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COVID-19 Mitigation Advisories for Harvest and Post Harvest Sector of Indian Fisheries

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Fisheries Advisories to combat COVID-19

BACKGROUND

COVID-19 is a viral disease that was first reported in humans from Wuhan City, China, in December 2019. It has soon become a pandemic affecting almost all the countries in the world. COVID-19 is caused by a coronavirus named SARS-CoV-2. Coronaviruses have a crown-like appearance when viewed under an electron microscope (*coronam* in Latin means crown) due to the presence of spike glycoproteins on the envelope. **SARS-CoV-2 is a single-stranded RNA virus**(+ssRNA) with a genome size of ~30Kb.

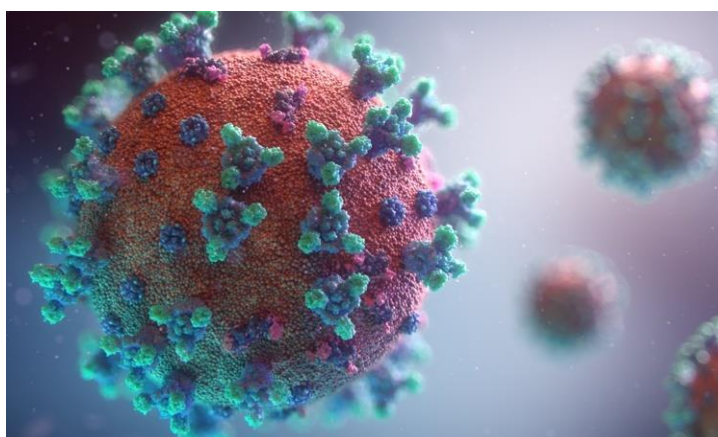


Fig. 1 3D model of the surface of the coronavirus COVID-19 created by Fusion Animation

COVID-19 spreads through respiratory droplets. When someone infected with COVID-19 coughs or exhales they release droplets of infected fluid that fall on nearby surfaces and objects, such as desks, tables or telephones. People could catch COVID-19 by touching contaminated surfaces or objects, and then touching their eyes, nose, or mouth. Human coronaviruses can persist on inanimate surfaces like metal, glass or plastic for up to 9 days.

If people stand within 1 meter of a person with COVID-19 they can catch it by breathing in droplets coughed out or exhaled by them. So, to prevent getting infected with COVID-19, it is essential to maintain physical distancing (staying more than 1 meter [3 feet] away from an infected person) and follow personal hygiene practices. Human coronaviruses can be inactivated by disinfecting surfaces with 62-71% alcohol or 0.5% hydrogen peroxide or 0.1% sodium hypochlorite. Prevention of the spread of COVID 19 in all fields including fisheries is vital, as presently there is neither a specific drug nor an effective vaccine available against SARS-CoV-2.

FISHING

1. Fishing Boats Hygiene Requirements

- Clean the boat, net, gear accessories and equipment thoroughly using clean water and approved detergent, followed by rinsing with clean water before each fishing trip.
- Sun dry the cleaned fishing nets and keep in dried/clean place.
- Inspect the fishing craft and gear for damage and do necessary maintenance.
- Use only tap water from the public water supply, clean well / borehole water that has been treated with chlorine or use clean seawater to clean boats and equipment.
- Do not use water close to the fishing beach or harbour water for cleaning, as this water will be polluted. If clean water is not available, use clean seawater far from fishing harbour to clean boats and fishing net.
- Do not use water that may be contaminated with sewage.
- Do not allow the fishing craft and gear to sun dry.
- Fishing boats should be used solely for fishing purpose.
- Allowing animals onto the fishing boat and using the boat for transport of products other than Fishery Products increase the risk of contamination.

2. Equipment cleaning and sanitizing

- Use 100 ppm chlorinated water for sanitizing the equipments.
- Conduct thorough, regular cleaning of the boat, nets, all gear accessories and equipment to prevent bacterial build up.
- Clean and sanitize equipment before and immediately after each fishing trip.
- Clear all equipment and fishing gear thoroughly after each operation.
- Remove product residue from equipment and holding / storage area during breaks.
- Cleaning equipment is very simple and only requires buckets, brushes, clean water, water and detergent.
- Wash all surfaces, utensils and all equipments with clean sea/fresh water.
- Scrub using a detergent and rinse with clean sea/fresh water.
- Allow to dry in the sun and store in clean and dry place.
- All equipment used for handling should be constructed from smooth, easy to clean materials and kept in a good repair to avoid any injuries

3. Handwashing and sanitizing facilities

- Provide clean hand washing stations with adequate supply of clean water, soap, paper towels and trash container
- Ensure hand hygiene - advise all the fishing personal on board to wash hands frequently.
- Skipper/Boson may be asked to demonstrate the WHO suggested method of proper hand washing to the fishing personal or deckhands.
- Wash hands as per WHO guidelines before entering the fishing boat.
- Provide hand dip with 20 ppm chlorinated water
- Wash hand / feet of all crew members with soap every after hauling.
- Wash hands and other exposed body parts thoroughly before handling the catch.

4. Personal Hygiene

- Ensure that all fishers should maintain a high standard of personal hygiene.
- All personnel handling sea food on board to wash their hands before and after as per WHO guidelines for at least 20 seconds.
- Always wear clean, protective clothes, masks head gear and gloves and clean every after-fishing trip.
- Cover cuts and wounds with waterproof plasters.
- Do not cough or sneeze on Fishing Product or ice.
- Do not smoke or eat, spit and chew tobacco when catch is being handled.
- Provide alcohol based hand sanitizers.
- Drinking alcohol should be strictly prohibited.
- Do not allow persons suffering from contagious diseases entering the boat.
- Wash hands with soap and clean water after going to the toilet.

4. Production hygiene

- Regularly clean all these objects to avoid contamination.
- Keep the boat and fishing gear clean, observing good personal hygiene
- Keep animals away from the boat.
- Keep your body clean and wear clean clothing before starting work or fishing
- Wash your hands with soap and clean water after going to the toilet
- Keep fingernails and hair well trimmed
- Do not permit the following in common areas:
 - Smoking
 - Spitting
 - Chewing or eating
 - Sneezing or coughing over the product

5. Toilet Facilities

- Clean toilet with approved detergents/disinfectant/chemicals and ensure that the flush is working properly.
- Wash hands with soap and clean water after going to the toilet.

6. Employee Gear

- Ensure that all the boat staff should wear onboard clean uniform onboard.
- All fishing personnel on board to wear boiler suits/uniform, gloves, helmet and face mask.
- Wash the dress or uniform, gloves and gear regularly.
- Sanitize or clean/disinfect shovel, crate/basket, shoes and glove regularly.
- Must have checklist of hygienic protocol and must strictly followed.

7. Employee health

- Mandatory health assessment for crew before sailing.
- Non-contact screening- arrange facilities to screen all the crew member for signs of new Coronavirus at the point of main entry into the fishing harbour using Thermal scanning.
- Screen the crew members for any flu like symptoms.

- Do not allow any crew on board showing any signs of flu like symptoms and medical/health problems that could compromise product.
- Skipper to assess health condition of crew member.
- First Aid kit should be compulsory available onboard.

8. Pest Control

- Strictly prohibit the entry of any kind of animal/pets/birds onto the fishing boat using pest control traps or any other measure.
- Properly clean kitchen and properly store groceries to prevent insects and rodent.

9. Protection from Adulterants

- Properly label the cleaning compounds/lubricants/pesticides properly
- Store cleaning compounds/lubricants/pesticides in dry, clean and separate place to avoid contamination.

10. Safety of Water and Ice

- Do not turn on Refrigerated Seawater System (RSW) near shore.
- Use only good quality ice from approved source or made onboard using uncontaminated water source.
- Always store ice in clean containers.
- Never drag it along floor as this causes contamination.
- Do not dump crushed ice on to the floor of fishing harbour.

11. Prevention of cross contamination

- Provide adequate drainage for standing water and ensure scuppers are operational.
- Check bilge water levels and remove regularly.
- Discard and isolate all trash fish to avoid spoiling or foul smell.

12. Use of Hygienic Fish Containers or Fish hold

- Clean and sanitize fish hold or cooler/freezer and keep them in proper working order.
- Use clean boxes for onboard storage of Fish Product or ice.
- Boxes should be clean, easily cleaned, strong, have smooth surfaces, be in good repair and lined internally with food grade material.
- Do not use wooden boxes- Wooden boxes are impossible to clean properly and contain large numbers of bacteria which will contaminate any Fish Product that come into contact with them. Additionally, wooden boxes may produce splinters that present a physical hazard.

13. **Teach workers not to touch eyes, nose and mouth:** Ensure that all the workers wear masks covering nose and mouth. After use, ensure that the masks are put in dust bins with lid.
14. **Practice respiratory hygiene:** Make sure that all the workers follow good respiratory hygiene by covering their mouth and nose with bent elbow when they cough or sneeze.
15. **Seek medical care:** Encourage workers to seek medical care in case they have fever, cough and difficulty in breathing.
16. Frequently clean and dispose of waste on board.
17. Limit the number of people for essential work only.
18. Do not allow unauthorised persons onboard vessel.

LANDING SITES

1. **Provide entry pass:** Entry passes to be issued to all personnel involved in activities in fish landing centre. Entry restricted to only authorised personnel.
2. **Non-contact screening:** Arrange facilities to screen all the staff, workers, fish handlers and other people for signs of new Corona virus at the point of main entry into the fishing harbour by Thermal scanning using Non-contact thermometers etc.
3. **Provide handwashing and sanitizing facilities**
 - i. Provide clean handwashing stations with adequate supply of clean water, soap, paper towels and trash container.
4. **Ensure hand hygiene:**
 - i. Advise all the staff, workers, fishermen and fisherwomen and fish handlers to wash hands frequently. Government official or association members may be asked to demonstrate the WHO suggested method of proper hand washing to the workers/staff/fish handlers.
 - ii. Provide hand hygiene/sanitise products at entry points.
 - iii. Staff, workers, fish handlers, fishermen and fisherwomen, security guards, office staff should be encouraged to clean their hands with an alcohol-based hand rub or wash them with soap and water to kill the virus.

5. **Ensure Personal Hygiene**

- i. Ensure that all fishers should maintain a high standard of personal hygiene.
 - ii. All personnel handling sea food on board to wash their hands frequently as per WHO guidelines for at least 20 seconds.
 - iii. Always wear clean, protective clothes, masks head gear and gloves and clean every after-fishing trip.
 - iv. Cover cuts and wounds with waterproof plasters.
 - v. Provide alcohol based hand sanitizers.
 - vi. Do not allow persons suffering from contagious diseases to not enter the boat.
 - vii. Wash hands with soap and clean water after going to the toilet.
 - viii. Do not permit the following in common areas:
 - Smoking
 - Spitting
 - Chewing or eating
 - Sneezing or coughing over the product
5. **Maintain social distance:** Arrangements in landing centre should be made so as to maintain at least 1 metre (3 feet) distance between workers/fish handlers/fishermen.
6. **Teach workers not to touch eyes, nose and mouth:** Ensure that all the staff/workers/fishermen/fisherwomen/fish handlers wear masks covering nose and mouth. After use, ensure that the masks are put in dust bins with lid.
7. **Practice respiratory hygiene:** Make sure that all the staff/workers/fishermen/fisherwomen fish handlers follow good respiratory hygiene by covering their mouth and nose with bent elbow when they cough or sneeze.
8. **Seek medical care:** Encourage staff/workers/fishermen/fisherwomen fish handlers to seek medical care in case they have fever, cough and difficulty in breathing.
9. **Restrict the entry:**
 - i. Limit the number of people for essential work to the market.
 - ii. Do not allow unauthorised fish vendors to the market premises.

- iii. Landing sites should be fenced and unauthorized access forbidden.

10. Ensure hygiene Toilet Facilities

1. Clean toilet with approved detergents/disinfectant/chemicals and must be working properly.
2. Wash hands with soap and clean water after going to the toilet.

11. Sanitise the premises, vehicles and surroundings:

1. Spray the landing centre premises and surroundings with sodium hypochlorite solution (atleast 1000ppm) to kill the virus.
2. Sanitise insulated/ refrigerated trucks at the entry point.
3. Always keep the landing site clean.
4. Clean the landing site using potable water from the municipal water supply, clean sea water, or bore well water that has been disinfected with chlorine.
5. Do not use polluted water collected from near the shore or landing site cleaning and washing.

12. Store Fish Product with ice in clean plastic containers.
13. Transfer of Fish Product to a clean trucks should be performed quickly.
14. Keep the landing sites clear of waste to discourage pests (eg. rats).
15. Provide clean and safe water for cleaning the site and equipment.

FISHING HARBOUR

1. **Provide entry pass:** Entry passes to be issued to all personnel involved in activities in fishing harbour. Entry restricted to only authorised personnel.
2. **Maintain Timing of harbour operation:** Timing of harbour operation to be restricted as per govt regulations of timing as modified from time to time.
3. **Non-contact screening:** Arrange facilities to screen all the staff, workers, fish handlers and other people for signs of new Corona virus at the point of main entry into the fishing harbour by Thermal scanning using Non-contact thermometers etc.
4. **Ensure hand hygiene:** Advise all the staff, workers and fish handlers to wash hands frequently. Government official or association members may be asked to demonstrate the WHO suggested method of proper hand washing to the workers/staff/fish handlers. Provide hand hygiene products at entry points
5. **Ensure hand hygiene:** Staff, workers, fish handlers, fishermen and fisherwomen, security guards, office staff should be encouraged to clean their hands with an alcohol-based hand rub or wash them with soap and water to kill the virus.
6. **Maintain social distance:** Arrangements in harbour area, pre-processing hall (cutting and cleaning) should be made so as to maintain at least 1 metre (3 feet) distance between workers/fish handlers.
7. **Teach workers not to touch eyes, nose and mouth:** Ensure that all the staff/workers/fish handlers wear masks covering nose and mouth. After use, ensure that the masks are put in dust bins with lid.
8. **Practice respiratory hygiene:** Make sure that all the staff/workers/fish handlers follow good respiratory hygiene by covering their mouth and nose with bent elbow when they cough or sneeze.
9. **Seek medical care:** Encourage staff/workers/fish handlers to seek medical care in case they have fever, cough and difficulty in breathing.
10. **Sanitise the premises, vehicles and surroundings:** Spray the harbour premises and surroundings with sodium hypochlorite solution (atleast 1000ppm) to kill the virus. Sanitise insulated/ refrigerated trucks at the entry point. Harbour to be cleaned on a daily basis to reduce the risk of contamination. Frequently clean and dispose of waste.

FISH MARKET

1. **Restrict the Timing of sale:** Timing of sale of Sea food to be restricted as per govt regulations of timing as modified from time to time.
2. **Maintain social distance:** Arrangements in fish market area should be made so as to maintain at least 1 metre (3 feet) distance between workers/fish handlers/ fish sellers / customers at all the time. If possible, the fish can be served via a conveyor passage to the buyers.
3. **Non-contact screening:** Arrange facilities to screen all the staff, workers, fish vendors and other people for signs of new Corona virus at the point of main entry into the market by Thermal scanning using Non-contact thermometers etc.
4. **Ensure hand hygiene:**
 - i. Advise all the staff, workers and fish vendors to wash hands frequently. Government official or association members may be asked to demonstrate the WHO suggested method of proper hand washing to the workers/staff/fish handlers.
 - ii. Provide hand hygiene/sanitise products at entry points.
 - iii. Staff, workers, fish vendors, fishermen and fisherwomen, security guards should be encouraged to clean their hands with an alcohol-based hand rub or wash them with soap and water to kill the virus.
5. **Teach workers not to touch eyes, nose and mouth:** Ensure that all the staff/workers/fish vendors wear masks covering nose and mouth. After use, ensure that the masks are put in dust bins with lid.
6. **Practice respiratory hygiene:** Make sure that all the staff/workers/fish vendors follow good respiratory hygiene by covering their mouth and nose with bent elbow when they cough or sneeze.
7. **Seek medical care:** Encourage staff/workers/fish handlers to seek medical care in case they have fever, cough and difficulty in breathing.

8. Employee health

- i. Mandatory health assessment for vendors before entering to market.
- ii. Screen all the staff and fish vendors for any flu like symptoms.
- iii. Do not allow any staff and fish vendors showing any signs of flu like symptoms and medical/health problems that could compromise product.
- iv. Market cell to assess health condition of all the staff and fish vendors.

9. Sanitise Employee Gear:

- i. All vendors to wear clean uniform/boiler suits/covered dress, gloves and head gear and face mask
- ii. Wash the dress or uniform, gloves and gear regularly.
- iii. Sanitize or clean/disinfect crate/basket, shoes and glove regularly.
- iv. Must have checklist of hygienic protocol and must strictly followed.

12. ***Restrict the entry:***

- Limit the number of people for essential work to the market.
- Do not allow unauthorised fish vendors to the market premises.

11. ***Sanitise the premises, vehicles and surroundings:***

1. Spray the fish market premises and surroundings with sodium hypochlorite solution (atleast 1000ppm) to kill the virus.
2. Sanitise insulated/ refrigerated trucks at the entry point.
3. Wash and sanitise the transport vehicles on daily basis.
4. Markets to be cleaned on a daily basis to reduce the risk of contamination. Frequently clean and dispose of waste.

SEAFOOD PROCESSING UNITS

1. **Know the travel history of the staff/workers:** Permit staff/workers into the processing unit after ascertaining their own recent travel history or of their family members. Also ascertain if any COVID19 positive cases were reported from the worker's neighbourhood.
2. **Non-contact screening:** Arrange facilities to screen all the staff and workers for signs of new Corona virus at the point of main entry into the seafood processing unit eg: Thermal scanning using Non-contact thermometers etc
3. **Ensure hand hygiene:** Advise all the staff to wash hands frequently. Quality assurance staff may be asked to demonstrate the WHO suggested method of proper hand washing to the workers.
4. **Ensure hand hygiene:** Pre-processing, processing workers, machine room staff, cold store workers, security guards, laboratory staff, office staff should be encouraged to clean their hands with an alcohol-based hand rub or wash them with soap and water to kill the virus. Pre-processing and processing workers should dip their hands in 20ppm sodium hypochlorite solution at frequent intervals during the shift.
5. **Maintain social distance:** Arrangements in the pre-processing and processing halls should be made so as to maintain at least 1 metre (3 feet) distance between workers.
6. **Teach workers not to touch eyes, nose and mouth:** Ensure that all the workers wear hair nets/caps and masks covering nose and mouth. After use, ensure that the masks are put in dust bins with lid.
7. **Practice respiratory hygiene:** Make sure that all the workers follow good respiratory hygiene by covering their mouth and nose with bent elbow when they cough or sneeze.
8. **Seek medical care:** Encourage workers to seek medical care in case they have fever, cough and difficulty in breathing.
9. **Sanitise the premises, vehicles and surroundings:** Spray the factory premises, stair cases, gates, doors, floors, surroundings with sodium hypochlorite solution (atleast 1000ppm) to kill the virus. Sanitise insulated/ refrigerated trucks at the entry point.
10. **Stay aware of the latest information on the COVID outbreak** by visiting the WHO website (<https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public>) and following the updates given by national and local public health authority in print and electronic media.