

**For discussion  
on 16 September 2003**

**LegCo Panel on Food Safety and Environmental Hygiene**

**Discovery of *Vibrio Cholerae* in Retail Fish Stalls and  
the Quality of Fish Tank Water**

**PURPOSE**

This paper briefs Members on (i) existing control and monitoring of seawater in fish tanks used for keeping live seafood, (ii) investigations into recent incidents of discovery of *Vibrio cholerae* in retail fish stalls, and (iii) further measures taken/to be taken to promote fish tank water quality and seafood safety.

**EXISTING CONTROL AND MONITORING SYSTEM**

***Legislative Provision***

2. Under section 10A of the Food Business Regulation (Cap 132 sub leg X), no person shall in the course of any food business keep any live fish or shell fish intended for human consumption in water of a quality below the standard specified by the Director of Food and Environmental Hygiene by notice published in the Gazette. The specified standard is “*E. Coli* less than 610 per 100ml and absence of pathogenic organisms”. Anyone in breach of the provision is liable to a maximum fine of \$10,000 and imprisonment for three months upon conviction.

***Arrangements for Inspecting Retail Fish Stalls***

3. In accordance with the licensing requirements/conditions and market tenancy conditions of Food and Environmental Hygiene

Department (FEHD), licensed food premises and market stalls are required to install proper filtration and disinfection facilities to filter and disinfect water used for keeping live marine fish or shell fish intended for human consumption. Licensees/stallholders are also prohibited from using flushing water for keeping live marine fish or shell fish. Supermarkets and fresh provision shops selling live marine fish are covered by FEHD's inspection.

4. FEHD officers inspect market fish stalls once every eight weeks. As for supermarkets, fresh provision shops and restaurants, the inspection frequency will depend on the risk classification of the premises concerned, ranging from once every four weeks for premises with higher risks to once every 12 weeks for premises with lower risks. During inspections, FEHD officers check, among other things –

- (a) whether proper filtration and disinfection systems are installed;
- (b) whether these systems are working properly;
- (c) whether flush water is used for keeping live marine fish/shell fish; and
- (d) whether the fish tanks and their surroundings are clean.

FEHD officers also remind operators to arrange regular cleansing and maintenance of the filtration and disinfection systems.

5. From January to August 2003, FEHD issued 121 verbal warnings and two written warnings for breach of licensing requirements/conditions and tenancy conditions in relation to the quality of fish tank water. Irregularities were all rectified subsequently.

### ***Water Sampling and Surveillance***

6. In addition to routine inspections, FEHD collects water samples from all licensed food premises, including supermarkets, and seafood stalls for *E. Coli* testing once every eight weeks. Separately, two samples are collected for *Vibrio cholerae* testing every year, of which one is taken between June and August. Inspection of filtration and disinfection facilities will also be conducted when water samples are taken.

7. From January to August 2003, a total of 9,404 fish tank water samples were taken. 140 samples were found to contain *E. Coli* exceeding the legal limit of 610 per 100 ml. Another two samples (i.e. one from a market fish stall in Tokwawan Market and another one from a supermarket in Pok Fu Lam) were found to contain pathogenic *Vibrio cholerae*. Details of these two cases are provided in paragraphs 11 to 15.

### ***Guidelines for the Trade***

8. Following a comprehensive review on the control of fish tank water for keeping live seafood in 2002, FEHD drew up and issued detailed guidance notes to seafood operators to apprise them of the proper procedures for four common disinfection methods and management practices that should be observed for better quality control of fish tank water. Briefing sessions were also conducted and relevant pamphlets distributed to the seafood operators and suppliers of filtration and disinfection facilities. Furthermore, FEHD issued letters to fish tank water suppliers to remind them of the measures that they should adopt to ensure the quality of seawater delivered to seafood premises.

## **EDUCATION ON PREVENTION OF CHOLERA INFECTION**

9. Apart from the inspection, surveillance and sampling measures in place, we have all along attached great importance to public education on personal and food hygiene in preventing cholera infection from seafood. Educational measures include organisation of regular seminars and talks on food hygiene for the food trade, the general public and target groups such as domestic helpers and school children; distribution of publicity materials to the public and stakeholders; publication of relevant articles on the Food Safety Bulletin; dissemination of preventive tips through FEHD's telephone hotline system, broadcasting van, website and press releases. Every summer, educational pamphlets are issued to seafood operators and fish tank water suppliers to remind them of the measures that should be taken to ensure quality control of fish tank water.

## **RECENT CASES OF VIBRIO CHOLERAЕ**

10. Recently, two cases of presence of *Vibrio cholerae* in retail fish stalls were discovered by FEHD through its monitoring and surveillance system. The following is a brief account of the background and current position of these two cases.

### ***Case 1: Fish Stall at Tokwawan Market***

11. A water sample taken from a fish stall inside Tokwawan Market on 20 August 2003 was found to contain *Vibrio cholerae O1 EL Tor serotype Ogawa*. The stall was ordered to close on 26 August 2003 under section 128C of the Public Health and Municipal Services Ordinance (Cap 132).

12. Subsequent to the closure, FEHD took environmental swabs from the stall and water samples from the stall's supplier at Lei Yue Mun. No virulent pathogens were found from the swabs/samples.

13. It was noted that the ultra-violet disinfection system was not functioning properly when the initial water sample was taken on 20 August 2003. The tenant concerned installed a new ozone disinfection system after the closure of the stall. Water samples taken on 1 September 2003 indicated the absence of virulent pathogens. These preliminary investigation findings suggest that the presence of *Vibrio cholerae* in the water sample taken on 20 August 2003 might be caused by the malfunctioning of the ultra-violet disinfection system.

### ***Case 2: Supermarket Fish Stall in Pok Fu Lam***

14. A water sample taken from a fish stall inside a supermarket in Pok Fu Lam on 26 August 2003 was found to contain *Vibrio cholerae O1 EL Tor serotype Ogawa*. The stall was ordered to close on 1 September 2003.

15. Subsequent to the closure, FEHD took environmental swabs from the stall and water samples from the licensee's supplier at Apleichau.

FEHD is still in the course of detailed investigation and will not allow the fish stall to re-open until the Department is completely satisfied that the hygienic conditions there would not pose any risk to public health. Meanwhile, FEHD will take water samples from the re-opened fish stalls of the supermarket chain for laboratory tests.

## **FURTHER CONTROL MEASURES TO PROMOTE FISH TANK WATER QUALITY AND SEAFOOD SAFETY**

16. In the wake of the recent discovery of *Vibrio cholerae* in two retail fish stalls, we have revisited our surveillance programme and control measures in relation to quality control of fish tank water. In the interest of protection of public health and seafood safety, FEHD has stepped up inspection of live fish wholesale outlets and collected water samples for laboratory tests from individual stalls. Once the presence of highly infectious cholera bacteria is detected, FEHD will close the premises concerned on health hazard grounds under the authority conferred by section 128C of the Public Health and Municipal Services Ordinance (Cap 132).

17. Concurrently, the Agriculture, Fisheries and Conservation Department (AFCD) has implemented a water quality monitoring programme for live fish wholesale stalls under management of the Fish Marketing Organisation (FMO). This programme includes -

- (a) taking of water samples from wholesale stalls for testing of *Vibrio cholerae*;
- (b) requesting all live fish stallholders to install filtration and sterilisation system to reduce the bacterial concentration in fish tank water; and
- (c) educating live fish stallholders on how best to source fish tank water and to arrange filtration and sterilization, thereby ensuring compliance with the required standards.

18. The Administration's surveillance and enforcement in respect

of seafood safety has hitherto placed emphasis on the retail level. Retailers selling fish are required to hold a valid licence issued by FEHD and to comply with the licensing conditions. Such licensing requirements currently do not apply to the wholesale level. As the hygienic conditions and operations of wholesale fish stalls could also bear on seafood safety downstream, we plan to introduce a licensing scheme whereby fish wholesalers will be required to install sanitary fitments, drainage and disinfection facilities in accordance with standards set by FEHD. The licensing scheme will apply to both wholesale fish stalls managed by FMO and those outside its purview.

19. In the light of public and media concerns about the hygiene, food safety and venue management problems associated with the live fish wholesaling activities conducted outside the FMO Wholesale Fish Market in Aberdeen, we are working on practicable means of regularisation. At a recent inter-departmental meeting convened by Health, Welfare and Food Bureau and attended by representatives of FEHD, AFCD, Home Affairs Department, Lands Department, Environmental Protection Department, Planning Department, Marine Department, Transport Department, Architectural Services Department and the Police, it was broadly agreed that the regularisation scheme for the wholesale market at Aberdeen promenade should be able to -

- (a) result in orderly, hygienic, efficient and law-abiding wholesaling operations of live marine fish;
- (b) provide a level playing field for the incumbent wholesalers at the promenade and those operating inside the Wholesale Fish Market run by FMO;
- (c) pose strong incentives (or remove inherent disincentives) for the live fish wholesalers to use fish tank water from a source that does not put public health at risk;
- (d) contribute to reducing the risk of contamination by cholera or other highly infectious bacteria of seafood/fish tank water connected with wholesaling activities at the promenade;

- (e) provide effective solutions to long-standing district management problems in respect of traffic congestion, carpark management, unauthorised use of government land, environmental nuisances, marine littering, etc.;
- (f) ensure uninterrupted supply and distribution of live seafood to communities now served by the unauthorised wholesale market; and
- (g) bring about tangible and visible improvements on the ground, thereby enhancing the attractiveness of the promenade area as a tourist spot.

20. The inter-departmental group will consult the Southern District Council, the local community, the incumbent wholesalers and other interest groups involved on the details of the scheme.

21. The Administration recognizes that quality assurance of fish tank water is just one of the aspects in ensuring the seafood offered for sale at retail outlets and restaurants are fit for human consumption. For the longer term, we will review the adequacy of existing legislative framework and regulatory measures with respect to surveillance, examination and sampling of seafood in the food distribution chain. In the review process, we will seek expert opinions from local healthcare and veterinary professionals and draw on international best practices as appropriate.

**Health, Welfare and Food Bureau**  
**Food and Environmental Hygiene Department**  
**Agriculture, Fisheries and Conservation Department**  
**September 2003**