



# Tuna handling practices & Value added export

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# The discussion



1. Examples of Value added Products
2. Post Production Processing Requirements
3. Current Practices in Production
4. On board handling procedure for Sashimi quality
5. Global Markets and Challenges



# 1. Examples of the Value Added Products

# Tuna Loins



- Chilled tuna loins comes in skin on and skin off form
- Grades classification varies from processor to processor and country to country



Image courtesy : Marble Valley Foods and Beverages Pvt .Ltd.

# More Value Added Products - Chilled



- Tuna Salami
- Tuna Saku
- Tuna supreme steaks



Image courtesy : Marble Valley Foods and Beverages Pvt .Ltd.

# Tuna Chilled Products



- YF Tuna HGT
- YF Tuna GG



Image courtesy : Marble Valley Foods and Beverages Pvt .Ltd.

# Tuna Frozen Products



- Frozen tuna loins
- Super frozen HG tuna and loins
- Frozen tuna steaks, saku
- Breaded tuna products





# Tuna Value Addition



## CO treated Products

- Does not enhance the quality in any way. Some even has the opinion that CO treatment is a deception. The EU does not accept it.
- However there exists a good market for CO treated loins, steaks, Saku and various other products



# Tuna By Products



- Kama
- Eyes
- Skin
- Off cuts
- Spoon meat
- Tail
- Belly
- Trim meat
- Cheek meat
- Head meat
- Bone



Image courtesy : Marble Valley Foods and Beverages Pvt .Ltd.



## 2. Prost Production Processing Requirements

# Automated facility



- Partially or fully automated facility meeting world class requirements / Standards in
  - Food safety
  - Quality and
  - Hygiene
- Increased Productivity and Yield
- Consistent Quality



Image courtesy : Marble Valley Foods and Beverages Pvt .Ltd.

# Processing Machineries



- Efficient freezers
  - IQF
  - Tunnel
  - Contact
  - Super frozen
- Efficient cold storage (-20 °C) & -60 degrees
- Material handling systems
  - Conveyors
  - Forklifts
  - Automated Size graders



Image courtesy : Marble Valley Foods and Beverages Pvt .Ltd.

# Inspection



Efficient Inspection using

- Check weigher
  - Automated weight capturing in software
  - Precise weight within tolerance
- Metal Detector ( CCP ) – For food safety
- Batching equipment



Image courtesy : Marble Valley Foods and Beverages Pvt .Ltd.

# Advanced laboratory



- Import country's quality requirements must be met
- Laboratory is the heart of the processing facility
- Integrated solutions needs to be achieved to ensure coherence between production and testing
- Continuous training of lab technicians and Quality assurance staff

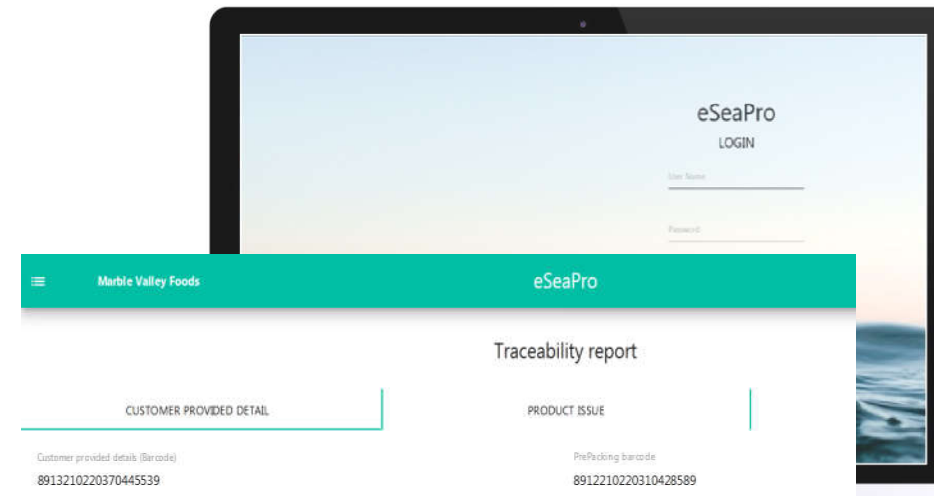




Image courtesy : Marble Valley Foods and Beverages Pvt .Ltd.

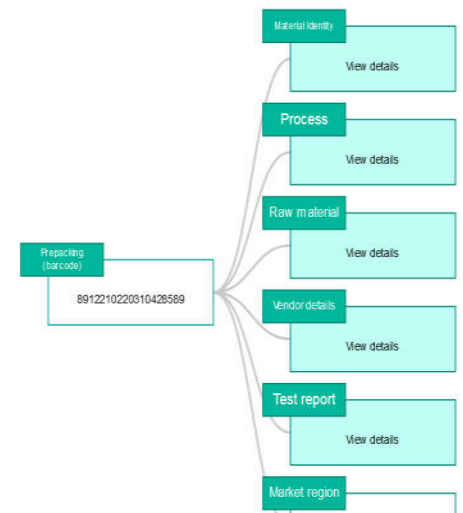
# Traceability and Efficiency



- Integrated software covering all process operations
  - Receiving to shipping
  - Sales and customer management
  - Purchase and Inventory
  - QA
- Use of technology to
  - Improve processes
  - Optimize resource utilization
  - Have end to end traceability
  - Monitor Yield dynamically
  - Automate Documentation



Produit/nom produit		Thon Jaune - Filet	
Scientific name		albacore tuna	
Number 2020/2/255	Filet Number -	Batch Number MV120FR052602	
Production date 2020-02-05	Expiry date 2020-02-18	Net weight(kg) 5.0	
Poisson frais emballé sous vide		Nutrition facts	
Fishing method : Long line		Calcium 6mg	
Allergen info : Poisson		Calcium 6mg	
Origin : India		Carbohydrate 0g	
Caught in : FAC057		Energy 165kcal	
Produced by : Marble Valley India		Fat Content 7.9g	
Exported by : Marble Valley India		Monosaturated Fat 3.5g	
Imported by : 13, St.Gills Street London main road		Protein 25g	
Tenir à 4 degrés centigrades devrait être cuit avant consommation		Saturated Fat 1.9g	
		Sodium 97mg	
		Sugar 0g	
 1412160220150523546			







### 3. Current Practices in production. Fishing methods and on board handling

# Fishing Methods



- Purse seine
- Pelagic longline
- Pole and line
- Gill net
- Hand line
- Troll line

**“ There has been many efforts in India in the recent times to convert the existing vessels to tuna long liners in order to increase quality tuna production ”**

Image courtesy : Marble Valley Foods and Beverages Pvt .Ltd.

# On board Handling current practices



- The picture shows how fish is stored inside the boat storage.
- Fish is taken down to the fish hold and is placed inside various compartments
- Fish hold is insulated with PUF and fish remains chilled in most boats store once inside.



# On board Handling current practices – continued..



- Most boats lack hoisting equipment
- No gear to ensure that the fish is properly placed on board after hoisting
- Fish can accidentally dropped off into the store damaging the flesh



# Effects of Bad Handling



## Quality

- Tuna meat can be fragmented
- Blood clotting
- Burned flesh





## 4. On board handling procedure for Sashimi quality

# On Board Handling



## “ Tuna is a warm blooded fish ”

- Require a spike, sharp knife, a club and monofilament nylon chord piece. A foam mat for placing the tuna on the deck is also require
- Haul the tuna on board by its head
- Stun the tuna by making a strong blow at the top of the head above the eyes
- Stand over the tuna with legs bracing against the pectoral fins and identify the soft spot
- Use the spike to kill the brain.

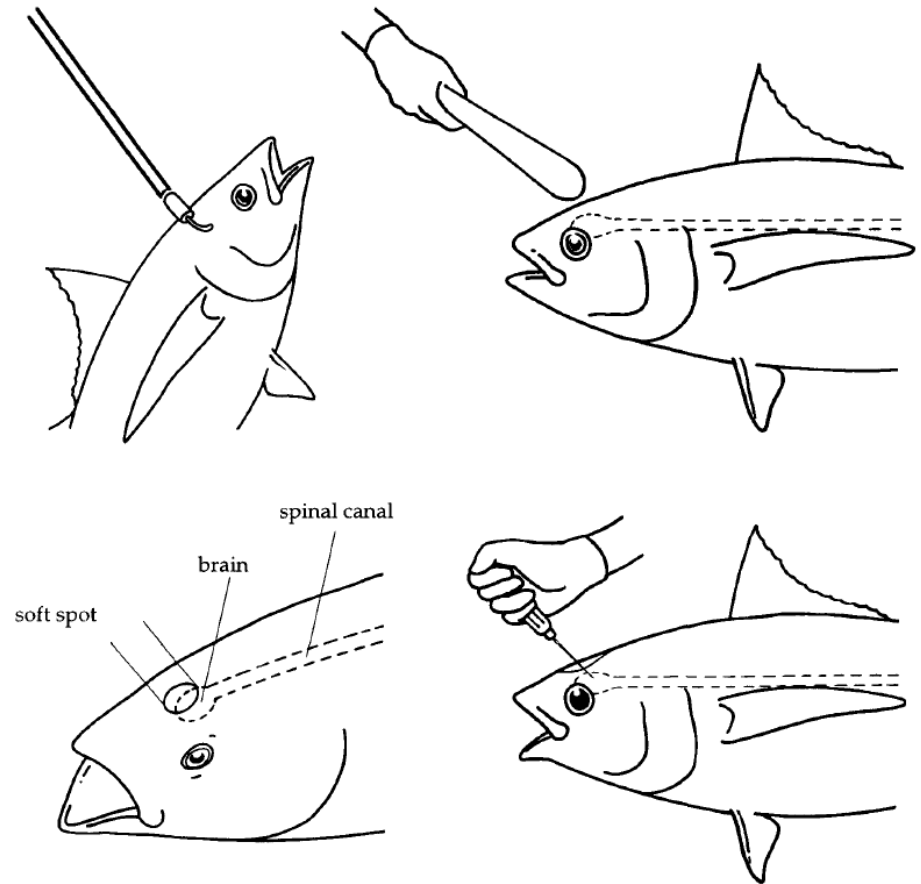


Image courtesy : “On-Board Handling of Sashimi-Grade Tuna ” by Michel Blanc

# On Board Handling (Continued...)



## Bleeding the Tuna

- Cut a piece using the knife just above the soft spot
- Insert the monofilament nylon chord through the brain into the neural canal (Tanaguchi) – pithing the fish makes it better quality
- Make an incision of 2 cm depth perpendicular to the pectoral fin recess about 8 cm from the pectoral fin base to bleed the tuna
- Cut the membrane connecting the gill collar and gills to sever the arteria supplying blood to gills.

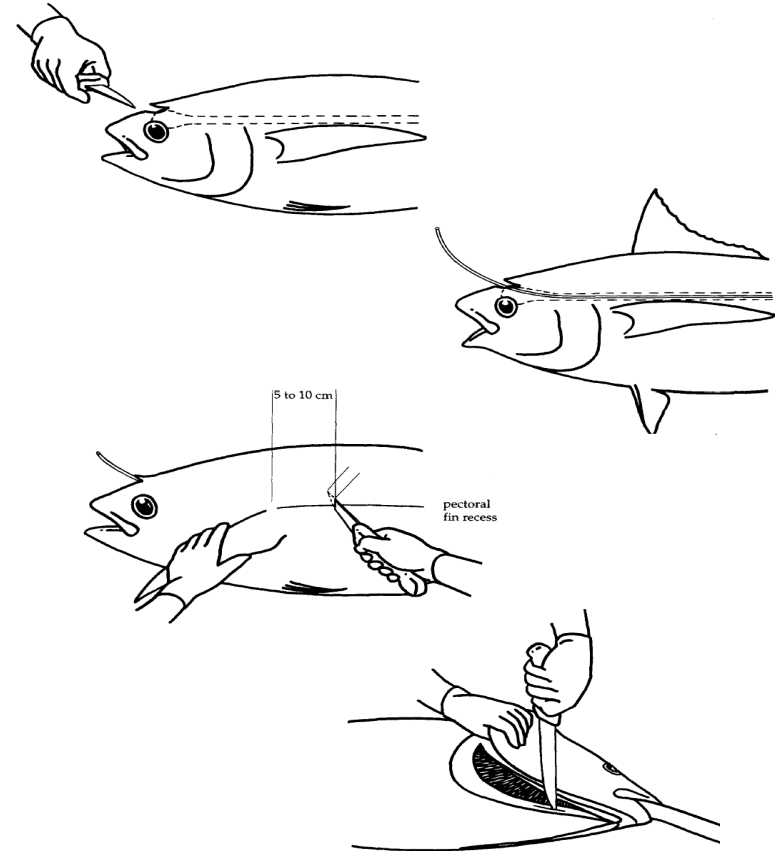


Image courtesy : "On-Board Handling of Sashimi-Grade Tuna " by Michel Blanc



# On Board Handling (Continued...)



## Gilling and Gutting

- Make a cut of about 5-10 cm just before the anus to the jaw in the direction of scale
- Cut off the gonad and the digestive tube
- Sever the connection between the gill and the gill collar, the lower jaw and the gills and the base of the skull
- Pull out the internal organs along with the gill as a whole. This reduces any abdominal bacteria spread in the abdominal cavity
- Rinse thoroughly with sea water.
- Wash and clean the tuna

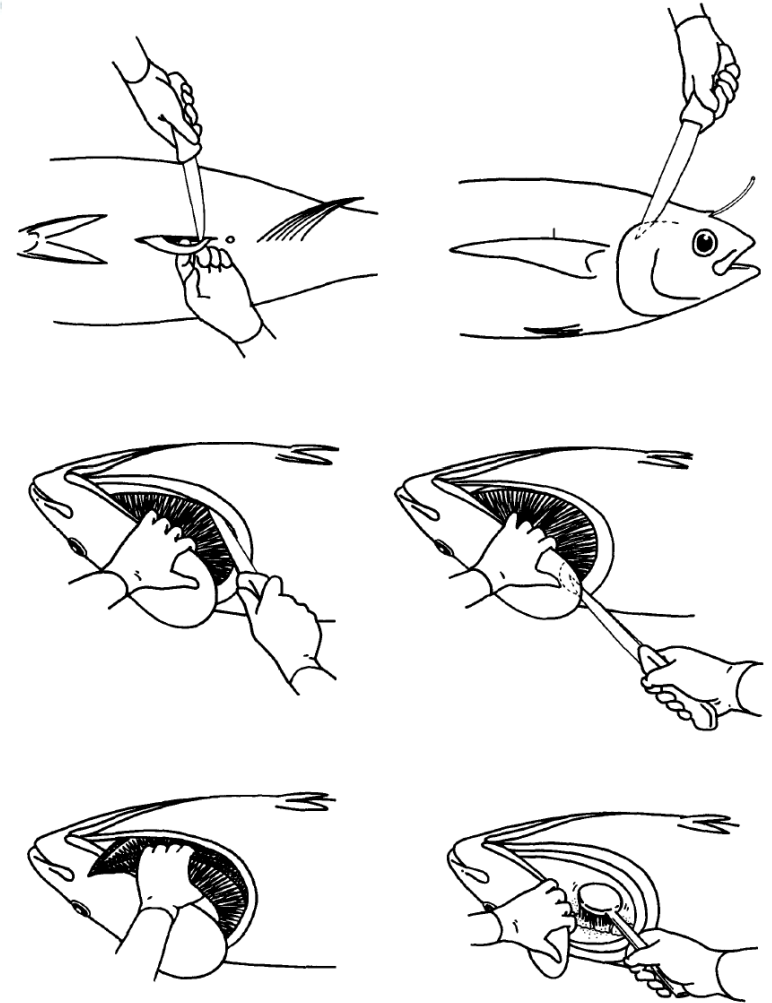


Image courtesy : "On-Board Handling of Sashimi-Grade Tuna " by Michel Blanc

# On Board Handling (Continued...)



## Chilling and Storing

- Wrap the tuna in a plastic or cotton sock
- Immerse the tuna in a 2:1 ice – seawater slurry for about 24 hours to bring the temperature below 2 degrees
- Insulated box our RSW or a modified store compartment can be used
- Move the tuna to properly iced condition and can be kept that way for up to 2 weeks
- If iced directly then ensure ice cavity is filled up

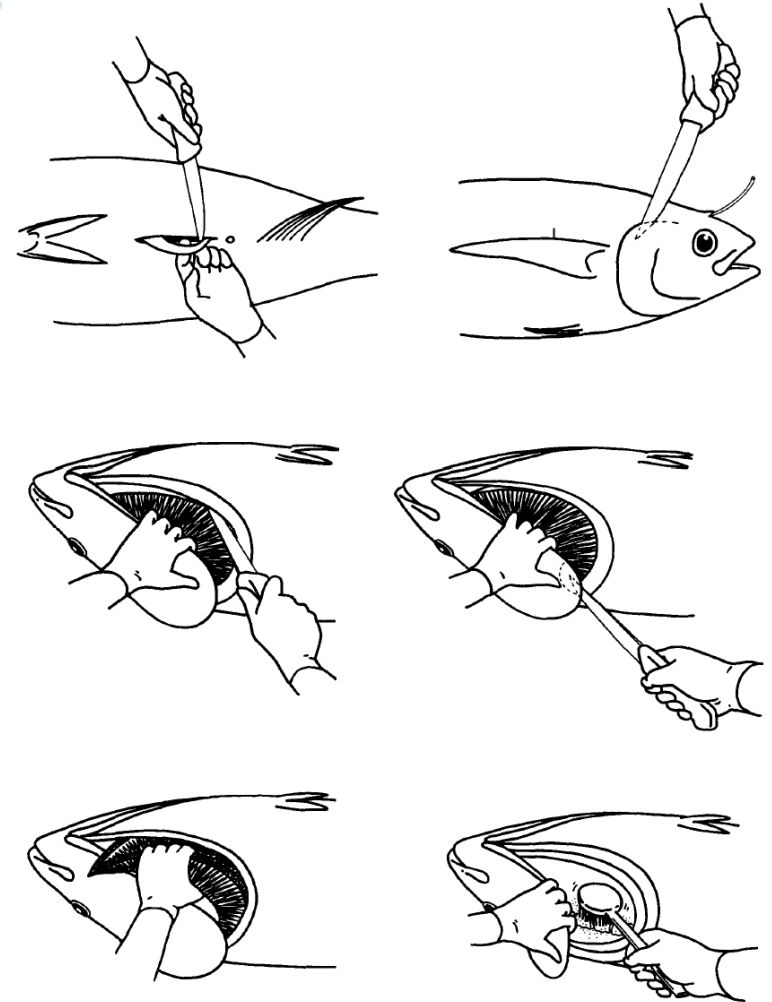


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## 5. Global Markets and Challenges

# Production Challenges

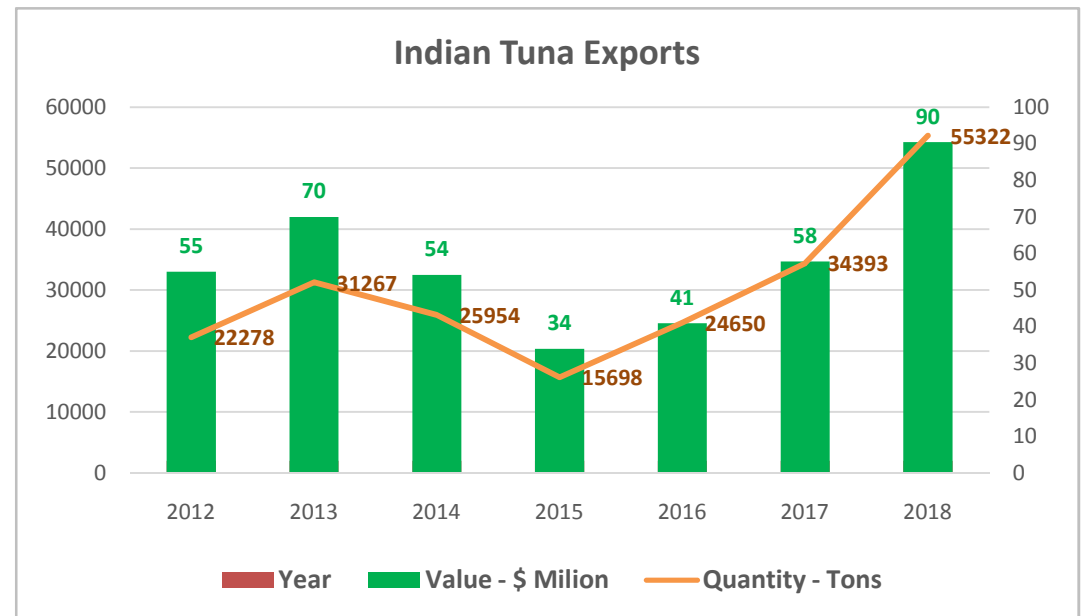


- Lack of performance incentivisation
- High fuel prices
- Low quality gears
- Insufficient harbour facilities
- Insufficient governmental intervention in sustainable fishing
- Bio contaminants
- **Deep sea tuna fishing activities are still at nascent stage**
- **New generation is not willing to take up fishing as a profession.**
- **Lack of organised training facility**
- **Potential Fishing Zone advisories (PFZ) are available to boats at sea**

# Marketing Challenges



- Perception of low quality
- RFMO interactions
- Absence of Eco labelling
- Sustainability issues & strategies
- Continuous supply of raw materials
- Limited availability of robust data
- Technical Barriers to Trade (TBT)



Statistics courtesy: MPEDA

# Tuna Global Markets



- Tuna is the third largest internationally traded fish commodity. Global tuna catch is 7.4 million metric tons per year
- India is the 2<sup>nd</sup> largest producer of fish in the world
- Our estimated tuna resources are about 0.20 m tonnes of which almost 50% is Yellowfin
- Our current exploitation level is just about 0.05 million tonnes only

**Japan is the largest market for sashimi grade gilled Guttled tuna in fresh and frozen form.**

**EU markets for fresh tuna loins, frozen loins, steaks etc.**

**USA for fresh GG tuna and CO treated frozen tuna products**

**Vietnam and Thailand are the major re-processors importing from India, Sri Lanka and Maldives**

# Need of a Tuna harvesting strategy



WCPFC defines the key elements for the harvest strategy

- Management Objectives
- Performance indicators
- Reference points
- Harvest control Rules
- Management Strategy Evaluations (MSE)
- Monitoring Strategy

- **Harvest strategy sets rules in advance**
- **Comprehensive rules must be developed and implementation confirmed**
- **Focussed effort on data collection and analysis**
- **Cooperation with RFMOs**



*Catch Less, Earn More and Save for  
Tomorrow*

**Thank You**