SECTION 6

THE PROPER UNLOADING OF FRESH TUNA FROM FISHING VESSELS

6.1 PROCEDURE IN PLACE AT PRESENT IN INDONESIA

6.1.1 Improvements

There is at present a need to improve the method of handling for the unloading process.

The systems which are presently in use in different areas are as follows:

SYSTEM 1

The tuna in this type of operation is unloaded by the procedure of using people to unload the fishing vessel.

All tuna is handled by the use of human labour. Every tuna is man-handled. From the time it is removed from the ice till the time it is placed into the processing plant it must be handled by the use of human intervention. This, in actual fact means, that this process requires that a tuna must be handled at a minimum of SIX times before it is placed into the processing plant. If this method of handling is to be continued it will create many problems with the QUALITY of tuna. We must remember that for every time that we handle a tuna, we are decreasing the value of the fish. It is estimated that for every time a tuna is handled, the percentage of Grade A tuna is decreased by 3 to 5 percentage points.

SYSTEM 2

In this method of unloading, there is in place aboard the fishing vessel, a fish hoist that will remove the tuna from the fish hole and place on the deck of the vessel. The tuna is then removed from the deck by the means of human intervention up a chute and onto either a trolley or into the back of a truck. Also with this type of system, there are some facilities, whereby the tuna is transported to the processing plant by the means of fibreglass chutes. Even though there is a decrease in handling by the method of the use of chutes, considerable handling and a decrease in the overall quality of the tuna is still present.

In System 2 there is a method of handling of tuna at unloading which must be addressed: the method of placing tuna in the back of an open truck, and transporting the tuna to a processing plant. There must be a more effective means to handle tuna. This system of handling must discontinue, if we are going to maintain the quality of the tuna.

SYSTEM 3

In this method of unloading, there is a boom truck available to decrease the amount of handling. With this system in place, it eliminates the amount of handling which is placed on the tuna. When the product is removed from the ice, there is a rope or sling placed around the tail, which inturn is placed onto the hook of the cable from the boom truck. The tuna is removed from the vessel and placed into the slush container. This system is very effective because it eliminates excessive handling.

6.1.2 Hatch Size And Vessel Design

FISH HOLE SIZE: There is a concern in regards to the size of the hatch for the removal of the tuna from the fish hole.

During our travels to the unloading and processing facilities, it was noticed that the fish hole opening was very small. This, when the unloading process was in operation, raised concerns to the quality of the tuna.

Many vessels have at present, a very small opening for the loading and unloading of tuna. Due to the size of the fish hole opening, there is a problem with the amount of damage that occurs with the outer surface of the tuna. There is not sufficient area so as to protect the tuna. When the overall inspection of the whole tuna is completed, the outer surface is also taken into consideration.

In the inspection procedure, if the skin and outer surface is damaged, then it will and do affect the overall quality grading of the tuna. Tuna is graded by colour and appearance. The outer surface will tell the buyer what way we are handling our tuna. If there is damage to the skin and outer meat it affects the yield that the end user will recover. If the skin is damaged, then the outer meat is also damaged, which in turn causes a decrease in the recovery of usable meat. When this happens, it is a determining factor in what price is to be paid to both the processor and the fishing vessel.

We must all remember that the price of tuna is always determined by the quality of the meat and the method in which the tuna is handled. When the buyer is viewing the whole tuna, he is looking at what the appearance of the outer surface is like. He determines his price only on what usable product he can deliver to the end user. Usable product is determined by the colour and texture of the meat.

6.2 PROPER PROCEDURES FOR THE UNLOADING OF FRESH TUNA

In order to demand a higher price for our tuna, we must ensure the end user that we are doing everything possible to maintain the highest quality and excellent workmanship of our product. In the proper unloading system we will attempt to show the end user that we are controlling the way in which we will handle our tuna at time of discharging. The system which is required to be established is listed in the following text of this report.

6.2.1 Temperature

The first requirement is to have an inspection carried out on the temperature of the tuna before it is removed from the fishing vessel. The first fish to be inspected for the proper temperature is the last fish which has been processed at sea.

The proper equipment which is required to inspect the core temperature of the tuna is by using an Electronic Temperature Gauge which has a probe attached that can reach the core of the tuna.

To check the temperature, place the probe into the cut which has been previously made behind the pectoral fin for bleeding. If the core temperature of the tuna is not at 0°C, the fish should remain aboard the vessel or if needed to be removed, it must be placed into slush ice and water until the proper temperature is reached.

6.2.2 Fish Hole Chart

Before the discharge is to commence, the unloading personnel must have from the fishing vessel a fish hole chart which should show where each day's fishing is properly stored. It is very important to know where the oldest fish is on board the vessel. The buyer will want to know the age of the tuna so as to determine what market to ship the fish to. The type of chart which should be used by the vessel owner is attached in Section 6.2.12.

6.2.3 Temperature Inspection

During discharging of the tuna, there must be random checks recorded to ensure that all the tuna have a core temperature of 0°C. The amount of tuna to be inspected is 20%. So for every 10 tuna, we must check TWO tuna for temperature. Attached in Section 6.2.13 is a form showing the type of Temperature Log which should be used.

6.2.4 Equipment

Before the unloading begins, there should be in place a required number of insulated containers to handle the unloading of the tuna. These containers must be properly cleaned and free from contamination. There must be a proper mixture of two parts ice and one part clean and safe salt water.

6.2.5 Proper Fish Unloading System

The system which is needed, is to have a permanent fish unloading system in place at the unloading sites. With the proper system there would be a considerable decrease in the handling of tuna. The handling would decrease by 80%. This would help to maintain the quality of the tuna by improving the workmanship procedure. With this system it would be required that the tuna would be handled when it is removed from the ice in the fish hole, control the fish as it is being hoisted up through the fish hatch, and when it is being placed into the slush container. The diagrams attached as Annex 11 shows the proper design of equipment for the unloading of tuna.

6.2.6 Unloading Requirements

Some requirements that are needed when the discharge is to begin. The fish hatch must be properly covered around each side so as to ensure that no damage can happen to tuna as it is being removed from the fish hole. There should be clean salt water to clean off the old ice from the surface of the tuna as it is being removed from the fish hole. All old ice in the belly section must also be removed from the tuna as it is being discharged.

6.2.7 The Age of the Tuna

During the unloading process, the oldest tuna must be kept separate from the other tuna. When the old tuna is being discharged, the containers which they are placed in should be marked and kept separately.

6.2.8 Insulated Containers

With the use of insulated containers which have the proper slush ice and water, the tuna can be properly stored and moved to the processing plant for further processing. The use of containers at unloading sites, helps with the handling and maintains the temperature of the fish. The containers should not be over filled. The least amount of pressure that can be put on the tuna, the better it is for the fish in the bottom of the container. After the container is filled it should be properly covered and removed to the processing plant if it is close by.

6.2.9 Transportation Procedures

For tuna which has to be transported by truck to a processing plant, the required system that must be used is in a proper clean insulated truck which is equipped with a cooling unit so as to control the temperature during transportation. Tuna must not be transported loose in any type of truck, the quality of the tuna must be cared for at all times.

Open trucks are not permitted to be used in the transportation of tuna from the fishing vessel to the processing plant. With the use of this method the quality of the tuna and workmanship would be decreased.

6.2.10 Cleaning of Fish Storage Area

Immediately after the tuna has been removed from the fish hole, all ice must be removed.

The fish hole must be properly cleaned and sanitized. All care must be taken to ensure that the fish hole is free from any contamination and any discarded materials.

Only clean safe water is to be used in the cleaning process of the fish hole.

After the fish hole has been properly cleaned and sanitized and before new ice is placed in the hole, the fish hole must be properly rinsed so as to ensure that the sanitized solution is properly removed.

6.2.11 Icing of the Vessel

Only ice which is made from properly approved water is permitted to be used aboard the vessel.

Ice should be properly crushed so as to ensure that there are no sharp edges or large pieces of ice which could create a problem in the icing of tuna.

The proper method of transportation of ice to the fishing vessel is as follows:

A) Truck which is used for the purpose of transporting of ice to the vessel must be properly cleaned and sanitized and rinsed before any ice is placed in it.

B) Ice, while being transported to the vessel must be covered properly to protect from contamination.

6.2.12

FISH HOLE CHART

Name of Vessel: _____

Date Started Fishing: _____

Date Stopped Fishing: _____

Day 1	Day 2	Day 3	Day 4	Day 5	Day 6

Each day there must be a record showing how many tuna were placed in the fish hole and where they are located. The fishing vessel must present the location of each day's fishing where the tuna is placed in the fish hole.

Signature of Vessel Owner: _____

TEMPERATURE RECORDING LOG
UNLOADING OPERATION

Name of Vessel: _____ Date Landed: _____

Time Start Discharging: _____ Time Finished Discharging: _____

Time	Temperature	No. Of Days In Ice	Comments

Signature of Inspector: _____

This document should accompany the shipment to the processing plant. If there are any problems with any part of the shipment of tuna in regards to the temperature, the problem tuna should be marked & held in insulated container at processing plant for further inspection.

6.3 CONTROL POINTS

6.3.1 Discharging

In the method of discharging there are areas which can become critical if effective planning is not carried out.

1) Tuna must be handled quickly and carefully at all times.

2) Protect the tuna during discharge that it will not be damaged.

3) Tuna is not to be dragged or hauled either across the deck or up a chute.

4) Tuna must be protected from the heat of the sun.

Decrease the number of times tuna is handled from the time it is removed from the fish hole till the time it gets to the processing plant.

All tuna whether it is for the sashimi, fresh loins, canning, freezing, or for local markets, must be treated as a food item and must be handled in accordance with Good Handling and Manufacturing Practices.

6.3.2 Temperature

There must be regular checks carried out during the unloading process to ensure that the fish are properly chilled. If there are fish that have high temperatures, these fish will have quality problems if not corrected.

1) Know where the problem can occur and have a plan in place to prevent it from happening.

2) Have proper canopy in place to protect the tuna from direct contact with the sun.

3) Proper slush tanks be prepared before start of discharging.

4) Decrease the amount of time that the tuna is out of the ice.

5) Tuna must be kept in proper containers that contain slush ice and salt water.

6.3.3 Unloading System

There must be a proper unloading system in place so as to maintain the quality of the tuna when it is being removed from the vessel. It is very important to decrease the amount of handling that occurs during discharge.

Tuna cannot be man-handled.

Proper protection must be in place around fish hole opening to protect the outer surface of the Tuna. The workmanship of the tuna will affect the quality of the fish.

Tuna should be lifted out of the vessel by the head.

All tuna must be treated in the same manner.

When removing tuna from the ice in the fish hole you cannot walk on the fish.

6.3.4 Transportation

The proper system for the transporting of tuna must be followed. Tuna can be damaged very easily if it is not handled properly.

No tuna is to be transported in an open truck.

No tuna is to be transported without proper protection.

All tuna is to be iced properly before transporting to the processing plant.

Properly cleaned and safe insulated containers must be used to transport tuna.

Trolleys should not be used, unless there is protection in place so as the tuna cannot be damaged.

Only trucks that have a proper cooling system in place should be used for the transporting of tuna to the processing plant. The truck box must be constructed of a clean and safe material whereby there is no means of contamination happening to the product.

6.3.5 Unloading Sites - Surroundings

The area around and the unloading site shall be kept clean at all times. If there is an accumulation of refuse in the area it will create objectionable odours, which in turn will attract insect and rodents which in turn will cause a sanitation problem.

No damaged or discarded containers are permitted around or on the unloading site.

Proper washing facilities must be in place. No dogs, cats and other animals are permitted around the site.

No containers which are used for offal shall be used for the handling of tuna.

A rodent and insect control program must be in place so as to ensure that the site does not become a public health hazard.

6.3.6 Ice

Ice must be handled in such a manner that it cannot come in contact with items which can cause contamination to the tuna. Ice must be made from approved water supply so as to ensure that the ice will not be a source of product contamination.

Only clean safe ice is to be used in the slush containers.

Used ice is not permitted.

Ice for use in the unloading system must be protected from contamination.

Ice which has come in contact with dirty containers is not permitted.

FISH UNLOADING SYSTEMS & DESCRIPTION

The Fish Handling System shown in Diagram A1 shows the method for unloading from small fishing vessels. It shows the method of grading, culling and boxing.

Diagram A2 shows the same system with a tuna suspended from the hook.

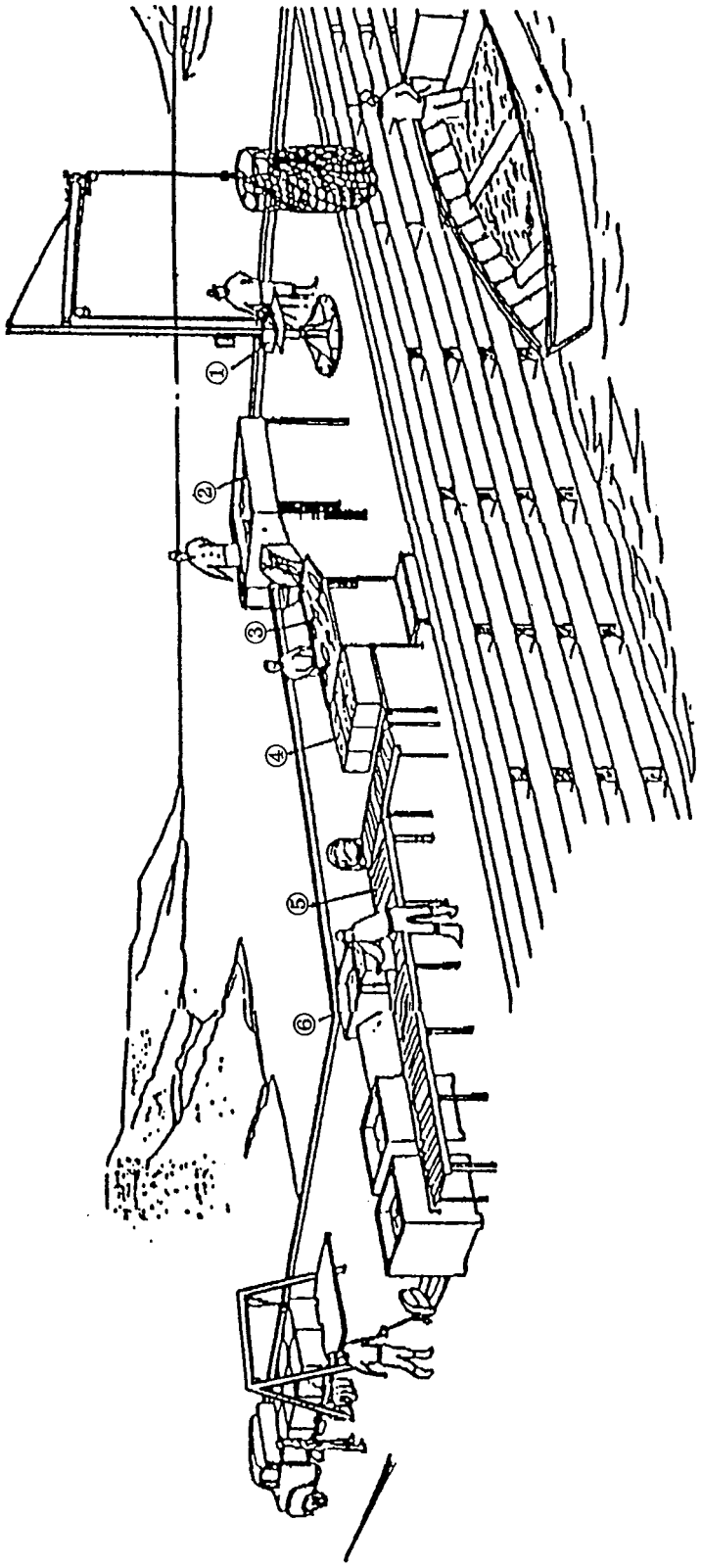

Diagram A1 Fishing Handling System

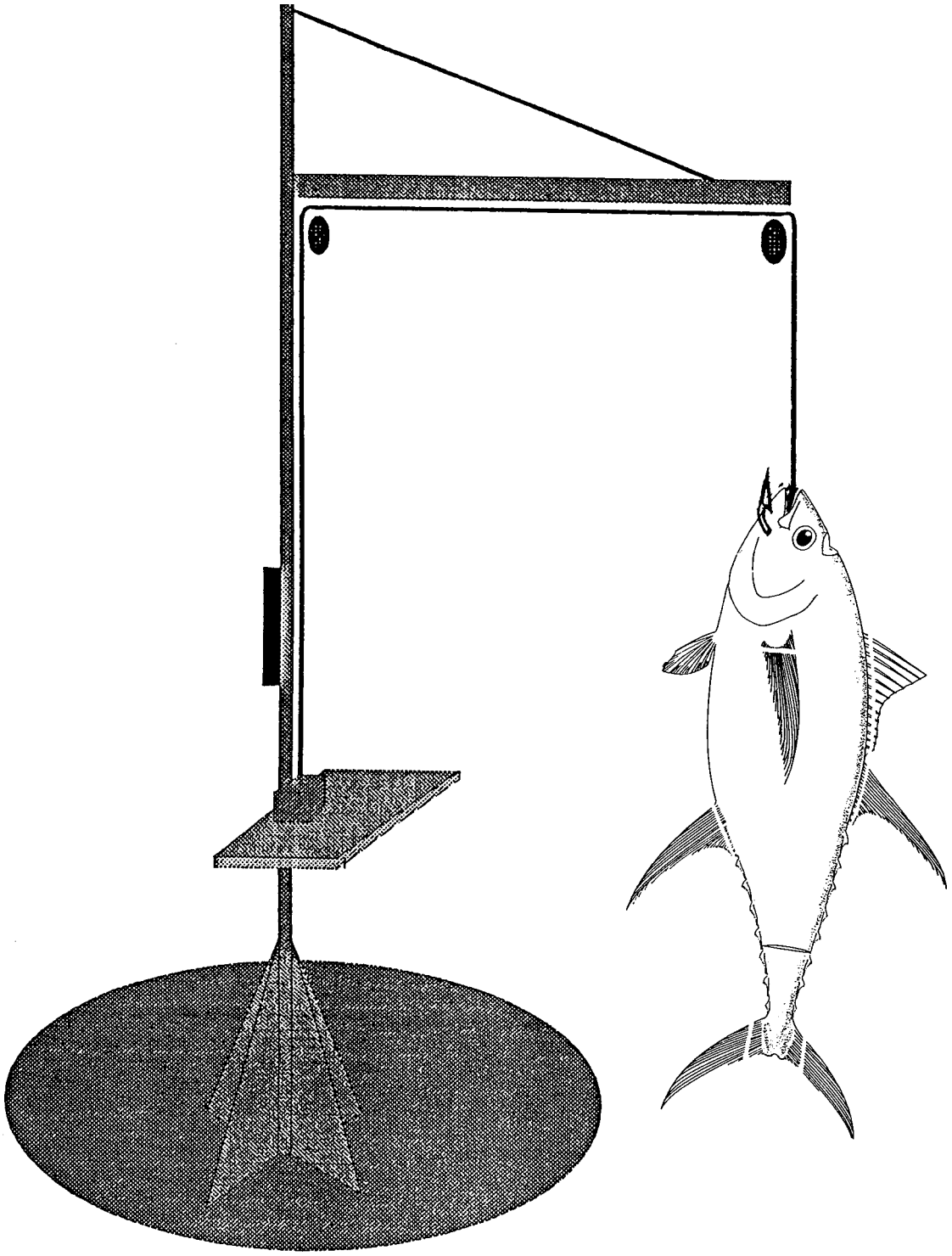

Diagram A2

SECTION 7

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7.0 BIBLIOGRAPHY

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