they do not fit the criteria listed in Chapter 1.2 of the *Terrestrial Animal Health Code* and the *Aquatic Animal Health Code*.

An emerging disease is defined in the *Codes* as '*a new occurrence in an animal of a disease, infection or infestation, causing a significant impact on animal or public health resulting from: i) a change of a known pathogenic agent or its spread to a new geographic area or species; or ii) a previously unrecognised pathogenic agent or disease diagnosed for the first time*'.

The process to evaluate and assess whether a disease should be considered as emerging is described here.

According to Article 1.1.4 of the *Terrestrial Animal Health Code* and the *Aquatic Animal Health Code*, if an emerging disease occurs, the Veterinary Authorities in that country shall send to WOAH, through the World Animal Health Information System (WAHIS), an immediate notification and periodic follow-up reports. The submission of these reports is critical to enabling a better understanding of the epidemiology of the disease and its importance for animal and public health.

In contrast to the report for listed diseases, Members do not have the obligation to submit an alert report 24 hours after disease confirmation.

Since 2005, WOAH has recognised 29 emerging diseases (13 aquatic diseases and 16 terrestrial diseases). Some emerging diseases were later included in the list of reportable diseases (e.g. infection with decapod iridescent virus 1). In 2022, WOAH recognised four emerging diseases: three aquatic diseases (carp edema virus, *Enterocytozoon hepatopenaei* infection and Tilapia lake virus disease) and one terrestrial disease (SARS-CoV-2 in animals).

The occurrence of emerging diseases is reported through WAHIS. Between 2005 and September 2022, there were 178 immediate notification reports (144 for terrestrial diseases and 34 for aquatic diseases). The trend of report submission is presented in Figure 1. The peak of reports in 2021 was due to SARS-CoV-2 in animals and the peak in 2009 to swine influenza H1N1.

These two examples highlight the fact that EIDs are a major animal and public health concern, and emphasise the importance of reporting to WAHIS and the significance of a One Health approach that includes human, animal and environmental health monitoring.

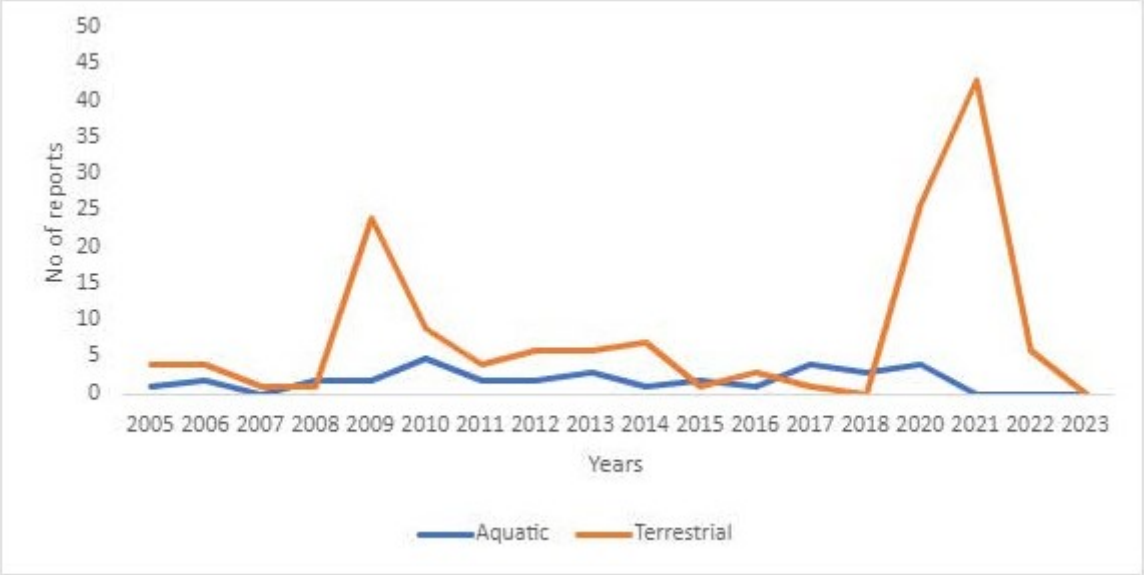


Figure 1. Trend in the number of reports submitted to WAHIS on emerging diseases during the period 2005–2022 (as of September 2022)

https://doi.org/10.20506/bull.2023.2.3407

PERSPECTIVES

WOAH ACTIONS

2-1-03: The importance of notification of emerging diseases

KEYWORDS

#animal disease, #disease control, #WOAH Aquatic Animal Health Strategy

AUTHORS

Paolo Tizzani*, Bernita Giffin, Stian Johnsen, World Organisation for Animal Health, Paris, France

*Corresponding author, Paolo Tizzani

© Getty Images

REFERENCES

1. Morens, D.; Folkers, G.K.; Fauci, A.S. The challenge of emerging and re-emerging infectious diseases. Nature 2004, 430, 242–249.
2. McArthur, D.B. Emerging Infectious Diseases. Nurs. Clin. N. Am. 2019, 54, 297–311.
3. Jones, K.E.; Patel, N.G.; Levy, M.A.; Storeygard, A.; Balk, D.; Gittleman, J.L.; Daszak, P. Global trends in emerging infectious diseases. Nature 2008, 451, 990–993.

Aquatic animal diseases that are new to science emerge regularly, some with rapid and extreme impact. The emergence of new diseases is expected to increase with growing aquaculture production and the impact of climate change. The World Organisation for Animal Health (WOAH) Aquatic Animal Health Standards Commission (the Commission) assesses diseases at their meetings to determine whether they meet the definition of an emerging disease. This information is provided to WOAH Members to alert them to the potential impact of the disease(s) and advise them that control measures may be necessary.

The Commission evaluates all available evidence against the definition of an emerging disease and determines whether the disease has a significant impact on farmed or wild populations of aquatic animals. This can be due to a change in geographical spread of a disease, its detection in a different species, or the identification of a newly recognised or suspected pathogenic agent.

If the disease meets the definition, Members are informed of the assessment and the requirement to notify, through the report of the Commission. The disease is listed on the WOAH website, included in the World Animal Health Information System (WAHIS) and a technical disease card is developed to support Members. Any detection of a disease that is recognised as an emerging disease must be reported to WOAH, in accordance with Article 1.1.4. of the *Aquatic Animal Health Code*.

The Commission continues to review the scientific evidence regarding the disease over time to determine whether it continues to meet the definition. If there is sufficient evidence to fulfil the criteria for listing, the disease will be presented to Members for consideration. If it no longer meets the definition, the disease is removed from the WOAH website and Members are no longer required to notify.

Assessing diseases as emerging diseases allows additional epidemiological information to be collected through the notifications to WOAH. Members can use this information to become aware of geographical spread and potential impacts, allowing them to assess the risk to their country and implement risk mitigation measures.

https://doi.org/10.20506/bull.2023.2.3408

PERSPECTIVES

WOAH ACTIONS

2-1-04: Assessment and listing of emerging diseases

KEYWORDS

#Aquatic Animal Health Standards Commission, #disease reporting, #Emerging disease, #WAHIS

AUTHORS

Bernita Giffin, World Organisation for Animal Health (WOAH)

© Getty Images

The aquatic sectors, aquaculture and wild fisheries, are all too regularly affected by disease outbreaks, including new and emerging diseases, but also by other types of emergencies due to natural or human-mediated processes. Resilience to emergencies is Objective 3 of the World Organisation for Animal Health (WOAH) Aquatic Animal Health Strategy. Resilience requires planning, capacity development, partnerships and training, all of which should be undertaken before emergency events happen. All-hazards planning and integration into national emergency management systems provides an integrated approach for developing the capacity of the aquatic sector to respond quickly and effectively to emergencies.

Exotic and emerging disease outbreaks in modern aquaculture

Disease is a major threat to aquatic animal production, as the risk factors for outbreaks and disease emergence increase. The WOAH Global Conference on Aquatic Animal Health in 2019 explored both the reasons and options for responding to this situation, as well as its impacts. The WOAH Aquatic Animal Health Strategy provides the framework for the global and national response [1]. The rapid growth of diverse species production systems and reliance on trade in brood stock, feed and aquatic animal products presents significant opportunities for disease emergence and spread. The drive for increased production has exposed vulnerabilities in biosecurity systems [2]. Since 2000, an average of two new diseases have been listed in the WOAH Aquatic Animal Health Code every three years, invariably because of significant impacts on aquaculture production through animal mortality during disease outbreaks.

The hazard landscape for the aquatic sector

However, the threats are not confined to disease emergencies. Dependence on riverine, estuarine and coastal environments creates vulnerability to natural disasters, many directly or indirectly linked to climate change, including droughts, floods, cyclones, ocean acidification, hypoxia and sea-level rise. Human-mediated risks to aquaculture production arise from unsustainable production practices, poor management practices, and pollution, all of which create food safety risks [2].

If this sector is to be ready and efficient in an emergency, it requires an all-hazards approach, which starts with hazard analysis specific to the locations and production systems involved, to identify, characterise and prioritise natural and human-mediated threats and the impacts they can potentially cause. Engaging multi-disciplinary teams during this process will ensure the broadest consideration of potential impacts, often bringing issues to light that may otherwise be overlooked [3]. Tools and templates are available to guide hazard analysis, but simple frameworks can also be very effective in supporting the engagement of multiple parties and structuring their input.

Emergency management disciplines

The drive towards multidisciplinary and systems thinking has seen emergency management experts in different sectors increasing their cooperation during readiness and response activities. Incident management systems create a command-and-control framework that enables collaboration between different parts of the response, and between the various agencies involved. Such frameworks are often at the centre of national emergency management systems. They are typically led by central government and bring whole-of-government (i.e. all government agencies, from technical to financial to support and enabling) and whole-of-society (i.e. public, private and civil society) capability together in a unified and cohesive operating structure. Disciplines within such systems extend from mechanisms for situational

awareness (e.g. situation reports), across data management and processing approaches (e.g. incident management software), through to public information management that follows risk and crisis communication principles. These systems require learning approaches that build capability among the people involved, creating role-based documentation that is then brought to life during simulation exercises, which might involve scenario modelling and games. After-action reviews ensure that the experiences gained during emergencies drive continuous learning and improvement.

Contingency planning and emergency management capacity development

Preparedness for disease outbreak response remains limited in WOAH Members, as evidenced by results to the two relevant critical competencies in PVS Pathway evaluations [3]. Good examples of contingency planning and public–private partnerships in aquatic sector readiness and response do exist, with published evidence from Australia in particular, and demonstrate the potential to improve outcomes to disease response [4]. WOAH Collaborating Centres have established the WOAH Collaborating Centre Network on Veterinary Emergencies (EmVetNet) to provide technical support for readiness and response for Members [5]. This is part of an expanding WOAH Emergency and Resilience Programme, in cooperation with operational partners from the Quadripartite [(1)] and Interpol, and resource partners from the WOAH World Animal Health and Welfare Fund.

WOAH 89th General Session Technical Item and the WOAH Aquatic Animal Health Strategy

Recognising the growing importance of engagement in national, regional and global emergency readiness and response systems, in today's context of emerging disease, pandemics, and increasing risks of natural and human-mediated disasters, WOAH devoted the Technical Item of its 89th General Session to this important topic [3]. The Technical Item explored the diverse hazard landscape (Figure 1), emergency management disciplines, the stage of implementation among WOAH Members, and current initiatives and future directions for WOAH's work programme in these areas. These are topics that Veterinary Services and Aquatic Animal Health Services should devote themselves to, upskilling staff, forming interagency and cross-sectoral relationships with emergency services within national systems, and seeking regional collaborations that deliver efficiency in resource use and innovation in planning for adaptation and mitigation. The incorporation of Objective 3 on Resilience to Emergencies within the WOAH Aquatic Animal Health Strategy provides the mechanism for targeted planning of interventions supporting development in the capability and capacity of national Aquatic Animal Health Services, and in their response to emergencies affecting aquatic animal health and production. Many of the skills and disciplines in emergency management are generic, and all users will benefit from the intended WOAH Training Platform module on Emergency Management. It aims to help users understand the specific context, threats, vulnerabilities, and risk mitigation opportunities in the aquatic animal sector, thus supporting additional targeting of WOAH programmes. WOAH continues to seek resource and implementation partners to achieve this focus.

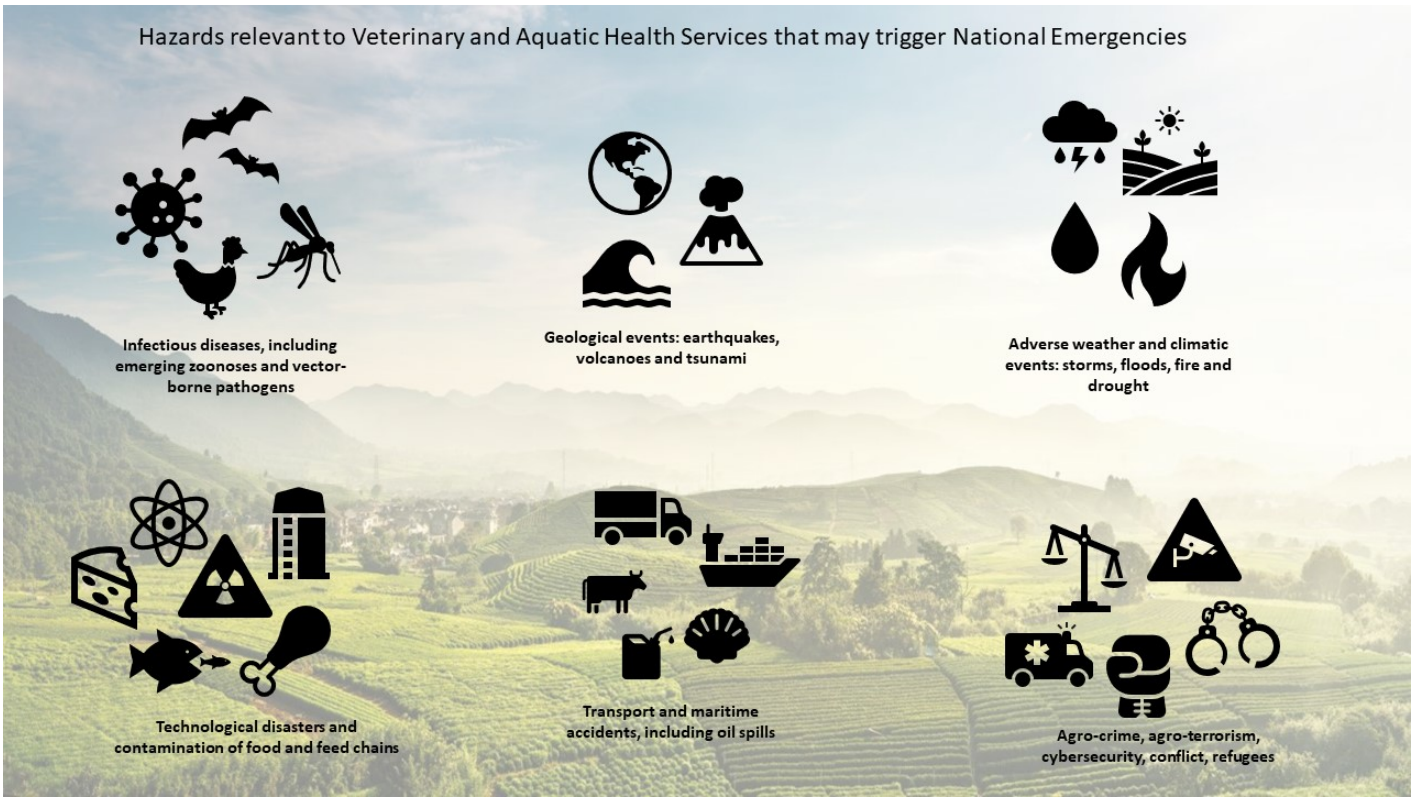


Figure 1. Hazards relevant to Veterinary and Aquatic Health Services that may trigger national emergencies. WOAH has recently adopted the following classification framework for the differing forms of emergencies and disasters: biological, geophysical, meteorological, climatological, hydrological, technological. Reference: Emergency and Resilience – WOAH – World Organisation for Animal Health

(1) The Quadripartite is composed of the Food and Agriculture Organization of the United Nations (FAO), the World Organisation for Animal Health (WOAH), the United Nations Environment Programme (UNEP) and the World Health Organization (WHO).

https://doi.org/10.20506/bull.2023.2.3409

PERSPECTIVES

WOAH ACTIONS

2-1-05: Responding to aquatic animal health emergencies

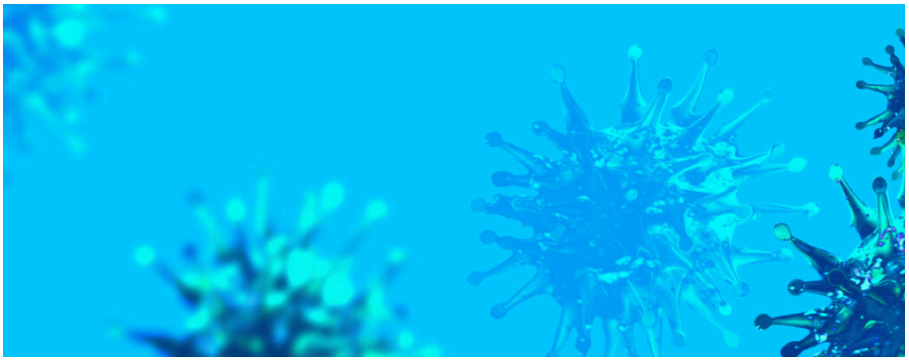
SUMMARY

Objective 3 of the WOAH Aquatic Animal Health Strategy 2021–2025

AUTHORS

M. Stone, SPADE Solutions Ltd, New Zealand.

The designations and denominations employed and the presentation of the material in this article do not imply the expression of any opinion whatsoever on the part of WOAH concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers and boundaries.
The views expressed in this article are solely the responsibility of the author(s). The mention of specific companies or products of manufacturers, whether or not these have been patented, does not imply that these have been endorsed or recommended by WOAH in preference to others of a similar nature that are not mentioned.



© Getty Images

REFERENCES

1. World Organisation for Animal Health (WOAH) (2021). - OIE Aquatic Animal Health Strategy 2021–2025,". https://www.woah.org/en/document/oie-aquatic-animal-health-strategy-2021-2025/ .
2. S. R.p, D.-D. J, M. C.v, and P. M.j, "Vulnerabilities in aquatic animal production," vol. 38, no. 2, p. 423, Sep. 2019, doi: 10.20506/rst.38.2.2996.
3. M. Stone, D. Donachie, C. Wannous, and K. Hamilton, "World organisation for animal health, Veterinary services and aquatic animal health services engagement in global, Regional and national emergency management systems (WOAH) (2022) sg8-en.pdf (woah.org) p. 45.
4. S. K and E. I, "Sharing responsibility between public and private sectors for the management of aquatic emergency animal diseases," vol. 38, no. 2, p. 533, Sep. 2019, doi: https://doi.org/10.20506/rst.38.2.3004.
5. "Collaborating Centre Network for Veterinary Emergencies," WOAH - World Organisation for Animal Health. https://www.woah.org/en/what-we-offer/emergency-and-resilience/collaborating-centre-network-for-veterinary-emergencies/ .

Today, aquatic animals are the main source of protein for billions of people worldwide, and the demand is expected to increase. To satisfy this demand, aquatic animal production will need to double by 2050, with most of this growth coming from aquaculture. Despite this, aquatic animal diseases threaten the sustainable growth of aquatic animal production and, consequently, our food supply. This threat requires coordinated actions by the World Organisation for Animal Health (WOAH) and its Members, in collaboration with relevant stakeholders, to protect and improve aquatic animal health and welfare worldwide.

One of the activities identified in the Aquatic Animal Health Strategy is to expand, strengthen, support and more fully use the WOAH scientific networks of Reference Laboratories and Collaborating Centres for aquatic animal health. These networks of experts are core resources that ensure a strong scientific basis for the development and review of WOAH international standards as well as providing support to WOAH Members in the prevention, early detection and control of aquatic animal diseases.

There are currently fewer than 40 Reference Centres and only 4 Collaborating Centres for aquatic animal diseases globally. These centres have an uneven distribution in the regions, and they do not offer support for all WOAH-listed aquatic diseases.

It is expected that there will be an increase in the number of emerging diseases globally that will require a rigorous scientific approach for identification, prevention and control of transboundary spread. Use of quality assured inter-laboratory comparison studies, and more use of the WOAH Reference Centre network and collaboration among laboratories in WOAH Members will be critical.

WOAH will establish an aquatic animal health network. The goal of the network is to foster collaboration and synergies between WOAH Reference Centres and expand the network to involve national aquatic laboratories and institutes to provide better support to Members.

The objectives of the aquatic animal health network include:

- sharing knowledge and best practices
- improving quality assurance across aquatic laboratories through adherence to WOAH Standards
- highlighting aquatic animal health surveillance and research needs, promoting their development and coordination
- creating opportunities to discuss scientific findings relevant to aquatic animal disease control activities
- improving utilisation of the WOAH Laboratory Twinning programme.

A Reference Centre expert will lead the overall coordination of the aquatic animal health network with support and assistance from WOAH Headquarters.

https://doi.org/10.20506/bull.2023.2.3410

PERSPECTIVES

WOAH ACTIONS

2-1-06: The WOAH Scientific Network for Aquatic Animal Health

KEYWORDS

#Aquatic Animal Health, #Reference Laboratory, #World Organisation for Animal Health (WOAH)

AUTHORS

G. Pavade, World Organisation for Animal Health

© World Organisation for Animal Health

The PVS Pathway supports Members to implement WOAH's intergovernmental standards and continually improve their Aquatic Animal Health Services (AAHS). Although Members highly value the programme, utilisation of the PVS Pathway has been limited for the aquatic sector.

The PVS Pathway empowers national AAHS by providing them with a comprehensive understanding of their strengths and weaknesses using a globally consistent methodology – a useful external perspective that can reveal gaps, inefficiencies and opportunities for innovation.

A PVS Evaluation of the AAHS raises awareness among stakeholders and supports continuous improvement by assessing 47 Critical Competencies comprising several cross-cutting elements that are the basic requirements for functioning AAHS. By assessing these competencies and proposing recommendations to enhance performance over time, WOAH contributes to building capacities and enabling countries to take ownership and prioritise improvements to their animal health systems.

As one of the activities committed to in the WOAH Aquatic Animal Health Strategy 2021–2025, WOAH conducted a survey to identify barriers to the use of the PVS Pathway by its Members, in order to explore opportunities to overcome them and increase the use of the PVS Evaluation tools.

Results from 119 Members showed that the vast majority (87%) considered that WOAH offers a sufficient range of tools and activities to support the strengthening of the AAHS, and 60% would be interested in requesting a PVS Evaluation in the next five years. The main barriers identified to requesting PVS services are the costs related to hosting a mission and, secondly, the lack of knowledge about the benefits that the PVS Pathway can bring to AAHS. Based on these findings, WOAH is currently working on strategies to increase Members' utilisation of the PVS Pathway, such as a PVS Pathway information system, hybrid delivery formats (combining face-to-face and remote) for PVS Evaluation missions, and a communication strategy to enhance Members' understanding of the PVS Pathway Aquatic activities and their benefits.

The strategies included promotion of the tool in three remote areas and physical PVS Pathway Orientation Training Workshops in the Asia and Middle East Regions in 2022 for 134 participants from 9 WOAH Members countries. In the first quarter of 2023, two workshops will train more than 90 participants from 31 countries.

https://doi.org/10.20506/bull.2023.2.3411

PERSPECTIVES

WOAH ACTIONS

2-1-07: How can we engage Members in the PVS Pathway: Aquatic?

SUMMARY

Within the framework of its Global Aquatic Animal Health Strategy, WOAH contributes to building capacities and increasing the use of the PVS Pathway to enable countries to improve their animal health systems.

KEYWORDS

#Aquatic Animal Health, #capacity building, #PVS Pathway, #World Organisation for Animal Health (WOAH)

AUTHORS

Mario Ignacio Algüerno, Capacity-Building Department, World Organisation for Animal Health

© Getty Images

In 2022, the World Organisation for Animal Health (WOAH) surveyed its 182 Members about training programmes for their Veterinary Services (VS) and Aquatic Animal Health Services (AAHS). While this survey does not replace a formal learning needs assessment, the responses were nonetheless informative enough to demonstrate that over 50% of Members had insufficient training or none at all. The survey also found that training resources are limited but that Members are interested in a wide range of topics relevant to the Aquatic Animal Health Code and the Manual of Diagnostic Tests for Aquatic Animals (Fig. 1 and List I).

The findings from this survey will help to define WOAH's future face-to-face and online training programmes for VS and AAHS.

Since 2018, WOAH has taken a new approach to its training system. This Competency-based Training Framework has a strong online training component and takes into account a wider audience base. The overall goal is to facilitate the implementation of WOAH Standards by its Members.

Consideration has been given to the aquatic sector, with a dedicated Competency Package currently under development. The terms of reference for this Package (defining the training areas and learning outcomes) will be available in 2023. An initial set of five e-modules on antimicrobial use (AMU) and antimicrobial resistance (AMR) will also be made available to Members in 2024. These modules will be particularly useful when addressing Critical Competency II.9, on AMR and AMU, of the Aquatic PVS Assessment Tool.

These e-learning modules will contribute to Objective 2 (Capacity Building) of the WOAH Aquatic Animal Health Strategy 2021–2025.

The wealth of existing training material at the national and regional level will also be explored in order to enrich the WOAH training catalogue.

List I. List of priority aquatic topics for training in VS/AAHS (in % of Members responding to WOAH survey 2022)

- Disease surveillance, detection and reporting (70)
- Risk analysis (64)
- Diagnosis and aquatic diseases (50)
- Prevention and control of aquatic diseases (61)
- Trade measures (32)
- Quality of VS/AAHS (29)
- AMR/AMU (27)
- Animal welfare (25) .

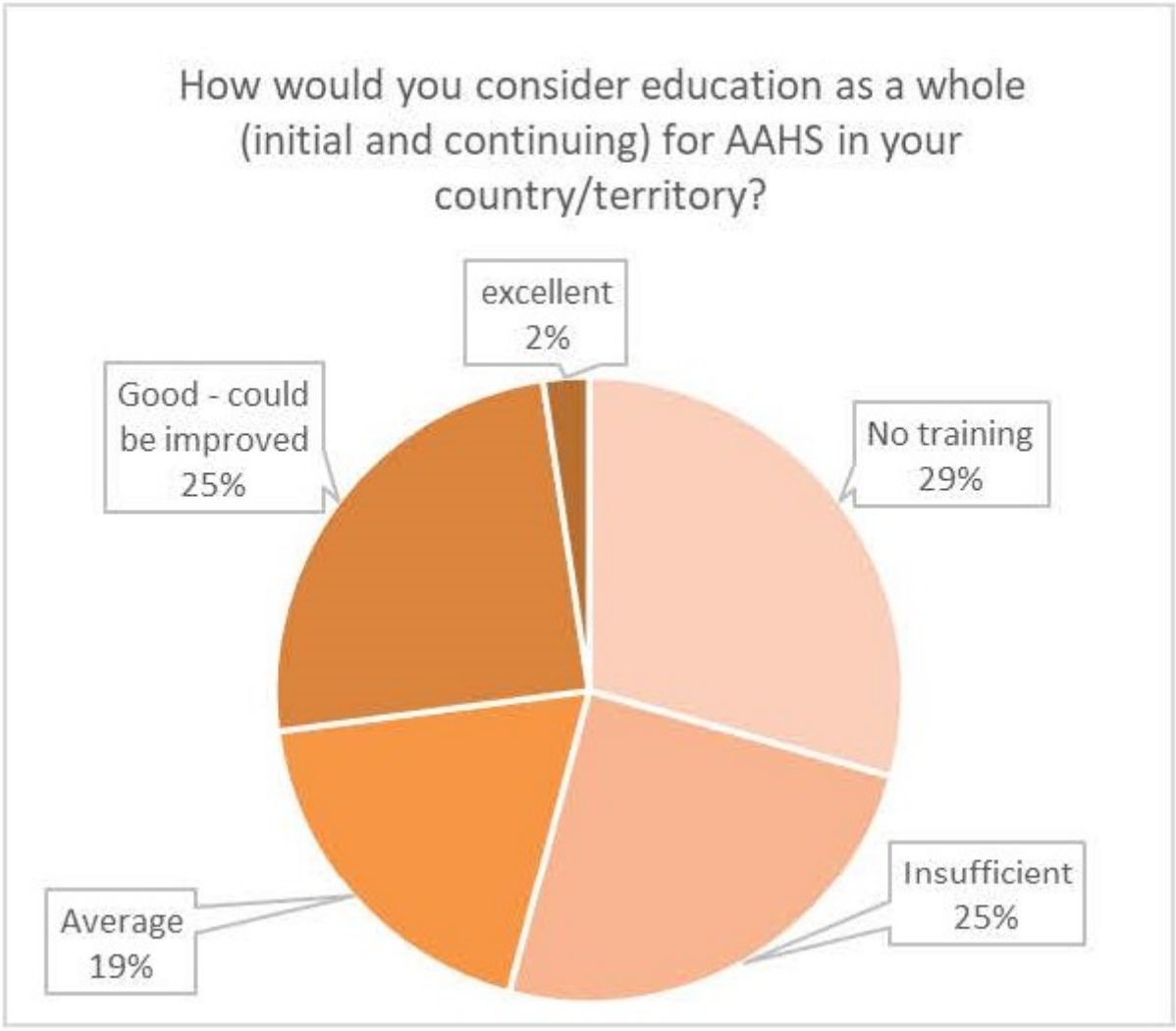


Fig. 1. WOAH survey 2022

https://doi.org/10.20506/bull.2023.2.3412

PERSPECTIVES

WOAH ACTIONS

2-1-08: New initiatives to provide e-learning modules on aquatic animal health

KEYWORDS

#Aquatic Animal Health, #capacity building, #eLearning, #training

AUTHORS

N. Leboucq*, Capacity Building Department, World Organisation for Animal Health

© Getty Images

Antimicrobial Use (AMU) in aquaculture, as with livestock farming, is needed to protect the health and welfare of farmed animals. However, unnecessary use of antibiotics could occur when husbandry management practices are deficient or when health measures are insufficient (e.g. lack of vaccines, poor hygiene, etc.), unavailable or ineffective. This situation is reinforced by deficiencies in policies and regulation in many countries, including the major aquaculture producers [1].
Given the remarkable growth of aquaculture worldwide, and the signs of misuse or overuse of antimicrobials [1, 2], there is reasonable concern about the contribution of aquaculture to antimicrobial resistance (AMR) in the environment, and the consequences for animal, plant and human health [3]. In fact, antimicrobial-resistant bacteria and genes to various antibiotics can be found in proximity to aquaculture settings [2].

In view of the risks of AMR in aquaculture, during the 4th OIE Global Conference on Aquatic Animal Health: Collaboration, sustainability – our future (Chile, 2019), Members recommended that the World Organisation for Animal Health (WOAH) assist them in promoting good governance practices emphasising prudent use of antimicrobial agents in aquatic animals (Recommendation 5), together with research on vaccines and alternative therapeutics and other management approaches to reduce the use of antimicrobial agents in aquatic animals (Recommendation 7).

Previously, in the 2nd OIE Global Conference on Antimicrobial Resistance and Prudent Use of Antimicrobial Agents (Morocco, 2018), Members had recommended that WOAH continue to update and complete the Terrestrial and Aquatic *Codes* and *Manuals* (Recommendation 1), and to subdivide the *List of Antimicrobial Agents of Veterinary Importance* for different animal species (Recommendation 3).

Responding to WOAH Members' needs, in 2020, the WOAH Antimicrobial Resistance and Veterinary Products Department developed a *Workplan on Antimicrobial Resistance in Aquaculture*. This workplan brings together the *Strategy on Antimicrobial Resistance and the Prudent Use of Antimicrobials* and the *Aquatic Animal Health Strategy* (*Objective 3 Resilience. Responses to emerging aquatic animal health issues of regional and global concern are coordinated and timely*). The workplan sets the path to follow in the next five years, with ten main activities (Figure 1) aimed at promoting informed decisions in the aquaculture sector for curbing AMR. The workplan is expected to have a positive impact on aquatic animal health and welfare, food security, food safety and the economic development of our Members.

The activities involve creating awareness of AMR through establishing a dedicated network, disseminating evidence in global events, and broadening communication tools specific to aquaculture. Other activities include creating and updating guidelines and standards, such as a technical document on antimicrobial agents for aquatic animals, harmonising chapters related to AMU and AMR in the *Aquatic Code* and *Aquatic Manual*, and developing technical publications. Activities to build capacity such as developing specific WOAH National Focal Point training and enhancing the PVS Pathway to cover AMU and AMR in aquaculture are also considered. Finally, activities for monitoring AMU and AMR are covered, with the refinement of AMU global data collection for aquatic animals, and supporting AMR surveillance in Quadripartite Multi-Partner Trust Fund projects. The development of four of these activities is included as sub-activities of activity 3.4 *Provide practical AMR guidance for the implementation of the Aquatic Animal Health Strategy*.

The implementation of the workplan includes collaboration with WOAH colleagues from Headquarters and Regional and Sub-Regional Representations, as well as Collaborating Centres, such as the Centre for Antimicrobial Stewardship in Aquaculture (CASA). The commitment of our Members, through their Delegates and Focal Points, to engage in our

activities will support their Aquatic Animal Health Services in effective management of the risks of AMR arising from the use of antimicrobials in aquaculture.

More information on the WOAH action against antimicrobial resistance.

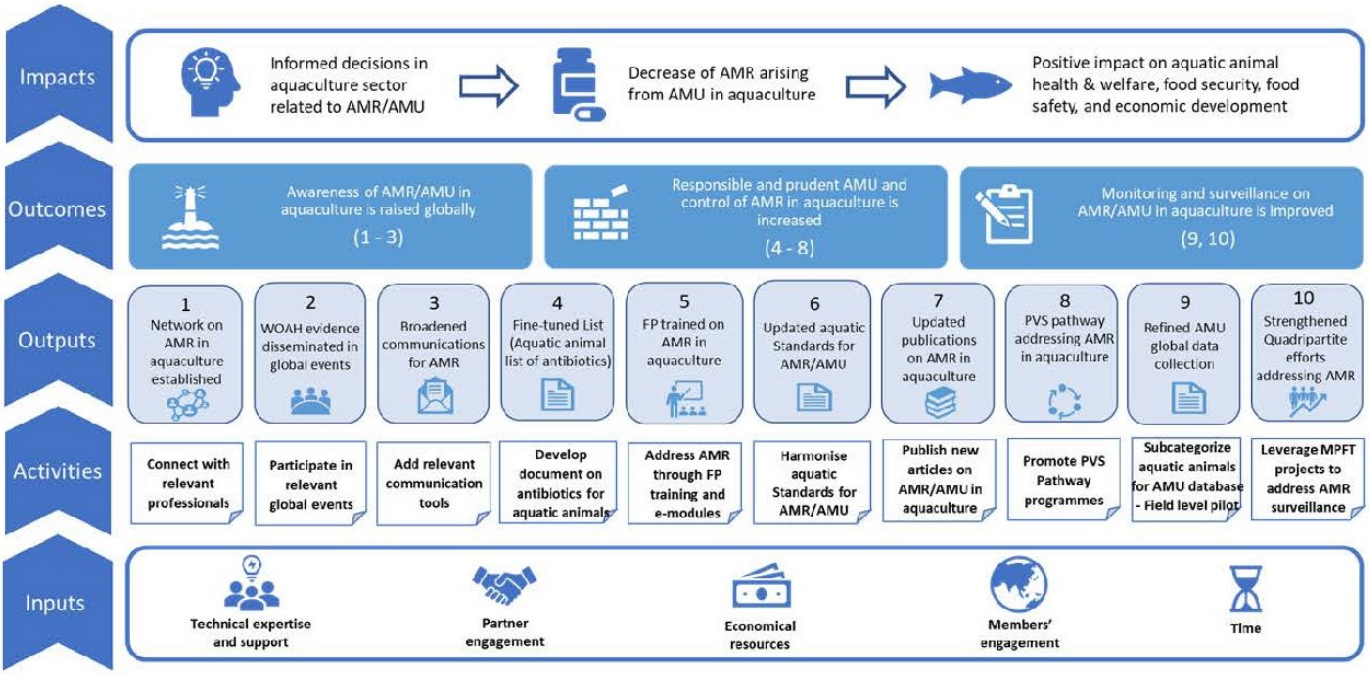


Figure 1. Theory of Change of the Workplan on AMR in Aquaculture. The workplan contains ten main pillars, representing the main proposed activities and respective expected outputs. Four of the activities (corresponding to outputs 4, 5, 6, and 9) are sub-activities of Activity 3.4 Provide practical AMR guidance for the implementation of the Aquatic Animal Health Strategy

https://doi.org/10.20506/bull.2023.2.3413

PERSPECTIVES

WOAH ACTIONS

2-1-09: Workplan on antimicrobial resistance in aquaculture

KEYWORDS

#antimicrobial resistance (AMR), #antimicrobial use, #aquaculture, #Aquatic Animal Health, #World Organisation for Animal Health (WOAH)

AUTHORS

D. Mateo, Antimicrobial Resistance and Veterinary Products Department, World Organisation for Animal Health (WOAH), Paris, France

© Getty Images

REFERENCES

1. Lulijwa R., Rupia E.J., Alfaro A.C. (2020). – Antibiotic use in aquaculture, policies and regulation, health and environmental risks: a review of the top 15 major producers. Rev Aquacult 12, 640–663.
2. Watts J.E.M., Schreier H.J., Lanska L., & Hale M.S. (2017). – The Rising Tide of Antimicrobial Resistance in Aquaculture: Sources, Sinks and Solutions. Mar. Drugs 15, 158.
3. Santos L. & Ramos F. (2018). – Antimicrobial Resistance in aquaculture: Current knowledge and alternatives to tackle the problem. Int. J. Antimicrob Agents 52: 135-143.

In order to prevent and control infection with decapod iridescent virus 1 (DIV1), China has implemented the following actions:

- The inclusion of infection with DIV1 on the List of Animal Diseases of Class I, II and III Promulgated by the Ministry of Agriculture and Rural Affairs, China (2022, Class II) and the List of Imported Animal Diseases of China (2020, Class II), so as to provide legal guarantees for the prevention and control of infection with DIV1 nationwide.
- The inclusion of infection with DIV1 in the national aquatic animal disease surveillance system and the detection and reporting system, which have provided basic data for understanding the distribution, prevalence, transmission route and impacts of this disease in China (Figure 1).
- The main transmission route of infection with DIV1 will be cut off from the source by including it in the aquatic seedling quarantine system.
- Infection with DIV1 has been included in the national aquatic animal disease capability verification activities, to establish and improve the relevant detection and diagnostic capacity in the national and provincial aquatic animal disease detection laboratories (Figure 2).
- Improving the understanding and application of the concept of a biosecurity system in shrimp breeding enterprises, especially hatcheries and seedling farms.
- Encouraging the construction and demonstration of seedling farms without specific diseases, including infection with DIV1.

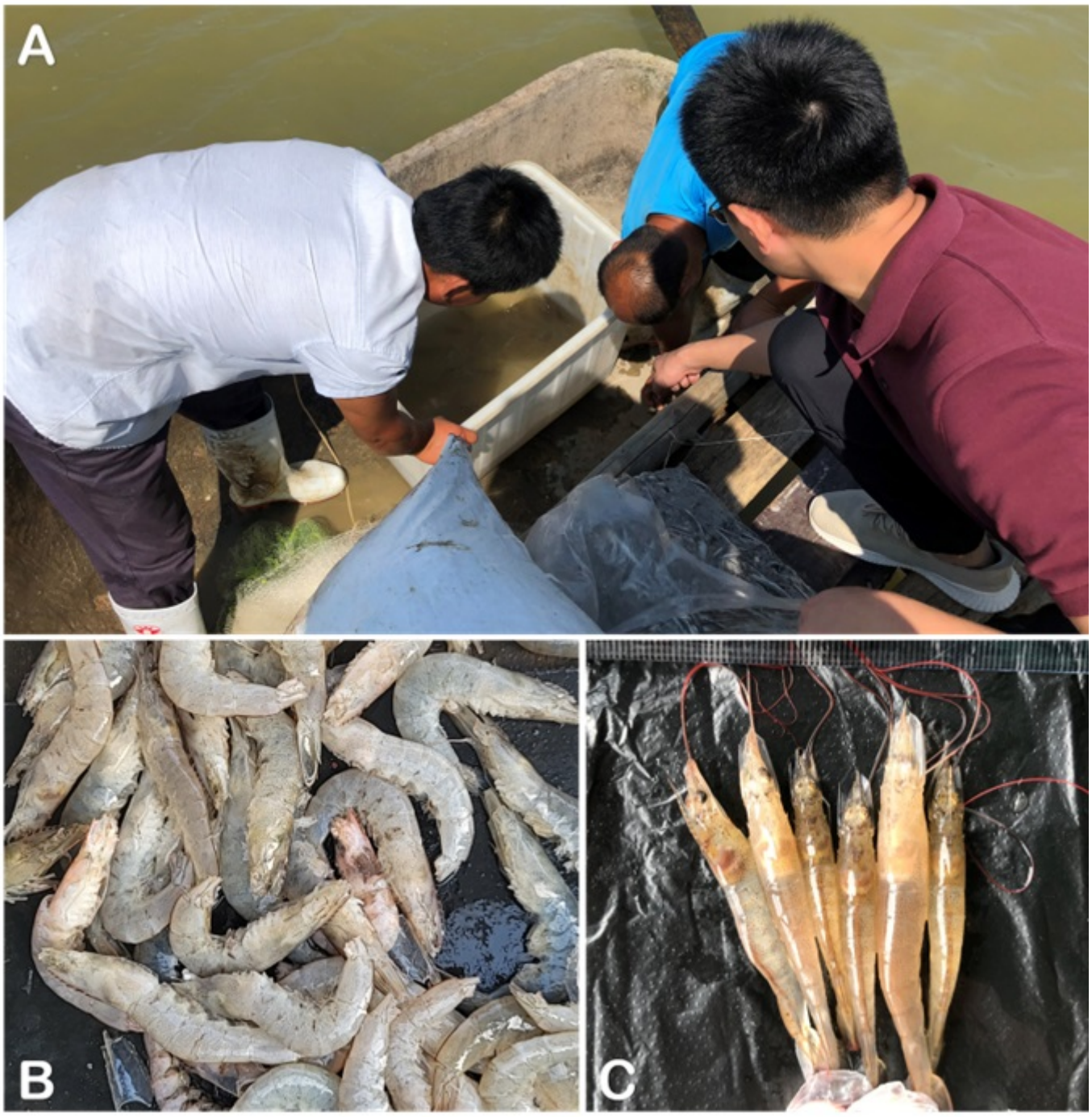


Figure 1. Epidemiological investigation and sample collection from cultured shrimp. (©Liang Qiu)

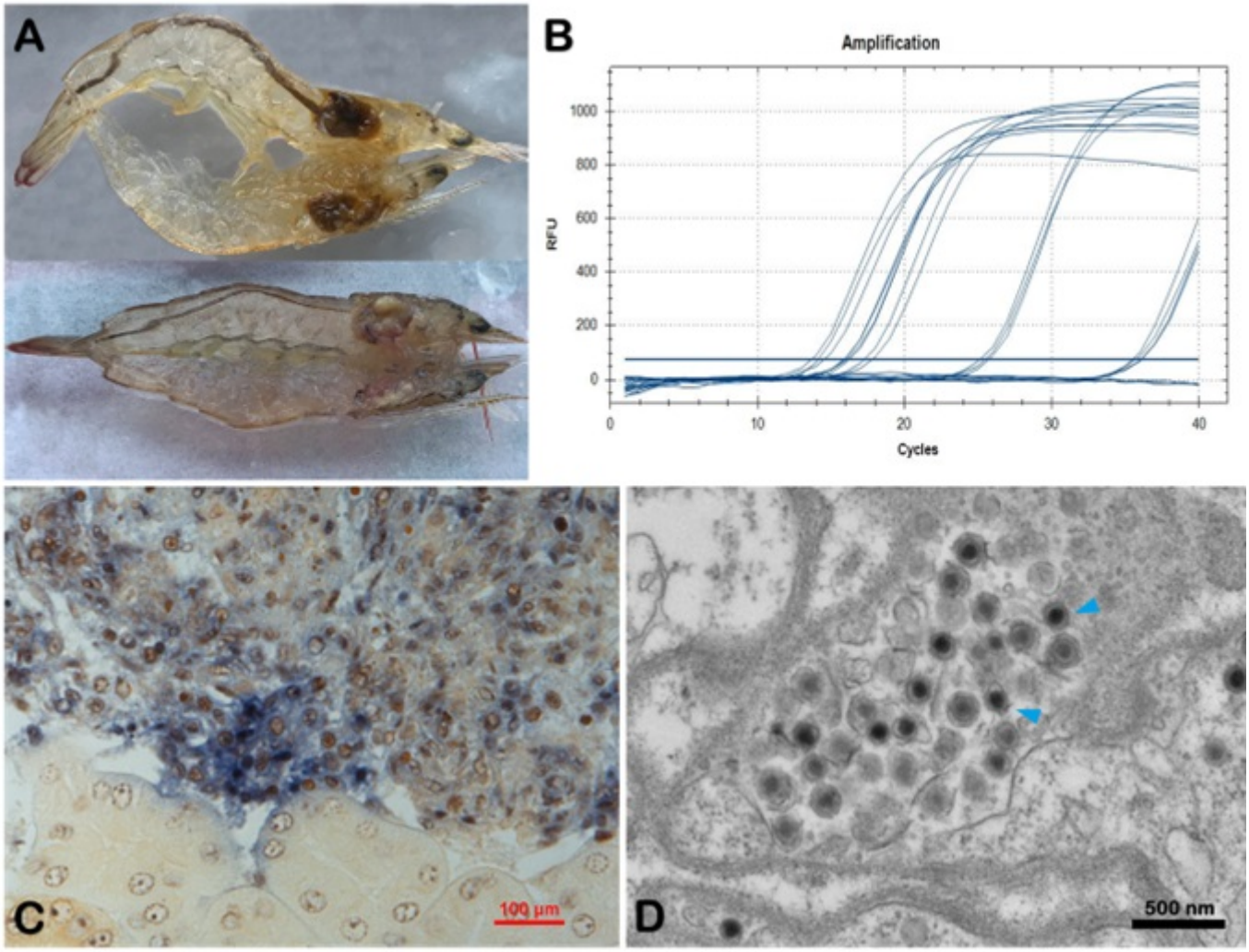


Figure 2. Diagnosis of infection with DIV1 in shrimp samples. (A,C,D from Qiu et al., 2020; B source Liang Qiu)

https://doi.org/10.20506/bull.2023.2.3416

DOSSIER

3-1: China's approach to preventing and controlling infection with DIV1

A Member's response to an emerging disease

SUMMARY

A presentation of measures implemented in China for prevention, early detection and

control of infection with decapod iridescent virus 1.

AUTHORS

H. Liu[1], L. Qiu[2], Y. Liang[3] & Q. Li[3]*

1. Animal and Plant Inspection and Quarantine Technical Centre, Shenzhen Customs District, General Administration of Customs of P. R. China (GACC), 518045, Shenzhen, P. R. China
2. Laboratory for Marine Fisheries Science and Food Production Processes, Pilot National Laboratory for Marine Science and Technology (Qingdao); Key Laboratory of Maricultural Organism Disease Control, Ministry of Agriculture and Rural Affairs, Qingdao Key Laboratory of Mariculture Epidemiology and Biosecurity, Yellow Sea Fisheries Research Institute, Chinese Academy of Fishery Sciences, Qingdao 266071, R. China
3. National Fisheries Technology Extension Center, 100125, Beijing, P. R. China

© Getty Images

REFERENCES

1. QIU, L., DONG, X., WAN, X.Y. & ZHANG, Q.L. (2022). Analysis of iridescent viral disease of shrimp (SHID) in 2021. 2022 Analysis of Major Aquatic Animal Diseases in China. Bureau of Fishery, Ministry of Agriculture and Rural Affairs, National Fishery Technical Extension Center, Eds., (in press) (in Chinese).
2. QIU, L., CHEN, X., GAO, W., GUO, X.M., XIE, G.S., GONG, M., YANG, B., LI, C., ZhANG, Q.L. & HUANG, J. (2022). Confirmation of susceptibility of swimming crab to infection with Decapod iridescent virus 1. Aquaculture, 548: 737607. Doi: 10.1016/j.aquaculture.2021.737607.
3. QIU, L., CHEN, X., GAO, W., LI, C., GUO, X.M., ZHANG, Q.L., YANG, B. & HUANG, J. (2020). Molecular epidemiology and histopathological study of a natural infection with decapod iridescent virus 1 in farmed white leg shrimp, *Penaeus vannamei*. Aquaculture, 736105. doi: 10.1016/j.aquaculture.2020.736105.
4. QIU, L., CHEN, X., ZHAO, R.H., LI, C., GAO, W., ZHANG Q.L. & HUANG J. (2019). Description of a Natural Infection with Decapod Iridescent Virus 1 in Farmed Giant Freshwater Prawn, *Macrobrachium rosenbergii*. Viruses, 11(4), 354. doi: 10.3390/v11040354.
5. QIU, L., CHEN, M.M., WAN, X.Y., LI, C., ZHANG, Q.L., WANG, R.Y., CHENG, D.Y., DONG, X., YANG, B., WANG, X.H., XIANG, J.H. & HUANG, J. (2017). Characterization of a new member of *Iridoviridae*, Shrimp hemocyte iridescent virus (SHIV), found in white leg shrimp (*Litopenaeus vannamei*). Scientific Reports, 7(1), 11834. doi: 10.1038/s41598-017-10738-8.

Over the past 20 years, Australia's aquatic animal industries and government sectors have worked together to identify priorities for investing in the national aquatic animal health management system through a series of national strategic plans, AQUAPLAN. These plans have shaped much of Australia's national system for managing aquatic animal health to support industry productivity and protect aquatic environments.

AQUAPLAN as a public–private partnership

Partnership between the aquatic industry (the private sector) and the federal, state and territory governments (the public sector) has underpinned the success of AQUAPLAN. The fourth and most recent AQUAPLAN (2022–2027) includes objectives and actions to invest in all major areas of the national aquatic animal health management system: border biosecurity, enterprise biosecurity, surveillance, laboratory diagnosis, preparedness, veterinary medicines, and research and development.

AQUAPLAN 2022–2027's objectives drew on industry priorities and trends influencing aquatic animal health over the coming five to ten years. AQUAPLAN's activities are designed to provide lasting benefits and achieve the highest-priority outcomes shared by both the industry and government.

Evaluation of AQUAPLAN and its activities is essential during its implementation, to gauge the extent to which the desired outcomes are achieved and identify ways to continuously improve. Evaluation should demonstrate clear returns on the public–private partnership investment and show that outcomes have reached the desired end users.

Activity spotlight: sector-specific simulation exercises (Activity 5.3)

Industry and government are working together to deliver a programme of emergency response exercises that examine the technical aspects of a response for specific aquaculture sectors. These exercises will focus on areas such as disease investigation, on-farm emergency planning, establishing a response objective, and developing a response plan to achieve this objective. Gaps in emergency preparedness will be identified and an action plan developed to address them. This activity will build a shared understanding about how emergency responses occur and strengthen working relationships among industry and government staff to underpin collaboration on future preparedness and response activities.

Aquaplan 2022-2027 © Department of Agriculture, Fisheries and Forestry,Australia

https://doi.org/10.20506/bull.2023.2.3424

AROUND THE WORLD

SUCCESS STORIES/LESSONS LEARNT

4-3-1: Shared responsibility for managing aquatic animal health in Australia

KEYWORDS

#AQUAPLAN, #Aquatic Animal Health, #Australia, #biosecurity, #World Organisation for Animal Health (WOAH)

AUTHORS

K. Scutt [1]*, O. Liu[1] , I. Ernst[1], All authors located within the Australian Department of Agriculture, Fisheries and Forestry (DAFF), Canberra, Australia.

*Corresponding author: K.Scutt

An encouraging and important step taken by the World Organisation for Animal Health (WOAH) was the publication of a new biosecurity approach for aquatic animals in the form of compartmentalisation, in the 2014 version of the Aquatic Animal Health Code. *This gave Competent Authorities (CA) in different countries a common basis for cooperation in taking aquatic animal disease prevention to an even higher level.*

After it was made possible for WOAH Members to establish and recognise subpopulations with a distinct aquatic animal health status, in terms of so-called compartmentalisation, the CA in Iceland (MAST) and Chile (Sernapesca) decided to follow the given guidelines. All preparatory work was done in close cooperation with the breeding company Benchmark Genetics Iceland. Reaching an agreement between trading partners is a very positive initiative and an effective tool to improve health guarantees for the transport of live aquatic animals.

The preparatory work started as early as autumn 2014, with many intermediate steps until final approval was given by the two countries on 1 March 2016. The compartment consists of four sub-units: hatchery/smolt farm, two similar broodfish farms and the egg incubation centre.

First, MAST prepared a policy document and published an official standard setting out the conditions for the development, evaluation and approval of the disease-free compartment. After receiving all the necessary documents and a formal application from Benchmark, a period of evaluation, discussion and correction followed to reach a common understanding of the implementation. Finally, a checklist was designed that included all the main criteria presented in the *Aquatic Animal Health Code*. The approval is also based on intensive screening for notifiable disease agents throughout the year.

After the official recognition by both nations, MAST has conducted two inspections annually on each sub-unit to maintain approval. In addition, Sernapesca pay inspection visits every other year for renewal of the authorisation for importing salmon eggs from Iceland.

Photo 1: Gísli Jónsson, Official fish health veterinarian, taking samples at Benchmark Genetics Iceland. Photo: Lárus Karl Ingason. Copyright Benchmark Holdings plc.

https://doi.org/10.20506/bull.2023.2.3425

AROUND THE WORLD

SUCCESS STORIES/LESSONS LEARNT

4-3-2: Compartmentalisation in aquaculture

KEYWORDS

#aquaculture, #biosecurity, #compartmentalisation, #disease prevention, #World Organisation for Animal Health (WOAH)

AUTHORS

Gísli Jónsson, Senior Veterinary Officer for Aquatic Animals, Icelandic Food and Veterinary Authority
Austurvegur 64
800 Selfoss
Iceland

© Getty Images

Since the launch of the World Organisation for Animal Health (WOAH) first global strategy for aquatic animal health, the WOAH Community has been working to implement its activities.

This edition of Panorama provides an overview of just some of the important work currently under way to achieve the strategy objective of improving aquatic animal health and welfare worldwide.

This work will continue over the long term, to enhance aquatic animal health at all levels and ensure that we maintain a strong global system well into the future.

WOAH staff are leading these activities in partnership with our Members, WOAH Regional Commissions, the WOAH Aquatic Animals Commission, WOAH Reference Laboratories and Collaborating Centres, partner organisations, and the private sector.

Since the launch of the strategy, the project team has established a governance structure, appointed project leaders and designed project plans for each activity. To date, 14 of the 23 activities have begun, with many of the remaining activities scheduled to start in 2023.

A WOAH activity leader has been assigned to each activity and an Internal Strategy Committee monitors progress. This Committee provides a forum to support and guide activity leaders, identify links between relevant activities, test ideas and share information. It provides a key mechanism to imbed aquatic animal health and welfare activities within the Organisation and build capacity and expertise in aquatic animal health and welfare.

To complement the work at WOAH HQ, a number of regional and sub-regional aquatic animal health networks are also being established. Their purpose is to put the strategy into operation to meet specific needs in their region. This follows the success of the Regional Collaboration Framework on Aquatic Animal Health in Asia and the Pacific, created in 2019 (see article 4-1-1).

There are many other regional projects contributing to the objectives and outcomes of the strategy, some of which have been highlighted in previous articles.

Each year, an annual workplan will be developed to identify priorities and resource requirements, define timelines and assess possible obstacles to the successful implementation of activities. This will ensure that the strategy remains relevant and our objectives are being realised.

The WOAH Aquatic Animal Portal will be used as the central point of information on the strategy's implementation.

https://doi.org/10.20506/bull.2023.2.3426

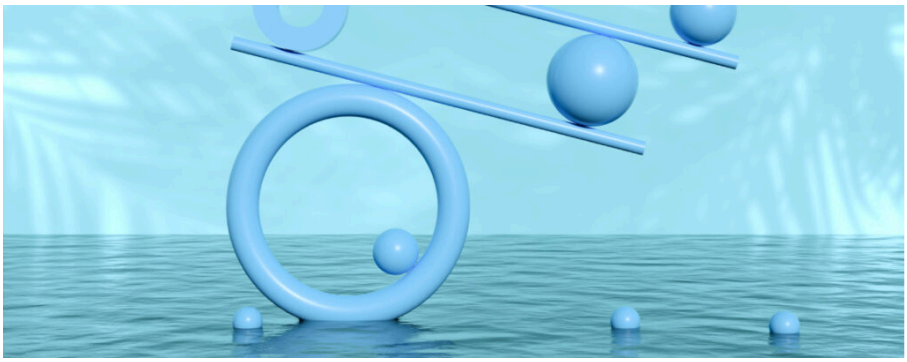
AROUND THE WORLD

SUCCESS STORIES/LESSONS LEARNT

4-3-3: Progress on the Aquatic Animal Health Strategy

AUTHORS

M. Allan, Regional Activities Department, World Organisation for Animal Health



© Getty Images

The Network of Aquaculture Centres in Asia–Pacific (NACA) is an intergovernmental organisation that promotes rural development through sustainable aquaculture and aquatic resource management.

NACA pioneered the development of an aquatic animal health network for the Asian region, drawing together governments and technical experts to share information on the detection, containment and management of diseases. The network pools technical expertise and laboratory facilities.

Through its Aquatic Animal Health Programme, NACA has been collaborating with the World Organisation for Animal Health (WOAH) on the implementation of important aquatic animal health activities in the Asia–Pacific Region. One focus is aquatic animal disease reporting (in collaboration with the Food and Agriculture Organization of the United Nations), which was established in response to the need to develop a cohesive strategy for aquatic animal health management in the Region.

Through its more than 20 years of implementation, the network has become a useful mechanism for recognising emerging and important aquatic animal diseases as well as serving as a guide to participating countries in revising their national list of reportable diseases. It has also paved the way in the establishment of excellent regional networks to support disease surveillance and reporting.

NACA has also collaborated with WOAH on other important aquatic animal health management programmes in the Region, including emergency preparedness and response, aquatic animal trade and antimicrobial resistance. More recently, NACA fully supported WOAH's Regional Collaboration Framework on aquatic animal health in Asia and the Pacific, wherein collaborative projects on emerging diseases and aquaculture biosecurity are being implemented.

Regional collaboration is especially vital in the overall management of aquatic animal health, as most of the important and emerging aquatic animal diseases are transboundary in nature. It is also instrumental in a more focused approach to specific health issues/problems and efficient implementation of appropriate management measures.

https://doi.org/10.20506/bull.2023.2.3422

AROUND THE WORLD

NETWORK INITIATIVES

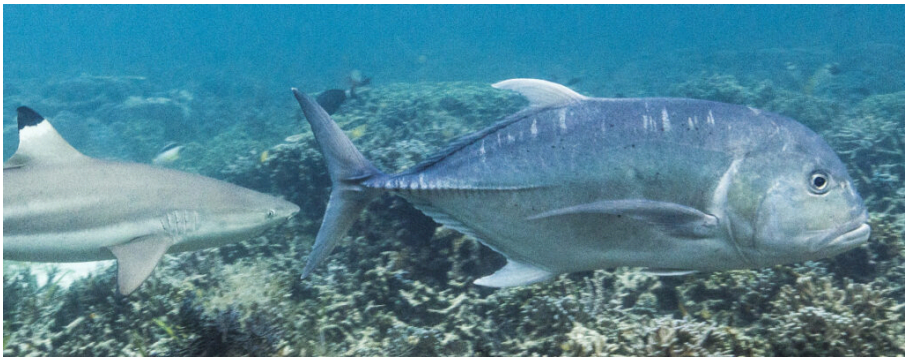
4-2-2: Regional Collaboration – Network of Aquaculture Centres in Asia–Pacific

AUTHORS

E.M.Leaño, Network of Aquaculture Centres in Asia-Pacific

The designations and denominations employed and the presentation of the material in this article do not imply the expression of any opinion

whatsoever on the part of WOAH concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers and boundaries.
The views expressed in this article are solely the responsibility of the author(s). The mention of specific companies or products of manufacturers, whether or not these have been patented, does not imply that these have been endorsed or recommended by WOAH in preference to others of a similar nature that are not mentioned.



© Getty Images

As described in the WOAH Aquatic Animal Health Strategy, improving aquatic animal health and welfare requires collaborative action among all of the relevant stakeholders, to gain capacity and create resilience, while also improving safe international trade based on the WOAH Standards.

A project funded by the Government of Colombia has proposed a joint approach to aquatic animal disease surveillance.

Taking into account their common borders and trade history, as well as production practices and potential market access, this project focuses on the development of an aquatic animal health surveillance strategy in Colombia, Ecuador and Peru.

The first stage of the project concentrated on identifying risks along the value chain, as well as verifying surveillance capacities and finding gaps. This evaluation will serve as a basis for capacity-building activities to develop competencies in epidemiology, health management and disease knowledge. It will be invaluable in implementing risk-based surveillance for aquatic animal diseases.

Activities to address the project's findings will be developed during 2023, including specific training for beneficiary sectors in the three countries.

https://doi.org/10.20506/bull.2023.2.3423

AROUND THE WORLD

NETWORK INITIATIVES

4-2-3: Development of aquatic animal health surveillance systems in Colombia, Peru and Ecuador

KEYWORDS

#Aquatic Animal Health Surveillance Systems, #Colombia, #Ecuador, #Peru

AUTHORS

M. Minassian[1], WOAH Regional Representation for the Americas

Disease outbreaks are the greatest threat to aquatic animal production globally. This threat is shared and requires collaborative actions by the World Organisation for Animal Health (WOAH) and its Members, in collaboration with relevant stakeholders, to protect and improve aquatic animal health worldwide[1].

With the support of Reference Centres, WOAH provides training to Members to improve capacity for aquatic animal health management. However, Reference Centre experts have limited capacity and often specialise in particular areas or disease. Members may also not be able to access relevant international organisations and/or WOAH Reference Centres for assistance. Therefore, a regional network was established to coordinate activities and facilitate communication between Members and Reference Centres.

This initiative has proven to be an effective way to support the implementation of the WOAH Aquatic Animal Health Strategy 2021–2025, through regular regional communication and information dissemination, conducting collective projects, and provision of technical support for example by sharing positive control and training materials.

Aquaculture – a rapidly growing industry

Aquaculture is still the fastest growing food-producing sector in the world. Aquaculture in the Asia–Pacific region continued to grow, with an average annual growth rate of 5.2%, from 2008 to 2018. Total aquaculture production in the region reached a historical high of 105 million tonnes in 2018, which accounted for 92% of global aquaculture production [2].

However, the rapid growth of this sector brings with it risks, which are compounded by the increasingly globalised trade in live aquatic animals and their products. Aquatic animal disease outbreaks continue to cause significant losses to aquaculture production throughout the world, adversely impacting the sustainability of aquaculture and livelihoods of those involved in the sector.

Why the regional network was established and how it supports the implementation of the WOAH Aquatic Animal Health Strategy

During the WOAH Expert Consultation Meeting on Aquatic Animal Disease Diagnosis and Control, held in November 2018 in Bangkok, Thailand, it was proposed to establish the Regional Collaboration Framework on Aquatic Animal Health in Asia and the Pacific (hereinafter referred to as 'the Network'). The initial focus of the network was to build a framework of actors to strengthen laboratory capacity for aquatic animal disease activities in Asia and the Pacific, such as emergency responses to disease outbreaks. It also intended to contribute to improved information sharing among WOAH Reference Centres and Members on aquatic animal health issues. This proposal was further discussed and endorsed by the WOAH Regional Commission for Asia, the Far East and Oceania at its 31st Conference, held in Sendai, Japan, in September 2019.

The main objectives of this network include:

1. Strengthening collaboration among and between WOAH Reference Centres (i.e. Reference Laboratories and Collaborating Centres) and Members .
2. Sharing and exchanging information on test validation, reference materials and positive samples.

To coordinate the activities and initiatives under the Network, a regional steering committee, comprising representatives from Reference Centres, partner organisations and Focal Points of Members, was established in 2019. This steering committee meets annually to identify priority areas for the following year and review the ongoing

activities of the Network.

To date, the steering committee has identified the following three topics as priorities for the Network:

1. Collection and evaluation of existing guidelines and materials on awareness of aquaculture biosecurity for small-scale farms in the Asia-Pacific Region, in collaboration with the Network of Aquaculture Centres in Asia-Pacific.
2. Collection and evaluation of existing test methods for acute hepatopancreatic necrosis disease (AHPND), in collaboration with the WOAH Reference Laboratory for AHPND.
3. Regional collaboration to respond to emerging diseases of aquatic animals, in collaboration with Dr Ingo Ernst, President of the WOAH Aquatic Animals Commission.

In addition to the above activities, several workshops and webinars were organised in response to requests from the Members, which included virtual meetings for emerging diseases, providing assistance with the acquisition of positive control material (figure 1), an awareness webinar on the PVS Tool 'Aquatic', and responsible and prudent use of antimicrobials in aquaculture.

Photo 1: Consultation meeting on AAH Copyright: WOAH RRAP

Photo 2 : First steering committee meeting (discussion) Photographer: Jing Wang

Decapod iridescent virus 1 Positive Control information

Name of the Institute	OIE Reference Laboratories for Infection with white spot syndrome virus and Infectious hypodermal and haematopoietic necrosis Yellow Sea Fisheries Research Institute, Chinese Academy of Fishery Sciences
Contact information	Dr. Liang Qiu, qiuliang@ysfri.ac.cn Prof. Qing-Li Zhang, zhangql@ysfri.ac.cn Ms. Xiao-Yuan Wan, wanxy@ysfri.ac.cn Mariculture Disease Control and Molecular Pathology Laboratory
Address	#106, Nanjing Road Qingdao, Shandong 266071 P.R. China
Type of DIV1 positive control	DNA, plasmid, virus (need documents of the Customs quarantine permission from the import country)
Note	An MTA may be required

Figure 1: Positive Control information

https://doi.org/10.20506/bull.2023.2.3417

AROUND THE WORLD

WOAH ACTIONS

4-1-1: Strengthening regional collaboration in improving aquatic animal health

AUTHORS

Hirofumi Kugita[1], Jing Wang[1], Regional Representation for Asia and the Pacific, World Organisation for Animal Health (WOAH)

© Getty Images

REFERENCES

1. World Organisation for Animal Health (WOAH) (2021). – WOAH Aquatic Animal Health Strategy 2021–2025. Available at: https://www.woah.org/app/uploads/2021/05/en-oie-aahs.pdf
2. Food and Agriculture Organization of the United Nations (FAO) (2022). – Regional Review on Status and Trends in Aquaculture Development in Asia-Pacific 2020. Available at: https://www.fao.org/3/cb8400en/cb8400en.pdf

The early detection of disease outbreaks of regional or global concern, as well as a rapid and effective response, are crucial to improve aquatic animal health worldwide. Preventing the transboundary spread of disease is equally important.

A key objective of the Aquatic Animal Health Strategy is to strengthen resilience by improving coordination and cooperation among the WOAH Community during aquatic animal disease emergencies.

New diseases emerge regularly and have a serious impact on food security, livelihoods, biodiversity and Members' economies. There are a number of challenges to confront when responding to an emerging aquatic animal disease. They include a lack of diagnostic tools and capability, little coordination on research and development into the disease and limited information on its epidemiology, including geographic distribution, risk factors, transmission and hosts. As a result of this lack of information, decision-making may be too slow or too timid.

To address these concerns, a new project is being implemented by the Regional Collaboration Network for Aquatic Animal Health in Asia and the Pacific. The intent is to enhance regional collaboration, making more effective use of WOAH scientific networks, to support more successful responses to emerging aquatic animal diseases.

It is also expected to facilitate more rapid collaboration during disease emergencies; for example, by sharing information among affected Members throughout the response, as well as diagnostic and epidemiological expertise.

This project will improve our capacity to provide an early and rapid response to aquatic disease emergencies, thus increasing the chances of a successful outcome.

https://doi.org/10.20506/bull.2023.2.3418

AROUND THE WORLD

WOAH ACTIONS

4-1-2: Regional emergency disease response

SUMMARY

A framework for regional collaboration is being established to improve coordinated responses to outbreaks of emerging aquatic animal diseases in Asia and the Pacific

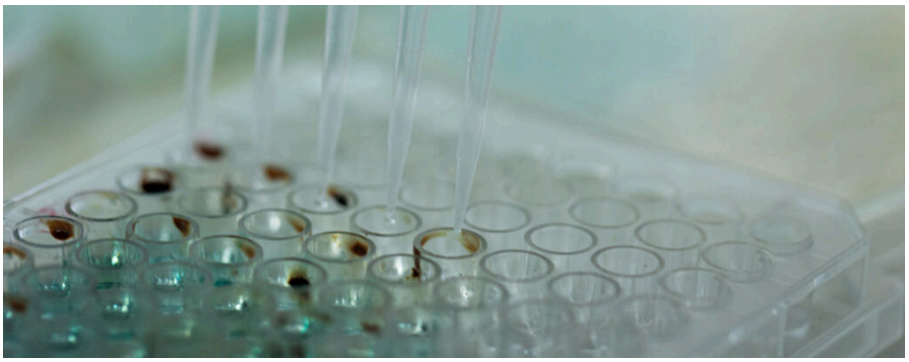
AUTHORS

M. Allan(1)* T. Patanasatienkul(2),

(1) Regional Activities Department, World Organisation for Animal Health

(2) Regional Representation for Asia and the Pacific, Organisation for Animal Health

*Corresponding author: M. Allan



© Getty Images

In November 2022, the Minister of Environment, Water and Agriculture of the Kingdom of Saudi Arabia (MEWA) and the Director General of the World Organisation for Animal Health (WOAH) launched AQMENET.

Members of AQMENET include the following countries bordering the Red Sea and the Gulf: Bahrain, Djibouti, Egypt, Iraq, Jordan, Kuwait, Oman, Qatar, Saudi Arabia, Somalia, Sudan, United Arab Emirates and Yemen.

AQMENET is an important mechanism to support the implementation of high priority activities in the region, aligned with WOAH's Aquatic Animal Health Strategy. In particular, it creates networks to support WOAH Members' Delegates and National Focal Points for Aquatic Animals in improving aquatic animal health and implementing WOAH aquatic standards.

The network aims to improve the knowledge and diagnostic capacities of Members, as well as the development of vaccines. AQMENET will also coordinate training of veterinarians and aquatic animal health professionals to better support the aquaculture industry and establish a network of laboratories for aquatic animal diseases. The network will promote information sharing and responsible and prudent antimicrobial use, and will build capacity to control antimicrobial resistance.

Aquaculture in the Middle East

Aquaculture and fish farming have long been a source of sustenance and an economic lifeline for many communities living along the coasts in the Middle East. The establishment of AQMENET recognises the growing importance of aquatic animal production in strengthening food security in the region.

With several seas surrounding the region, including the Mediterranean, the Gulf and the Red Sea, the Middle East has many sources of fresh seafood. However, total production in the region amounts to only 2.17% of the total worldwide production [1].

Among AQMENET members, the main aquaculture producers are Egypt and Saudi Arabia. Egyptian aquaculture has witnessed spectacular and rapid development over the past seven years. The increase is such that the country is now number one in Africa and number six worldwide in aquaculture production, the sector becoming an important contributor to Egypt's food security and economy.

Fish farming is a growth industry in many countries in the Middle East, such as Saudi Arabia, the United Arab Emirates and Oman, with wild fish stocks declining and dependence on imported seafood rising. While attaining self-sufficiency in seafood in the Middle East makes sense, there are institutional, geographical and policy challenges to developing fish farming in these countries.

Increasing demand for aquatic animals and aquatic animal products can lead to a higher risk of disease spread with international trade in aquatic animals and their products. That is why the WOAH Regional Representation for the Middle East, with the collaboration of the WOAH Sub-Regional Representation of Abu Dhabi, proposed the establishment of this network to meet the needs of its Members and help them to tackle the challenges of building

sustainable aquatic animal health systems.

Network news and reports will be posted and regularly updated on the AQMENET website.

Dr Monique Eloit and Abdulrahman Abdulmohsen A. AlFadley, Minister of Environment, Water and Agriculture of the Kingdom of Saudi Arabia

https://doi.org/10.20506/bull.2023.2.3419

AROUND THE WORLD

WOAH ACTIONS

4-1-3: Improving aquaculture in the Middle East

The AQMENET solution

SUMMARY

The Aquatic Middle East Network (AQMENET) was established to assist WOAH Members in the Middle East to further develop their aquaculture industry by providing knowledge and expertise on the prevention, early detection and control of aquatic animal diseases.

AUTHORS

Dr Ghazi Yehia, Regional representative for the Middle East, World Organisation for Animal Health

Bilal Abd Elnasser Kammoun, Information Technology and Website Editor Assistant, Regional representative for the Middle East, World Organisation for Animal Health

© Getty Images

REFERENCES

1. Towers L. (2014). – FAO report: Fisheries and Aquaculture Markets in the Middle East. The Fish Site.
2. Berdikeeva S. (2019). – The rise of fish farming in over-fished Gulf nations. Inside Arabia.

The University of Chile, supported by Sernapesca (Chile's Aquatic Animal Health Authority), is a World Organisation for Animal Health (WOAH) Collaborating Centre on all areas of antimicrobial resistance (AMR) in aquaculture, contributing to improved antimicrobial stewardship.

During the last WOAH Global Conference on Aquatic Animal Health, held in Chile in 2019, it was announced that WOAH would develop a global Aquatic Animal Health Strategy. One of the objectives of the Strategy is capacity building to support WOAH Members' implementation of the standards. The Center for Antimicrobial Stewardship in Aquaculture (CASA), under the auspices of the Faculty of Veterinary Medicine of the University of Chile, was designated as a WOAH Collaborating Centre in 2022, with the aim of providing scientific support.

CASA has a multidisciplinary team of professionals and researchers who have developed new lines of research into AMR and the prudent use of antimicrobials in aquaculture, specifically in salmon farming. This is the first Collaborating Centre in the Americas to support the prudent and responsible use of antimicrobials in aquaculture. Its role is to provide advice, particularly at the regional level, by offering scientific knowledge and support to national WOAH Focal Points in the implementation of standards.

The Collaborating Centre will:

- provide support to Competent Authorities and the aquaculture sector through public–private partnerships in their countries;
- act as a reference in the prudent and responsible use of antimicrobials in aquaculture;
- carry out research;
- offer expertise, advice on the standardisation of techniques, and disseminate knowledge.

CASA will assist countries in the implementation of WOAH standards on antimicrobial use in the aquatic sector, including:

- principles for responsible and prudent use of antimicrobial agents in aquatic animals;
- monitoring the quantities and usage patterns of antimicrobial agents in aquatic animals;
- the development and harmonisation of national AMR surveillance and monitoring programmes for aquatic animals;
- risk analysis for AMR due to the use of antimicrobial agents in aquatic animals.


CASA
CENTER FOR ANTIMICROBIAL
STEWARDSHIP IN AQUACULTURE

UNIVERSIDAD DE CHILE

https://doi.org/10.20506/bull.2023.2.3420

AROUND THE WORLD

WOAH ACTIONS

4-1-4: New WOAH Collaborating Centre for Antimicrobial Stewardship in Aquaculture (CASA)

KEYWORDS

#antimicrobial resistance (AMR), #Center for Antimicrobial Stewardship in Aquaculture (CASA), #Chile, #WOAH Collaborating Centre, #World Organisation for Animal Health (WOAH)

AUTHORS

Alicia Gallardo L

(1)Center for Antimicrobial Stewardship in Aquaculture (CASA). University of Chile, Santiago, Chile Vice and President AAHC

© Getty Images

Aquatic animal production systems are epidemiologically linked through the movement of people, trade in aquatic animals and their products, and through the aquatic environment. These links create shared risks and the need to address those risks collectively. If aquatic animal production is to continue to grow sustainably, national, regional and international aquatic animal health management will need to keep pace with the growth and changing nature of aquatic animal production.

One of the activities under Objective 2 (Capacity Building) of the Aquatic Animal Health Strategy is to support small-scale aquaculture. This means making effective tools available to communities who rely on small-scale aquaculture so that they can reduce their vulnerability to the impact of aquatic animal disease.

Small-scale aquaculture is a vital contributor to local economies, cultures, livelihoods and human nutrition in many Asia–Pacific countries. However, managing aquatic animal health in such environments can be challenging as small farms often lack the infrastructure and capacity to carry out biosecurity measures. They are sometimes referred to as the 'weakest link' in the overall implementation of farm-level aquaculture biosecurity. As a result, opportunities to reduce disease transmission and respond to emerging disease threats may be limited.

With the increasing incidence in the transboundary spread of important and emerging aquatic animal diseases, aquaculture biosecurity has never been so important. Although many countries still lack regulations on aquaculture biosecurity, some have made progress in formulating guidelines. However, these countries still face challenges in carrying them out, especially at the farm level, since small-scale farms are so dominant in this area.

To gain a better understanding of biosecurity practices in the Asia–Pacific region, the Network of Aquaculture Centres, in collaboration with the FAO and WOAH and aquaculture experts within these countries, began to collect and collate all available information on aquaculture biosecurity for small-scale farms from selected countries in the Asia–Pacific region, including existing regulations and guidelines and any other relevant material.

The information was individually assessed, and important biosecurity measures were extracted and consolidated into a number of categories. Appropriate farm-level measures were developed for adoption by aquaculture operations, including small-scale farms, depending on their capacity to implement them. These measures can also be used as guidance by most countries in the region when formulating farm-level biosecurity measures.

The project found that, overall, most countries do not have a single regulation to address general aquaculture biosecurity. Specific biosecurity measures are included in various national regulations on disease prevention and control, best management practices, strategies for animal health and the environment, transboundary movement of live animals, and emergency response measures. Specific commodity and farm-level regulations are also available in many countries.

The final report for this project is available here.

https://doi.org/10.20506/bull.2023.2.3421

AROUND THE WORLD

NETWORK INITIATIVES

4-2-1: Biosecurity for small-scale aquaculture

A project to collect and evaluate existing guidelines on aquaculture biosecurity for small-scale farms in Asia and the Pacific

AUTHORS

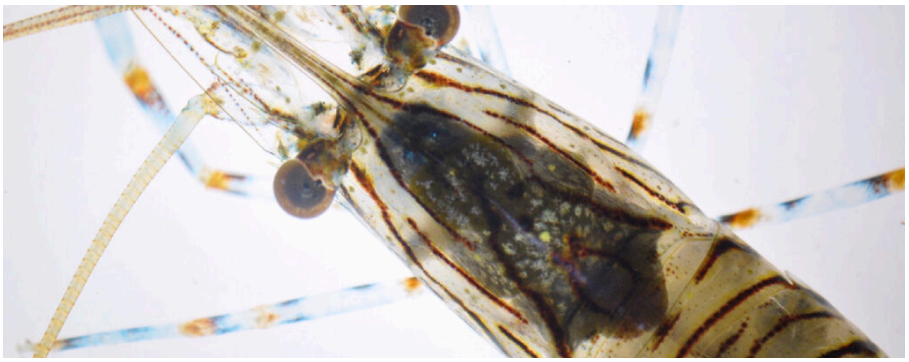
M. Allan(1)* , E. Leano(2), T. Patanasatienkul(3)

(1) Regional Activities Department, World Organisation for Animal Health

(2) Network of Aquaculture Centres in Asia-Pacific

(3) Regional Representation for Asia and the Pacific, World Organisation for Animal Health

*Corresponding author: M.Allan



© Getty Images

This paper describes the current global context and systems for emergency management, identifies and characterises threats, describes planning approaches and tools, discusses the range of objectives that must be balanced, and introduces the emergency management disciplines. OIE's expanding programmes and services to Members to develop emergency management capacities are summarised, with conclusions drawn that will shape future directions.

[Download the document]

RESOURCES

JOINT RESOURCES

5-2-1: FAO Good emergency management practice: The essentials. A guide to preparing for animal health emergencies-Third edition

KEYWORDS

#aquaculture, #aquatic animal, #strategy, #WOAH Aquatic Animal Health Strategy, #World Organisation for Animal Health (WOAH)

As the world's second-largest aquaculture producer, but also a country with high marine biodiversity, Indonesia is anticipating rapid expansion of the aquaculture sector over the next five years through creation of a comprehensive national medium-term development plan
(RPJMN) that should fully integrate ecosystem-based approaches to aquaculture development.

[Download the document]

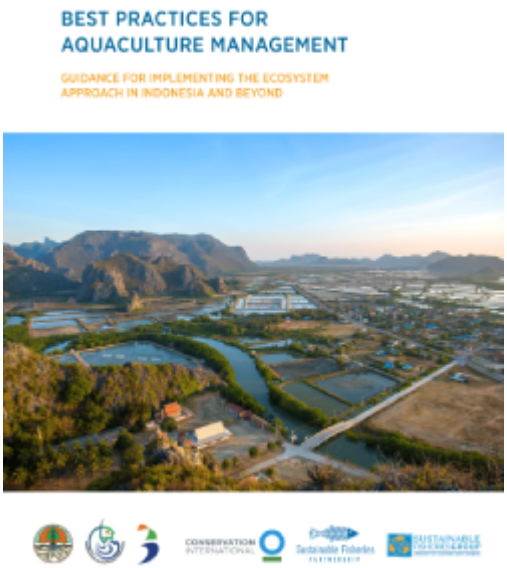
RESOURCES

JOINT RESOURCES

5-2-2: Best practices or aquaculture management guidance for implementing the ecosystem approach for Indonesia and beyond

KEYWORDS

#aquaculture, #aquatic animal, #strategy, #WOAH Aquatic Animal Health Strategy, #World Organisation for Animal Health (WOAH)



Acknowledging the need to build more sustainable aquatic animal health systems, the World Organisation for Animal Health (WOAH) launched its first Aquatic Animal Health Strategy in May 2021, at the occasion of its 88th General Session. This Strategy will improve aquatic animal health and welfare worldwide, contributing to sustainable economic growth, poverty alleviation and food security, thereby supporting the achievement of the Sustainable Development Goals (SDGs).

[Download the document]

RESOURCES

WOAH RESOURCES

5-01-1 WOAH Aquatic Animal Health Strategy

KEYWORDS

#aquaculture, #aquatic animal, #strategy, #WOAH Aquatic Animal Health Strategy, #World Organisation for Animal Health (WOAH)

For this 2019 edition of Panorama, dedicated to PPPs, it should be noted that partnership refers to close collaboration between parties from different sectors that have common interests. This requires actively building links between the various participants who, while maintaining their autonomy, agree to pool their resources to achieve a common goal. Each party retains its mission but shares responsibilities.

[Download the document]

RESOURCES

WOAH RESOURCES

5-01-2: Public-Private Partnerships and perspectives in the veterinary domain

KEYWORDS

#aquaculture, #aquatic animal, #strategy, #WOAH Aquatic Animal Health Strategy, #World Organisation for Animal Health (WOAH)

The Aquatic Animal Health Code (the Aquatic Code) provides standards for the improvement of aquatic animal health and farmed fish welfare worldwide. These standards should be used by Members to set up measures for the prevention, early detection, reporting and control of pathogenic agents in aquatic animals (amphibians, crustaceans, fish and molluscs). Implementation of the recommendations in the Aquatic Code ensures the safety of international trade in aquatic animals and aquatic animal products, while avoiding unjustified sanitary barriers.

[Download the document]

RESOURCES

WOAH RESOURCES

5-01-3: WOAH Aquatic Code and Manual

KEYWORDS

#aquaculture, #aquatic animal, #strategy, #WOAH Aquatic Animal Health Strategy, #World Organisation for Animal Health (WOAH)

This paper describes the current global context and systems for emergency management, identifies and characterises threats, describes planning approaches and tools, discusses the range of objectives that must be balanced, and introduces the emergency management disciplines. OIE's expanding programmes and services to Members to develop emergency management capacities are summarised, with conclusions drawn that will shape future directions.

[Download the document]

RESOURCES

WOAH RESOURCES

5-01-4: Technical Item GS 2022 - World Organisation for Animal Health, Veterinary Services and Aquatic Animal Health Services Engagement in Global, Regional and National Emergency Management Systems

KEYWORDS

#aquaculture, #aquatic animal, #strategy, #WOAH Aquatic Animal Health Strategy, #World Organisation for Animal Health (WOAH)

89th General Session World Assembly OIE
World organisation for animal health Paris, 23-26 May 2022

https://doi.org/10.20506/bull.2023.1.3394

5G/05/8

Original: English

WORLD ORGANISATION FOR ANIMAL HEALTH, VETERINARY SERVICES AND AQUATIC ANIMAL HEALTH SERVICES ENGAGEMENT IN GLOBAL, REGIONAL AND NATIONAL EMERGENCY MANAGEMENT SYSTEMS

Matthew Stone[1], Daniel Donachie[2], Claudia Wanscoy[2], Keith Hamilton[2]

[1]SPADE Solutions Ltd, Wellington, New Zealand
[2]World Organisation for Animal Health, Paris, France

Executive Summary : Avian influenza, Ebola, African swine fever and COVID-19 epizootics, epidemics and pandemics in recent years have highlighted infectious disease emergencies affecting public health and animal health. Emergencies from adverse weather events are expected to increase in frequency and severity driven by climate change.

A wide variety of other hazards, natural and man-made, have demonstrated their potential to evoke emergencies with impacts that require a coordinated One Health approach. Veterinary Services and Aquatic Animal Health Services have an important role to play in prevention, preparedness, response and recovery for these events, working with One Health partners, the Security Sector and Emergency Services, and this works best when coordinated through a National Emergency Management System. Emergency management uses specific disciplines and is increasingly organised in national, regional and global systems that the World Organisation for Animal Health (OIE) and its Members must become expert in and integrated into.

This paper describes the current global context and systems for emergency management, identifies and characterises threats, describes planning approaches and tools, discusses the range of objectives that must be balanced, and introduces the emergency management disciplines. OIE's expanding programmes and services to Members to develop emergency management capacities are summarised, with conclusions drawn that will shape future directions.

1. Introduction: the global context

In 2020 the OIE published volume 39(2) of the Scientific and Technical Review dedicated to Disaster Prevention and Preparedness (1). The OIE also dedicated a 2019 issue of Panorama to its rapidly developing and expanding work programme on Emergency Management (2). Those actions were prescient given the subsequent global crises that unfolded soon after these works were planned and initiated, with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) crossing over from an animal host creating a pandemic that has claimed over 6 million human lives and tested international and national crisis management systems. The OIE and Member Veterinary Authorities and Veterinary Services have played a key role in these systems.

The COVID-19 pandemic is not the only crisis demanding action from national emergency management systems. Storms, floods, volcanoes, wildfires, oil spills, shipwrecks, nuclear accidents, conflicts, as well as epizootic infectious diseases like avian influenza, African swine fever, Rift Valley fever, to name a few: the list of recent international and national emergencies is lengthy and diverse. For events driven by weather and climate, the International Panel on Climate Change Sixth Assessment Report predicts such emergencies will increase in frequency and intensity (3). Complex emergencies involve the occurrence of several interdependent emergencies at the same time, as often arises with man-made emergencies such as industrial accidents, transport accidents, environmental degradation, pollution, and conflicts.

World Organisation for Animal Health, Veterinary Services and Aquatic Animal Health Services engagement in Emergency Management Systems.

WOAH (founded as OIE) is a global organisation, working to ensure the health of animals across the world. Since 1924, we have focused on the complexities of animal health. We disseminate information on animal diseases and use science-based strategies to limit their potentially negative impact on society.

12, rue de Prony, 75017 Paris, France
T. +33 (0)1 44 15 18 88
F. +33 (0)1 42 67 09 87
woah@woah.org
www.woah.org

Facebook: https://www.facebook.com/worldanimalhealth
Twitter: https://twitter.com/WOAH_Global
Instagram: https://www.instagram.com/worldanimalhealth/
LinkedIn: https://www.linkedin.com/company/worldanimalhealth/
YouTube: https://www.youtube.com/c/WorldAnimalHealth
Flickr: https://www.flickr.com/photos/woah-photos/
Digital version: bulletin.woah.org

World Organisation for Animal Health
Founded as OIE