

6. Apply personal hygiene rules strictly to prevent contamination of fish. Smoking and spitting in work areas should not be permitted.
7. Water and ice samples should be analyzed as per testing schedule by certified laboratories.
8. The harbour should be free from litter and other wastes.
9. Check to ensure that all drainage systems are in good working order.
10. The harbour should be free of animals, rodents and pests.
11. Ensure that there are no bird nests in the fish handling area.



12. Check that wastes are being disposed of sanitarly.
13. Check cold storage equipment to ensure that the right temperature is being maintained.
14. Ensure that all precaution and warning signs are readable.

To optimize the microbiological quality of food, it is important to implement acceptable good manufacturing practices through adequate temperature control and training of personnel.



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MICROBIAL CONTAMINATION OF SEAFOOD



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Fish and fishery products are easily perishable items. Humans get infected with pathogens on consuming contaminated fish products. Infection of fish and fishery products can be avoided to a great extent if it is handled hygienically right from the time it is caught from the sea till it reaches the consumer.

Microbial action on seafood

As soon as a microbe comes in contact with a fish it starts multiplying within the fish body by deriving nutrients from fish. The microbe will keep on multiplying if the conditions are favourable for their growth.

Sources of microbial pathogens in seafoods

Sources of microbial contamination in seafood can be of two types – "Contamination at source" and "Cross contamination".

Contamination at source occurs due to bacteria that naturally occurs in marine environment or due to faecal contamination of sea water arising from sewage

discharges or from ships/boats or from direct defaecation.

Cross-contamination may take place due to unhygienic handling in the processing environment or during food preparation prior to consumption.

How can we protect seafood from microbial infection?

- If the temperature is kept always below 4°C, most of the microbes cannot grow or multiply. Hence it is highly essential to maintain a cold chain whole through the process of fish handling.
- Maintaining personal hygiene is most important in preventing cross contamination of pathogenic bacteria.
- Ice used for preserving fish should be made from good quality, pathogen free potable water.
- Containers used for the dispatch or storage of unpackaged prepared fresh fishery

products stored in ice must ensure that melt water does not remain in contact with the products.

- Apply a series of control measures according to the GHP and HACCP programs that contribute to providing safe products.

Checklist for ensuring seafood safety

1. Landed fish should not be exposed to the sun and should be properly iced.
2. Inspect fish for appearance and odour and reject fish of unacceptable quality.
3. Periodically perform bacteriological tests on representative samples.
4. Follow a cleaning schedule for all work areas and surfaces using chlorinated water.
5. Remove all fish slime and blood by hosing down with chlorinated water. At the end of the day, rinse all surfaces with clean water having 5 ppm of chlorine.

