

**REPORT ABOUT AN EFFORT TO OFFER MARINE PRODUCTS SAFELY BY HIGH-LEVEL
HYGIENE MANAGEMENT IN AN ADVANCED AREA.**

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ABSTRACT

High-level hygiene management for foods is highly required in Japan nowadays. In general, there are 5 stages in the flow of marine products; fishing, unloading, market, processing and distribution. Therefore it is important to take care the hygiene management at each stage of them. In this report, the most advanced case in Japan implemented in Shibetsu Town in Hokkaido prefecture is presented, where the local officials and workers at each stage are cooperatively making an effort to offer comprehensive hygiene management, "Regional HACCP".

First, potential hazards included in the marine products were identified. Next, all kind of hazards at the each stage (from fishing to distribution) were listed from biological, chemical and physical point of view.

As measures for hygiene management, following actions have been executed by cooperation of local officials and townspeople. 1) Making an manual for hygiene management at each stage. 2) Worker's health care. 3) Hygiene education for workers. 4) Environment protection activities as whole area (livestock waste. control etc). 5) Relocating the fishing port facilities for efficient utilization, which facilitate the preservation of freshness and minimize the risk of miss-including poison. Finally, a comprehensive hygiene management system was completed.

This system has attracted great attention from all other areas in Japan.

Keywords: Distribution, HACCP, safety of foods, fishery, hygiene management

1. INTRODUCTION

High-level hygiene management for foods is highly required in Japan nowadays. In general, there are 5 stages in the flow of marine products, fishing, unloading, market, processing and distribution. Therefore it is important to take care the hygiene management at each stage of them.

Shibetsu Town is located at eastern Hokkaido on the shore of the Sea of Okhotsk (Fig-1). There is one of the largest salmon productions by fixed nets in Japan, and also plenty of scallop productions by beam trawl nets. In 1998, the O-157 crisis of salmon roe occurred in this area and it severely damaged the marine products and reputation. Therefore local officials and workers started on the Shibetsu Region HACCP (Hazard Analysis Critical Control Points) project to recover fishery production and reputation.

The purpose of this project is to develop high-level hygiene management system to ensure marine product safety. And this system is to cover all stages of food production from fishing to distribution. In this paper, we provide outline of the Shibetsu Region HACCP project of the most advanced case in Japan.

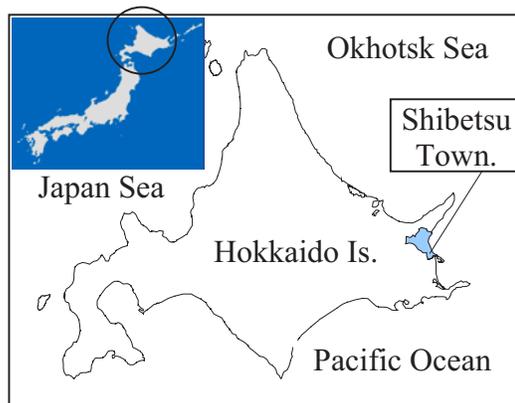


Fig-1 Shibetsu-town, location map

2. Identifying the potential hazards that included in the marine products

In general, potential hazards of marine products are considered three parts.

- 1) Biological Hazards,
- 2) Chemical Hazards,
- 3) Physical Hazards.

An example of salmon product is presented in Table 1.

Table-1 Potential hazards of marine products (salmon product)

Method of Processing and Cooking	Package Type	Hazards	Fishing	Fish market	Processing plant	Transport	distribution	Consumer
Raw fish(unheated before eat)	Salmon roe, using SUSHI etc.	Biological	Pathogen and Parasites	Pathogen	Pathogen	Pathogen	Pathogen	Pathogen and Parasites
		Chemical	—	—	Cleanser, disinfectant	—	—	Cleanser, disinfectant
		Physical	—	—	—	—	—	—
Raw fish(heated before eat)	Slightly salted salmon, fillet etc.	Biological	Pathogen	Pathogen	Pathogen	Pathogen	Pathogen	Pathogen
		Chemical	—	—	Cleanser, disinfectant	—	—	Cleanser, disinfectant
		Physical	—	—	—	—	—	—

3. Outline of the Shibetsu Region HACCP project Action plan

+An action plan at each stage for identifying the potential hazards is as follows. Figure 2 shows the outline of the Shibetsu Region HACCP project. This action plan suggests:

- 1) **Producer (Fishing, Unloading)**
 - Preserving clean crush ice in a clean tank of ship.
 - Measuring temperatures of water of fishing place, water of tank and fish body to confirm the products' freshness.
 - Watching stocked fish's temperature being below 10 degrees.
- 2) **Local market**
 - Avoiding fish products to be put on a floor directly.
 - Keep the floor clean by washing it with pasteurized seawater.
 - Keep the products in a same case from auction through transport.
- 3) **Processor**
 - Examining all manufacturing processes according to a checklist.
 - Processing fish by following the HACCP manual.
 - The checklist contains over 10 items (e.g. worker health care or management of washing water etc.), and the results of examination will be kept.
- 4) **Transporter (Distribution)**
 - Keep fish temperature measured and recorded during transport.



Fig-2 Outline of the Shibetsu Region HACCP project

4. Environment protection activities at Shibetsu Town

In addition, local officials and workers at Shibetsu Town have done some environment protection activities. These activities include:

- 1) Proper disposing of livestock excreta
Not only the fishery but also dairy farming is done at Shibetsu Town, therefore there are some problems of water (river and sea) pollution with livestock excreta. Recently, the dairy husbandman is properly disposing livestock excreta to prevent water pollution.
- 2) Creation of shelterbelt and banks of a river woods
A tree planting campaign has been done by local administration since 1989. This campaign causes the greening region expanding.
- 3) Creation of forest for water conservation
This project will create forest for water conservation of 48ha around Shibetsu Town. The forest of 11ha has been created already by this project.
- 4) Measures of harm by birds
All the waste from processing plant is properly disposed by disposing company to use an exclusive box everyday. Therefore there is almost no harm by bird.
- 5) Environment protection of fishing port
The fisherman clean the inside the fishing port.

5. Hygiene management plan at the Fishing port

We made a hygiene management plan at the Fishing port. We think that the Fishing port is one of the most important place to do high-level hygiene management of marine products. This plan is discussed:

- 1) Identifying the potential hazards at the Fishing port
To prevent pathogen growth and invasion of parasites, we think that two things are so important in a fishing port.
 - Keeping proper temperature (below 10°C: pathogen no growth), Speed-up of outdoor work
 - Prevention of foreign body (metal and sand etc.) inclusion
- 2) Hygiene management plan at the Fishing port
We develop the hygiene management plan at the Fishing port to take account of all stages (from unloading to shipping to out a port).
 - (a) Taking account of keeping proper temperature and prevention of foreign body, we define the hygiene management area in the Fishing port and we make a zoning and flow plan in this area.
 - Unloading points in the Fishing port should be consolidated in the one wharf to do efficient construction. Therefore we define an emphasis construction zone at this wharf.
 - Relocating the fishing port facilities for efficient utilization based on a current work situation. As the result the work flow line is made a straight (Speed-up of outdoor work).
 - To prevent foreign body inclusion from trucks, transportation at this area is limited to the forklift that is excellent mobility and flexible.

- (b) Taking account of keeping proper temperature and prevention of foreign body, we make a plan to construct the roof on the wharf.
- The selection works of the salmon (outdoor work) need so many working times. Therefore we define an emphasized critical zone at this working place (wharf) and make a plan to construct a roof on the wharf.
 - Freshness of raw scallop products tends to go worse when they get exposed to rain. However when the fishers unload scallops by a crane, they cannot use some tarpaulin to cover scallops. Therefore we define an emphasized critical zone at this unloading place (wharf) and make a plan to construct a roof on the wharf.



Fig-4 the wharf for salmon productions by fixed nets

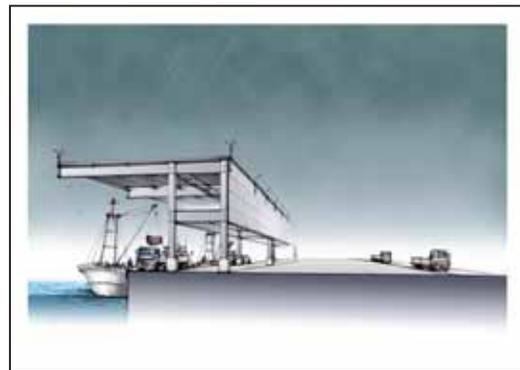


Fig-5 the wharf for of scallop productions by beam trawl nets

6. Conclusion

- 1) This Shibetsu Region HACCP project provide high-level hygiene management system to ensure marine product safety at all stage of food production (from fishing to distribution).
- 2) Most remarkable point is that the local populace (local officials and workers etc) works together on this project, for example environment protection.

This system is the most advanced case in Japan. Thus all other area persons concerned interest in this system, so now they visit the inspection.

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