

PROPER HANDLING AND SHELF-LIFE OF FISH

(Principles, Practices and Techniques)

The background of the entire page is a close-up photograph of several fresh fish, likely salmon or trout, with their silvery scales and dark fins clearly visible. The fish are piled together, creating a sense of abundance and freshness. The lighting is bright, highlighting the texture of the scales and the gills.

1. SHELF-LIFE

2. WHY FISH SPOILS FASTER?

3. FISHERIES SUPPLY CHAIN

4. FISHERIES SUPPLY CHAIN

5. MAJOR TECHNIQUES IN PRESERVING
FISH FRESHNESS

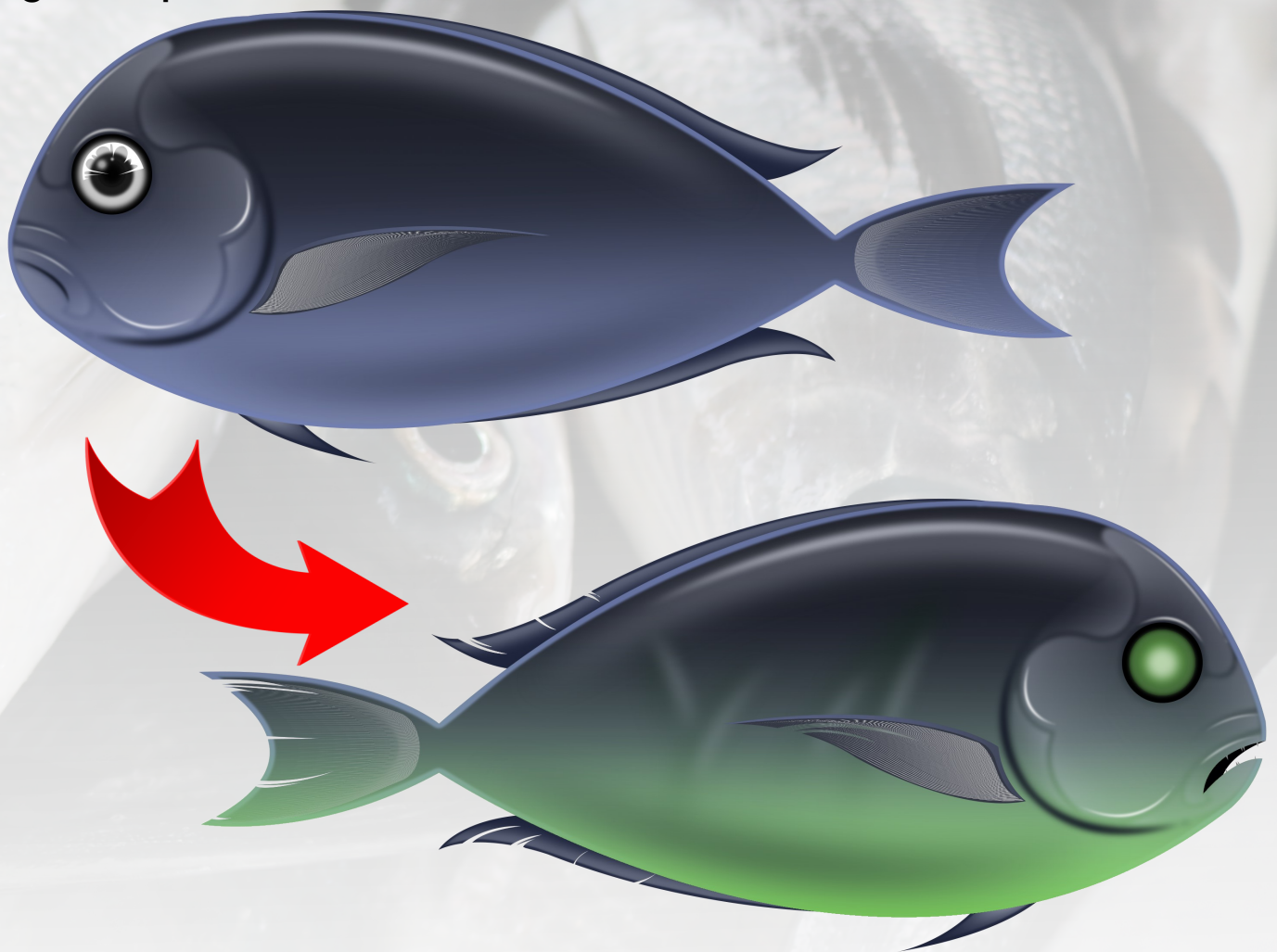
6. CHARACTERISTICS OF A GOOD
CONTAINER BOX

FISH HANDLING

Handling the fish from the time it leaves the water until it reaches the consumers which requires a number of guiding principles.

SHELF-LIFE

The period during which the product maintains its microbiological and chemical safety and sensory qualities at a specific storage temperature.



Once fish are caught, death and spoilage commence and there is a continual and irreversible deterioration in quality.

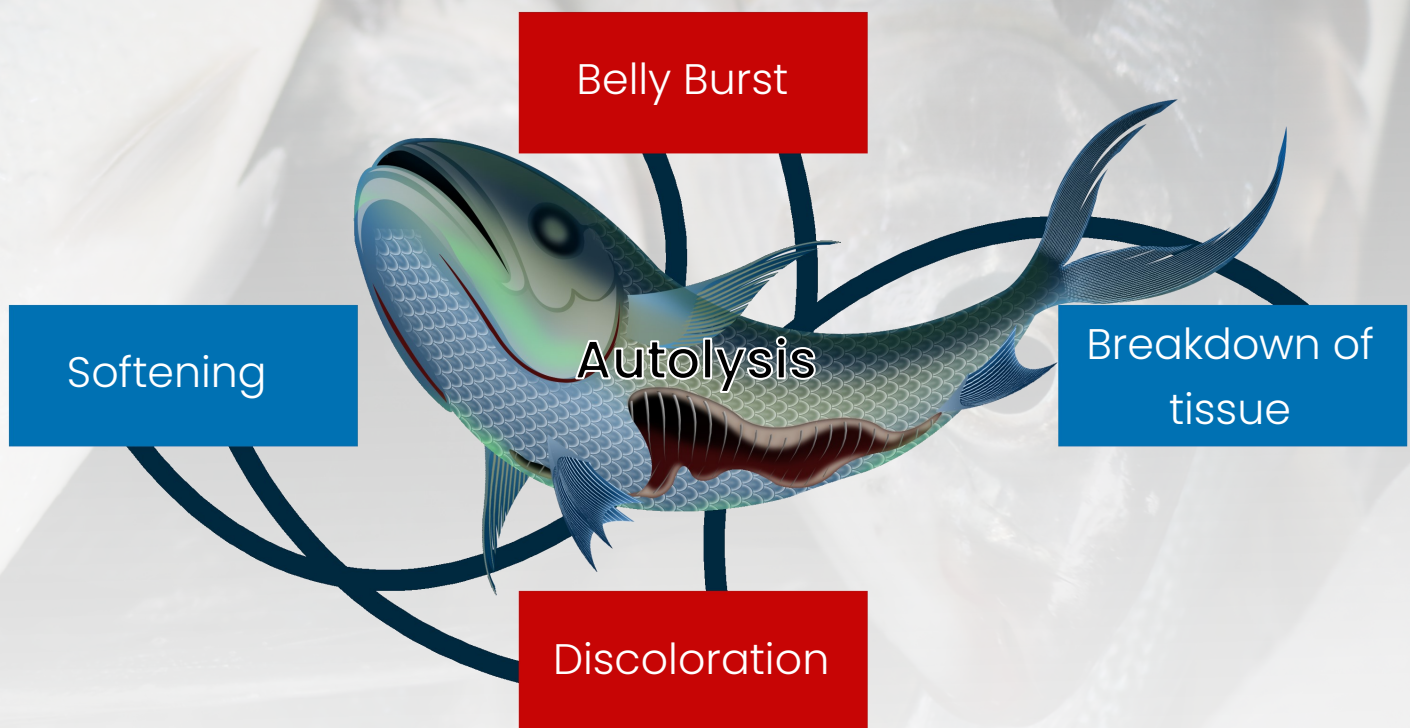
WHY FISH SPOILS FASTER?

1. Due to its Principal components

Water	70-80%
Protein	20%
Lipids	1-7%
Non-Protein N	2%
Inorganic salt	1%
Vitamins	Traces

2. Due to its complex process

A. AUTOLYSIS



Note:

Autolysis is the “self-digestion of animal tissue by enzymes from its own body

B. BACTERIAL DECOMPOSITION

Microbial growth and activities produce compounds responsible for the odor / flavor of spoiled fish.

Certain fish species (Tuna, Mahi-Mahi)
rich in amino acid called **Histidine**



Naturally occurring bacteria



Temperature abuse



Histamine levels that cause **Sombrotoxin** poisoning

C. CHEMICAL CHANGES

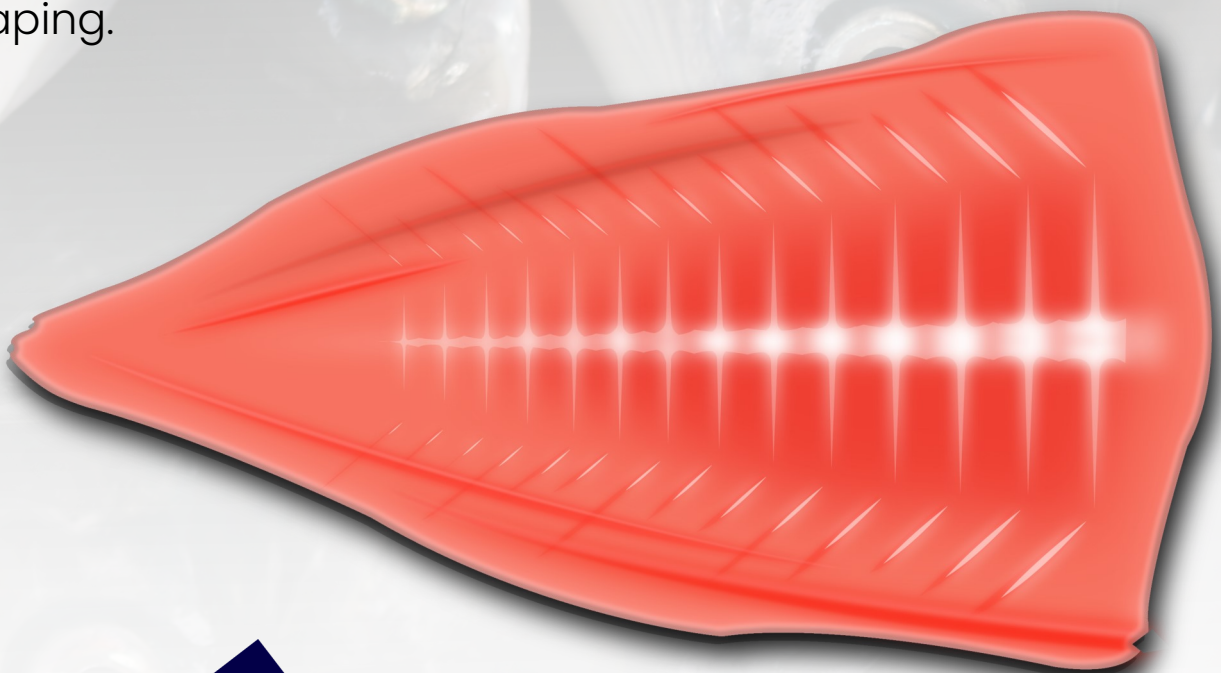
- Rancidity
- Discoloration

D. RIGOR MORTIS

- The progressive stiffening of the muscle shortly after death.

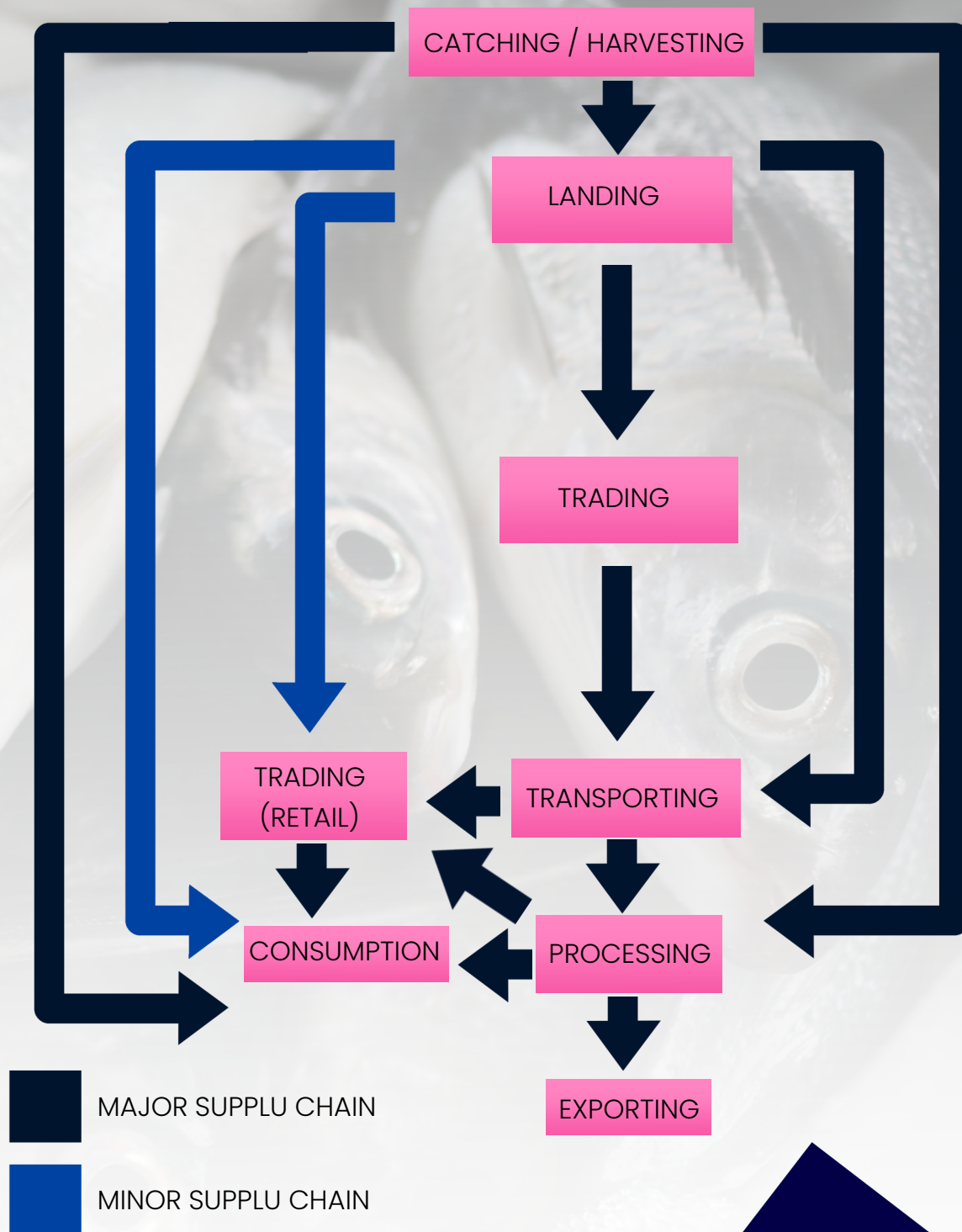


- Fish that go through rigor mortis at higher temperatures stiffen up so violently that the fish actually tears...that's Gaping.



THE FISHERIES SUPPLY CHAIN

Since fish is highly perishable, proper handling must start from the moment it is harvested until it reaches the consumers table. The fisher, the middlemen (wholesaler) and the consumer all have important roles in keeping fish fresh as possible.



MAJOR TECHNIQUES IN PROLONGING FISH FRESHNESS



1. TIME

Try to chill as soon as possible after the harvest.

2. CONTROLLING TEMPERATURE

Low temperature bacterial, biochemical and chemical activity at reduced rate.



Fish should be iced at the ratio of 1:1 (one part ice to one part fish) for long distance and 2:1 (two parts fish one part ice) to short distance or kept chilled at a temperature between 0-4°C.

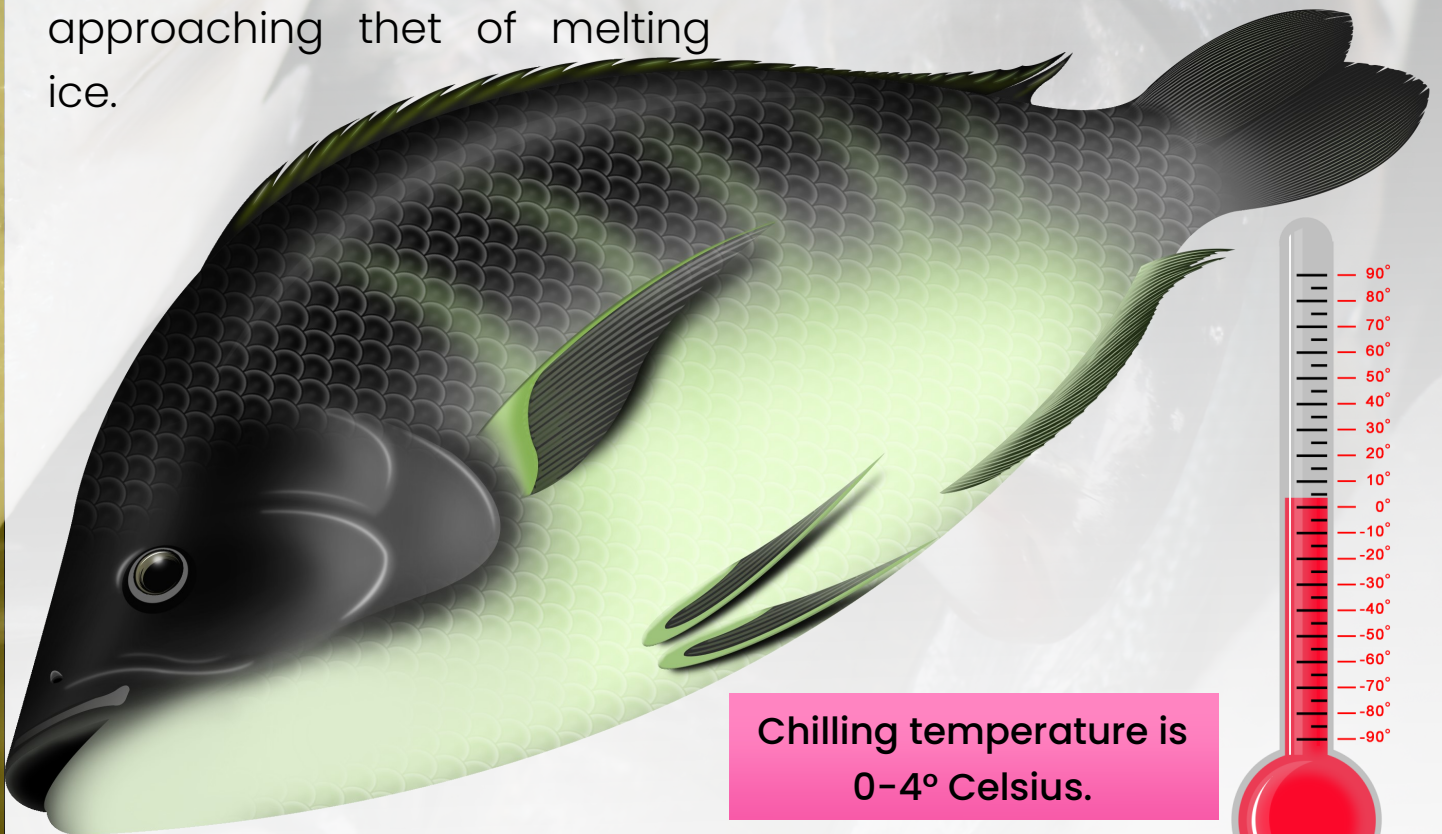
All food contact surfaces should be food grade, in good condition, and properly cleaned and sanitized.

Containers should not be overfilled of harvest and should be free from cracks and defects..

LOW TEMPERATURE PRESERVATION

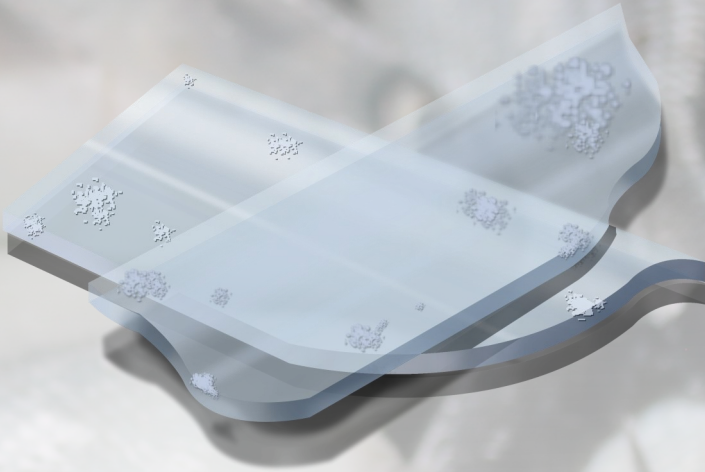
A. CHILLING

The process of cooling fish and shellfish to a temperature approaching that of melting ice.

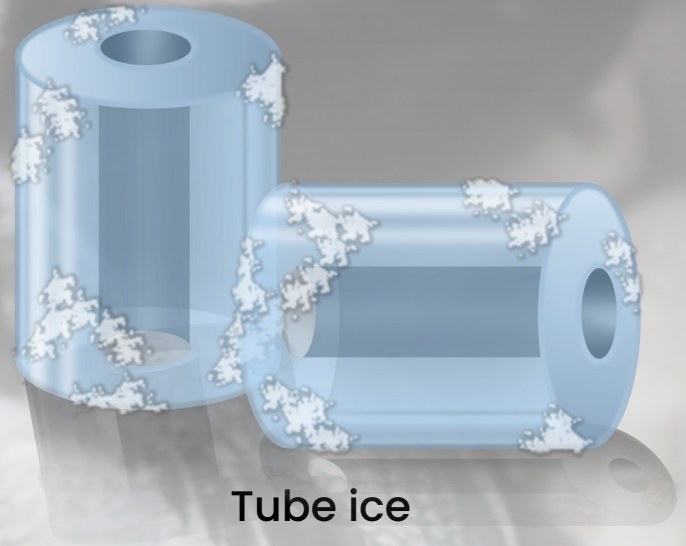


Chilling temperature is
0-4° Celsius.

TYPES OF ICE



Flake ice



Tube ice



Crushed ice



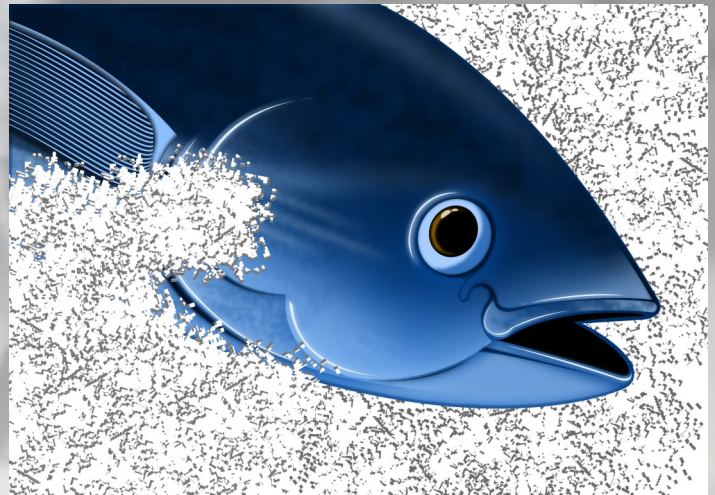
Block ice

MAJOR TECHNIQUES IN PROLONGING FISH FRESHNESS

1. PREVENTING PHYSICAL DAMAGE

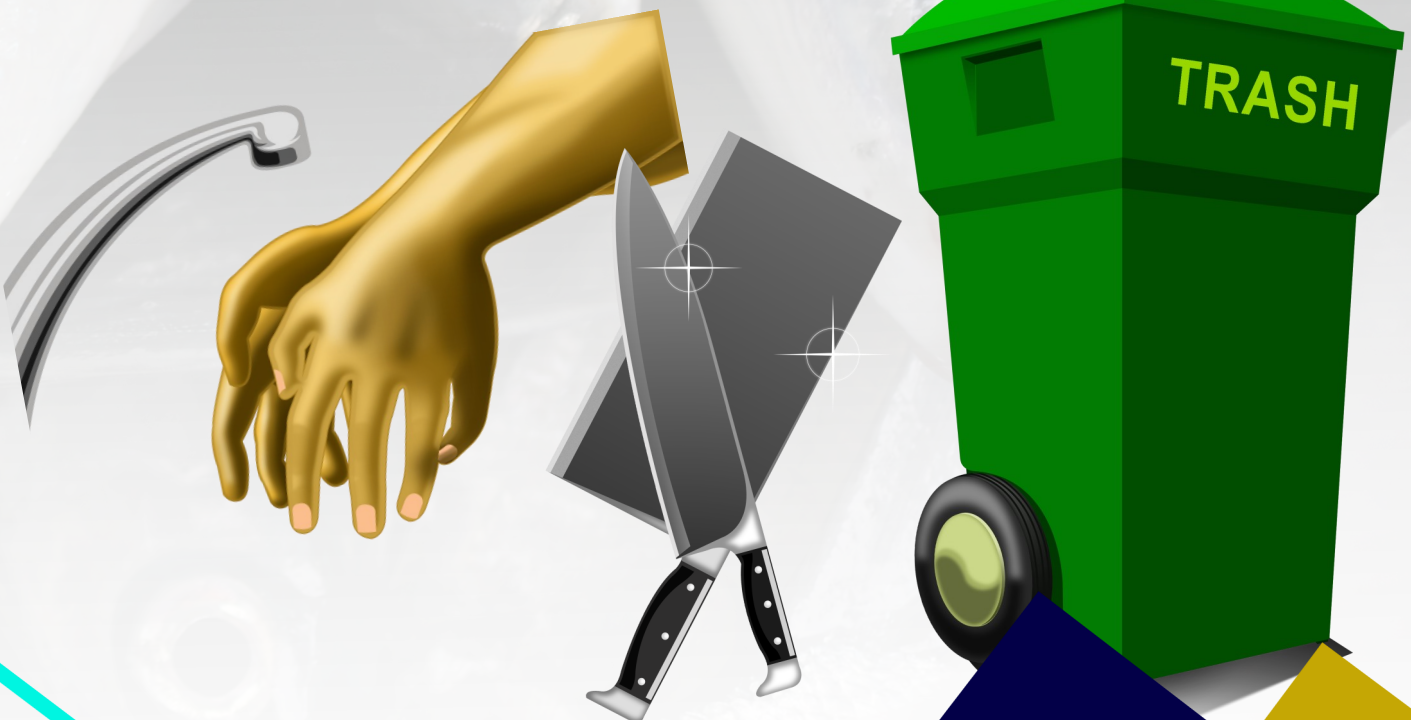
- Prevent bruising, cuts to skin,
- Carefully sort and classify fish according to species and size.

- Properly or neatly arrange fish by species, layer by layer, big fish on the bottom and small fish on top with enough ice on every layer.
- Use appropriate fishing gear to avoid struggle of fish during harvest.



- Transport / deliver fish in closed and covered vehicles or in refrigerated van.
- Properly wrap or pack fish in appropriate packaging materials

2. PREVENTING CONTAMINATION



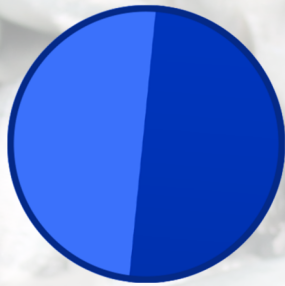
CHARACTERISTICS OF A GOOD CONTAINER / FISH BOX



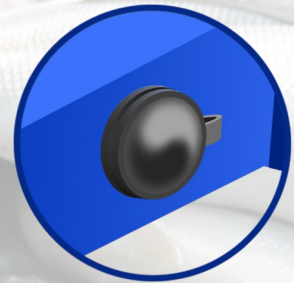
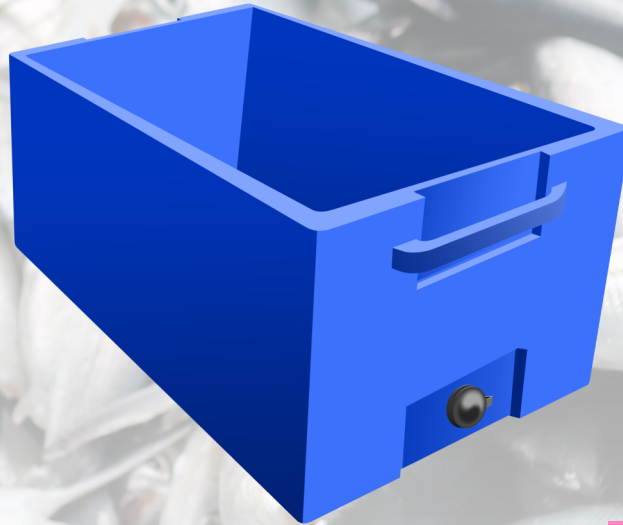
Has good thermal insulation



Strong & robust



Easily cleaned



Good drain

SHELF—LIFE OF FISH STORED IN ICE

FISH SPECIES	LENGTH OF STORAGE IN ICE (DAYS)
Tilapia	22-28
Catfish	16-18
Tuna	29
Grouper	28
Spanish Mackerel	11

EFFECTS OF DELAY IN ICING ON SHELF-LIFE OF MILKFISH

DELAY IN ICING (HOURS)	SHELF-LIFE (DAYS)
0-4	14-17
8-12	7-10
Ambient	20 Hours

Dela Cruz-Hidalgo et.al.

- The initial quality of the product subjected to low temperature preservation must be at an acceptable level.
- The temperature handling through the whole distribution chain must be properly taken care of, otherwise all good intentions in the first step will prove to be meaningless.

References:

Londhal, G. Refrigerated storage fisheries.
1981 FAO Fish. Tech. Pap. (214). 74. p

Philippine National Standard, Frozen Milkfish.
PNS/BAFPS 66. 2008. ICS 67 120 30

Code of Practice for Fish and Fishery Products.
CAC/RCP 52 2003



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