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Thailand's Current Quarantine Status on Aquatic Animal Diseases

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Abstract

An awareness of aquatic animal diseases spread through an international trade has been increasing since the first edition of OIE on Aquatic Animal Health Code in 1995. How to control the diseases through an international trade and a development of national strategy for controlling the diseases had been discussed in great details among representative from 21 Asian governments during a three years (1998-2000) seminar and workshop program organised by NACA. As part of the region, the strategic plans for aquatic animal health management in Thailand have been developed. Presently, Thailand has over 21 import/export regulations announced through Emergency Decree, Royal Decree, Ministerial Regulation, Notification or Rule to control the movement of certain aquatic animals both from importation and exportation. The aquatic animal disease quarantine enforcement is based on the Animal Epidemic Act B.E. 2499 (1956) and Fishery Act B.E. 2490 (1947). The Department of Fisheries has developed an importation of live aquatic animals under quarantine enforcement framework, which is based on disease control program and disease surveillance. The quarantine measures include pre-arrival, arrival at the entry port and post-arrival of aquatic animals that will be discussed. Koi herpesvirus disease surveillance system has been in place since August 2002 and Thailand is still free.

Key words: aquatic animal quarantine, koi herpesvirus, KHVD, trans-boundary disease, import requirement

Introduction

Movement of aquatic animals has been generally recognized as a high risk of transferring the diseases and pathogens from one area to another. A review from scientist indicated that an international fish trade has spread diseases to many countries for years (Håstein, 2000). In case of Thailand, an introduction of Chinese carps (*Hypopthalmichys molitrix, Ctenopharyngodon idellus, Aristichthys nobilis*) for food fish culture in the past also introduced *Lerneae* parasites into the aquatic ecosystem. Importation of ornamental fishes also introduced many new pathogens such as *Hexamita* and *Tetrahymena*. The occurrences of ranavirus infection in tadpole, frog and fish cultured in Thailand might come from the healthy aquatic animal carriers that imported into the country. Some pathogens have a wide host ranges including food fish and ornamental fish. The susceptible hosts exhibit disease clinical signs and death. However, the resistance host or the disease-recovered fish will possible serve as reservoir or carriers of the parasites. An introduction of shrimp from China caused WSSV

epidemic. An illegal importation of Pacific white shrimp caused TSV outbreaks in Thailand. Solving problems of trans-boundary pathogens or diseases in a systematic way, the "*Thailand National Strategy for Control of Aquatic Animal Diseases*" has been developed after the seminar among staffs from Department of Fisheries (DOF), Department of Livestock Development (DLD), University, Private Sectors and Farmers in Bangkok in May 2001. The strategic plans are listed as follows; (1) law and legislation, (2) import/export regulation, (3) disease surveillance, monitoring and control systems, (4) aquatic animal diseases; research & development, (5) diagnosis units; capability building, (6) technology/knowledge transfer, (7) public awareness, (8) contingency plan to control disease outbreak and (9) funding support. The strategic plans have been implementing with a good progress.

Ways forward to control aquatic animal diseases

Law and legislation for controlling aquatic animal diseases have been developed under the existing the Animal Epidemic Act in June 2003. Twenty seven aquatic animal diseases are listed under this Act to be controlled in the country. A joint working group between DOF and DLD has been appointed and this group has been working in details on how to apply the law to control the aquatic animals and their diseases. Beginning on July 1, 2004, this Animal Epidemic Act has been implementing to control aquatic animal diseases.

Current Quarantine Measures

The Department of Fisheries (DOF) has established a strategy plan to control trans-boundary movement of aquatic animal diseases using quarantine measures. Fish Quarantine Inspector conducts inspection services at the port of entry. All live aquatic animal shipments are inspected at the port, then they will be sent to quarantine for at least 15 days at the quarantine facility that passed the standard biosecure. During the quarantine period, Fish Health Inspector will visit and conduct health inspection of the imported animals at the quarantine facility. The Fish Health Inspectors are Fishery Biologist or Fish Pathologist assigned by DOF. We use diagnosis Level III for disease diagnosis of the imported aquatic animals. Steps for live aquatic animal importation into Thailand summarized as follows;

- Pre-importation: facilities of Thai aquatic animal farms or companies have to achieve the quarantine standard of the DOF before receiving an import permit.
- Arrival of aquatic animals and their gametes at the port: the imported animals and their gametes must be accompanied with Certificate of Origin and Health. The fish will be subjected to quarantine at the certified quarantine areas of the importing farms or companies.
- Post-importation: aquatic animals will be quarantined for at least 15 days. Fish health inspectors will examine the animals for diseases listed in the OIE, koi herpesvirus and other contagious pathogens. If serious pathogens are found, the animals and their gametes will be destroyed without compensation. If the fish are free from listed diseases, the importation procedures are completed. However the fish still need to be kept in the quarantine until 15 days quarantine period.

Requirements for Importation

The Department of Fisheries (DOF) has set up a new regulation to prevent and control aquatic animal diseases through importation. The imported live aquatic animals subject to be quarantined at the approved quarantine zone of the importing companies for at least of 15 days. Health inspectors will inspect the animals in the quarantine zone and will take samples for laboratory tests. A health certificate must be presented at the port of entry together with the aquatic animal

shipment. The health certificate must be issued by competent authority, signed by veterinarian or authorized officer and contained information as follows;

1. Name and address of consignee.
2. Name and number (scientific and common name) of aquatic animals.
3. Origin of the aquatic animals exported.
4. The aquatic animals must come from a country, a zone or a farm establishment where they are submitted to a health supervision set up to operate according to the procedures described in the "*Diagnostic Manual for Aquatic Animal Diseases*" from *Office International Des Epizooties* (OIE) and that this country, zone, or farm establishment is recognized officially unaffected by the OIE listed diseases. If the test methods of any diseases are not designated in most recent edition of the OIE Diagnostic Manual, test methods of the disease which having been published in international science journals shall be used and must be states in the certificate.
5. The exported animals must not come from the sources that had an un-usual mortality during the previous three months, which the causation could not be explained.
6. Before exportation, the animals must be quarantined for 7-10 days and treated with chemicals to remove all external parasites.
7. The exported animals must certify as indicated in the following table (Table 1);

Table 1. Types of l diseases or pathogens needed to be certified and stated in the health certificate.

Type of aquatic animals and their gametes to be exported	**Type of diseases or pathogens**
Freshwater fish	-Epizootic haematopoietic necrosis virus -Iridovirus disease or Ranavirus disease -Viral haemorrhagic septicaemia -Spring viremia of carp virus -Koi herpesvirus disease
Marine & estuarine fish	-Red sea bream iridovirus disease -Viral encephalopathy and retinopathy
Mollusks	-Bonamiosis -MSX disease -Marteiliosis -Mikrocytosis -Perkinsosis
Crustaceans	-Taura Syndrome virus -White spot syndrome virus -Yellowhead virus -Infectious hypodermal and haematopoietic necrosis virus
Amphibians	-Iridovirus disease or Ranavirus disease -Epizootic haematopoietic necrosis virus
Reptiles	-Iridovirus disease or Ranavirus disease -Poxvirus

Background of common carp and koi carp cultured in Thailand

There were 3 culture systems for common carp, pond, ditch and cage systems. For pond culture system, farmers normally raised the carp with other fish species (poly-culture system) or with other animals (integrated culture system). For paddy-filed culture system, the farmers cultured the carp in the rice paddy field during the rice crop. For ditch culture system, carps were cultured in the ditch in the fruit or vegetable plantation. According to Fishery Statistics Analysis and Research Group (2001), Freshwater aquaculture farms recorded were 389,374 farms (pond culture 355,624 farms, paddy field culture 14,829 farms, ditch 7,165 farms, cage culture 1,207 farms) in Thailand. The total freshwater aquaculture production and value were 279,696 ton and 9,279.8 million Baht. There were ~17,465 common carp culture farms (pond culture 15,693 farms, paddy-filed culture 1,723 farms, ditch culture 49 farms) recorded in year 2001. 90% of common carp farms were pond culture system and there was no record of common carp cage culture in Thailand in 2001. The common carp production and value during year 2001 were 4,773 ton (pond culture 4,026 ton, paddy-field culture 736 ton, ditch culture 10 ton, cage culture 0.5 ton) or 146,658 Baht in value.

The carp can be found in the wild, canals and rivers. There was no statistic value for the wild caught carp as the quantity and value were very low.

Generally, fish farmers obtained the carp seeds form government hatcheries or private hatcheries. Thailand introduced common carp from China about 100 years ago. There was no record of common carp exportation out of Thailand. Common carps were mainly used for local Chinese people consumption and their pituitary glands were used for artificial fertilization in fish hatcheries. In the past or ~20 years ago, the pituitary glands of the common carp were highly demanded form fish hatcheries. Since the synthetic hormones gave similar stimulation on gonad maturation, the demands for pituitary gland of the carp reduced.

Koi carp production in Thailand has been increasing during the past 3-5 years. Thailand is located in tropical zone and the average water temperatures are warm (28-32°C) through out the year. Kois rapidly grow and have a low risk against cold-water diseases such as Spring viremia of carp virus (SVCV) and koi herpesvirus (KHV). There is no record for koi production in the country. Koi carps are cultured in earthen pond, concrete pond and cage. The koi brooders are from local source as well as imported source from Japan. Thailand exports koi to many countries. Since the outbreak of SVCV and KHV in some countries in the region, koi exportation of Thailand is getting high.

Koi Herpesvirus Disease (KHVD) Status

Thailand started the KHVD surveillance program since August 2002 or just a few months after the first outbreak of koi mass mortality in Indonesia. Since then Thailand is still free form KHVD. The Department of Fisheries (DOF) also developed a rapid response or gave a high priority to investigate any disease cases reported by the fish farmers or by the provincial fishery officers regarding to the mass mortality or unusual death of kois or common carps. At the moment, we do KHVD survey using virus isolation in KF-1 and BF-2 cells and PCR detection.

Summaries

The Department of Fisheries has been intensively working on *Thailand National Strategy for Control of Aquatic Animal Diseases*. Several working groups have been assigned to develop rules and implementation systems. Training workshops have been given to different groups of Fishery Officers.

The DOF called a few meetings with importers and exporters for understanding the necessary of the new regulations. Starting on July 1, 2004, all importations and exportations of aquatic animals and fishery products are regulated under the new rules of the Animal Epidemic Act for strengthening disease control. Staring on November 1, 2004, all importations of aquatic animals must follow the above three steps of importation that has been already notified to the WTO (notification # G/SPS/N/THA/114 dated September 17, 2004).

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