

The World Organisation for Animal Health (WOAH) Collaborating Centre for Emerging Aquatic Animal Diseases

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Cefas

Cefas is the **C**entre for **E**nvironment, **F**isheries, and **A**quaculture **S**cience.

We are an Executive Agency of Defra, the UK government's Department of Environment, Food and Rural Affairs.

We employ specialists across the aquatic sciences: from aquatic animal health to aquaculture, blue carbon to biological effects monitoring, fisheries to future energy.



Cefas Laboratories



Weymouth



Lowestoft

Aquatic Animal Health Facilities

Weymouth Laboratory

Pathology

Virology

Immunology

Bacteriology

Molecular Biology

Sequencing Facility

Experimental Facility

Epidemiology and Risk



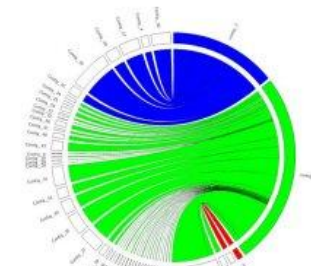
Sampling



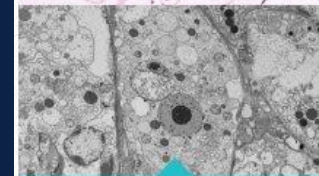
Gross signs



PCR



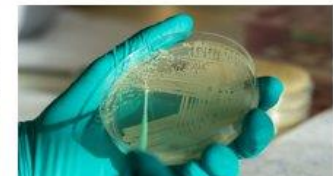
Metagenomics / Metatranscriptomics



Histopathology and Transmission
Electron Microscopy



Cell culture and Virology



Bacteriology

Cefas designations & NRLs

WOAH Collaborating Centre for
Emerging Aquatic Animal Disease

Reference Centre



World Organisation
for Animal Health
Founded as OIE

Collaborating Centre for Emerging
Aquatic Animal Diseases

WOAH Reference Laboratory
for Koi Herpes Virus (KHV)

Reference Centre



World Organisation
for Animal Health
Founded as OIE



WOAH Reference Laboratory for
Spring Viraemia of Carp (SVC)

Reference Centre



World Organisation
for Animal Health
Founded as OIE



Reference Laboratories

National Reference Laboratories - UK
Crustacean Diseases¹
Fish Diseases²
Mollusc Diseases⁶
Bacteriological contamination of bivalve molluscs⁷
Foodborne viruses⁷



Food and Agriculture
Organization of the
United Nations

Reference Centre for Bivalve
Molluscs Sanitation



Food and Agriculture
Organization of the
United Nations

Reference Centre for
Antimicrobial Resistance (AMR)

SUSTAINABLE AQUACULTURE FUTURES



UNIVERSITY OF
EXETER



1. Dr Kelly Bateman
2. Dr Richard Paley
3. Dr Rachel Hartnell
4. Dr Craig Baker-Austin
5. Dr Irene Cano Cejas
6. Dr Frederico Batista
7. Dr James Lowther
8. Dr Ronny van Aerle
9. Dr Elisa Capuzzo
10. Prof. Charles Tyler

WOAH Collaborating Centres

'Provide scientific expertise and support to the WOAH and its Members, to promote international collaboration on animal health and welfare. Collaborating Centres are designated for a specific specialty within a focus area. In its designated specialty, they must provide their expertise internationally'

OIE Aquatic Animal Health Strategy 2021-2025





Cefas 2030

Cefas 2030 sets our strategic focus to 2030.

Cefas 2030: Our Priorities

Achieving ambitious national and international outcomes will require us to think, work and act differently. We will need to be innovative in all areas of our organisation. This will continue to grow our reputation for delivering world leading marine and freshwater science.

To fulfil our Mission through to 2030 we will prioritise actions to shape our work and organisation to meet the challenges we face.

- Influencing Decisions**
As a trusted global authority we will embed marine and freshwater science at the heart of decision making.
- Excellent Science Leading Change**
Using excellent science we will lead transformative change in policy, practice and productive rivers, seas and the ocean.
- Ambitious for Each Other**
We will enable individuals to thrive together, delivering lasting, sustainable work.
- At Cefas Everyone is Valued**
We will build an inclusive and supportive culture where diversity is truly valued.
- Data and Innovation Drive**
We will harness the power of data and technology to respond to the world's pressing problems.
- Working Together**
We will strengthen partnerships and community engagement, to collect and build collective understanding.



Cefas Science and Evidence Strategy (2019-2025)

"informing our understanding, guiding our actions"



"Cefas' work in collaboration with national and international partners supports delivering global priorities."

The challenges faced in achieving sustainable futures for marine and freshwater ecosystems require global leadership, collaboration and bold action. If we do not all radically evolve the way we do things, we will fall short. The UK has committed to playing an ambitious role at home and overseas in tackling threats to resources, ecosystems and people, working through partnerships and global alliances.

Cefas' work in collaboration with national and international partners supports delivering global priorities. Our work is guided by a growing number of international environmental commitments around climate change, preventing biodiversity loss, reducing pollution, and energy and food security.

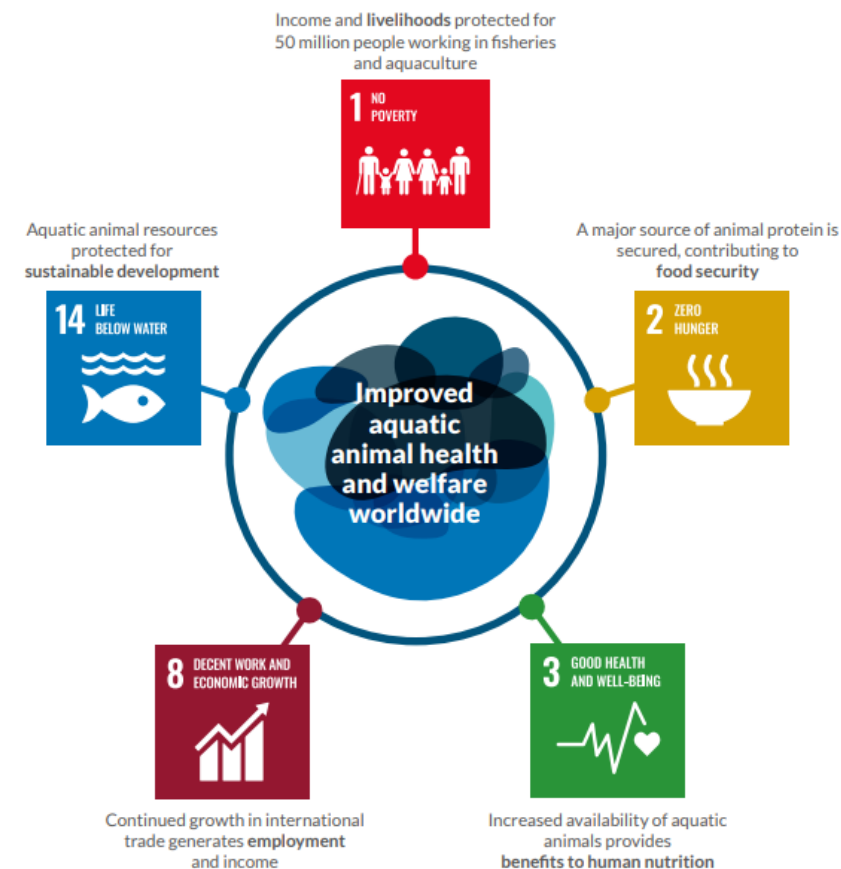



HM Government

A Green Future: Our 25 Year Plan to Improve the Environment



Strategic alignment



Disease is the #1 issue facing many aquaculture systems

- limiting yield
 - reducing profit
 - preventing investment
-
- 📊 Extensive losses >\$6bn pa-1
 - 🐟 Emergence rate is high
 - 🦠 High impact pathogens
 - 🌐 Pandemic spread
 - 👤 Deficit in trained professionals



Emergency shrimp harvest

Emerging disease

An **emerging disease** is defined as

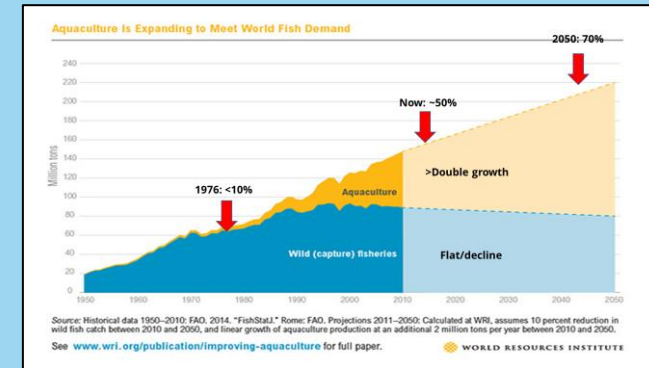
- a **new infection**: the occurrence of a previously unrecognized disease
- or
- a **known pathogen**
 - occurring with increased virulence or pathogenicity
 - appearing in a new host or vector
 - increasing in geographic range

A **re-emerging disease** is considered an already known disease that either shifts its geographical setting or expands its host range, or significantly increases its prevalence.

Article 1.1.4

Veterinary Authority shall, under the responsibility of the Delegate, send to the **Headquarters**:

1. a **notification** through WAHIS or by fax or email, when an **emerging disease** event has occurred in a country, a **zone** or a **compartment**;





Aims

Rapid detection, characterization and reporting of the causative agents of [emerging] disease provide a crucial first step in their control.

For this reason, efficient and accurate detection and description of **emergent and potentially emergent** aquatic animal disease threats forms the central precept of this WOAHC Collaborating Centre

We aim to function as a **global resource** for health and disease research, diagnostics, pathogen detection and description, and knowledge sharing, associated with aquatic animals



Key Functions



Disease investigation and diagnosis



Collection, analysis and dissemination of information.



Advice & Training



Capacity building support



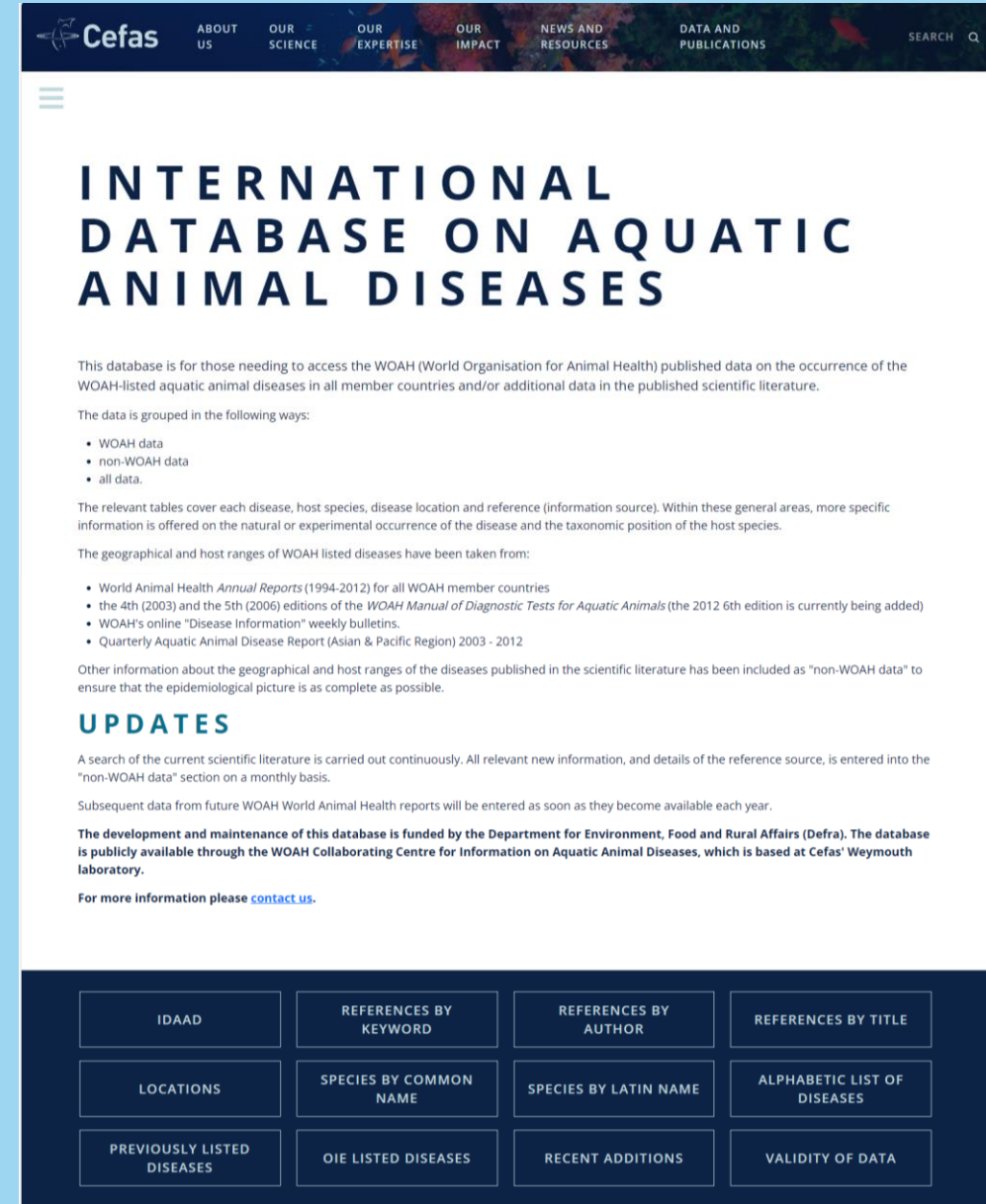
Networks

- **Member of steering group for the WOAAH Collaborating Centre Network for Wildlife Diseases**
 - 19 Collaborating Centres – Terrestrial and Aquatic Expertise
 - Concept note - The WOAAH Wildlife Health Collaborating Centre Network: A Coordinated Approach to Global Health Challenges
- **WOAH Collaborating Centre Network for Aquatic Animal Health**
 - WOAAH Collaborating Centre for Epidemiology and Risk Assessment of Aquatic Animal Diseases (Americas), Prince Edward Island, Canada
 - WOAAH Collaborating Centre for Epidemiology and Risk Assessment of Aquatic Animal Diseases (Europe), Oslo, Norway
 - WOAAH Collaborating Centre for Economics of Animal Health, Liverpool, UK
 - WOAAH Collaborating Centre for Antimicrobial stewardship in aquaculture, Chile

Meeting Report: Network of WOAAH Collaborating Centres on Wildlife Health		Original: English (EN) 19 June 2024 Online
Table of Contents		
1. Introduction	2	
Welcome	2	
Objectives	2	
2. Concept Note	2	
3. Communication and Networking	2	
4. Open Discussion: Needs, Activities, and Ideas	2	
List of Annexes		
Annex 1. Agenda	4	
Annex 2. List of Participants	5	
Annex 3. List of Network Members: WOAAH Collaborating Centres	6	
 World Organisation for Animal Health Founded as OIE		
Preparedness and Resilience Department		
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Information systems

- International Database on Aquatic Animal Diseases - Cefas (Centre for Environment, Fisheries and Aquaculture Science)
- Brings together WOAHA and non-WOAH data via continuous monitoring of over 30 information sources, including grey literature and peer reviewed papers
- Developing dedicated emerging condition section



Cefas ABOUT US OUR SCIENCE OUR EXPERTISE OUR IMPACT NEWS AND RESOURCES DATA AND PUBLICATIONS SEARCH

INTERNATIONAL DATABASE ON AQUATIC ANIMAL DISEASES

This database is for those needing to access the WOAHA (World Organisation for Animal Health) published data on the occurrence of the WOAHA-listed aquatic animal diseases in all member countries and/or additional data in the published scientific literature.

The data is grouped in the following ways:

- WOAHA data
- non-WOAH data
- all data.

The relevant tables cover each disease, host species, disease location and reference (information source). Within these general areas, more specific information is offered on the natural or experimental occurrence of the disease and the taxonomic position of the host species.

The geographical and host ranges of WOAHA listed diseases have been taken from:

- World Animal Health *Annual Reports* (1994-2012) for all WOAHA member countries
- the 4th (2003) and the 5th (2006) editions of the *WOAHA Manual of Diagnostic Tests for Aquatic Animals* (the 2012 6th edition is currently being added)
- WOAHA's online "Disease Information" weekly bulletins.
- Quarterly Aquatic Animal Disease Report (Asian & Pacific Region) 2003 - 2012

Other information about the geographical and host ranges of the diseases published in the scientific literature has been included as "non-WOAH data" to ensure that the epidemiological picture is as complete as possible.

UPDATES

A search of the current scientific literature is carried out continuously. All relevant new information, and details of the reference source, is entered into the "non-WOAH data" section on a monthly basis.

Subsequent data from future WOAHA World Animal Health reports will be entered as soon as they become available each year.

The development and maintenance of this database is funded by the Department for Environment, Food and Rural Affairs (Defra). The database is publicly available through the WOAHA Collaborating Centre for Information on Aquatic Animal Diseases, which is based at Cefas' Weymouth laboratory.

For more information please [contact us](#).

IDAAD	REFERENCES BY KEYWORD	REFERENCES BY AUTHOR	REFERENCES BY TITLE
LOCATIONS	SPECIES BY COMMON NAME	SPECIES BY LATIN NAME	ALPHABETIC LIST OF DISEASES
PREVIOUSLY LISTED DISEASES	OIE LISTED DISEASES	RECENT ADDITIONS	VALIDITY OF DATA

Reference Collections - Cultured and wild fish and shellfish from freshwater and marine environments

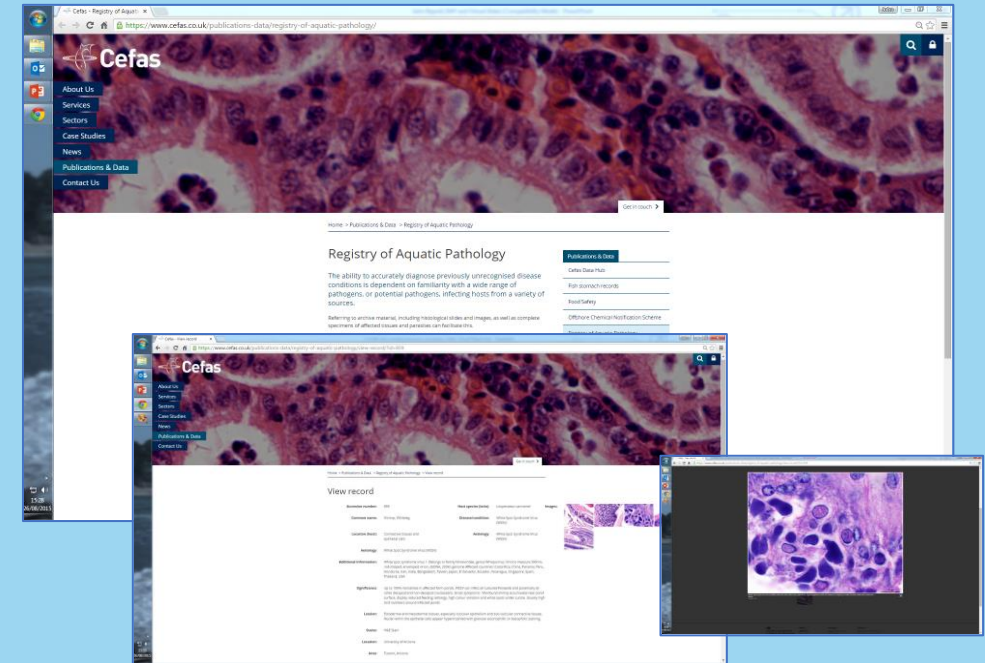
Registry of Aquatic Pathology

Histological collection of aquatic animal diseases.

Includes bacterial, parasitic and viral disease.

Materials include microscope slides, gross pathology images and parasites.

RAP is online on Cefas website: <https://www.cefas.co.uk/data-and-publications/registry-of-aquatic-pathology/>

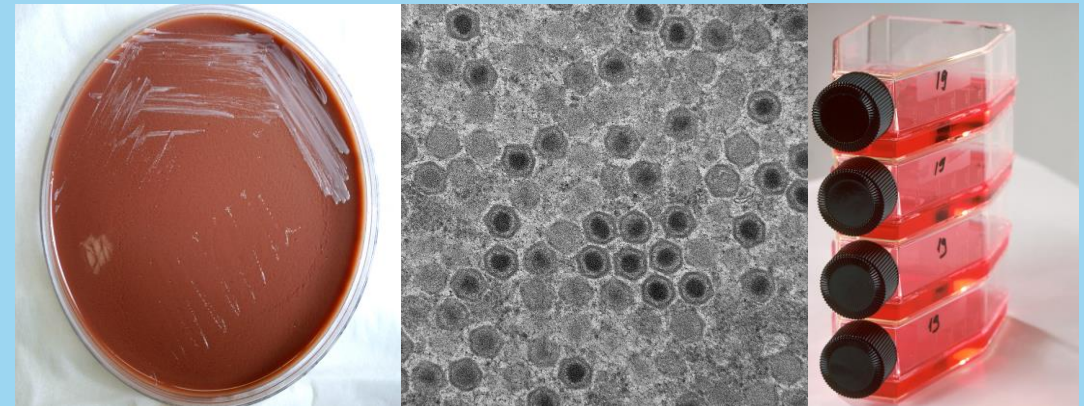


Culture Collections

Bacterial and Oomycete culture collections

Virus isolate collection

Fish cell lines



Rules of engagement

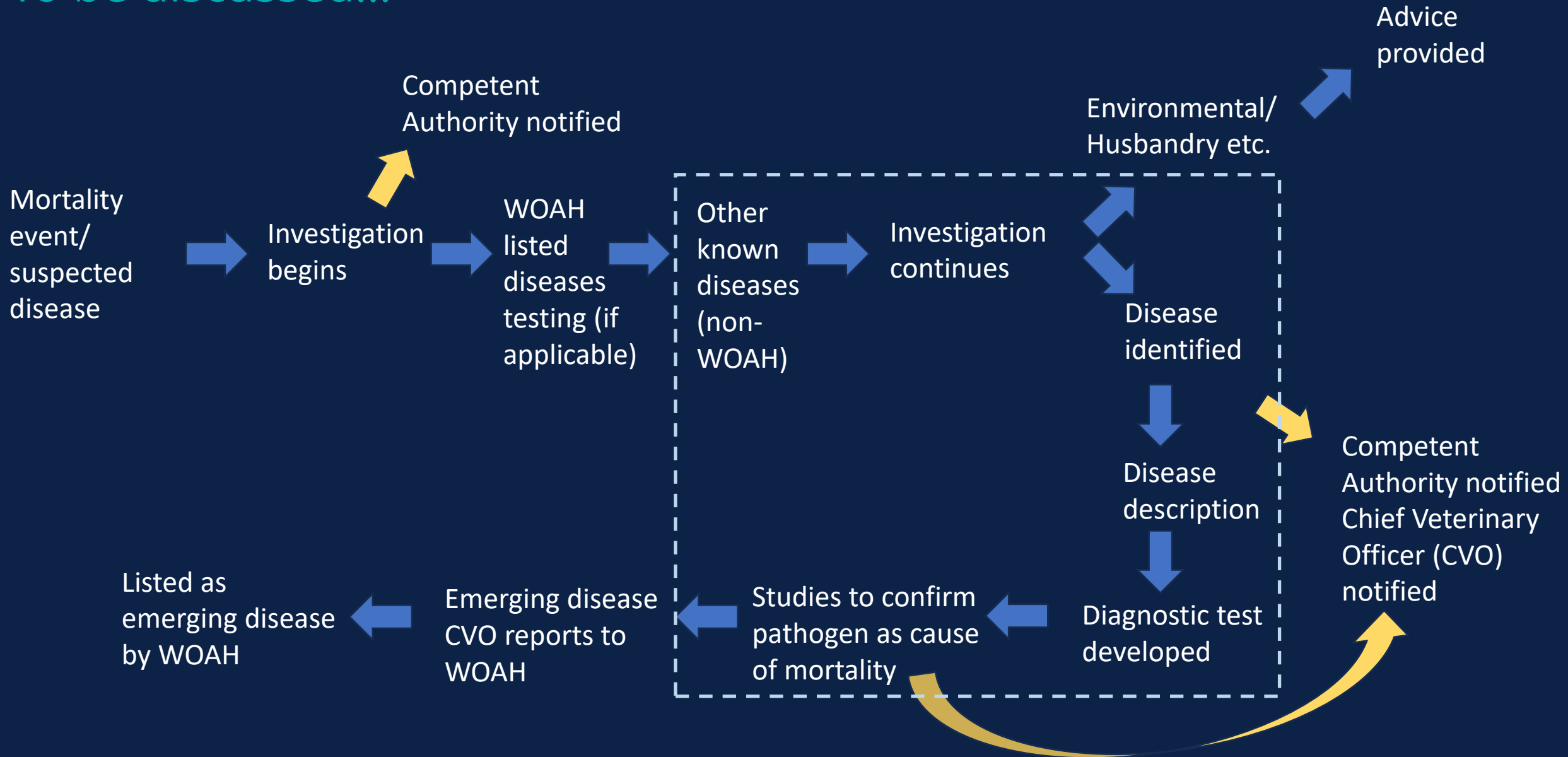
- **Country approach led** – e.g. request for assistance with disease investigation or capacity building
- **Direct collaboration** on description of novel and emerging disease agents in aquatic animals
- Ensure national **Competent Authorities** aware and engaged
- Work with **associate partner laboratories**, inc. EURLs and other WOAHA collaborating centres and reference laboratories
- **Advice and protocols** for:
 - sample collection, submission and shipping
 - importation permits and fulfilment of Nagoya Protocol arrangements
 - Training in dissection methods, histopathology, molecular biology methodology

A developing Aquatic Animal Health network



Emerging Disease

To be discussed...



APL network aims

CCEAAD suggestions...

- Early indication of potential disease issue
- Sharing of information – CA approval?
- Confidential within APL network - via the forum?
- Knowledge and material exchange (positive ref materials)
- Visiting scientists
- Forum update – protocols, conferences?
- Meeting frequency, annual, biannual, in person e.g. conferences?

Thank you



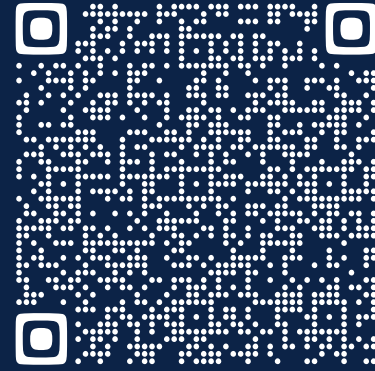
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Find out more about
WOAH CCEAAD



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Science



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