HANDLING OF SMALL PELAGIC FISH
Illustrated Operator’s Manual
1. Personal hygiene

1.1. Everybody

Always wash your hands after visiting the toilet, and before handling material or product.

1.2. Processors

- No long nails
- No rings on finger, ears
- No bangles
- No wristwatches
- No facial make-up
- No dirty hands

- Hairnet
- Clean clothes
- Apron

- Cut your nails
- Remove nail polish
- Wash your hands before processing
- Wash your hands after processing
2. Prepare before you go fishing

2.1. Keep your boat and fishing tools clean and well maintained at all stages

2.2. Safety requirement:
Always take life jackets and a whistle for everybody on board

2.3. Schedule timing
The boat should be back as agreed before departure (as soon as possible after fish being captured)

2.4. Check the weather forecast
3. On the boat: using crates

3.1. Use plastic, perforated, clean and handable crates

- **Cans are hard to handle**
- **Filled too much, fish are crushed**
- **Can’t be stacked one on top of the other**
- **Crate is not filled: fish are not crushed**
- **Perforated crates allow water to flow/drain out of the crate**
- **Crates can be stacked to prevent fish from being crushed**
- **Sprinkling water to keep the cloth cool**

- **20cm**

- **Fuel and oil must be separated from fish**

3.2. Using crates in an ordered boat

- **Do not spread fish on bare wooden floor of the boat**
- **You can stack the crates but be careful not to fill the crates too full**
- **Fuel and oil must be separated from fish**
4. Unloading fish and grading

4.1. Boat to landing site
Carefully transfer crates from boat to the shore, do not spill fish on the floor.

4.2. Weighing
Using the crates is easier than the cans for weighing.
Beware of personal hygiene of persons who weigh and manipulate the crates.

4.3. Grading of fish to determine quality & price of catch:
Glossy, silvery fish with straight bodies are better quality and need to be sorted for processing.

- Good for processing
- For poultry

The eyes should be bright and clear — not cloudy or sunken in.
The gills of fresh fish are deep red, not brownish.
The skin should be firm, clear, and bright with no trace of slime.
5. Prepare for processing

5.1. After the first four steps, you should have a clean fish ready for processing

- 1. Personal hygiene
- 2. Orderly clean boat and tools
- 3. Not too full and perforated crates
- 4. Sorted fish

Fish is ready for processing!

Lack of personal hygiene
Disorderly, dirty boat and tools
Filled and non perforated cans / boxes
Unsorted fish

Sorting with clean hands
Washing with clean water

If needed, wash it and sort it. Always use clean/ fresh sea water to wash the fish to remove dirt or other foreign matter.

5.2. Four (4) options of process*

- Boiling
- Drying
- Frying
- Smoking

Keep water/sand close to fire to stop it if a problem arises
Keep a lid to stop an oil fire in the pan if it happens
Keep a first aid kit nearby in case of burns by fire or boiling oil

*Detailed pp. 14-15-16-17
6. Process

6.1. Boiling
The heat from boiling kills any of micro-organisms present in the fish

Use plastic cooking buckets
Don’t fill it completely

Salt your boiling water
Lesser consumption of firewood
Shift to gas-cooking

While boiling, covering the containers with lids will retain heat and create pressure, leading to faster and efficient cooking

Boiled fish should be cooled down as quick as possible. After boiling, don’t contaminate the fish, manipulate it with clean hands only

6.2. Drying
Drying is a simple and effective method of moisture removal from the fish using heat from the sun

Don’t handle fish dirty hand, don’t spit…..

Use clean racks; Maintain well your racks: repair or cover any holes or gaps in the nets immediately

Use raised racks to avoid animals (birds, dogs, etc.) and dust to ruin your harvest. Use protection against the rain

Cover should not be in contact with the fish

Only with clean hands!
Handling of Small Pelagic Fish

6.3. Frying

- Covered space is preferable but ONLY if the space is well ventilated.
- Use only cooking oil (engine oil or other type of non-food grade oil is highly toxic).

- Use clean oil: replace the oil regularly and remove impurity at the top with a clean strainer.
- Oil is to be replaced before it starts to become dark, brownish/black color;
- Bad oil has an impact on the quality of the end product and on human health.

6.4. Smoking

- Use only natural wood/fibers to generate smoke.
- Don’t smoke the fish longer than necessary.
- Move trays up/down to ensure evenly smoking.
- If needed turn the fish on each tray during smoking.
- Smoked fish of good quality should have a golden color, not dark/black color.
7. Packing and storage

7.1. Inspect product before packing

- You must remove discoloured, charred fish and use it for poultry feed
- Remove any other foreign matter in the product – such as sand, stones and dispose immediately
- If you have too much foreign matter or altered fish, try to find out what step in the process you need to check and do better

Dirty hands and/or water manipulating fish?  Crushed fish in too much filled buckets?  Fish burned / overcooked at frying?

7.2. Small bags better for storage:

- Smaller bag is better to avoid crushing the fish at the bottom of the bag
- Packs should weigh less than 20 kg

7.3. Storage

- When a warehouse is used for storing finished product, take measures to prevent rats, bugs enter the storage area. Inspect daily
- Do not use chemical products in the room of storage. Add a sign: "For food storage only. No chemicals permitted"
8. Packaging

Package information

- Good packaging is important for maintaining quality of processed fish for longer periods
- Package the processed fish and seal in air-tight containers – transparent, re-sealable zip-lock, self-standing containers, tins or in bulk
- Double-check if the sealing has been properly done

The logo being a sign that the processors is following certain standards of quality processing and hygienic practices

Ensure that the product description, quantity, ingredients, nutritional composition, price, date of packing & best before

9. Transport

- Keep the products dry
- Use a clean truck
- Same requirements as for storage (don’t put other stuff in your truck, keep clean), bumpy roads can affect the products. To prevent so: use shelves to store in the transportation mode
- If covered truck, use small bag not one on each other (for example in installing shelve on the truck)
- If truck uncovered: use clean and covered crates to protect from sun and dust and rain
IOC-SmartFish is a regional fisheries project managed by the Indian Ocean Commission, funded by the European Union and co-implemented by the Food and Agriculture Organization of the United Nations. SmartFish, which operates in twenty countries throughout the Indian Ocean Region, Southern and Eastern Africa, focuses on fisheries governance, management, monitoring control and surveillance, trade, and food security.

This illustrated manual is intended for operators of the small pelagic value chain to adopt hygienic practices for a good quality product. The manual exemplifies all stages of the handling chain: fishing, landing, sorting, processing, packaging, storing and transporting.