Koi Herpes Virus (KHV): an Asian problem?

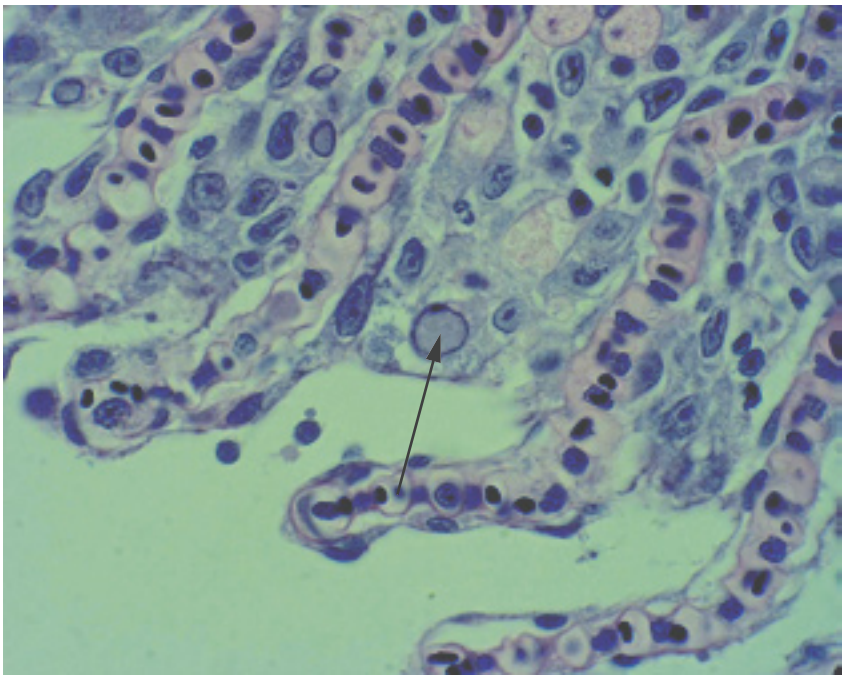
prepared by
Rohana Subasinghe
Senior Fishery Resources Officer (Aquaculture)
Fisheries Department, Rome
rohana.subasinghe@fao.org

Since the second quarter of 2002, Indonesia has been facing a serious epizootic that is causing large-scale mortalities among cultured common and koi carp *(Cyprinus carpio)* populations. This national epizootic, which first occurred in ponds, raceways, and floating cages in open waters in central Java and is now spreading both northward and southward, has created significant concern about the possibility of an international epizootic that could affect several neighboring countries. The lost revenue of the sector and the socio-economic impact to the rural farming communities have been so far estimated as >US$ 5.5 million (50 billion Indonesian Rupiah; 1 US$ = 9 000 Indonesia Rupiah).

At the request of the Government of Indonesia, an International Emergency Task Force[1], formed by the Network of Aquaculture Centres in Asia-Pacific (NACA), conducted a preliminary assessment of the disease situation in July 2002. The goal of the Task Force was to assess the situation, determine the aetiology and provide advice and recommendations to the Government of Indonesia on how to control the epizootic. As a follow-up to the Task Force activities and in response to a request made by the Government of Indonesia, FAO provided assistance through a Technical Cooperation Programme (TCP) project to find solutions to deal with this serious situation.

Although the Task Force conducted many laboratory examinations, it was unable to confirm the disease agent as Koi Herpes Virus (KHV); however, all other indications, including histology and epidemiology, led the Task Force to believe that this is the case.

KHV is a serious disease causing significant losses and has been reported from several countries around the world. Although the disease is not a "Listed Disease" in the Office International des Épizooties (OIE) Aquatic Animal Health Code (http://www.oie.int/eng/normes/en_acode.htm), an emergency notification regarding this outbreak was provided to OIE by the Indonesian Government in June 2002.



R. Hedrick, UC Davis

Koi herpes Virus (KHV) Hyperplasia and fusion of secondary gill lamellae; intranuclear inclusion (arrow) in the branchial epithelium (gill section stained with hematoxylin and eosin)

The on-going mass mortality of cultured common and koi carp populations in Indonesia brings significant trade implications to the Indonesian aquaculture sector. Both common carp and koi carp are widely traded within Indonesia, between countries in the region, and outside Southeast Asia, and therefore this trade poses a considerable risk of initiating a transboundary epizootic. Common and koi carp are important commodities, as foodfish and as high-value ornamental fish, respectively. Many rural communities depend on these fish to support their livelihoods, both in Indonesia and in several neighboring countries. Effective control measures, quarantine procedures, and responsible movement of live animals are all important to avoid potential outbreaks. Careful diagnosis, confirmation of aetiology, identification of risk factors, development of effective surveillance programmes, establishment of early warning and monitoring systems, emergency preparedness and contingency planning for future outbreaks, development of control measures (including potential vaccines and therapy), effective extension, educational programmes and capacity building for farmers/producers in order to combat the disease are all essential to reduce the risk of this potential transboundary epizootic The Task Force believes that rapid and concerted action by the relevant international research and developmental agencies and the private sector is essential to assist Indonesia in controlling this serious epizootic and to regain both consumer and producer confidence.

Melba Reantaso

Melba Reantaso, Oxford laboratory, DNR, Maryland

Koi (top) and common carp (bottom) infected with KHV

More recently, in May-June 2003, an outbreak of KHV also occurred in common and koi carp in Okayama Prefecture, western Japan. This outbreak has since spread to several prefectures, and the Government of Japan is currently trying to control it.

---

[1] The International Emergency Task Force was composed of an epidemiologist, an aquatic animal health specialist and a virologist, and was supported by a Local Task Force and a number of participating experts, institutions and laboratories. The work of the Task Force was jointly supported by NACA, the Australian Centre for International Agricultural Research (ACIAR), and Indonesia's Ministry of Marine Affairs and Fisheries.