

7 HEALTH CERTIFICATION AND QUARANTINE MEASURES

7.1 Purpose

The material presented in this section supports Section 7 of the *Technical Guidelines*.

7.2 General Considerations

In view of the current freedom from many serious diseases, documented disease introductions elsewhere, and the economic importance of fisheries and aquaculture industries, a compelling case exists for health certification and the quarantine of aquatic animals for the Asia Region. Health certification and quarantine should facilitate the movement of healthy aquatic animals, be practical, readily implemented, use available facilities (where possible) and be cost efficient. It should not pose unjustifiable or excessive restrictions on trade.

A minimum standard of health certification and quarantine should be applied to all movements, with increasing levels of stringency/conditions, as the risk of introducing disease increases. Classification into lower risk and higher risk categories is, therefore, essential.

Health certification and quarantine measures should be implemented on a case by case basis, taking into account all circumstances and factors relating to the proposed movement see (Boxes 7.1 and 7.2). A full disease history of the candidate species, including a detailed review of specific pathogens and their status in the country or region of origin, should be compiled.

Box 7.1 – Example of Quarantine Measures for First Time Introduction of a New (Exotic) Aquatic Species Destined for Release into Open Water for Culture Purposes.

Development of quarantine measures for a first time introduction requires a detailed knowledge of the disease status of aquatic animals within the region, as well as the nature and range of specific exotic diseases which may affect, or be carried by, the candidate species. A national or regional database, which can be continuously updated as new information becomes available (see Section 5.7) will greatly assist in this process. Freedom from disease concerns, in this case, is best assessed by holding and observing animals in quarantine facilities, whereby testing for infectious agents can be undertaken at the same time as protecting surrounding water and aquatic animals from exposure to the potential introduced species or any living effluent from its holding facility (various mechanisms exist to ensure effluent from quarantine facilities is sterile or directed away from surrounding waters for land-based disposal. Access to more specialized laboratories and resources may be necessary to diagnose certain diseases (for more details see Section 11.3).

NB. Strict quarantine facilities differ from quarantine holding facilities used for low risk or routinely transferred aquatic animal species.

Box 7.2 Low-Risk Movements

Animals have been moved routinely between growers from Bay X in Country Y to Country A for over 20 years, with no evidence of disease problems. When quarantine measures are introduced in Country A, it is assessed that this movement represents minimal risk, as long as there is no change in health status in Bay X. Thus, the quarantine measure imposed is entry into Country A via holding facilities to check for overt disease for a short period, plus an agreement with Country Y to report any health changes in stocks in Bay X.

Quarantine and health certification protocols should be developed in collaboration with fisheries scientists, veterinarians, quarantine authorities and industry stakeholders. An advisory authority on quarantine and health certification, including such expertise, should be formed to report to government and act as a forum for all issues relating to trans-boundary movement of live aquatic animals (see Section 10 – Import Risk Analysis, Introductions and Transfers Committees).

Since development of quarantine and health certification protocols requires detailed knowledge of the disease status of aquatic

animals within the region, national and regional databases should be developed and

updated as new information becomes available (see Section 5.7). While such databases are under development, disease status can be assessed by holding shipments of aquatic animals in quarantine and, where appropriate, treating them. Access to specialized laboratories and resources may be necessary to diagnose certain diseases (See Section 6.3, OIE Reference Laboratories, and Section 6.4, Regional Resource Centers).

Quarantine and health certification considerations should be treated separately from ecological/environmental or genetic concerns, since the latter do not, normally, fall within the capability of aquatic animal health specialists.

7.3 Health Certification Process

Health certification provides documented assurance that a stock of live aquatic animals to be moved from one area to another (usually trans-boundary) is free of disease agents of concern to the importing country. Such certification also provides documentation for the shipper, in the case of a subsequent disease outbreak. Both aspects of certification assist effective tracing of the source of infection and the control or prevention of repeat infections. Two examples of internal (within country) health certification processes currently used in the Asian Region are given in Boxes 7.3 and 7.4.

Box 7.4 Health certification for shrimp postlarvae in the Philippines.

Marketing of shrimp postlarvae is being undertaken by the industry through a selection system using a set of criteria mutually agreed upon by farmers and hatchery operators to determine fry quality. The criteria is based on postlarval physical characteristics, such as muscular development, rostral spine number (age determination) and microbial load (bacterial and protistan epibionts). Viral diseases that can be detected rapidly through squash microscopy, and other techniques such as PCR for WSSV screening, are also included. The health certificate issued by a government or private laboratory becomes the basis for *acceptance or rejection of the batch of postlarvae*.

Box 7.3. Example of an Internal Health Certification Process

"The Marine Products Export Development Authority (MPEDA) in cooperation with the Ministry of Agriculture (Department of Animal Husbandry & Dairying), is embarking on a major self-certification program by the hatchery operators to promote trade of shrimp larvae for use in stocking farms.

The long-term objective of self-certification is aimed at the private sector, including farms. The goal of this government and private sector collaboration is to promote responsibility for production of healthy stocks by the shrimp hatcheries and, thereby, sustainable markets".

Certification, by definition, means that the signing authority takes responsibility for the accuracy of the statements made on the certificate. This is especially important when the certificate is a condition for issue of a transfer license under an established legal framework. This means that the signing authority has a legal, as well as moral, obligation to ensure that the statements included in the certificate are accurate to the best of his/her knowledge. Thus, the signing authority must have direct experience, or authority over employees who provide the scientific advice upon which the authority decides whether or not to sign a health

certificate. This requires:

- training in aquatic animal diseases of concern to importers,
- accurate knowledge of the health status of the source of the exports being certified, and
- accurate knowledge of the health status of the same/related species in the receiving (import) waters.

Certificates signed by personnel with inadequate training and experience provide little assurance against disease transfer. Such certificates are a liability to both the importer and exporter. It should also be noted that border checks for gross signs of disease, which currently form the basis for issue of health certificates in many countries, are of little value in detecting most aquatic animal pathogens.

In many countries, current infrastructure may not permit immediate improvement of health certification and quarantine procedures. In addition, many living aquatic animals (e.g., shrimp postlarvae and broodstock, fish fry and fingerlings, and live fish for direct consumption) pose logistical complications for effective post-border quarantine processing. For such cases, an accurate pre-border risk assessment is the pivotal factor for deciding what level of quarantine is necessary. Alternative procedures, such as accreditation of hatcheries, grow-out facilities, holding establishments etc., should also be considered as mechanisms to reduce the risk of trans-boundary introduction of aquatic animal pathogens.

7.4 Quarantine Process

Minimum quarantine requirements

Minimum quarantine requirements are those applied to all transfers or introductions assessed as having minimal risk of disease transportation. Additional measures will be required for cases with higher risk of disease transfer (Section 10). Minimum quarantine requirements include, but are not necessarily limited to:

- some mechanism of assurance (e.g., pre-border health certification) that the source is free of diseases of concern;
- border Level I examination for gross signs of disease/ill-health; and
- shipment rejection, or border containment, of any shipments showing signs of disease/ill-health that are not likely to be attributable to shipping stress or damage.

Levels of risk can be minimized through biological awareness, as well as physical infrastructure. Eggs, embryonic or juvenile life stages should be selected for transfer, where possible, since these generally carry fewer primary or sub-clinical infections than do adult aquatic animals, and they are generally easier than adults to maintain under quarantine conditions.

Candidate stocks should be transferred on a batch-by-batch basis, where a batch is defined as a group of animals of the same age, from the same population, and maintained as a discrete group. Mixing of animals, water or equipment between batches means that, for disease-screening purposes, those batches must be considered as a single batch (see also Section 8).

Duration of quarantine

It is not possible to stipulate the duration of quarantine evaluation or containment, since this will vary depending on the candidate species and the risks associated with its movement. Most protocols for international introductions recommend spawning under quarantine containment conditions, with release of the F1 generation after the broodstock has passed health surveillance/diagnostic screening (e.g., see ICES 1995). This is applied mainly to first-time introductions or high-risk introductions. Introductions from sources that have passed a quarantine containment process may receive “approval” status (see Section 8 – Disease Zoning) if conditions do not change at the export site, reducing further quarantine requirements/duration.

Pre-transfer quarantine

Animals destined for transfer should be placed in a quarantine facility for health examination, certification and disease testing, as required. Any therapeutant used must be reported to the Competent Authority (CA) of the importing country. Health examinations should include sub-sampling for pathogens at least once prior to transfer. The cause of any disease detected should be determined or the transfer aborted.

Post-transfer quarantine

Animals should enter quarantine in the importing country for health examination and disease testing. Depending on the risk assessment of the source, sub-samples may be taken for

examination for specific infectious agents of concern. Any animal that shows signs of disease should be examined, and the cause of the disease determined. If the cause cannot be determined, or if pathogens or parasites of concern are found, the transfer should be aborted and transport materials disinfected or disposed of in a sterile manner. Closed circulation quarantine containment facilities, used for higher risk transfers, should be thoroughly disinfected following detection of disease.

Quarantine inspection procedures

To ensure compliance with all import conditions, each consignment of animals should be inspected on entry by an official appointed by the importing authority. The CA may have additional responsibilities to inspect for requirements other than health (contamination by other organisms, human health requirements, etc.).

7.5 Pathogen Containment Facilities

A pre-transfer facility should ensure minimal exposure to infection risks at the export site. Post-transfer facilities should ensure prevention of escape of any animals or their disease agents into waters of the importing country prior to health screening.

Physical security

Quarantine containment facilities used for introductions of high or unknown risk should be capable of preventing:

- entry by unauthorized people,
- loss or release of quarantined animals, and
- loss of contaminated water or equipment.

The facility should be located within, or close to, existing fisheries or animal health facilities and, preferably, should have 24 hour supervision. The facility should be lockable and access restricted to designated personnel.

Containment facility location

Tanks, ponds, pools or other containers of an appropriate size and volume for the aquatic animal species in transit should be isolated from aquaculture facilities, and municipal and open waters. Construction and siting should be such that, in the event of an accidental spill or discharge, no water, animals or equipment will gain access to surrounding waters.

Intake water

Intake water should be obtained from a clean, unpolluted source to prevent physiological stress or masking of infectious agents by opportunistic infections. Incoming water should be filtered, wherever possible, for pre-transfer quarantine, to prevent exposure to infectious agents during the pre-transfer. This is not required for the post-transfer facility, however, filtered influent water is recommended for containment of high or unknown health risk animals. This helps in identifying the source of any disease outbreak that may occur during the quarantine containment period.

Discharge water

All water leaving a post-transfer quarantine facility should be regarded as potentially infected. Thus, effluent from high-risk aquatic animals should not be discharged directly into surrounding waterways. Effluent containment in a sump, reservoir or pond which permits chemical disinfection, or discharge into a land-based pit or pond, is recommended for such cases. Any chemically disinfected (e.g., chlorinated) water should be neutralized prior to release into the environment.

Containment facility equipment

All equipment used for high disease-risk transfers/introductions (e.g., nets, containers, pipes, hoses, pumps) should remain within the containment facility and not removed or used for any other purpose unless disinfected.

Containment facility laboratory area

An enclosed area, which can be used as a laboratory, is necessary to prepare samples and, where possible, undertake microscopic examinations, during quarantine evaluation of high-risk transfers/introductions. Containers and reagents should be available to permit sample dispatch to diagnostic laboratories for examination, if necessary. Samples leaving a high-risk quarantine containment facility should be delivered by approved quarantine personnel or be preserved and secured for handling by non-quarantine personnel (clear handling and delivery instructions, sealed water-proof containers, documentation, etc.).

7.6 Disease Diagnosis and Health Examinations

Gross examination for evidence of disease is a minimum requirement for minimum quarantine measures. Microscopic examination for surface parasites can also be readily undertaken by personnel with basic training in fish health and access to dissecting and compound microscopes. Such training should include recognition of the broad taxonomic groups of protistan and metazoan parasites of fish and aquatic invertebrates, as a basis for treatment.

All animals that die or appear unhealthy should be examined. Access to specialized laboratory facilities, and/or personnel with experience in fish and shellfish diseases, is necessary if disease problems cannot be resolved within the quarantine facility. OIE Reference Laboratories and Regional Resource Centers with expertise in microbiology and pathology exist in many countries within the region. (For current information on these laboratories, contact the NACA Secretariat.) In addition, a number of illustrated textbooks and diagnostics manuals are available as reference resources (e.g., Tonguthai *et al.* 1999, FAO/NACA 2000).

Examination of healthy animals may be required to screen for sub-clinical infections. This is the case for introductions or transfers that have been assessed as being of high or unknown health risk. At least one such examination should be conducted pre-transfer and at least one other examination made post-transfer. The number of animals sampled should be in accordance with standard sampling procedures. This typically requires the use of specific diagnostic procedures and tests and the use of quarantine containment laboratory facilities.

Freedom from specific diseases

A checklist of diseases and parasites known to affect the candidate species should be used as the basis for health certification of freedom from such diseases.

Treatment

Many diseases, especially the common diseases caused by external parasites, can be treated with readily available treatments (e.g., salt baths, fresh water, formalin). Other registered treatments may be available, but may require veterinary prescription or administration. Many organisms, especially internal agents, cannot readily be treated. It should be noted that the misuse of chemical treatments can cause additional health complications, such as the development of antibiotic-resistant strains of bacteria. Chemical therapy should, therefore, be used with due caution and expert advice. Wild stocks are particularly susceptible to outbreaks of external parasites. This can be prevented by an initial treatment of animals entering a quarantine facility or by careful monitoring and husbandry modification (e.g., temperature reduction, decreased feeding regime or holding density).

7.7 Capacity and Institutional Implications

Diagnostic expertise is required to support health certification initiatives and improvements. This expertise should report to the Competent Authority. The signing authority for health certification should either have direct diagnostic capability or have direct supervisory responsibility for such expertise.

Personnel who specialize in aquatic animal health and disease diagnosis, and who have received specific training and have accumulated experience in this field, significantly enhance the quarantine and health certification process. Personnel with terrestrial or human health diagnostics training can adapt their experience to aquatic animal health diagnosis, but require specific training to be effective and accurate. Rapid employee turnover in any quarantine or certification program is highly detrimental to effective aquatic animal health management.

A legislative framework or national policy should be in place, which can be used to ensure compliance with health certification or quarantine procedures. Some measure of enforcement is required, such as inspection capability and documentation verification (e.g., nationally approved health certification signatures).

High or unknown health risk transfers or introductions (e.g., from areas where exotic diseases are known to occur) should only take place where full containment facilities and support services (diagnostics capability, security, inspection) are in place. Where facilities are currently limited to minimum quarantine requirements, only low risk introductions and transfers should be approved.

7.8 References

- FAO/NACA. 2001. Asia Diagnostic Guide to Aquatic Animal Diseases. FAO, Rome, and NACA, Bangkok, (in press).
- ICES. 1995. ICES Code of Practice on the Introductions and Transfers of Marine Organisms 1994. International Council for the Exploration of the Sea, Copenhagen, 12 p.
- OIE. 2000. Diagnostic Manual for Aquatic Animal Diseases. Office International des Épizooties, Paris, 237 p.
- Tonguthai, K., S. Chinabut, T Somsiri, P. Chanratchakool and S. Kanchanakhan. 1999. Diagnostic Procedures for Finfish Diseases. Aquatic Animal Health Research Institute, Bangkok.