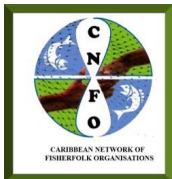


Processing and Value addition



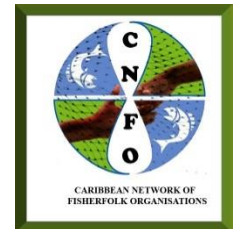
Module 2

Prepared by Keegan Slinger
For CNFO Leadership Institute

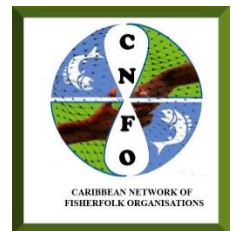


Topics to be covered

1. Fish processing explained
2. Preparation of area for processing
3. Market forms (Chilled and Frozen)
4. Value-added products from marine fish
5. Other by-products

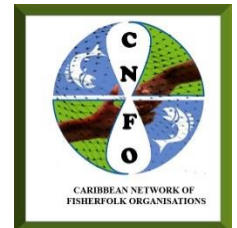


Fish processing



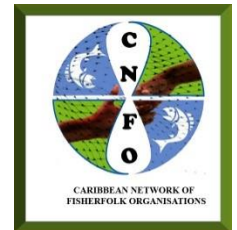
Fish Processing

- Fish processing refers to a series of activities by fishers or other actors in the value chain to preserve their fish products until it reaches the consumer
- Fish processing can be divided into two categories, Primary and Secondary



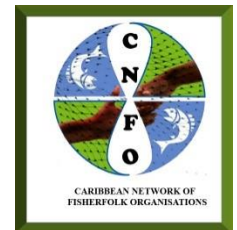
Primary processing

- Involves the following steps: evisceration, deheading, scaling, cutting of fins and belly flaps, slicing of whole fish into steaks, filleting, skinning, and different combinations of the above

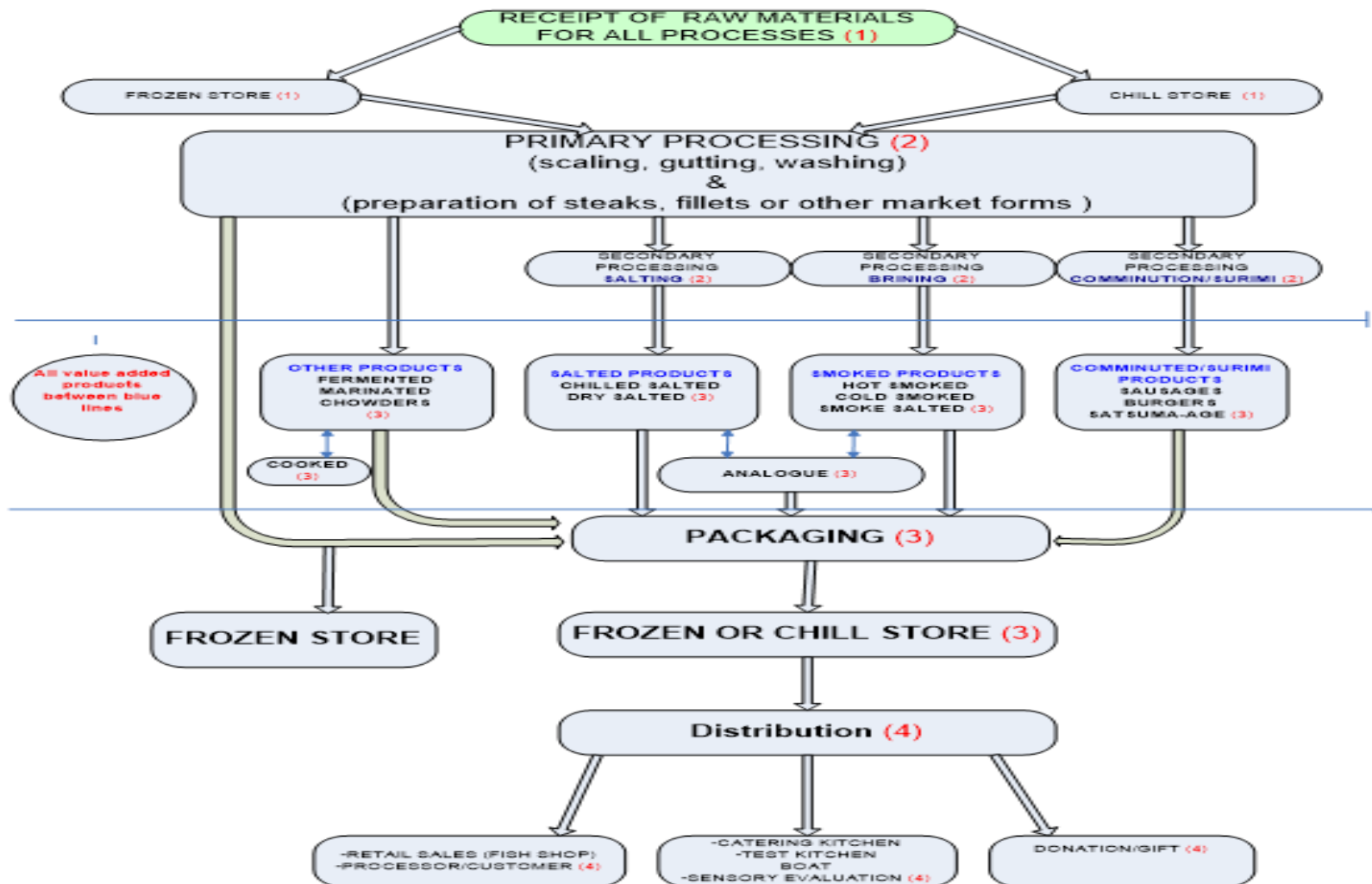


Secondary processing

- Includes all the stages beyond primary processing such as salting, brining, smoking, drying, and any other processes that produces a finished product



Processing diagram



Primary processing

De-icing

The fish is deiced from removing the fish from the layers of ice in the insulated boxes using shovels or scoops as necessary to prevent damage to the fish.

Weighing

All raw material **MUST** be weighed and the weight entered into the data sheet as primary processing start weight after de-icing process.

The weights must be recorded **IMMEDIATELY**; weights must be double checked if necessary to avoid mistakes.

Scaling

This is the removal of scales of fish manually by using a fish scaler by pulling the tool from tail to head repeatedly ensuring all scales are removed effectively. Designated troughs must be assigned to this process to avoid cross-contamination.

Washing

After batch scaling, the fish must be washed in an ice slurry with the temperature ranging between 10-15°C. The ice slurry is changed as required and designated troughs must be rinsed before moving to the next stage of processing.

Dressing

The removal of all fins from fish using scissors or knife.

Gutting

The removal of entrails, gills and kidney blood manually using a knife.

Washing

After gutting, the fish must be washed in an ice slurry with the temperature ranging between 10- 15°C to remove excess blood and impurities.

Heading

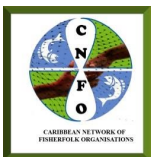
The head of the fish is removed using a knife from behind the pelvic and pectoral fins prior to feeding into the Deboner.

Rinsing

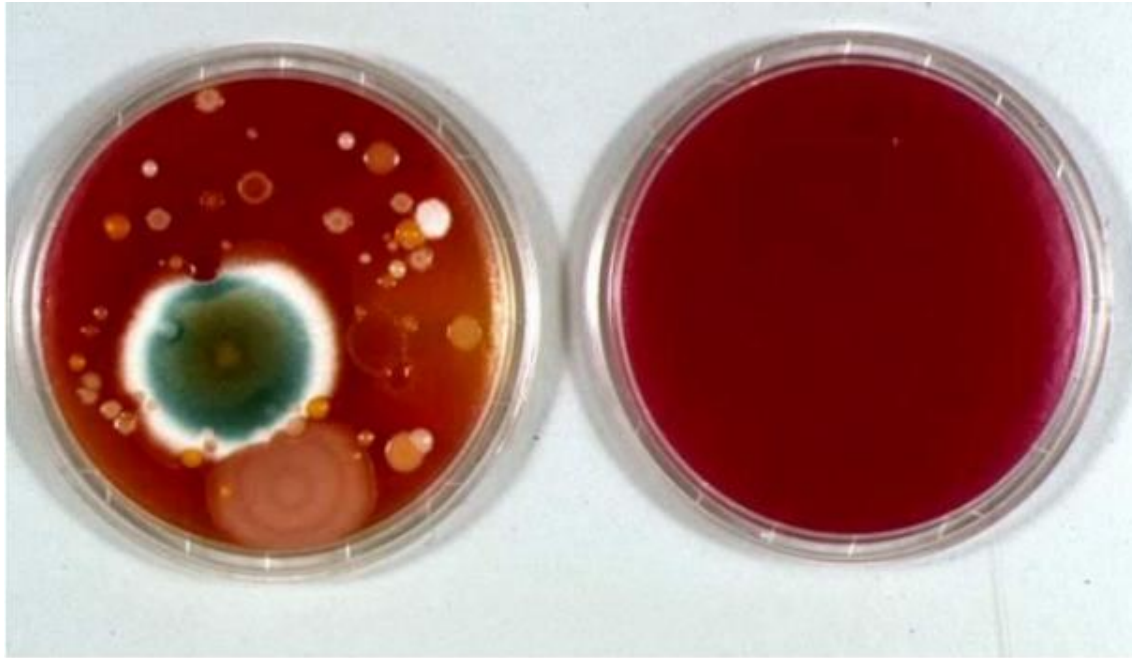
After beheading, the fish must be washed in an ice slurry with the temperature ranging between 10-15°C to remove excess blood and impurities.

Weigh

The weight of the fish is taken at this point and entered into the data sheet. This weight will determine the processed end weight should determine the yield.

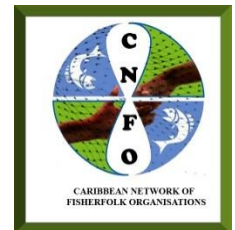


Preparation of area for processing



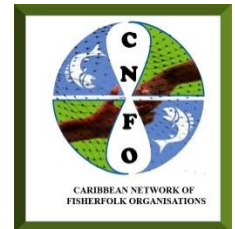
Preparation of the work area

- All ppe, equipment, utensils, tools, knives, bins, trolley, boxes, trays, scales, etc should be arranged neatly and in order of the work being carried out
- Fish handlers should be properly attired
- Only authorized personnel should be allowed around the area during processing and must also be appropriately attired

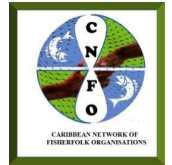


Cleanliness of food contact surfaces

- All surfaces should be adequately and routinely cleaned and disinfected
- It is one of the most important activities in the food industry
- The process is divided into distinct activities but the final result is dependent on all steps carried out correctly



Cleaning and disinfection



The aim of cleaning:

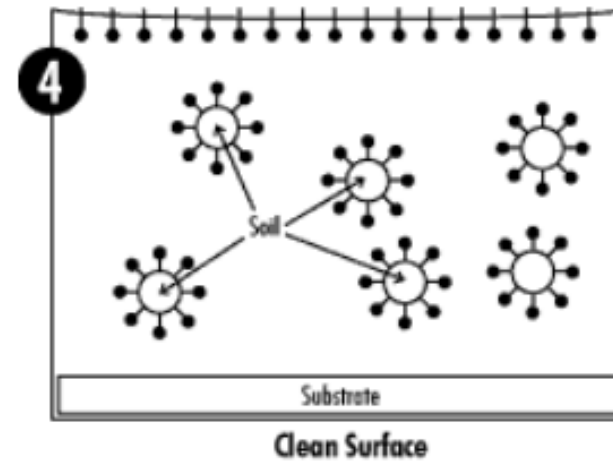
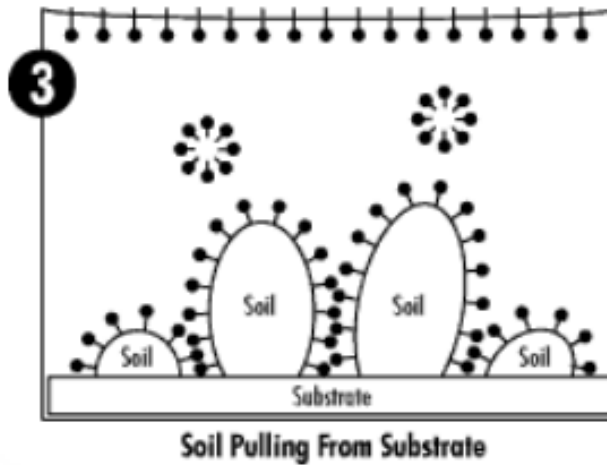
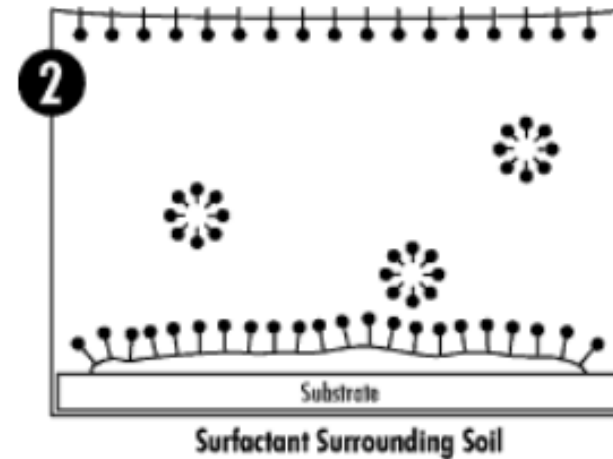
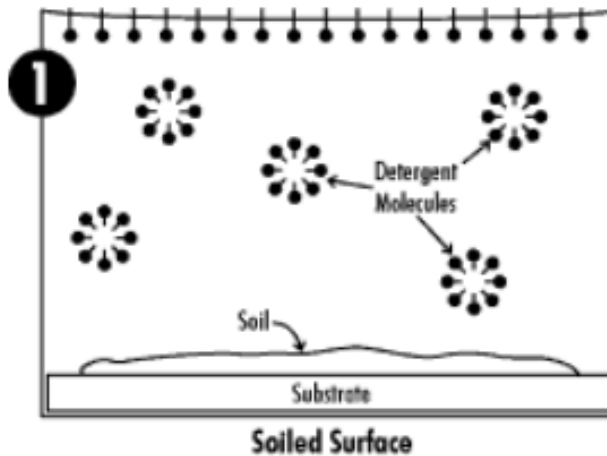
- To remove all visible dirt
- To wet, disperse and rinse
- To prevent build up of organic matter

The aim of disinfection:

- To destroy microbes
- To prevent growth of microbes
- To ensure a microbiologically acceptable level of microbes (standard of hygiene)

Effective disinfections can only be obtained after an effective cleaning

How cleaners work



Cleaning and disinfection



Types of cleaning compounds:

- Soaps
- Solvents
- Foams
- Alkaline cleaners
- Acid cleaners
- Neutral cleaners

Common types of disinfection:

- Chlorine sanitizers
- Iodine compounds
- Quaternary ammonium compounds
- Ozone
- Acid sanitizers



Water

Water is used as an ingredient for all cleaning agents and intermediate rinses and final rinses of equipment



The quality of water is of great importance

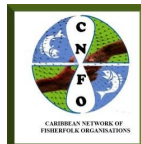
Cleaning and sanitizing procedures

Steps...

1. Rough clean
2. Wash with water
3. Cleaning-detergent
4. Rinse
5. Sanitize
6. Rinse (if required)
7. Air dry



All equipment should be made of impermeable substance for example plastic or rubber and should not be made of for example wood.



SSOP Cleaning and Sanitizing Checklist

Area	Item	Frequency	Action	M	T	W	T	F								
				E	D	A	E	D	A	E	D	A	E	D	A	
Receiving Area	Wash Trough	Before commencement	1. Wash trough pre-rinsed, soil removed and surfaces wet													
			2. Multipurpose detergent solution mixed 1tsp:1gal													
			3. Sponge pad immersed into detergent solution													
			4. Wash trough scrubbed													
			5. Detergent residue rinsed off													
			6. Wash trough sanitized using bleach (hypochlorite) 2tsp:4L													
			7. Rinsed and sanitizer removed													
	Primary Transport Container	Before, during and after processing	1. Pre-rinsed, soil removed and surfaces wet													
			2. Multipurpose detergent solution mixed 1tsp:1gal													
3. Sponge pad immersed into detergent solution																
4. Container scrubbed																
5. Detergent residue rinsed off																
6. Sanitized using bleach (hypochlorite) 2tsp:4L																
7. Sanitizer residue rinsed off																
Terrazzo Floor	After Processing	1. Soil removed and surfaces wet														
		2. Multi-purpose detergent solution mixed 1tsp:1gal														
		3. Detergent solution poured and lather created														
		4. Rinsed using high pressure														
		5. Squeegee used and excess water removed														
Processing Area	Foot Bath	Before commencement	1. Pre rinsed and soil removed													
			2. Sanitizer solution added to the foot bath 5tsp:4L													
			3. Foot bath filled to a height of 7.5 cm													
			4. Chlorine strips used periodically to monitor foot bath													
	Aprons and Gloves	After processing	1. Pre-rinsed and soil removed													
			2. Multipurpose detergent													
			3. Sanitized using bleach solution (hypochlorite) 2tsp:4L													

Market forms



Whole/Round

- Marketed as fresh fish
- Before cooking it must be scaled, eviscerated, and washed



Drawn

- The entrails are removed
- Generally sold without scaling
- Head fins and tail and scales are usually removed for cooking



Dressed/Pandressed

- The fish is scaled
- The head, viscera and fins are removed
- The tail is usually removed
- The body cavity is free from blood and it ready to use as purchased



Steaks

- **Cross-section slices cut from large dressed fish**
- **Cut at right angles across the backbone commonly ½" to 1 inch thick (15-20mm).**
- **A cross- section of the backbone is the only bone in the steak.**



Fillets

- Fillets are slices cut lengthwise from the back bone or sides of the fish.
- They are practically boneless with little or no waste.



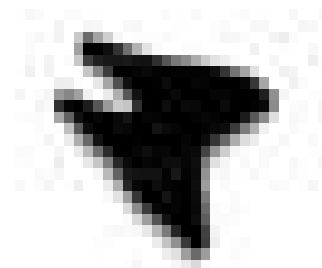
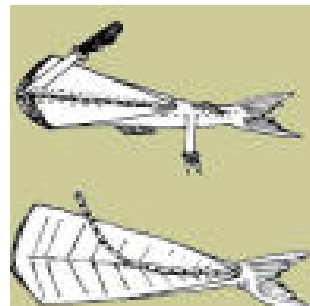
Single fillets

- A single fillet is the flesh cut from only one side of the fish



Double/butterfly fillets

- Double or butterfly fillet is the name for two single fillets held together by uncut flesh and skin. Usually the belly
- Although the names are used interchangeably there is a difference



Loins

- The lower meatier portion of the fish usually between the caudal fin and the beginning of the rib cage
- It is taken off in 4 pieces, and has a three cornered effect

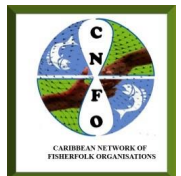




Portions

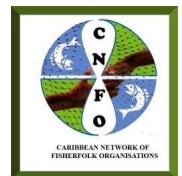


- **These are uniform pieces cut from blocks of frozen fillets**
 - **may be prepared from a single species of fish or from a mixture of species with similar sensory properties.**
- **Cut lengthwise or crosswise from fillets or steaks.**
- **A fish portion including the coating may be of any shape, weight or size.**
- **Most often they come in equal size portions about 1 inch wide to 3 inches long.**



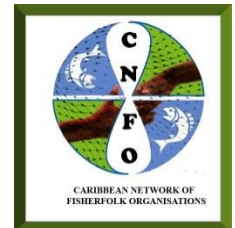
Sticks

- Elongated pieces of fish uniformly cut from blocks of frozen fillets, (usually breaded)
- Each stick generally weighing between 20-35g (max 50g) incl. coating.
- Not less than 10mm thick
- Shaped so that the length is not less than 3times the greatest width
- Sold frozen raw or frozen flash cooked



Value-added products from secondary processing

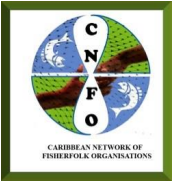
1. Chilled and Frozen products
2. Cured fishery products
3. Comminuted products
4. Fermented products
5. Deli products
6. Utilization of fish
7. Other by-products



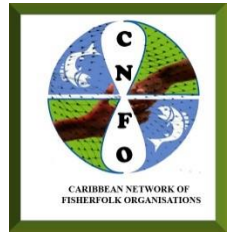
Chilled and Frozen products



Salted and Smoked products



Dried fish



Comminuted products

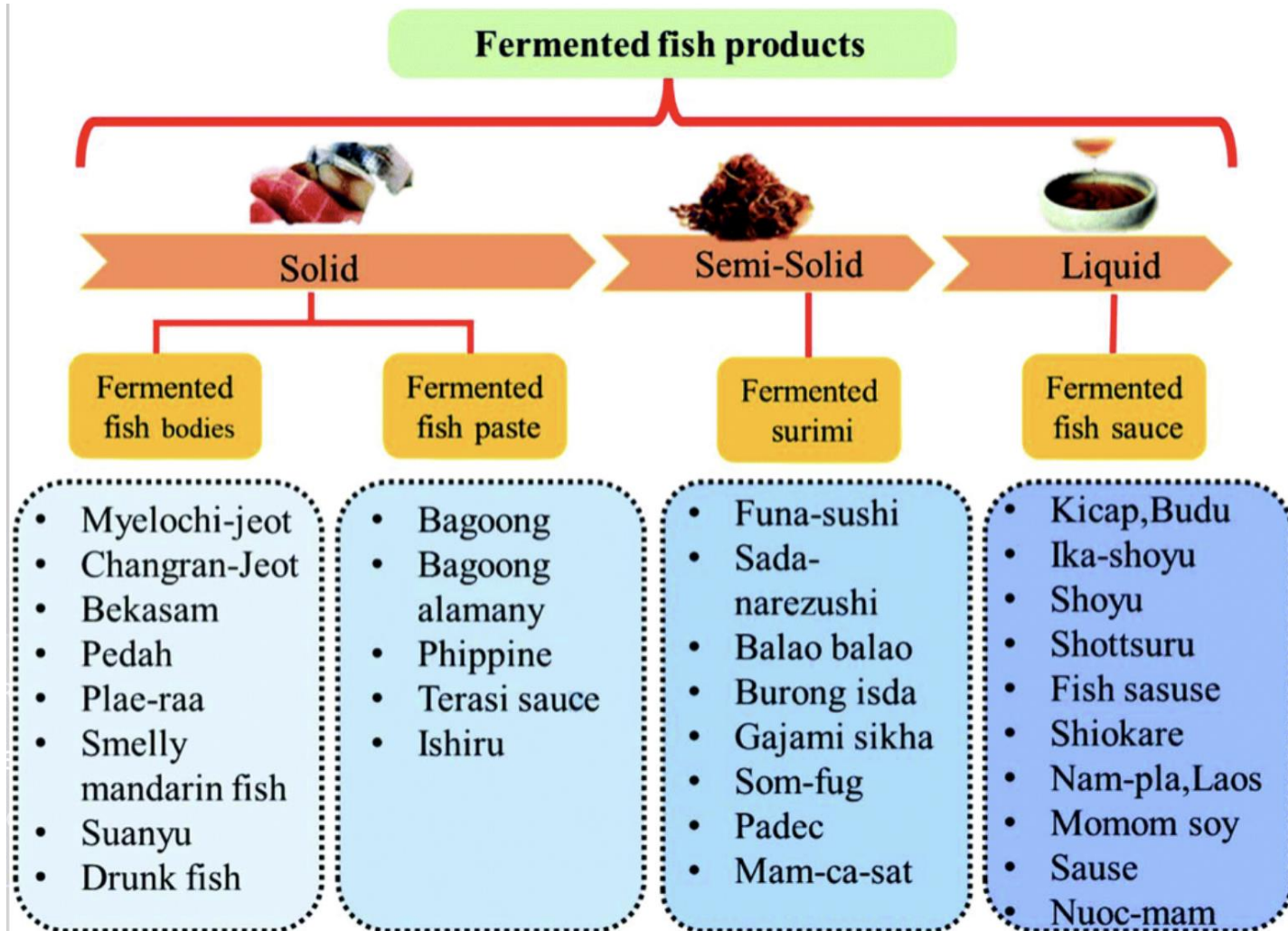


Fermented products

- Fish sauce
- Fermented shark



Fermented products



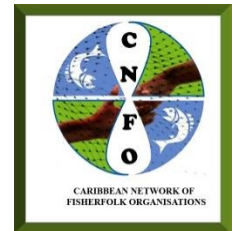
Fish Utilization



Other

By-products from fish waste (rest raw material)

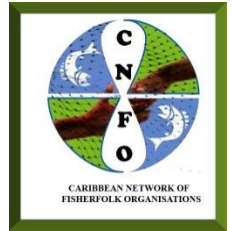
- Fish silage
- Fish meal or fish powder
- Fish collagen
- Fish oil
- Fish glue
- Fish leather
- Fish jelly / Gelatin



By-products from fish waste OR Rest Raw Material (RRM)



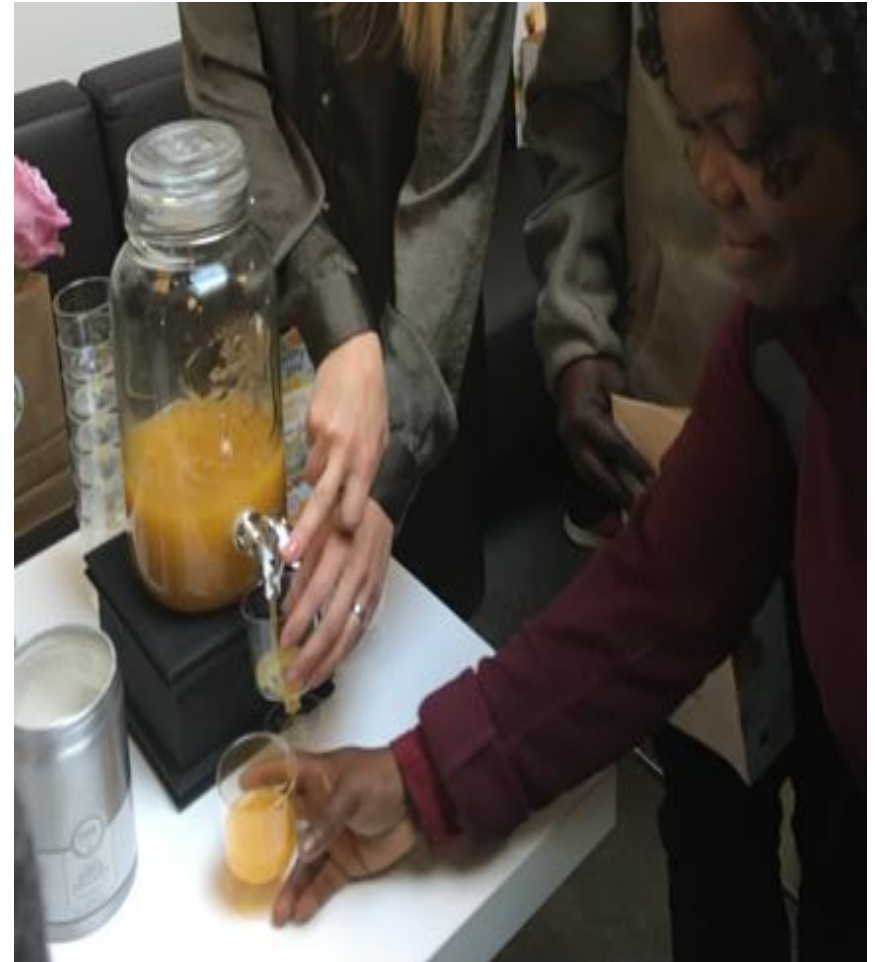
Fish silage



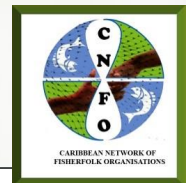
Fishmeal / Fish powder



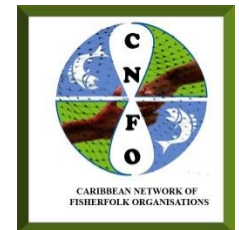
Fish collagen



Fish oil



Fish glue

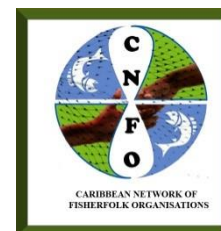
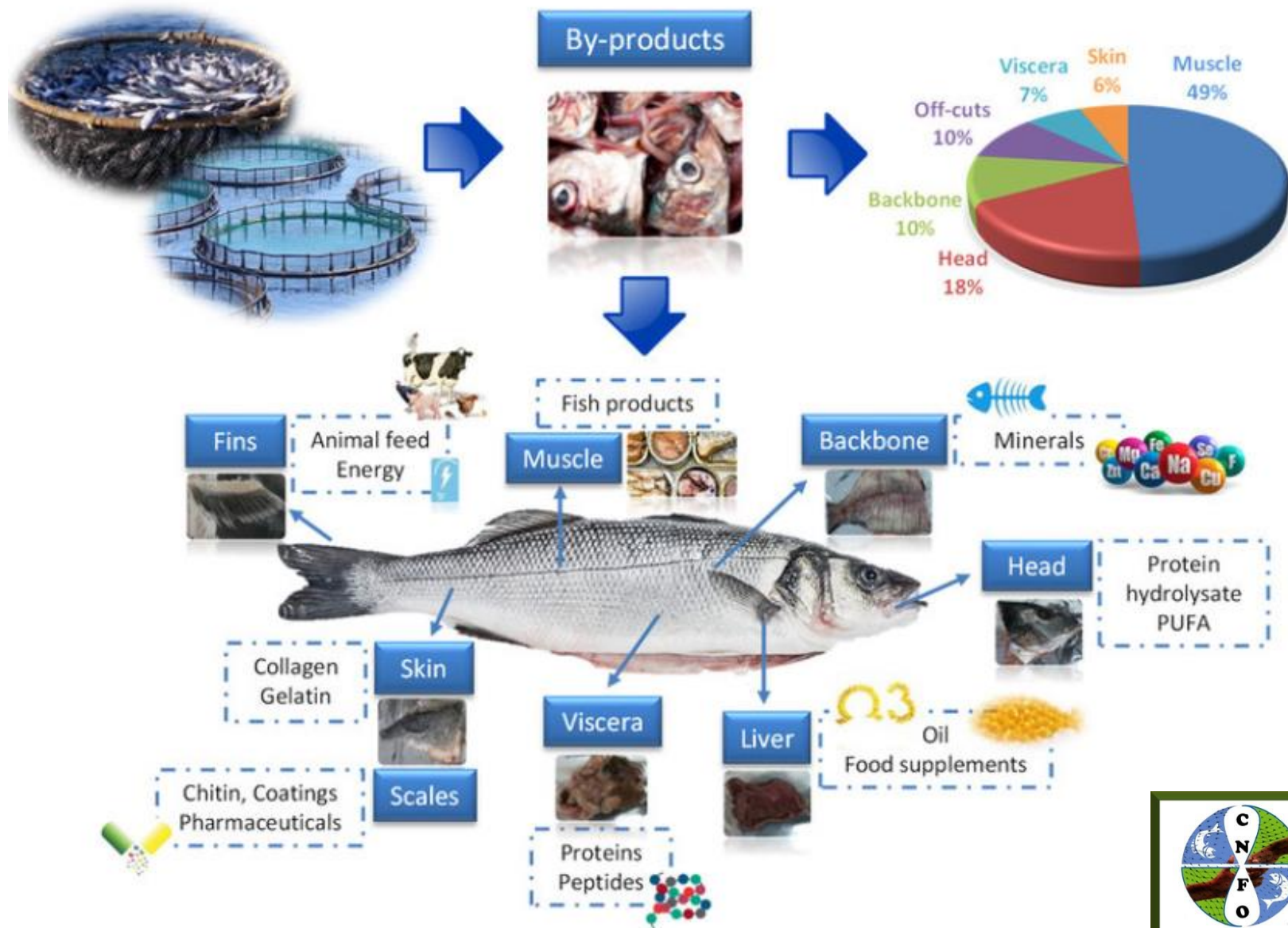


Fish leather



Fish jelly / Gelatin





The End

