

## DISEASE SURVEILLANCE IN MARINE FISH FARMED IN GUANGDONG, CHINA

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An epidemiological study was conducted to investigate the prevalence of viral, bacterial and parasitic diseases in tropical marine fish farmed in southern China. The fish farms chosen in this study represent typical traditional mariculture in Southeast Asia: wooden cages, stocked with multiple species, fed with trash fish, family-owned and located in a highly congested area with poor water circulation. Between July 2003 and April 2006, various species of marine fish, including groupers (*Epinephelus coioides* and *E. areolatus*), snappers (*Lutjanus argentimaculatus*, *L. stellatus*, *L. sebae* and *L. erythropterus*), yellow croaker (*Pseudosciaena crocea*), Chinese bahaba (*Bahaba flavolabiata*) and pompano (*Trachinotus ovatus*), were sampled from net cages in the Huidong and Yangjiang areas of Guangdong province. Clinically normal, abnormal and freshly dead fish were sampled for evidence of viral, bacterial and parasitic infections. Different media were used for the isolation of bacteria. Viral infection was determined by PCR and cell culture. Parasite investigations were done by microscopical examination.

During the July – November 2003 period in Huidong, a majority (84%) of fish sampled were infected with one or more pathogens of viral, bacterial or parasitic origin. The infection rates were 54%, 48% and 54% for viral (iridovirus and nodavirus), bacterial (*Streptococcus iniae*, *Tenacibaculum maritimum* and *Nocardia seriolae*) and parasitic (*Cryptocaryon irritans*, *Benedenia* spp., Microsporidia and *Pseudorhaboduschus* spp.) infections, respectively. The study in Huidong was terminated because of a typhoon disaster which destroyed most of the cages in that area.

In April 2005, the investigation restarted on a new site (Yangjiang) for duration of 1 year. The disease situation in Yangjiang was similar to Huidong in a sense that various pathogens were present in the same farm and affected a number of cultured species. The following bacterial pathogens were isolated: *S. iniae*, *S. dysgalactiae*, *Pasteurella damsela* subsp. *piscicida* (in cold season), *N. seriolae* and *T. maritimum*. The presence of iridovirus could be detected in seven fish species by using different primer sets (SGIV, TFV and ISKNV). The main species of parasites infecting marine fish in Yangjiang were monogenean trematodes and *C. irritans*. A cryptocaryonosis outbreak in September 2005 caused over 65% mortality in pompano, grouper and yellow croaker within two weeks.

The present study indicates that infectious diseases common in marine fish cultured in Southern China pose a tremendous threat to the fish farming industry. Some of the fish were co-infected with multiple pathogens. The use of chemotherapeutic agents has not been effective. The farming environment and health management practice must be improved to keep the industry profitable and sustainable.