

Philippines: Aquatic Emergency Preparedness and Response Systems for Transboundary Diseases

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Abstract

The Bureau of Fisheries and Aquatic Resources (BFAR) of the Department of Agriculture as the Competent Authority, develops and implements rules and regulations on aquatic animal health for the Philippines. It establishes the monitoring system for OIE/NACA listed aquatic animal diseases. The disease surveillance and reporting activities are being carried out by the BFAR Fish Health Laboratory of the National Fisheries Laboratory Division and its counterparts at the regional offices. BFAR Fish Health Laboratories have different levels of diagnostic and detection capabilities for aquatic animal diseases. Diagnostic services and technical assistance are rendered to farmers on aquatic animal health. Results of diagnostic services and surveillance by BFAR central and regional offices, and other laboratories (SEAFDEC/AQD-Fish Health, DA-Biotech, Negros Prawn Cooperative) are part of the country's aquatic animal disease reports to the OIE/NACA. BFAR has a Fish Health Network that responds to aquatic animal disease emergencies. It also coordinates and collaborates through networking with research agencies, academe, private sectors and other stakeholders on aquatic animal health.

The Fisheries Inspection and Quarantine Division implements the policies on biosecurity, quarantine and health certification for trade and transboundary movement of aquatic animals. It is also responsible for risk analysis on the importation of fish and fishery/aquatic products. Other regulatory requirements for in-country movement include local transport permit for fish and fishery/aquatic products for traceability. Importers and exporters are also registered by BFAR to ensure compliance to sanitary and food safety measures and requirements. BFAR is continuously strengthening its technical capacity, human resources, policies and regulations for a more efficient implementation of aquatic animal health services that includes response to transboundary disease emergencies of aquatic animals.

Introduction

The Bureau of Fisheries and Aquatic Resources (BFAR) is the Competent Authority for the implementation of the aquatic animal emergency preparedness and response system of the country. The implementation of programs on emergency preparedness and response system are according to the organizational set-up and network. Recent reorganization of BFAR provides for the creation of the Fisheries Inspection and Quarantine Division (FIQD) and National Fisheries Laboratory Division (NFLD), delineating regulatory functions. The FIQD implements the regulations and policies on biosecurity, quarantine and health certification for trade and transboundary movement of aquatic animals. It is also responsible for risk analysis on the importation of fish and fishery/aquatic products following the OIE Aquatic Animal Health Code guidelines.

The NFLD has central fish health and 16 counterpart fisheries laboratories in the regions with different levels of diagnostic capabilities on detection of diseases that support disease surveillance and monitoring, health certification and quarantine measures for aquaculture production, movement and trade of live aquatic animals (Figure 1).

BFAR collaborates with other agencies, institutions and industry in the implementation of aquatic animal health management programs and activities. This paper provides information on the status of aquatic emergency preparedness and response system in place.



FIGURE 1. Location map of the BFAR central and regional offices

Early Warning System

National competent authority's monitoring system/ mechanism on emerging/existing transboundary diseases (especially the OIE-listed) in the region

The Bureau of Fisheries and Aquatic Resources (BFAR) is the Competent Authority responsible for developing monitoring system on transboundary diseases. Regulations and guidelines for the implementation of programs on aquatic animal health are issued through Fisheries Administrative Orders, Office Orders, Circulars and Memoranda. The organizational structure of BFAR including administrative and technical divisions responsible for preparedness and response to emergency aquatic animal diseases is indicated in Figure 2.

The BFAR's central Fish Health Laboratory (FHL) and regional fisheries laboratories conduct surveillance and monitoring for OIE listed and other significant and emerging aquatic animal diseases in the country. It has developed the Fish Health Network composed of central and regional fish health officers that implements national programs on aquatic animal health and residue monitoring program. The central laboratory serves as the national reference laboratory of the 16 regional laboratories. It provides technical guidance to the regional laboratories and ensures harmonized implementation of programs relative to aquatic animal health management and residue monitoring including sampling, laboratory test methods and reporting system. It also provides and organizes trainings for the fish health officers. The organizational structure and coordination of central and regional offices involved in the implementation of disease surveillance and reporting system, and emergency response is illustrated in Figure 3.

Fish Health Officers at the central and regional offices conduct field investigation and laboratory analysis on the reported mortalities/outbreaks. Further, the fish health laboratories also provide laboratory analysis for (a) fry quality analysis, (b) disease screening prior to stocking of farmers, (c) disease occurrence, (d) health certification and quarantine requirement for transboundary movement of aquatic animals either locally or internationally.

Information on emerging disease provided by the OIE, FAO and NACA prompt BFAR to issue Memorandum Order to regional offices about

the disease for raising awareness and information dissemination. Precautionary measures are recommended such as movement restriction, health certification and quarantine to control introduction or spread of the concerned emerging transboundary disease. Consequently, the support laboratory develops detection method.

In preventing spread of significant disease from affected areas to areas where disease of concern has not been reported, domestic movement control through health certification and quarantine controls at seaports and airports are implemented.

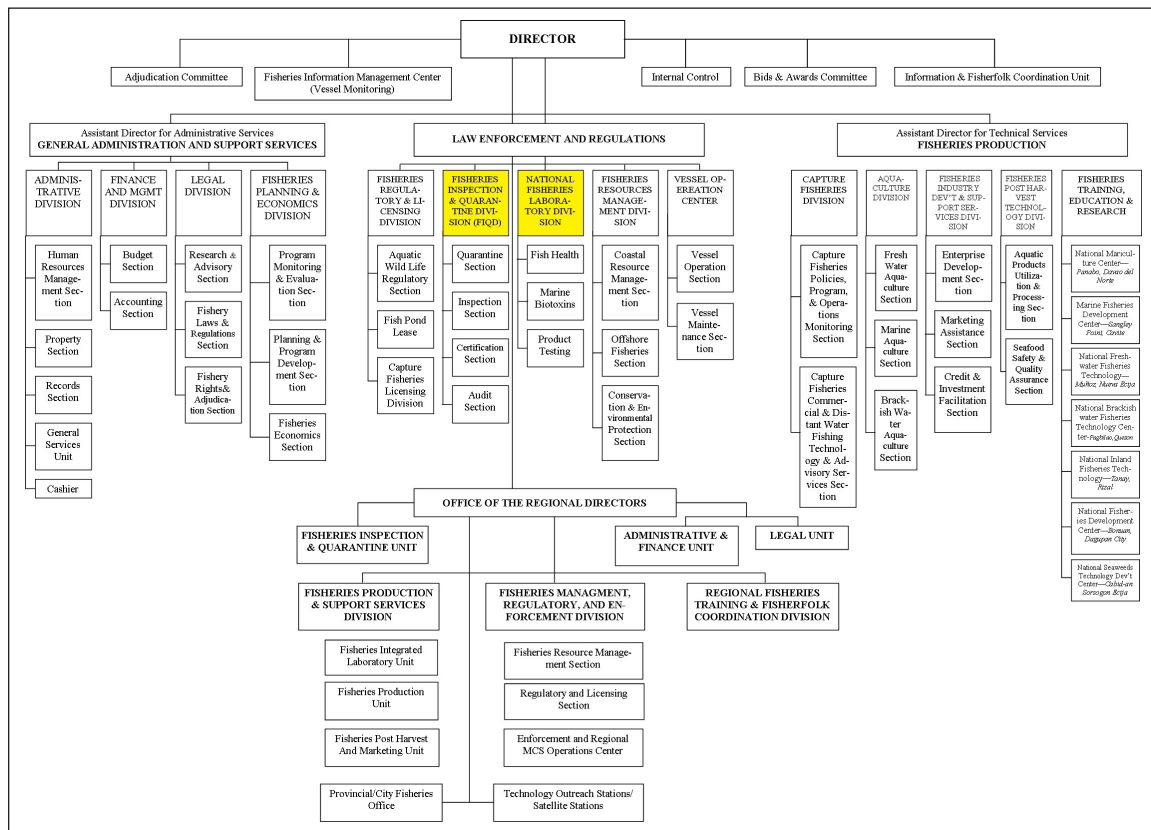


FIGURE 2. Bureau of Fisheries and Aquatic Resources (BFAR) organizational structure

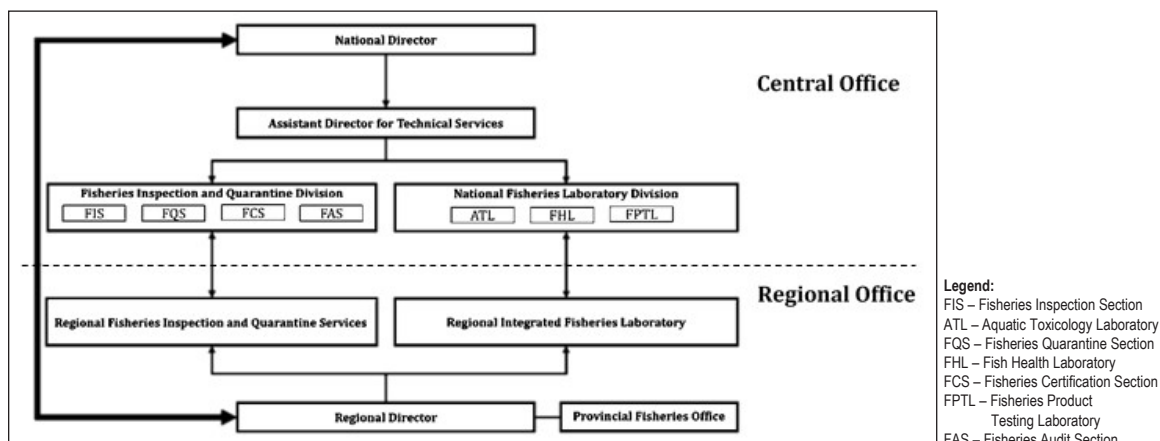


FIGURE 3. Coordination of BFAR Central Office and Regional Offices in the implementation of sanitary and food safety control and supervision

Networking mechanisms of the national competent authority with trading partners

The regulations and requirements on trade (import/export) are being implemented by the Fisheries Inspection and Quarantine Division (FIQD) of BFAR. Networking with trading partners include bilateral cooperation on compliance to sanitary and food safety requirements. There are trading partners that inform BFAR through formal communication or diplomatic channel in case of detection of disease in live aquatic animal exported from the country.

The Philippines submits quarterly aquatic animal disease reports to the World Organization for Animal Health (OIE) and Network of Aquaculture Centres in Asia-Pacific (NACA) through the OIE Regional Office in Tokyo, Japan and NACA headquarter in Bangkok, Thailand, respectively. BFAR also provides disease information (six-monthly report) on the OIE listed aquatic animal diseases to the OIE World Animal Health Information System (WAHIS). The reports provided can be accessed by the trading partners for the disease situation of the country and verified when necessary during country mission inspection. Some trading partners also require detailed information on disease control measures and supervision prior to approval of importations.

Early Detection System

Recognition and reporting of a disease emergency

a. Frontline personnel (fish farmers, extension/fish health officers)

Frontline personnel are knowledgeable in recognizing disease emergency based on their experience and sharing of information among their neighboring farmers. Fish farmers also attended trainings, congress, and seminars on good aquaculture practices which include biosecurity. Compliance to requirements for registration or accreditation of aquaculture farms also improve their knowledge on aquatic animal diseases. In addition, Information, Education and Communication (IEC) materials such as disease cards are disseminated for their information.

b. Local government personnel (town/city/provincial level) and industry (extension staff, designated departmental officers, research staff officers of local disease control center, fisheries organizations)

The local government personnel participated in the trainings or seminars on aquatic animal disease recognition and reporting organized by BFAR and the private sector such as feed suppliers. They are also provided with IEC materials and exposed to field practices and monitoring and surveillance activities. Being in the local service, they have the responsibility of coordination with the farmers.

c. National government personnel (staff from national research laboratories, main authority departments, national disease control centers)

Personnel in the national government office are continuously trained to upgrade and enhance knowledge on emerging diseases and laboratory capabilities on early detection of pathogens and develop guidelines on reporting of emergency disease outbreaks. Disease card or disease bulletin provided by OIE/NACA/FAO are useful materials for disease recognition. The laboratory has continuous staff development programs and training plan so that competence is constantly improved.

Standard Operating Procedures

To provide the laboratory support, the central fish health laboratory develops capability on detection of transboundary diseases. It conducts validation of test methods and harmonization with the regional laboratories. It supervises the activities and sets direction for the operation of the RFHL and also coordinates with other laboratories that provides diagnostic/laboratory services.

It also provides the procedures for sampling, preservation and sending of samples (together with the required information) to the laboratories.

The regional laboratories have different levels of capability depending on the needs of the regions. Some regions employed screening methods for detection of diseases, and send samples for

confirmatory test to the central laboratory when necessary. The central laboratory conducts annual audit of the regional laboratories on the implementation of disease surveillance and reporting program and operation of the fish health laboratories.

Awareness building and training programs

The BFAR FHOs prior to designation are required to undergo training on fish health management which is conducted by the NFLD. The trainings are handled by the core technical staff of the section who are experts on their fields of practice. The NFLD staff are also invited as resource persons to workshops/forum/trainings conducted by the regional offices and other government and non-government organizations.

Training plan for each year is programmed for continued staff development and capacity building. There are also formal non-degree training programmes and short training course on fish health management provided by regional institutions like Southeast Asian Fisheries Development Center (SEAFDEC). BFAR staff attended trainings on aquatic animal health provided by other organizations such as SEAFDEC, Network of Aquaculture Centres in Asia-Pacific (NACA), Food and Agriculture Organization (FAO), World Organization for Animal Health (OIE), European Union (EU), Japan International Cooperation Agency (JICA), Australian Centre for International Agricultural Research (ACIAR), International Development Research Centre (IDRC) and other Association of Southeast Asian Nations (ASEAN) initiatives. BFAR also participates in several regional projects of the FAO, NACA, OIE, EU-TRTA and other organizations on aquatic animal health and related activities.

Awareness programs for government and industry personnel are provided through industry conference/training/seminars (e.g. shrimp congress, milkfish congress, tilapia congress) in which topics on aquatic animal health/diseases are included.

National information sharing networks

The Fish Health Network conducts annual reporting and planning, and meeting/workshops when necessary for updates and to harmonize

implementation of national program on fish health. BFAR FIQD also organizes meetings/workshops with the industry, researchers, academe, and aquatic animal health personnel for information sharing on aquatic animal health programs, activities and researches.

Surveillance systems (passive surveillance programs for targeted and non-targeted diseases and active surveillance programs for targeted diseases)

The disease surveillance program considers both targeted and non-targeted sampling, and data collection of information, in determining the status of diseases in the country. Disease surveillance is included in the farm registration scheme implemented by the bureau where history of disease/health problems encountered by the farm are declared. Samples are taken for screening of significant diseases of species being cultured and antibiotic residue analysis. The registered farms are being inspected and monitored at least once a year depending on the status of the farm based on results of analysis for diseases and residues.

Disease surveillance is focused on the OIE listed diseases and other significant and emerging diseases in the region, to determine (a) presence/absence of significant diseases that has not been reported in the country, (b) diseases already reported in the country to determine extent/spread, (c) prevalence and seasonality. Results of disease surveillance and monitoring are used in the formulation of regulation on prevention and control measures.

Disease reporting system (national and international authority; e.g. NACA/OIE)

The Fish Quarantine Section (FQS) is responsible for aquatic animal disease notification and reporting system. Results of diagnostic cases were received or taken from central and regional fish health laboratories and other laboratories. Regional Offices submit monthly reports on their disease surveillance activities to the central fish health laboratory. The collated data is submitted to the FQS for reporting to the OIE and NACA for quarterly aquatic animal disease and six-monthly aquatic animal disease reports. BFAR also coordinates with other laboratories for aquatic animal diseases such as SEAFDEC/AQD, NPPC, DA Biotech, academe. Disease reports are usually received from farmers

that experience any abnormal mortalities/morbidity. They convey the report to the local government/regional/national authority directly, whichever is most accessible to them. Fish Health Officers have forms for the reporting system. There is a direct line of communication from the regional counterparts to the national authority for reporting suspected disease agents of concern. Consequently, disease information is disseminated to the BFAR officials and to Regional laboratories.

In case of detection and confirmation of important exotic disease, BFAR notifies the stakeholders. Upon confirmation of diseases occurrence, BFAR (OIE National Focal Point for Aquatic Animals) through the OIE Delegate has the responsibility in submitting quarterly aquatic animal disease reports to the OIE Regional Office and NACA Headquarters.

Diagnostic capability/ capacity

The Fish Health Laboratory (FHL) of the National Fisheries Laboratory Division (NFLD) serves as the country's national reference laboratory for aquatic animal disease diagnosis. The Central Fish Health Laboratory and the 16 Regional Fisheries Laboratories (some with satellite laboratories) follow documented procedures on collection, packaging, transporting and sending samples to the laboratory. The regional laboratories have different levels of capability on disease detection.

Documented quality management system is implemented by the NFLD laboratory. It has undergone assessment by the Philippine Accreditation Bureau (PAB) for ISO/IEC 17025 accreditation. Detection of shrimp diseases using PCR are among the scope of proposed accredited methods. Regional fisheries laboratories (RFL) in regions III, IV-A, VI, VII, IX and XII were assisted by the EU-TRTA project to develop the quality management system according to ISO/IEC 17025.

The central fish health laboratory together with two regional fisheries laboratories, participate in proficiency testing program for aquatic animal diseases organized by the Aquatic Animal Health Laboratory-CSIRO and Australian government.

Early Response System

Personnel competencies on identification of a disease emergency, identification of risks associated with the suspected pathogen, confirmation of the aetiology/etiologic agent of the disease, reporting to competent authority, formulation of control options

a. Frontline personnel (fish farmers, health professionals, fisheries extension officers of local fish health center)

Based on the Philippine National Standard (PNS) on Code of Good Aquaculture Practice, controlling spread of aquatic animal diseases should include the training of farmers in the identification of abnormalities in fish behavior and physical appearance, evidence of awareness on disease, control and notification to BFAR of the observed abnormalities. These are achieved through participation in the various activities conducted by the BFAR central and regional offices, local government units, stakeholders' organization, academe and other concerned institutions.

Reporting of diseases by farmers is encouraged. There are fish farmers that report to their local or regional BFAR offices any unusual cases of high mortalities within their aquaculture farm. There are also farmers that consider the laboratory test results and advise of fish health officers/extension officers. Some farmers opt for emergency harvest at the early signs of problems.

b. Local government personnel (town/city/provincial level) and industry (extension staff, designated departmental officers, research staff officers of local disease control center, fisheries organizations, processors and brokers)

Programs and activities developed by the central office on aquatic animal health, food safety and quality assurance services are coordinated with the regional offices for implementation. Each Region has an animal health, food safety and quality services linked to the Central Office. Regional Offices have Provincial Fishery Officers assigned in the Local Government Unit to implement relevant regulatory functions down to the level of the farmers.

The recognized laboratories in the industry involved in analytical testing services for aquatic animal diseases are the Negros Prawn Producers Cooperative (NPPC) and the Southeast Asian Fisheries Development Center (SEAFDEC).

c. *National government personnel (staff from national research laboratories, main authority departments, national disease control centers)*

FQS and FHL have the capacities on the identification of a disease emergency, the identification of risks associated with the suspected pathogen, confirmation of the etiology/etiologic agent of the disease and the development of control options. Staff are trained on fish health management, good aquaculture practices and biosecurity, monitoring, reporting, health certification and quarantine for the movement of live aquatic animals and national residue monitoring program for aquaculture products. Workshops on the harmonization of central and 16 regional offices are also regularly done. It also provides specialized training on fish disease diagnosis as well as good aquaculture practices to fishery biologists, extension workers, and fish farmers

Awareness building and training

BFAR Fisheries Quarantine Officers (FQO) from the central and regional offices regularly attend trainings/workshops on implementation of quarantine services and activities. Their services include pre-border, border and post-border examination of live fish, fishery/aquatic products, risk assessment, quarantine protocols in importation and exportation of live

aquatic animals, compliance to disease-reporting to the OIE, and to respond to disease outbreaks and emergencies. Continuous staff development is included in the annual plan of the division.

Standard Operating Procedures

The structure of emergency disease notification and reporting system is illustrated in Figure 4.

Upon receiving the initial report of emergency disease outbreak, assessment and verification are conducted. FQOs then coordinates with the BFAR National/Regional Director, Local Government units (LGU), other concerned agencies and the Regional Disease Outbreak Investigation team. Disease Outbreak Investigation team is composed of Quarantine officers, Law Enforcement officers, Provincial Fisheries Officers, FHOs, Fisheries Aquatic Resources Management Council (FARMC) representative, LGU and representatives from other concerned BFAR units and agencies.

Containment of affected population is recommended until on-site investigation is done and diagnosis is confirmed. Proper disposal of dead fishes and other aquatic animals suspected to be disease-carrying should be done. Other control or remedial measures that may be implement by the operator include treatment/chemical application, disinfection of affected compartment, and destruction of sick animals. FQO submit the disease outbreak report to the Director. Surveillance activity is continued to determine the extent of the disease.

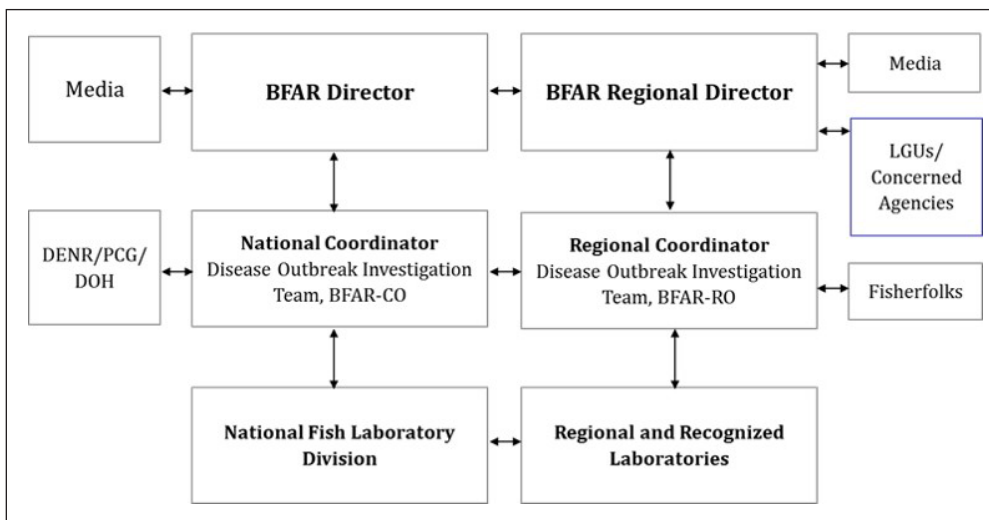


FIGURE 4. Proposed structure for the proper coordination between BFAR and other agencies in the conduct of disease emergency investigation

Conclusion and Recommendation

Currently, the implementation of aquatic animal emergency preparedness and response are carried out through coordination of the concerned sections together with the regional counterparts according to their functions and responsibilities. The EPRS has to be formalized through consultation with the industry for collective and effective management of transboundary disease outbreaks. It is also important to strengthen and maintain capacity to ensure early detection and early response.