Organización de las Naciones Unidas para la Alimentación y la Agricultura

WEBINARIO
ANÁLISIS DE PELIGROS Y PUNTOS CRÍTICOS DE CONTROL
-HACCP-
EN PESCA Y ACUICULTURA

HACCP & Fishing Vessels

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FISHING VESSELS

Definition

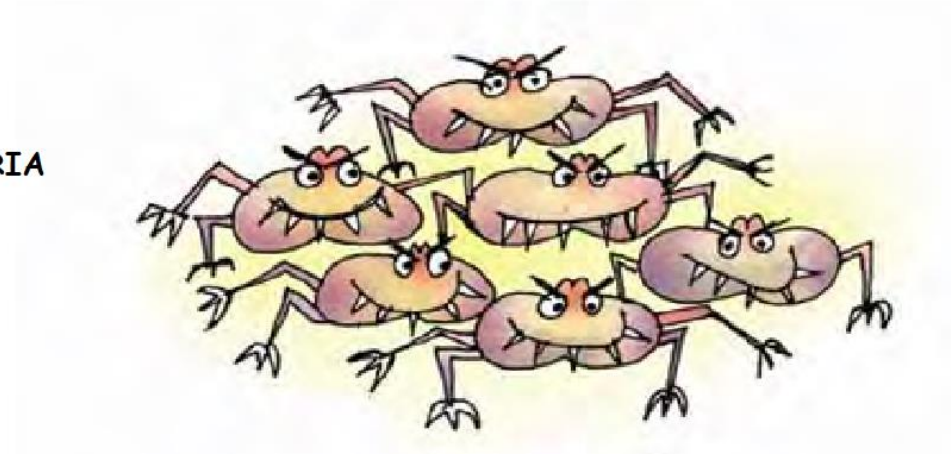
- Any vessel, boat, ship, or other craft that is equipped and used for fishing or in support of such activity. https://www.fao.org/faoterm/viewentry/en/?entryId=98389

  - Myriad of different types and sizes of vessel
  - Most vessels limited in terms of space…
  - Some vessels designed for GHP and good fish handling…other vessels not

FOOD SAFETY HAZARDS

A biological, chemical or physical agent in food or the condition of food with the potential to cause an adverse health effect.

- Biological…
  - Scombrotoxin (Histamine) formation
  - Parasites
  - Pathogen growth & toxin formation (other than *Clostridium botulinum*) as a result of time/temperature abuse
- Chemical….
  - Oil, fuel…some vessels use fish holds or wells for storing fuel…
  - Cleaning chemicals,
  - Preservatives…sodium metabisulphite
  - Pesticides
- Physical….
  - Hooks
  - Paint
  - Dirt
  - Metal



PRE REQUISITE PROGRAMMES (PRP)

A programme that is required prior to the application of the HACCP system to ensure that a fish and shellfish processing facility is operating according to the Codex Principles of Food Hygiene, the appropriate code of practice and appropriate food safety legislation.

Codex Code of Practice for Fish and Fishery Products

Fishing and harvesting vessel design and construction

- ease of cleaning and disinfection
- minimize contamination
- minimize damage to the fish, shellfish and other aquatic invertebrates

PRE REQUISITE PROGRAMMES (PRP)

Water

Calibration

Approved Maintenance Compounds

Cleaning and sanitation

- Deck and Wells
- Start of fishing Operations
- During fishing days
- End of fishing Operations
- Amenities

Repairs & Maintenance

Temperature control and records

Standards for Personnel and Training

Process inputs

Organoleptic assessment of fish caught

Pest Control Programme

HACCP ON BOARD

- Most HACCP manuals, guides and realities designed with land-based factories in mind where space is not at a premium.
- EU requirement is for a control system based on HACCP principles
- EU requirements for HACCP - **freezer vessels & factory vessels**
- Fishing vessels (and transport of unprocessed primary products to establishments) outside scope of the HACCP requirement
- HACCP and hygiene requirements in Annex 1 of 852/2005 and hygiene requirements for different kinds of fishing vessels in Section VII: Fishery Products of 853/2004

FREEZER VESSEL – PURSE SEINER

Aquatic Product Raw Material:	Albacore Tuna, *Thunnus alalunga;* Skipjack Tuna, *Katsuwonus pelamis;* Southern Bluefin Tuna, *Thunnus maccoyii,* Yellowfin *Thunus albacares*, Bigeye *Thunnus obesus*; Stripped Marlin, *Tetrapaturus audax*, Mahi-mahi, *Coryphaena hipurus*; Wahoo, *Achantocybium solandri*
Raw material harvest Area:	FAO area 71, WCPFC waters
Finished Product:	Whole frozen fish
Packaging:	None
Storage and distribution:	Stored and distributed frozen
Food additives, ingredients, processing aids:	Salt
Intended use:	Further Processing
Intended consumers:	Human consumption

Inputs

Raw fish, seawater and salt.

Outputs

Frozen Whole Pelagic Fish

FLOW DIAGRAM

Harvest	Harvest and on board stowage perform under company specifications.
↓ Receiving	Raw whole fish received on board
↓ Freezing	Brine freezing at or below -9°C / (Freezing at -18 if applicable)
↓ Storage	Freezer at or below -9°C / (Storage at -18 if applicable)
↓ Load-out	Load out direct from the wells
Frozen whole fish	

POTENTIAL HAZARDS

Potential species-related hazards:

- Scombrotoxin (Histamine) formation
- Parasites

Potential process-related hazards:

- Pathogen growth & toxin formation (other than *Clostridium botulinum*) as a result of time/temperature abuse

(1) Ingredient/ Processing Step	(2) Potential Hazard Introduced or Controlled	(3) Is the Potential Hazard Significant	(4) Justification for Inclusion or Exclusion as a Significant Hazard	(5) Preventive Measure(s) for the significant Hazard from Column 3	(6) Critical Control Point (Yes/No)
Harvesting	BIOLOGICAL Scombrotoxin formation	Yes	Scombrotoxin (histamine) in toxic levels may be present due to temperature abuse	Temperature control. Vessels trip summary records	Yes
	BIOLOGICAL Parasites	No	Parasite presence for some small specimens these species is documented in abdominal cavity.	All species are to be frozen and further process/no direct HC	No
	CHEMICAL None	No	N/A	N/A	No
	PHYSICAL None	No	N/A	N/A	No
Receiving	BIOLOGICAL Scombrotoxin formation	Yes	Scombrotoxin (histamine) in toxic levels may be present due to temperature abuse prior freezing	Operation fits into Safe time and Tº parameters	No
	BIOLOGICAL Pathogen growth	No	Pathogen growth is not reasonably likely to occur.	Operation fits into Safe time and Tº parameters	No
	PHYSICAL None	No	N/A	N/A	No
Freeze	BIOLOGICAL Scombrotoxin formation	Yes	Scombrotoxin (histamine) in toxic levels is unlikely to be formed due to temperature abuse	Operation fits into Safe time and Tº parameters	No
	BIOLOGICAL Pathogen growth	No	Pathogen growth is not reasonably likely to occur.	Operation fits into Safe time and Tº parameters	No
	BIOLOGICAL Parasites	No	Parasites may be present in the abdominal cavity species	Freezing kill parasites (time at sea > 7 days	No
	PHYSICAL None	No	N/A	N/A	No
Finished product storage	BIOLOGICAL Pathogen growth	No	Pathogen growth is not reasonably likely to occur.	Operation fits into Safe time and Tº parameters	No
	BIOLOGICAL Scombrotoxin formation	Yes	Scombrotoxin (histamine) in toxic levels is unlikely to be formed due to temperature abuse	Operation fits into Safe time and Tº parameters	No
	CHEMICAL None	No	N/A	N/A	No
	PHYSICAL None	No	N/A	N/A	No
Unload	BIOLOGICAL Scombrotoxin formation	Yes	Scombrotoxin (histamine) in toxic levels is unlikely to be formed due to temperature abuse	Operation fits into Safe time and Tº parameters	No
	CHEMICAL None	No	N/A	N/A	No
	PHYSICAL None	No	N/A	N/A	No

HAZARD ANALYSIS

(1) Ingredient/ Processing Step	(2) Potential Hazard Introduced or Controlled	(3) Is the Potential Hazard Significant	(4) Justification for Inclusion or Exclusion as a Significant Hazard	(5) Preventive Measure(s) for the significant Hazard from Column 3	(6) Critical Control Point (Yes/No)
Harvesting	BIOLOGICAL Scombrotoxin formation	Yes	Scombrotoxin (histamine) in toxic levels may be present due to temperature abuse	Temperature control. Vessels trip summary records	Yes
	BIOLOGICAL		Parasite presence for some small	All species are to be	

HACCP PLAN

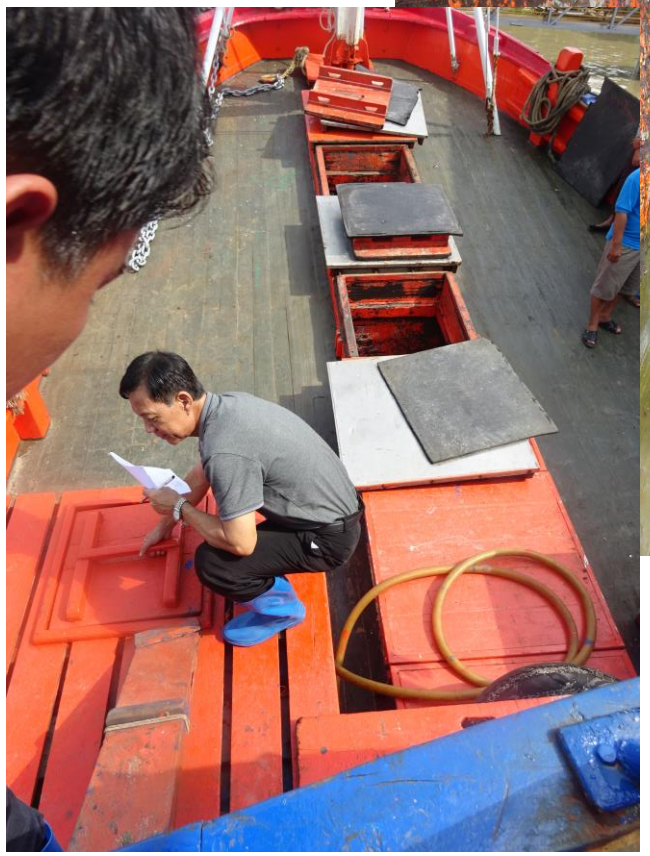
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Critical Control Point (CCP)	Significant Hazard	Critical Limits for each Preventive Measure	Monitoring				Corrective Action(s)	Records	Verification
			What	How	Frequency	Who			
Freezing	Biological Histamine Formation	Records showing that: Fish were placed in in freezer, as soon as possible after harvest, but not longer than 6 hours from the time of death;	Temperature and time	Visual	Every set	Chief Engineer or delegated	Well isolation of fish outside parameters when it happens Done by Chef Engineer	Vessel records Checklist	Review monitoring, corrective action and verification records weekly Copies of CA histamine tests showing product has less than 200 mg/kg Calibration of temperature recorders

Verification procedures are divided in two groups:

I. *Internal*: HACCP Co-ordinator would review overall plan efficiency at least once a year or at any process change.
II. *External*: Regulatory authority will establish their own frequency and share the data. If buyers perform histamine tests, copies would be sent

CHALLENGES

- Vessel design and space
- Lack of guidance (public domain)
- Crew training and culture
- Languages
- Inspectors not familiar with vessels
- Practicality of inspections



CONCLUSIONS

- HACCP MORE IN TUNE WITH MODERN VESSELS DESIGNED WITH GHP IN MIND
- EU REQUIRMENTS FOR FREEZER & FACTORY VESSELS
- MORE GUIDANCE REQUIRED

Gracias

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