

RISK ANALYSIS TO MANAGE AND CONTROL TRANSBOUNDARY AQUATIC ANIMAL DISEASES



FISHERIES AND AQUACULTURE *key facts*

FISH AND FISHERY PRODUCTS PLAY A CRITICAL ROLE IN GLOBAL FOOD SECURITY AND NUTRITIONAL NEEDS OF PEOPLE IN DEVELOPING AND DEVELOPED COUNTRIES

THEY ARE AMONG THE MOST WIDELY TRADED COMMODITIES WITH SOME 40 PERCENT OF PRODUCTION ENTERING THE INTERNATIONAL MARKET

GLOBAL FISH PRODUCTION HAS GROWN STEADILY IN THE LAST FIVE DECADES, WITH FOOD FISH SUPPLY INCREASING AT AN AVERAGE ANNUAL RATE OF 3.2 PERCENT

TRANSBOUNDARY AQUATIC ANIMAL DISEASES (TAADS)

are a primary constraint to sustainable aquaculture production, and have a significant socio-economic and environmental impacts in several aquaculture countries and regions of the world. The impacts of TAADs are particularly hard-felt by small-scale farmers, who represent the backbone of many rural communities in developing as well as developed countries.

Like other farming sectors, the likelihood of major disease occurrence increases as aquaculture activities diversify, intensify and expand, based heavily on movements of fish and fishery products (broodstock, post-larvae, fingerlings, fry, and feed).

Several factors contribute to the current disease problems faced by the aquaculture sector, such as increased globalization of trade and markets; intensification of fish-farming practices; introduction of new species for aquaculture development; expansion of ornamental fish trade; enhancement of marine and coastal areas through stocking of aquatic animals raised in hatcheries; unanticipated interactions between cultured and wild populations of aquatic animals; poor or lack of effective biosecurity measures; slow awareness on emerging diseases; misunderstanding and misuse of specific pathogen free stocks; climate change; other human-mediated movements of aquaculture commodities.

RISK ANALYSIS FOR AQUATIC ANIMAL MOVEMENT

The ability of aquaculture managers to identify risks and decide on mitigation or management strategies to deal with risks can be improved through the risk analysis process. Research, databases and other vital sources of information and knowledge are needed for risk analysis application, so that biosecurity assessments, surveillance, diagnostics, early warning, emergency preparedness and contingency planning can be effectively supported.

To use the structured step-wise risk analysis process, it is important to first identify the hazards followed by an analysis of the individual steps and critical events leading

to an introduction; assessing the risk pathways in terms of release, exposure and consequence; estimating the level of risk; and finally drawing up effective risk mitigation measures with a scope for option evaluation, implementation, monitoring and review. Communicating the risk clearly, carefully and rapidly is an essential step of critical importance.

FAO, the Network of Aquaculture Centers in Asia and the Pacific (NACA) and the Asia Pacific Economic Cooperation (APEC) started collaborative work in 2000, a product of which was the development of a pioneering manual on risk analysis for aquatic animal movement. Capacity building for Asian and Latin American and the Caribbean countries commenced.

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AQUACULTURE** *key facts*



NEW AQUATIC ANIMAL DISEASES ARE EMERGING AND SEVERELY AFFECTING AQUACULTURE - THE WORLD'S FASTEST GROWING FOOD PRODUCING SECTOR. ACUTE HEPATOPANCREATIC NECROSIS DISEASE IS AN EXAMPLE

IRRESPONSIBLE MOVEMENT OF LIVE AQUATIC ANIMALS IS A MAJOR PATHWAY FOR THE TRANSFER AND SPREAD OF TRANSBOUNDARY AQUATIC ANIMAL DISEASES

SERIOUS PATHOGENS SUCH AS WHITE SPOT DISEASE (WSD) AFFECTING CRUSTACEANS AND EPIZOOTIC ULCERATIVE SYNDROME (EUS) AFFECTING FINFISH ARE CLASSIC EXAMPLES

RISK ANALYSIS CAN BE AN EFFECTIVE MANAGEMENT AND DECISION-MAKING TOOL TO IDENTIFY, ASSESS, MANAGE AND COMMUNICATE DISEASE RISKS



As aquaculture is very diverse in terms of species, environment, systems and practices, the range of hazards and the perceived risks are complex. In 2007, FAO initiated a study to better understand the biosecurity concerns that pose risks and hazards to aquaculture development and management and to the aquatic environment and society. Seven risk sectors were identified: pathogen, food safety, genetic, environmental, ecological, social and economic risks (<http://www.fao.org/docrep/011/i0490e/i0490e00.htm>).

For close to 20 years now, FAO has been assisting its member states in developing risk analysis capacity for safe and responsible movement of live aquatic animals particularly focusing on pathogen risk analysis. Numerous training workshops have been conducted at regional and national levels in various parts of the world.

In 2012, FAO published the manual “[An Introductory Training Course: Risk Analysis for Movements of Live Aquatic Animals](#)”. This is now used as a basic reference presented in a format that can be easily adapted for use in short courses by regional and national experts charged with preparing risk analysis training course for local participants.

Using this tool and the recommended supplementary materials, managers will be able to train staff in the planning and supervision of risk analysis. As risk analysis is a complex subject best learnt

by experience, translocation scenarios are used to develop case studies used as course materials (<http://www.fao.org/docrep/015/i2571e/i2571e00.htm>).

During the last few years, FAO conducted this introductory course for several countries and regions, e.g.: Federated States of Micronesia, Suriname and Tonga; in Africa (Botswana, Ghana, Kenya, Malawi, Mozambique, Namibia, South Africa, Uganda, Zambia, and Zimbabwe); and more recently in the Western Balkan region (Bosnia and Herzegovina, Croatia, Macedonia, Montenegro and Serbia).

Providing this basic knowledge on the risk analysis process and how it can be applied, has led to raising awareness. A better understanding on the application of risk analysis to aquaculture production prevails now among government policy-makers, managers, technical officers, and private sector.

FAO has also developed regionally-oriented guidelines, e.g. the Asia Regional Technical Guidelines on Health Management for the Responsible Movement of Live Aquatic Animals and the Beijing Consensus and Implementation Strategy in collaboration with NACA. A regionally adopted health management programme is considered a practical approach because of similarities in social, economic, industrial, environmental, agro-ecological and geographical

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