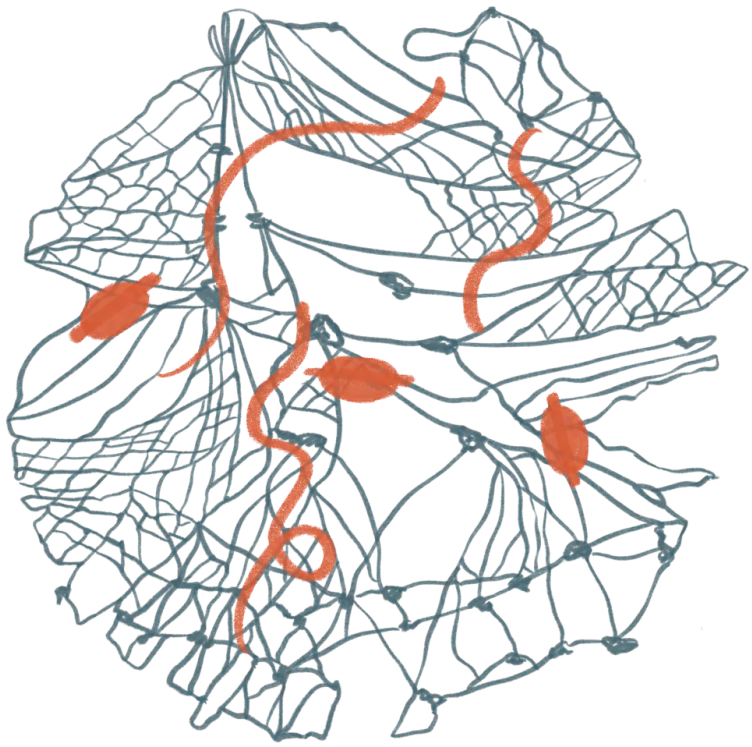
ALDFG HANDBOOK

ABANDONED LOST AND DISCARDED FISHING GEAR



2024

A project of the Mannar Region Systemic Solutions (MARESSOL) project in partnership with SALT Lofoten, IUCN Sri Lanka, Suganthi Devadason Marine Research Institute Tamil Nadu and the Lanka Environment Fund

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Norwegian Retailers' Environment Fund

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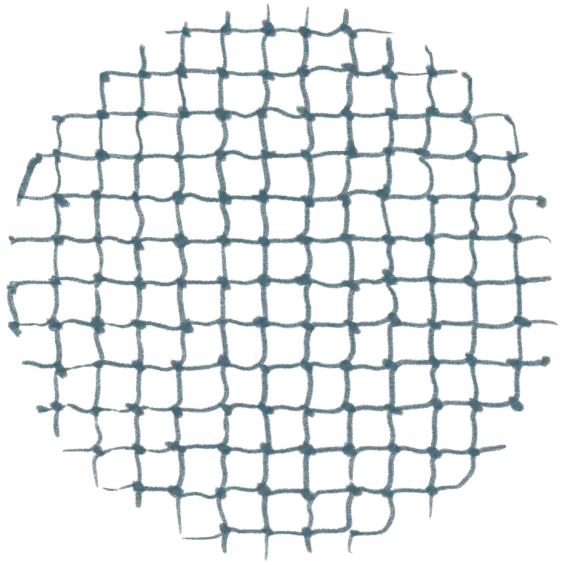


EXECUTIVE SUMMARY

The Mannar Region Systemic Solutions (MARESSOL) project is in partnership with SALT Lofoten, IUCN Sri Lanka, Suganthi Devadason Marine Research Institute Tamil Nadu and the Lanka Environment Fund.

The Abandoned Lost and Discarded Fishing Gear (ALDFG) Handbook is a culmination of stakeholder discussions and a pool of resources on the topic to support when conducting an ALDFG-focused workshop with fishing communities.

As part of MARESSOLs ongoing efforts to raise awareness and foster collaboration among stakeholders, this comprehensive toolkit aims at educating and empowering regional officers and youth organisations to run workshops for communities, fishermen, and policymakers to tackle this pressing environmental challenge.

The toolkit will serve as a vital resource, providing practical guidance, best practices, and actionable strategies for mitigating the impact of ghost gear on our oceans

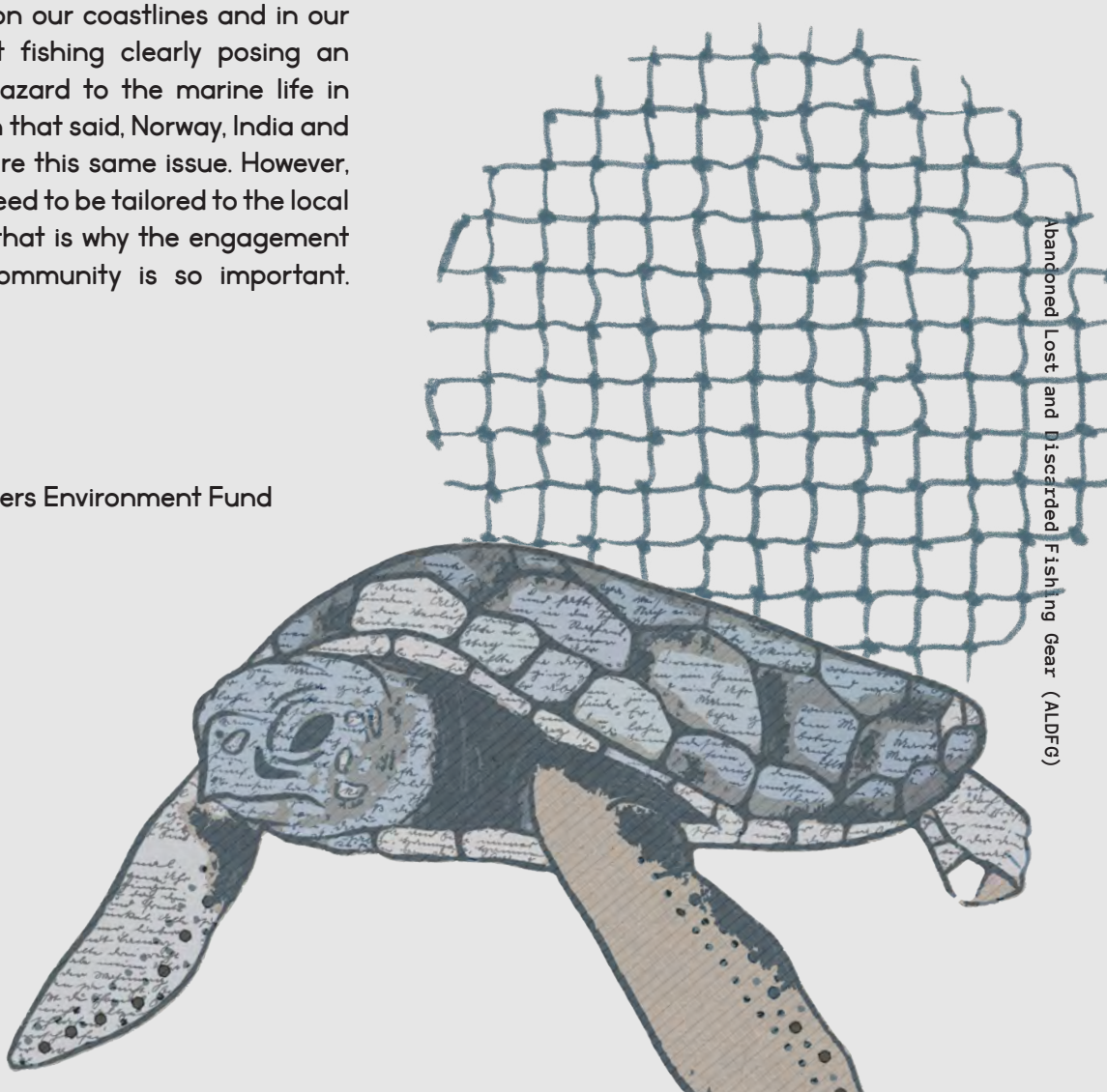
MESSAGE FROM THE NREF

As the CEO of the Norwegian Retailers' Environment Fund, who has funded the MARESSOL project, I am delighted to see this guide becoming available to you as local ambassadors for change. Community involvement will be key to develop and adopt workable solutions to the issues of abandoned, lost or otherwise discarded fishing gear. I hope that you will find this guide a useful tool in creating a safe space for everyone involved to feel part of the solution.

Marine litter from fisheries is a global concern, also in Norway, where fishing and aquaculture are some of our largest industries. We have clear evidence that fisheries in Norway contribute significantly to marine litter on our coastlines and in our seas, with ghost fishing clearly posing an environmental hazard to the marine life in our country. With that said, Norway, India and Sri Lanka all share this same issue. However, most solutions need to be tailored to the local conditions, and that is why the engagement of your local community is so important.

Good luck!

Mari Kristin
CEO
Norwegian Retailers Environment Fund



Abandoned Lost and Discarded Fishing Gear (ALDFG)

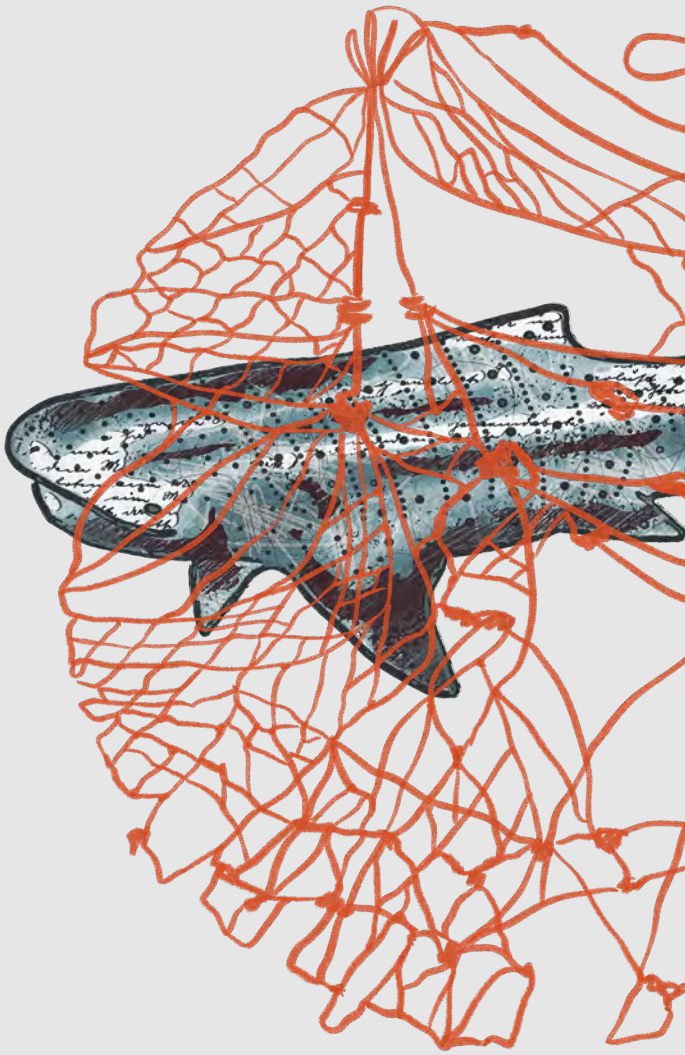
MESSAGE FROM DEPARTMENT OF FISHERIES AND AQUATIC RESOURCES

Sri Lanka, with its rich marine biodiversity and expansive coastal ecosystems, holds a profound responsibility to safeguard our oceanic heritage. As the Department of Fisheries and Aquatic Resources (DFAR), we are unwavering in our mission to conserve our marine resources, which are vital to the economic prosperity and ecological health of our nation.

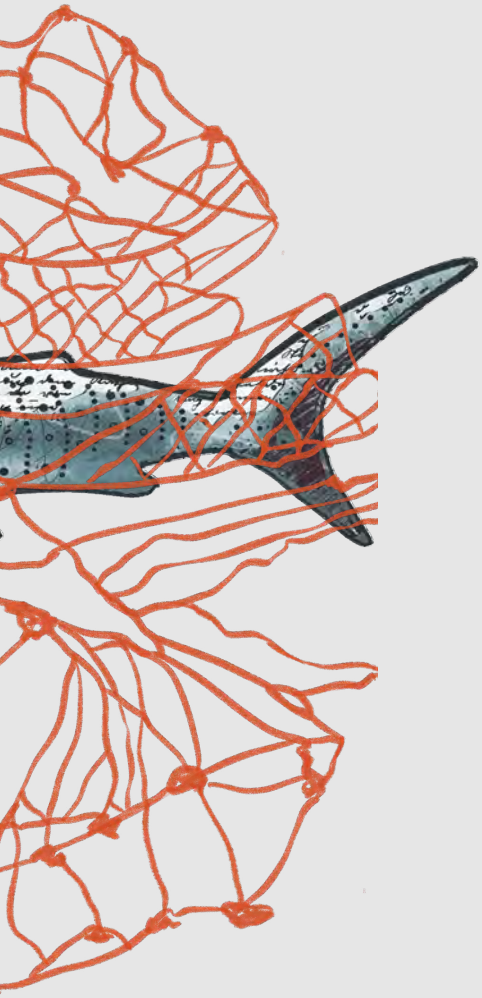
Our commitment extends beyond conservation. We are dedicated to empowering our fishing communities and enhancing their livelihoods through sustainable practices. The introduction of the Handbook and Standard Operating Procedures for Abandoned, Lost, or Otherwise Discarded Fishing Gear (ALDFG) Management exemplifies our unwavering dedication to this cause.

We express our deepest gratitude to the Mannar Region Systemic Solutions (MARESSOL) project, spearheaded by the International Union for Conservation of Nature (IUCN) and the Lanka Environment Fund (LEF). This initiative has been realized through the collaboration and guidance of the Ministry of Fisheries, the Ministry of Environment, and the Department of Fisheries and Aquatic Resources. By preventing pollution and promoting sustainable fishing practices, we are ensuring the vitality of our marine ecosystems for future generations.

Together, let us continue to work towards a sustainable and prosperous future for our fisheries and our oceans.



MESSAGE FROM MINISTRY OF ENVIRONMENT



It is my great pleasure to write a message at a time when we have a critical need to address
marine and coastal pollution and the environmental impact caused by Abandoned, Lost, and Otherwise Discarded Fishing Gear (ALDFG). I deeply appreciate the initiative led by the International Union for Conservation of Nature (IUCN) and the Lanka Environment Fund, in collaboration with the Ministry of Environment, through the Mannar Region Systemic Solution (MARESSOL) project.

I highly appreciate the Ministry of Fisheries and the Department of Fisheries & Aquatic Resources for their guidance in the preparation of the Handbook. I think it will help the fishing sector to reduce the coastal pollution caused by ALDFG.

This handbook will serve as an invaluable resource for field officials and fishermen, providing them with an understanding of the mechanisms for recycling ALDFG, as well as knowledge about regulations, globally available techniques, and case studies. This facilitates the effort of the Ministry of Environmen to introduce sustainable ways to capitalize on our natural environment while supporting the country's development endeavors.

This project, guided by the Ministry of Environment, demonstrates the impactful effect of interagency collaboration. By connecting relevant Government, Non-Government, and Private Sector organizations through a National Advisory Committee for ALDFG management, we have not only produced this handbook but also completed the standard operating procedures for ALDFG management and initiated a pilot project in Mannar to reduce marine litter.

I extend my heartfelt gratitude to all stakeholders involved in this project. Your dedication and hard work are instrumental in protecting our marine environment and ensuring a sustainable future for our coastal communities.

B. K. Prabath Chandrakeerthi
Secretary
Ministry of Environment

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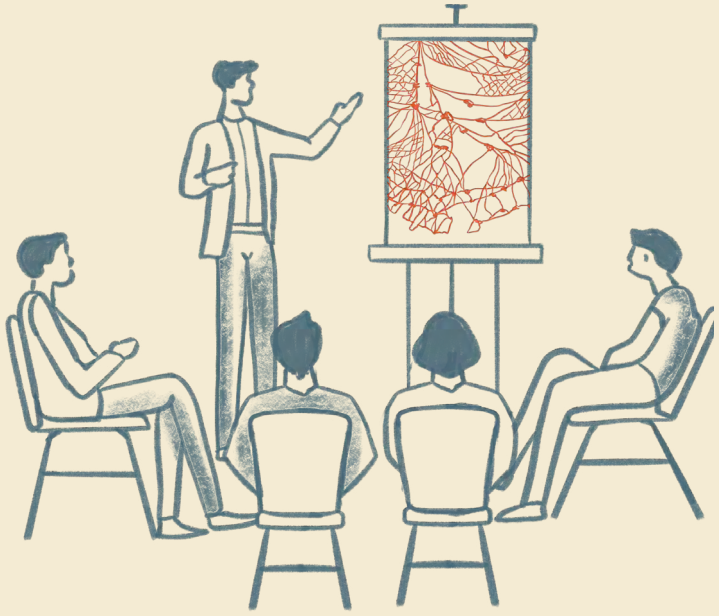
ALDFG THEORY OF CHANGE WORKSHOP TOOLKIT

Guideline to facilitate a workshop on developing
a localised theory of change in addressing ALDFG

ALDFG THEORY OF CHANGE WORKSHOP TOOLKIT



DOCUMENT NUMBER

A

This toolkit will guide organisations to conduct a workshop on ALDFG with the outcome of understanding challenges, barriers and gaps faced in the community while facilitating practical solutions to strengthen private-public partnerships

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Abandoned Lost and Discarded Fishing Gear (ALDFG)

THEORY OF CHANGE WORKSHOP TOOLKIT OBJECTIVES

1. To **guide regional officers and youth organisations** in running a 4-hour ALDFG-focused workshop for the community.

2. To **understand challenges, barriers, and gaps** in the prevention, recovery, and management of ghost gear in the Gulf of Mannar.

3. To **exchange good practices, recommendations, and practical solutions** to foster impactful community action.

4. To **identify needs and opportunities** to address and monitor ghost gear at the regional level effectively.

5. To **strengthen regional collaboration** and **networking** of partners and stakeholders.

STEP-BY-STEP GUIDE TO PLANNING A WORKSHOP

To run a successful workshop, you will need to think about a team. Your team can consist of the following:

* Facilitator: A person who can guide the discussion to focus on the topic, and introduce the speakers
* 6–7 additional people to help the audience if needed, distribute pens and paper etc.
* 1 person to monitor the registration table

Questions to ask your team when deciding who to invite to the workshop

1. **Who is the community?**
   Who are the stakeholders you identify in the community who will benefit from an ALDFG workshop?

2. **Where would you have the workshop?**
   Pick a location central to the community and has space for everyone.

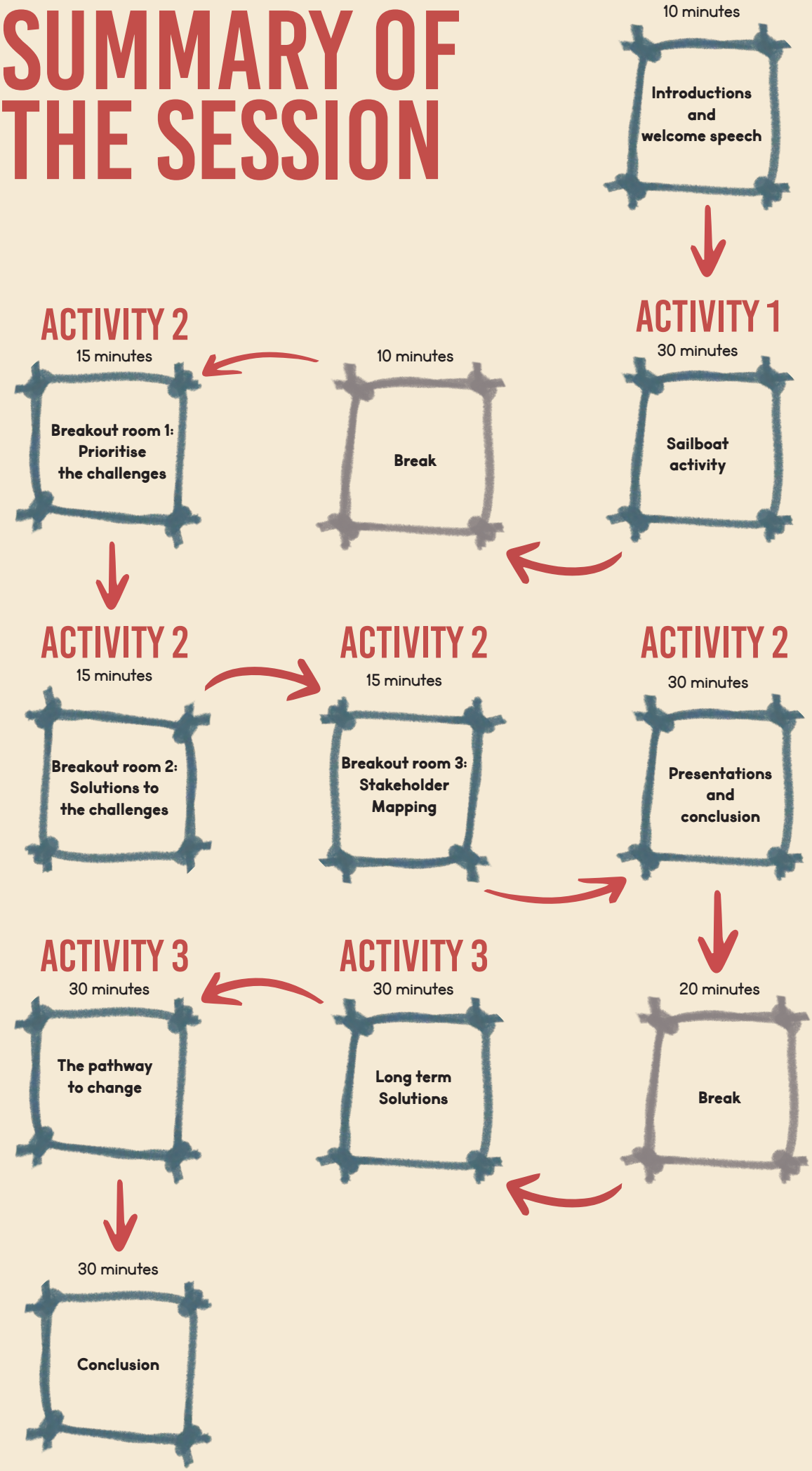
3. **How can we appreciate all high-level stakeholders who attend?**
   It is best to thank all high-level stakeholders for their attendance so that their input is appreciated. You can thank them in the opening remarks or hand out letters of appreciation to them personally

4. **How do we ensure maximum participation?**
   Reach out to the participants early enough and speak to them over the phone to explain the workshop and to schedule their time.

Additional tools

* Paper
* Pencils
* Sticky notes
* Flipchart or cardboard

SUMMARY OF THE SESSION



BREAKDOWN OF AGENDA

Agenda item	Description	Times
Introduction and welcome speech	A brief welcome speech and an introduction for the ALDFG workshop and introduce high-level stakeholders who are in the audience	**10 minutes**

ACTIVITY 1

Sailboat activity: Draw a sailboat with an anchor underwater **(Tools needed:** Flipchart/ cardboard at the font and sticky notes for all participants**)**	**Step 1: What is moving us forward? (10 minutes)** In the first five minutes, each participant must write one statement on what they feel is relevant to the topic of ALDFG. Afterwards, each participant will read out their sticky note and stick it onto the sailboat's sail. **No discussions.** **Step 2: What is holding us back? (10 minutes)** Each participant has to write one challenge on ALDFG in the first 5 minutes. Afterwards, each participant will read out their sticky note and stick it onto the anchor. **No discussions.** **Step 3: Categorise challenges and issues (10 minutes)** Allow participants to discuss which ideas relate to each other and create categories.	**30 minutes**

Break	Give participants a 10-minute break to stretch their legs and refresh	**10 minutes**

ACTIVITY 2 : BREAKOUT ROOMS

Break out room 1: Prioritise the challenges	Based on the challenges identified in the sailboat activity, divide the audience into teams and ask them to write down the top 5 they feel are the priority	**15 minutes**
Break out room 2: Solutions to the challenges	In the groups, ask the participants to find solutions to their top 5 challenges and discuss their way forward	**15 minutes**
Break out room 3: Stakeholder mapping	In the groups, distribute the stakeholder map, and ask participants to map out the stakeholders in the room against the categories. Then, ask them to identify which stakeholders are responsible for each solution.	**15 minutes**
Presentations and conclusion	Divide the remaining time for each group to present their models (challenges, solutions and stakeholders) and discuss long-term solutions	**30 minutes**

Break	Give participants a 20-minute break to stretch their legs and refresh	**20 minutes**

ACTIVITY 3 : THEORY OF CHANGE

Long term Solutions	According to the top 5 long-term solutions, ask groups to map **outcomes, outputs** and **activities.** **Outcomes »** Changes in knowledge, behaviour, and conditions that result from solutions **Outputs »** The direct result of the solution, e.g. infrastructure, services, community outreach etc. **Activities »** The types of processes/ things to do to achieve the solution, e.g. tools, events, technology etc.	**30 minutes**
The pathway to change	Let each group present their long-term solutions along with outcomes, outputs and activities. Write down each **new suggestion** as they present and share ideas. *Divide the solutions, outcomes, outputs and activities by different coloured markers, or post-it notes.*	**30 minutes**

Conclusion	Discuss all the ideas shared in the room, and round up the solutions. Thank the participants for their time and effort in discussing a way forward. Form a conclusion speech to recapture the urgency in the issue, the need for communities to act together, and a positive note that we can make a change as we keep innovating new ideas.	**30 minutes**

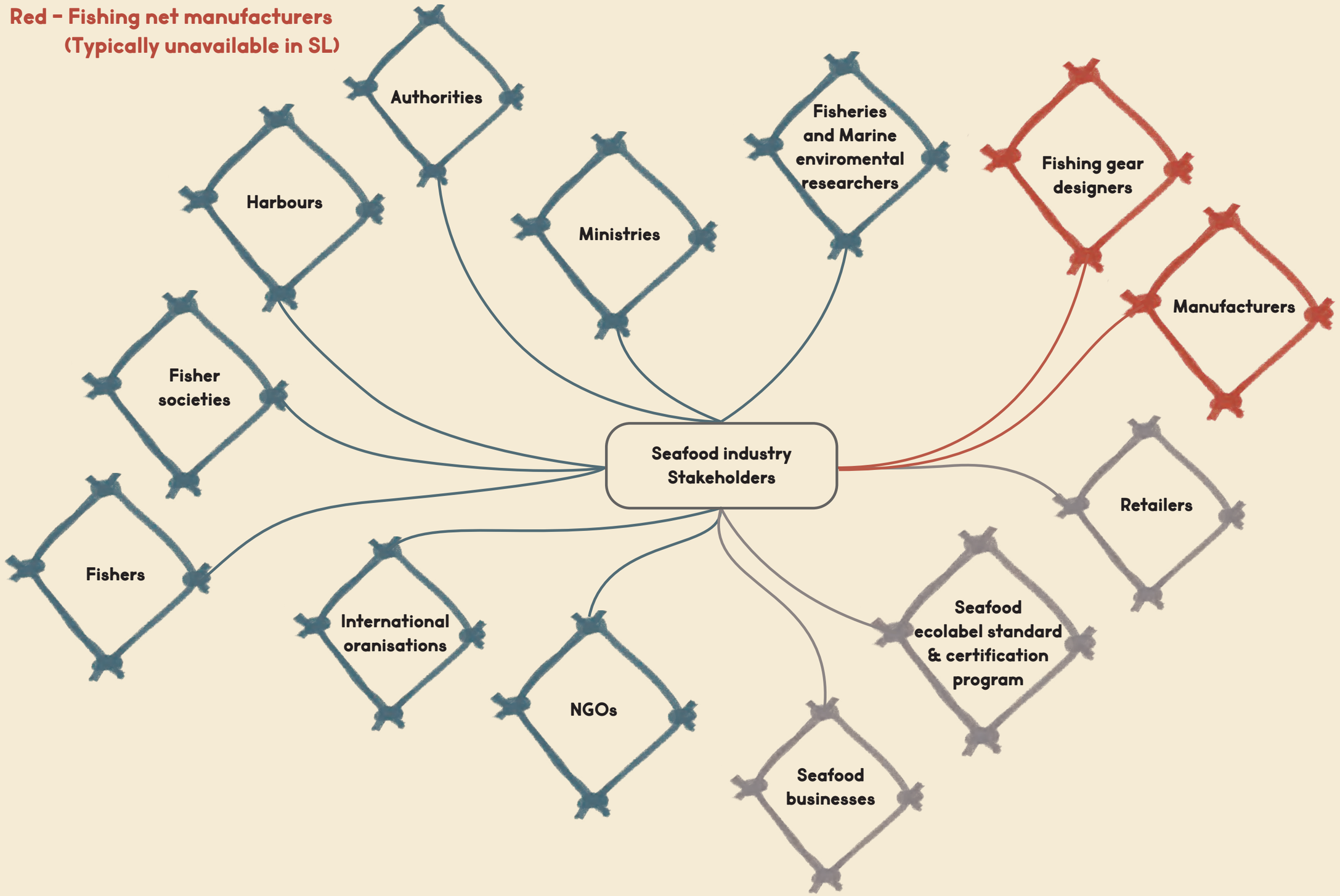
STAKEHOLDER MAPPING

LEGEND

Blue - State actors, NGO's & Academics

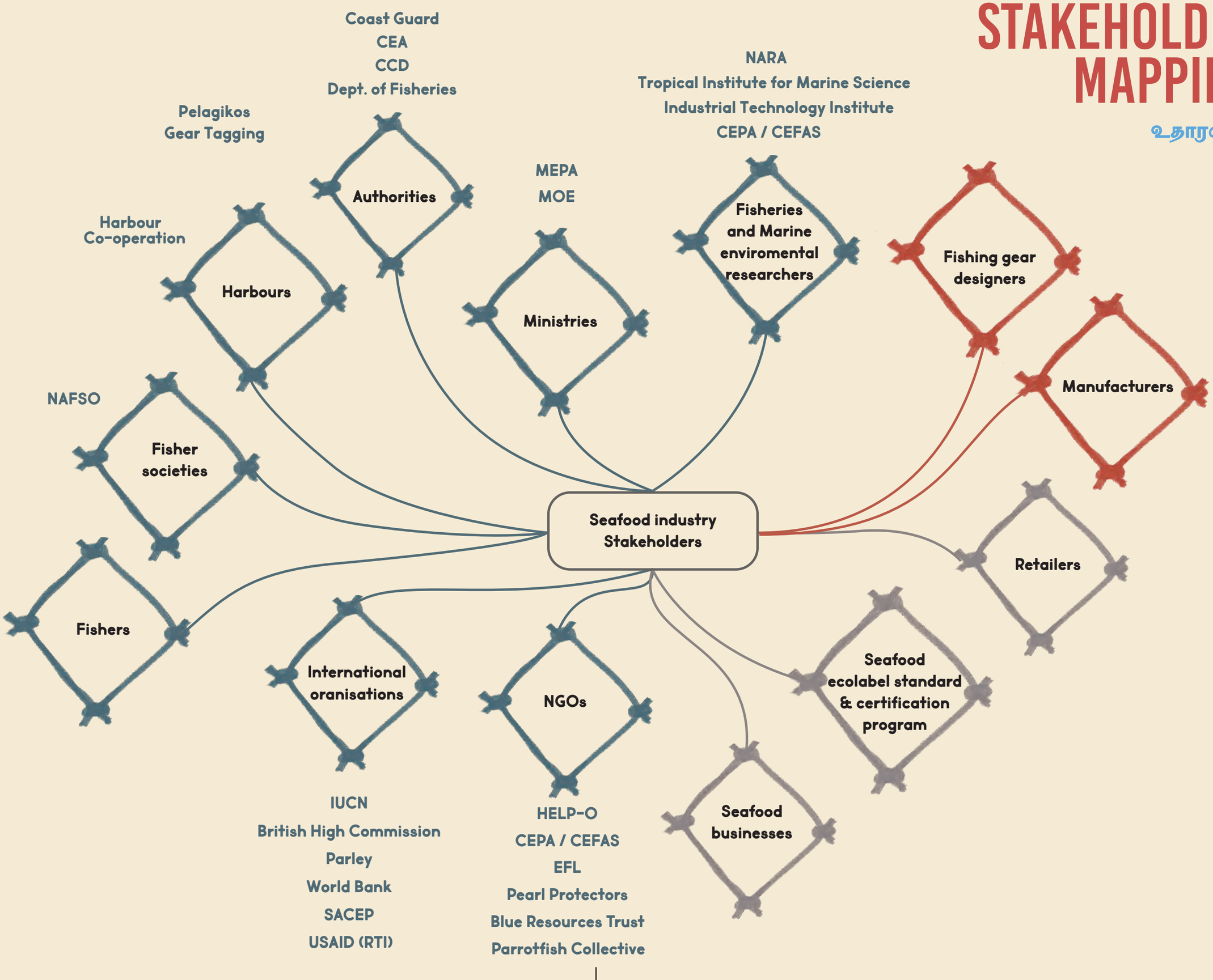
Grey - Fisheries industry businesses

Red - Fishing net manufacturers
(Typically unavailable in SL)

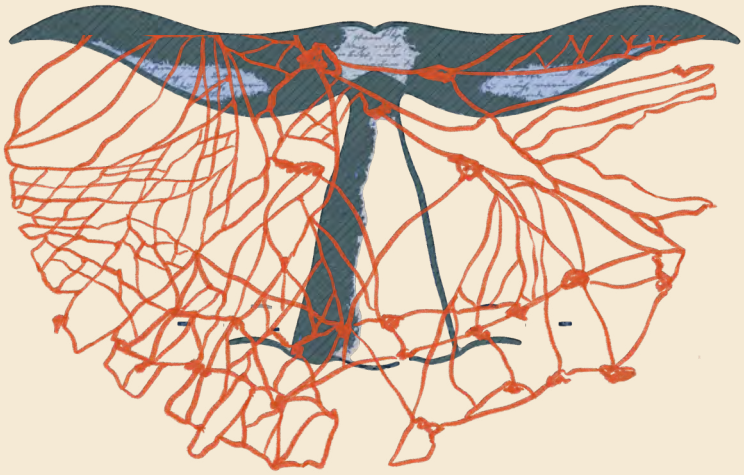


STAKEHOLDER MAPPING

உதாரணம்



AFTERTHOUGHTS



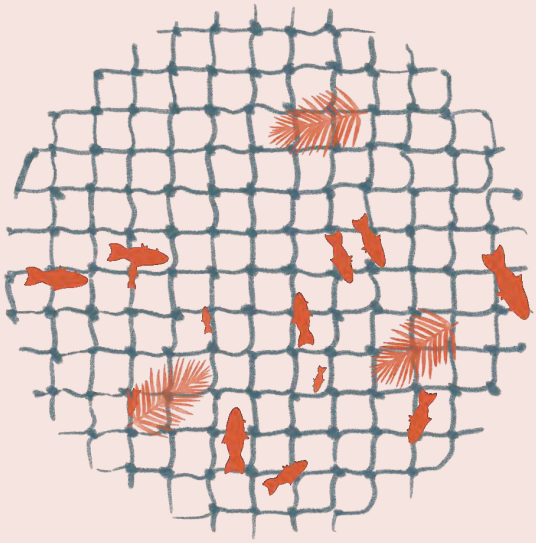
Once the workshop is concluded please scan/ submit pictures of the resources used such as sailboat activity, stakeholder maps, and pathway to change, as well as any supporting pictures of the workshop to
hafsa@lankaenvironmentfund.org.

ALDFG CIRCULAR SOLUTIONS RESOURCES

B

ALDFG CIRCULAR SOLUTIONS RESOURCES

ABCS OF ALDFG



DOCUMENT NUMBER

1

This document defines what ALDFG's are according to Food and Agricultural Organisation

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The impacts of ALDFG vary significantly due to numerous variables, including the vulnerability and sensitivity of the receiving environment. **Therefore there is no clear correlation between the type of ALDFG and its impact**.

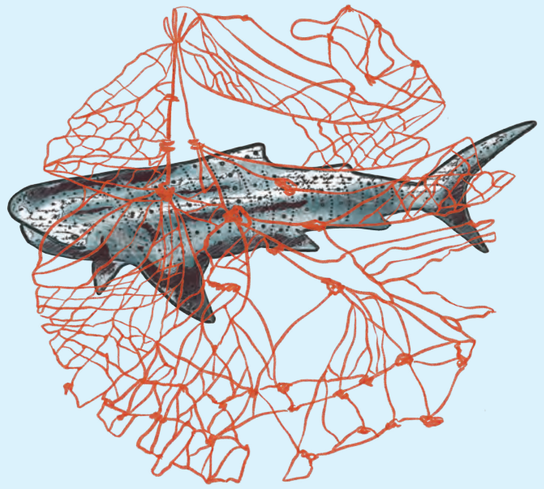
The table below shows the different types of ALDFG, the reasons and motivations for each type, and the key pressures at play that result in each type.

The impacts of ALDFG vary significantly due to numerous variables including the vulnerability and sensitivity of the receiving environment. Therefore, there is no clear correlation between the type of ALDFG and its impact.

<table>
<tr><th>Definitions</th><th>Causes</th><th>Pressures</th></tr>
<tr><td rowspan="2">Abandoned refers to the deliberate non-retrieval of fishing gear</td><td>Illegal, unreported and unregulated (IUU) fishing</td><td rowspan="2">Enforcement pressure</td></tr>
<tr><td>Illegal gear</td></tr>
<tr><td rowspan="3">Discarded refers to the accidental loss at sea</td><td>Too much gear</td><td rowspan="2">Operational/ economic pressure</td></tr>
<tr><td>Chosen to dispose at sea instead of bringing back to onshore disposal facilities</td></tr>
<tr><td>Damaged gear</td><td rowspan="2">Spatial pressure</td></tr>
<tr><td rowspan="4">Lost refers to the deliberate disposal at sea</td><td>Gear conflict</td></tr>
<tr><td>Misplaced gear</td></tr>
<tr><td>Bottom snagging (getting caught in corals/reefs/ sea floor)</td><td rowspan="2">Environmental conditions</td></tr>
<tr><td>Extreme weather</td></tr>
</table>

Table developed with information from Poseidon (2008) as found in 2009 FAO, Graeme Macfadyen, Tim Huntington, Rod Cappel

ALDFG ENVIRONMENTAL IMPACTS FACT SHEET



DOCUMENT NUMBER

2

This infographic has been developed for local communities based on the "Ghost Fishing in the Indian Ocean" infographic by the Olive Ridley Project and the Rufford Foundation.

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THE LIFE CYCLE OF FISHING GEAR LOST AT SEA

1. Fishing nets are discarded, abandoned or lost at sea

2. Some nets drift out to open water and begin fishing

3. Some nets are caught on the reef, smothering coral and killing fish

4. Weighed down by dead wildlife, nets sink to the sea floor

5. Scavengers feed, removing carcasses from nets

6. Nets left in the open water can break down into microplastics over a long period and can be ingested by fish resulting and result in health impacts for those who consume seafood

7. Free of weight, nets rise towards the surface

8. Human intervention can break the cycle

ALDFG CIRCULAR SOLUTIONS RESOURCES

HOW TO IDENTIFY NETS FOR RECYCLING?

DOCUMENT NUMBER

3

This net ID guide has been developed with the help of Wasteless Arugambay

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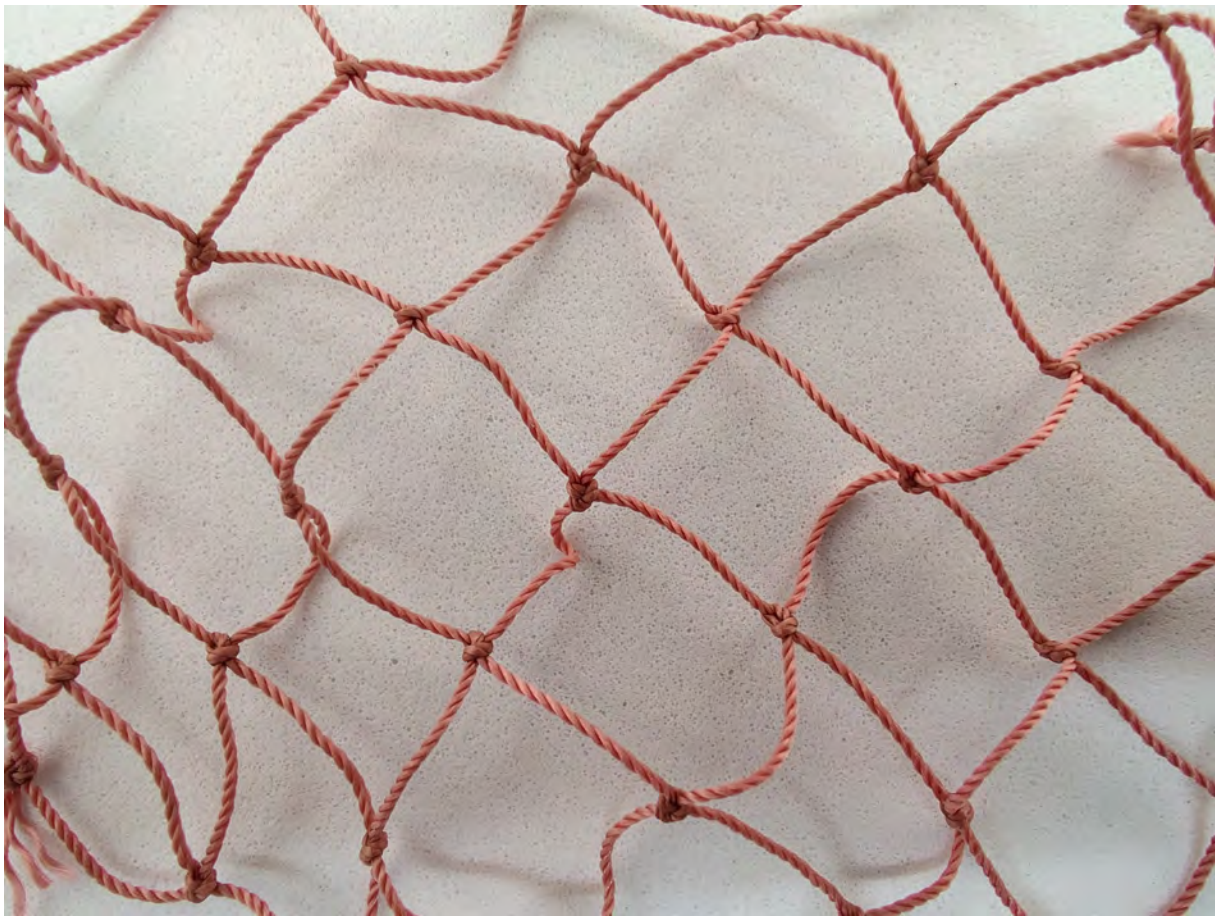
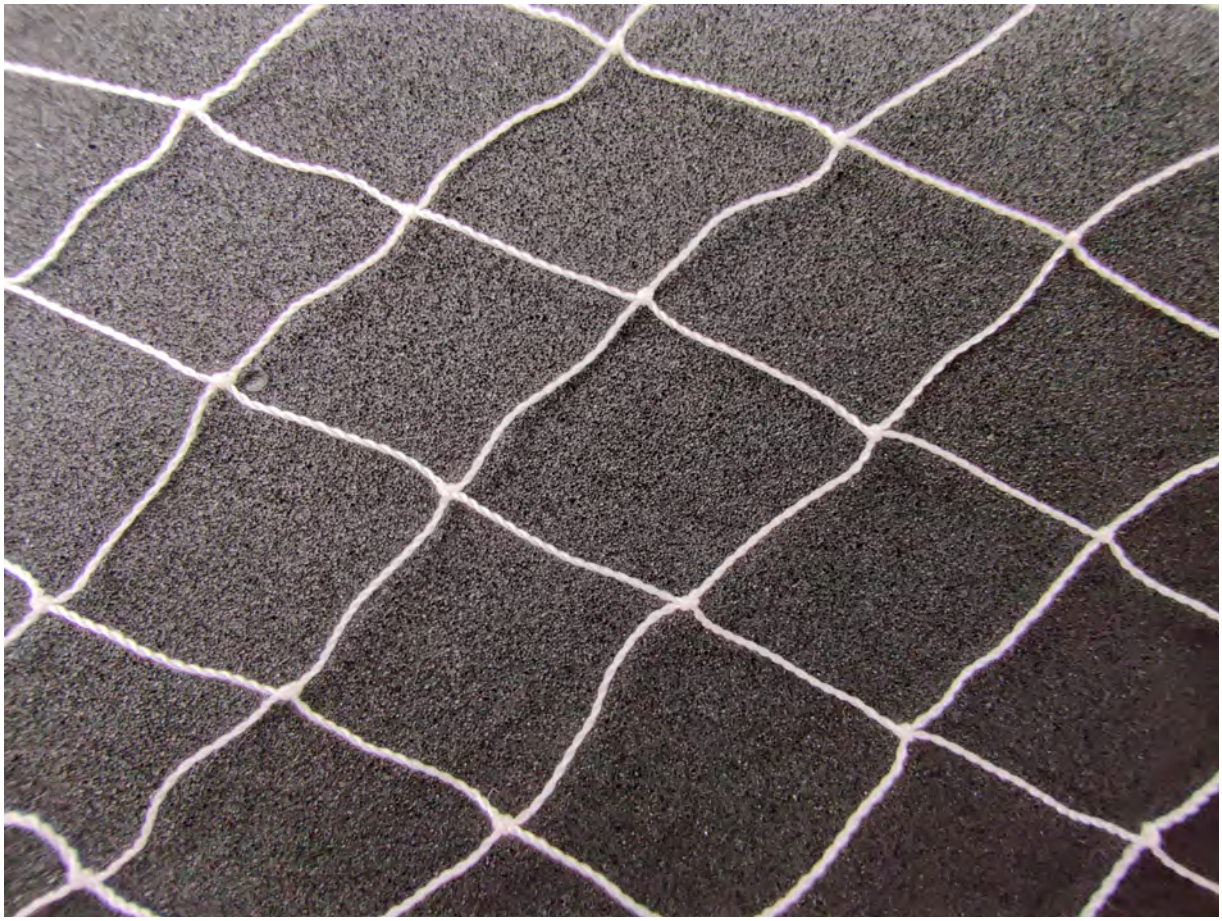
HOW TO IDENTIFY NYLON FISHING GEAR WE CAN RECYCLE:

Nylon nearly feels like a natural fibre. It usually has multiple plys and can absorb water. It can be thin, thick and have several colors but it always feels like a soft thread. It is NOT shiny or has a smooth feel like other plastic nets.





NYLON (PA6)

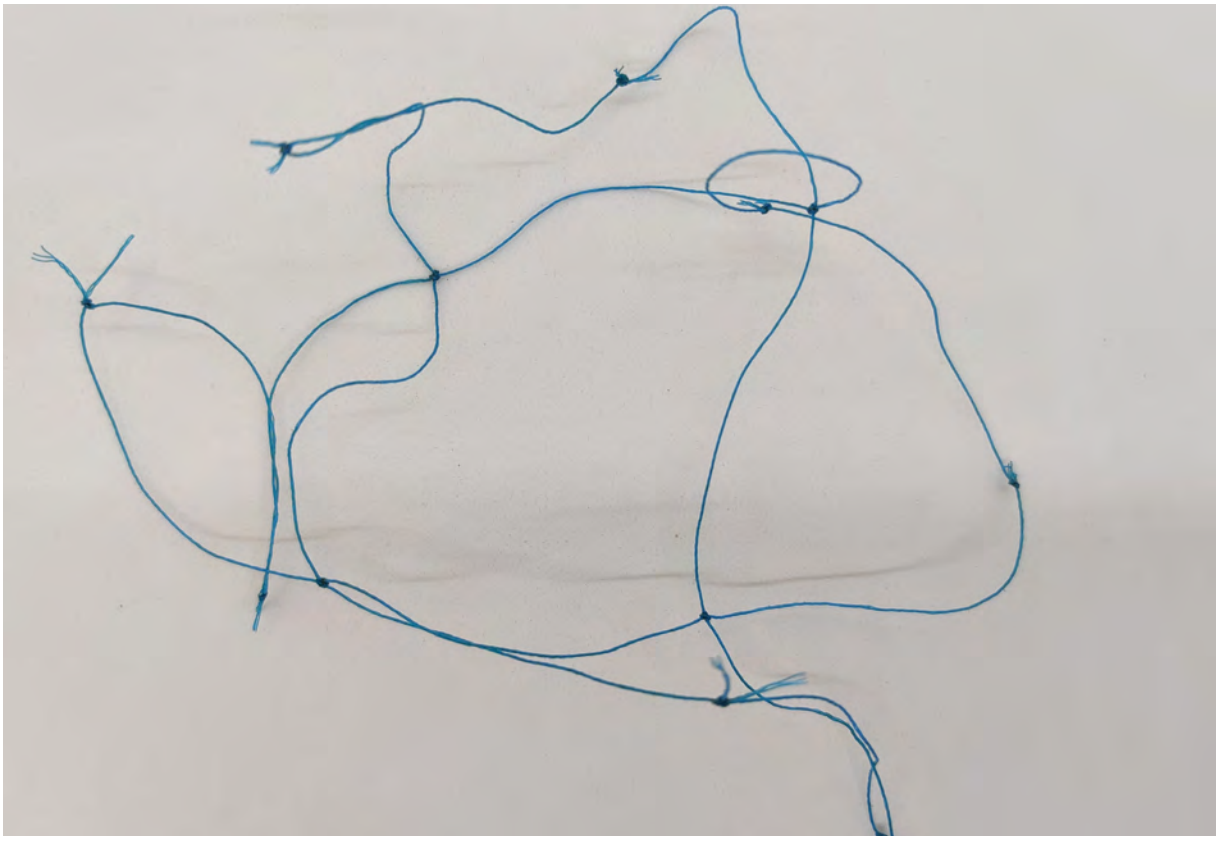
Surukku Net, Latia Net, Shark Net, Kumbala Net, Ray Net, Fish Net, Flying fish Net, Rope.

Only Nylon (PA 6) is currently being collected for recycling. These nets are extremely durable making them perfect for recycling!

HOW TO IDENTIFY FISHING GEAR WE CAN NOT COLLECT:

POLYESTER OR POLYPROPYLENE	Crab Net – Indian, Spanish mackerel, Catfish, Trevally, Tamil Nadu Trawl Nets

Polyester or Polypropylene nets are not as common, but they do exist.



These nets are made from a single-ply plastic thread that looks shiny and feels harder than nylon. These nets also do not absorb water.

ALDFG CIRCULAR SOLUTIONS RESOURCES

HOW CAN COMMUNITIES ENGAGE WITH GHOST GEAR?

DOCUMENT NUMBER

4

Infographic inspired by Global Ghost Gear Initiative

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6 WAYS COMMUNITIES CAN ENGAGE WITH GHOST GEAR

INFOGRAPHIC INSPIRED BY GLOBAL GHOST GEAR INITIATIVE

PORT RECEPTION FACILITIES

Fishers and fishing companies need viable disposal solutions for fishing gear when it can no longer be used or repaired, such as facilities for end-of-life fishing gear. These solutions should assist the port in transporting the recyclable material to the recycler.

EXTREME WEATHER PREPAREDNESS

Extreme weather events, which will become more frequent as climate change worsens, are a major cause of gear loss. Cities can assist ports in developing emergency plans for such disasters. Plans should ensure that fishers can safely retrieve deployed gear before extreme weather, that fishers have adequate insurance for their gear and vessels, and that they can facilitate safe and effective gear retrievals after major storms.

FISHER DEBRIS RETRIEVAL PROGRAMS

Community stakeholders, such as NGOs, youth organisations, local government and other key players in seafood industries, can raise awareness, provide funding, and help create facilities at ports where collected waste can be properly disposed of.

GHOST GEAR REPORTING

Report lost gear! Whether it's in the water or on the shore, anyone can report gear that is lost or found through the GGGI Ghost Gear Reporter App in English. If the phone app is inaccessible, please inform the nearest material facility or regional office/ Grama Niladhari.

GEAR RECYCLING

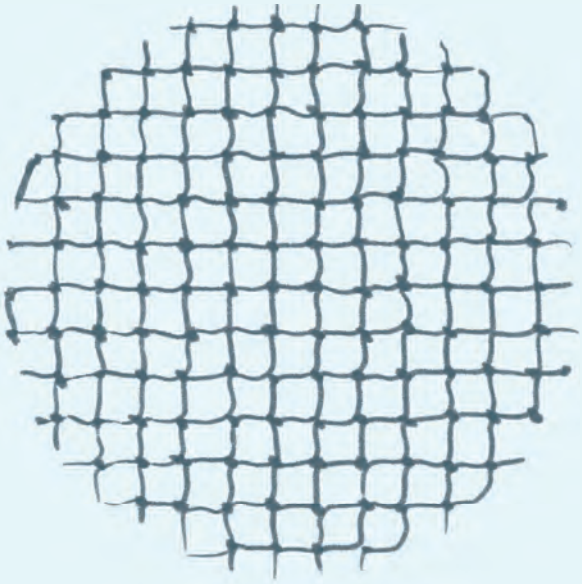
Most fishing nets and ropes are made of highly recyclable materials. One way to help local recycling facilities with this challenge is to invest in a commercial shredder at the portside or harbour to process the nets and ropes before they are sent to a recycling company.

RAISE AWARENESS

Ghost gear makes up 46–70% of the floating macroplastic in our oceans by weight. While it is important to educate people about the impacts of ghost gear on marine life and fisher livelihoods, it is also vital to understand the unintentional causes and costs. No fisher wants to lose their gear, and it's important that cities see fishers as part of the solution.

ALDFG CIRCULAR SOLUTIONS RESOURCES

CLEANING AND SORTING FISHING NETS FOR RECYCLING



DOCUMENT NUMBER

5

Inspired by Net Free Seas Handbook (Environmental Justice Foundation)

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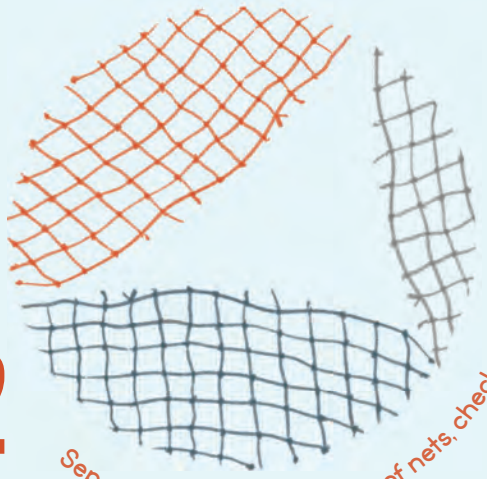
1

Remove ropes (often a different material) and lead weights – currently recyclers only collect nets.

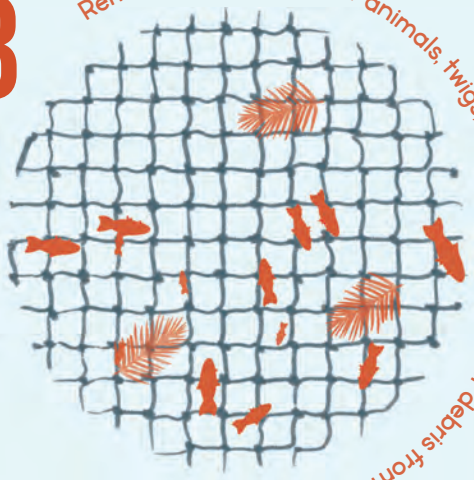
Note! You might be able to sell the ropes and lead weights to other recycling partners so don't throw them away!

2



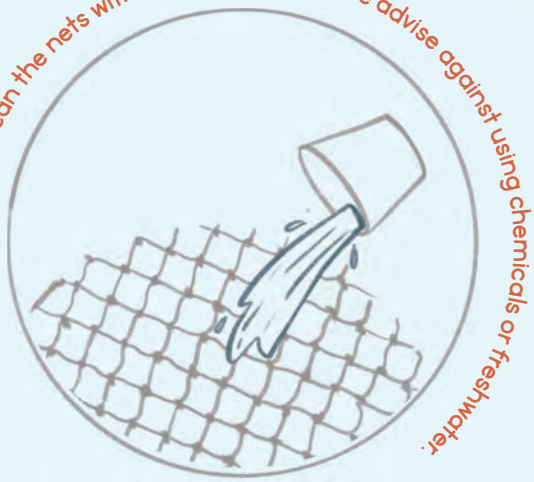
Separate the different types of nets, check the guide above

3



Remove any fish or other animals, twigs, leaves, pebbles or other debris from the nets.

4



Clean the nets with salt or rainwater. We advise against using chemicals or freshwater.

5

Dry the nets and keep them in a clean and sheltered place

ALDFG CIRCULAR SOLUTIONS RESOURCES

UPCYCLING AND RECYCLING CASE STUDIES

DOCUMENT NUMBER

6

A brief overview of recycling and upcycling initiatives from Sri Lanka and around the world

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LOCAL CASE STUDIES OF UPCYCLING AND RECYCLING INITIATIVES

ORGANIZATION

www.riceandcarry.eu/en/

RICE & CARRY

PRODUCT

Handbags and purses

INPUT

Fishing rope

REGION

Arugam Bay, Sri Lanka

OVERVIEW

Rice & Carry is based in Komari, Sri Lanka specializing in eco-friendly bags made from sustainable materials. Their products are designed to be stylish, practical, and environmentally conscious.

The company's mission is to reduce the use of plastic bags by offering reusable alternatives that are both functional and fashionable. Rice and Carry also work with fishing rope to weave it into products and offer secure and stable employment opportunities for over 40 women from the community, along with fair pay.

ORGANIZATION

www.ecospindles.com

ECOSPINDLES

PRODUCT

Monofilaments and Yarn

INPUT

Recycled PET flakes

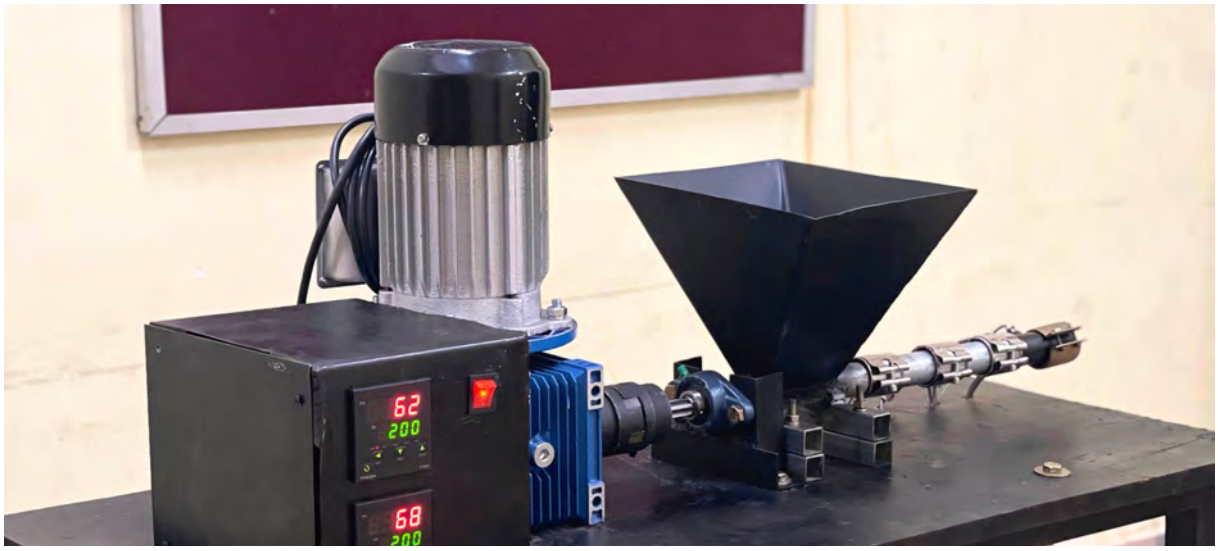
REGION

Horana, Sri Lanka

OVERVIEW

EcoSpindles has a simple mission: Reduce our carbon footprint on the world. By using plastic waste to create high-grade yarn and filaments, EcoSpindles strives to solve one of the greatest environmental problems plaguing our planet.

Eco Spindles further prepares for the future by hosting several initiatives across Sri Lanka. The initiatives foster eco-awareness in the populace while creating a recycling infrastructure that will last for generations



ORGANIZATION

spmlk.tech

SPM TECH LK

PRODUCT

Plastic Recycling Machines

INPUT

PET, HDPE

REGION

Batticaloa, Sri Lanka

OVERVIEW

SPM is a mechanical solution development company that provides various non-technical solutions to its customers. One of its products is precious plastic recycling machines, which are designed to help organizations and individuals recycle plastic waste efficiently and eco-friendly.

The precious plastic recycling machines from SPM Enterprise aim to provide a solution for plastic waste management by allowing organizations and individuals to recycle plastic waste on-site, thereby reducing their reliance on external recycling facilities and minimizing the environmental impact of plastic waste. These machines can process different types of plastic waste and turn it into a valuable resource, such as pellets or filaments for 3D printing.

GLOBAL CASE STUDIES OF UPCYCLING AND RECYCLING INITIATIVES

ORGANIZATION

BRACENET

www.bracenet.net/en/

PRODUCT

Bracelets

INPUT

Fishing Nets

REGION

Hamburg, Germany

OVERVIEW

Bracenets retrieve “ghost nets” from the seas or catch them beforehand, clean them and process them by hand in Germany into bracelets. Each bracelet is therefore made from a piece of real fishing net.

After retrieval, the ghost nets are initially sorted and cleaned with water. Then, they are processed with upcycling craftsmanship in Hamburg into many new products, such as bracelets and dog leashes. So far, Bracenet has recycled around 190,000 meters of net.

ORGANIZATION

BUREO

bureo.co/pages/netplus

PRODUCT

Skateboards, sunglasses, surf fins, board games, hat brims, clothes

INPUT

Fishing Nets

REGION

Chile, Argentina, Peru, USA

OVERVIEW

Bureo is on a mission to end fishing net pollution through community engagement. It actively works across six countries by recycling fishing nets back into yarn to create a fully traceable product.

Bureo works across 20 communities and has repurposed 358,000 kg of used fishing nets. They make a range of products, including skateboards, sunglasses, and clothing.

ORGANIZATION

POPSICASE

www.popsicase.com

PRODUCT

Phone cases

INPUT

Fishing Nets

REGION

Barcelona, Spain

OVERVIEW

POPSICASE is made from recycled fishing nets used in the Mediterranean Sea. It has become a tool to improve the circular economy and raise awareness about the importance of getting involved.

The nets are sorted, washed, chopped, and fused in a laborious process. The result is a 100% recycled plastic pellet that POPSICASE uses to build a handy, eco-friendly case that perfectly fits your smartphone.

ORGANIZATION

WATERHAUL

waterhaul.co

PRODUCT

Sunglasses

INPUT

Fishing Net

REGION

Cornwall, UK

OVERVIEW

Waterhaul utilises the strongest form of plastic in our oceans to produce exceptionally sustainable, recycled eyewear. Eyewear that meets the technical demands of adventure, ocean exposure and UV protection but also acts as a 'symbol of change' for our oceans. Waterhaul sunglasses frames are made from nets that would last decades in the ocean.

ORGANIZATION

www.netyourproblem.com

NET YOUR PROBLEM

PRODUCT

Fishing net recycling systems and solutions

INPUT

Fishing Gear

REGION

Massachusetts, United States

OVERVIEW

Net Your Problem's mission is to engage a variety of stakeholders and partners to create an economically viable pathway to recycle end-of-life fishing gear, improve waste management, contribute to the circular economy, and reduce energy use and greenhouse gas emissions related to virgin plastic production

ORGANIZATION

AQUAFIL

www.aquafil.com

PRODUCT

Nylon Yarn for Carpets, Nylon Yarn for Clothing, Polymers for Plastic Molding

INPUT

Fishing Gear

REGION

Arco, Italy

OVERVIEW

After years of research and significant investment into development, Aquafil launched its flagship project, the ECONYL® regeneration system.

In 2011, the Group completed the transformation of Nylon 6 waste into regenerated ECONYL® nylon, maintaining the same quality level and performance as standard nylon.

ECONYL® regenerated nylon is an ingredient that empowers brands to create new products in a responsible way and close the loop on design. ECONYL® yarn is not only a solution to waste, it also significantly reduces the global warming impact of nylon by up to 90% when compared to nylon made from oil

ORGANIZATION

SEA2SEE

www.sea2see.org

PRODUCT

Sunglasses and watches

INPUT

Fishing Gear

REGION

Belgium, Germany, Ghana, Madagascar, Portugal, Senegal, Spain, United Kingdom, United States

OVERVIEW

Since 2015, Sea2See's objective has been to create a global consciousness in regard to the issues of ocean plastic contamination and the unsustainable optical and fashion industry. They have pioneered a seastainable change in the eyewear industry, proving that marine plastic waste is a great raw material source. They don't produce glasses or watches, but a statement of change, which can be worn by anybody willing to stand for our Oceans.

FISHERIES-BASED WASTE MANAGEMENT RESOURCE

C

GEAR REGISTRATION REGULATORY COMIC

DOCUMENT NUMBER

7

Follow along with Kurus and Vacha to tag their gear along with the guidelines set out by the Department of Fisheries

2024

The Mannar Region Systemic Solutions (MARESSOL) project is in partnership with SALT Lofoten, IUCN Sri Lanka, Suganthi Devadason Marine Research Institute Tamil Nadu and the Lanka Environment Fund in collaboration with the Ministry of Environment and Department of Fisheries and Aquatic Resources

GEAR MARKING CHECKLIST

1. **General Requirements**
   - Mark all fishing gear, including gill nets, surrounding nets, fish aggregating devices, fish traps, Ja kotu, and long lines.
   - Use tags or flags that are prominently displayed and permanent.

2. **Flags**
   - Ensure flags are at least 25 cm high and 35 cm wide.
   - Use two flags, positioned at least 10 cm apart.
   - Make flags from waterproof materials.
   - Use fluorescent colours for visibility.

3. **Tags**
   - Ensure tags are durable, waterproof, and able to stay attached in all sea conditions.
   - Use white markings on a black background or black markings on a white background.
   - Ensure markings are easily readable in either Tami or Sinhala and English.
   - Tags must be 4 inches high and 6 inches wide, with all details printed or embossed on both sides.
   - Use fluorescent colours for tags.

4. **Marking Specifications**
   - Do not place markings in a way that interferes with the gear's operation.
   - Mark each piece of gear with:
     - Boat's call sign
     - Boat's name
     - Harbour of registration
     - Boat's registration number from the Department of Fisheries
     - Owner's name
     - Operator's name

5. **Lost or Abandoned Gear**
   - Report any lost or abandoned gear to the Regional Fisheries Office immediately.
   - Make every effort to retrieve lost or abandoned gear, especially if it:
     - Poses a hazard to navigation,
     - Damages reefs,
     - Damages spawning beds,
     - Becomes an impediment to fishing,
     - Continues to ghost fish.

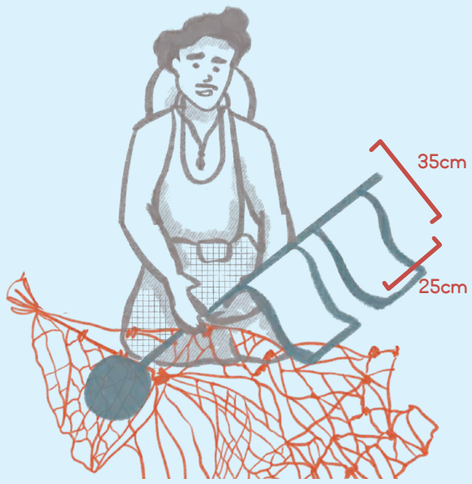
6. **Preparation**
   - Ensure all gear meets these standards before heading out to sea

TAG YOUR GEAR WITH ME

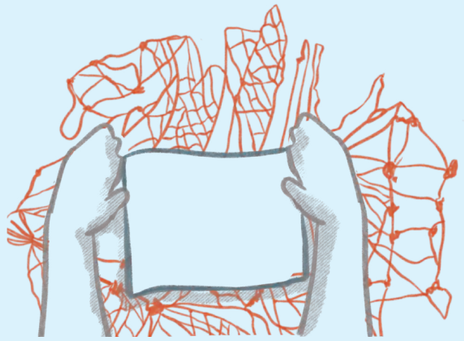
Alright, I need to make sure I'm up to date with the Fishing Gear Marking Regulations. Here's a list to check what I need to remember:

1 First off, I have to mark all my fishing gear—every gill net, surrounding net, fish aggregating device, fish trap, Ja kotu, and long line on my boat. I need to use a tag or flag that's prominently **displayed** and **permanent**.

2 For the flags, they can't be smaller than 25 cm high and 35 cm wide. I need two flags, but they should be at least 10 cm apart. I have to make the flags from waterproof materials and in fluorescent colours for visibility.

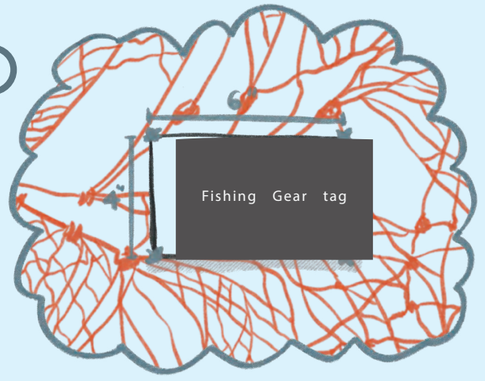


3 My friend Vacha uses Tags. I remember him saying that they also need to be **durable** and **waterproof**, able to **stay attached in all sea conditions.** The markings have to be either white on a black background or black on a white background, and they need to be **easily readable** in either **Tamil or Sinhala and English**.



4 I need to remember that the markings' placement **shouldn't interfere with how the gear operates.** I also need to mark each piece of gear with my **boat's call sign, name, harbour of registration**, the **boat's registration** number from the Department of Fisheries, and **my name and the operator's name**

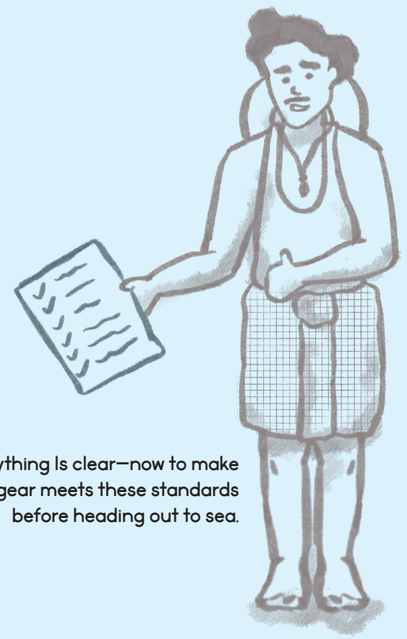
5 Every tag must be **4 inches high and 6 inches** wide, with all details printed or embossed on both sides. Tags or flags should use **fluorescent colours** and be **securely fixed** to the gear.



6 It is very important that if any gear gets lost or abandoned, I have to report it to the Regional Fisheries Office immediately.

I need to make every effort to retrieve lost or abandoned gear, especially if it:
- **Poses a hazard to navigation,**
- **Damages reefs,**
- **Damages spawning beds,**
- **Becomes an impediment to fishing,**

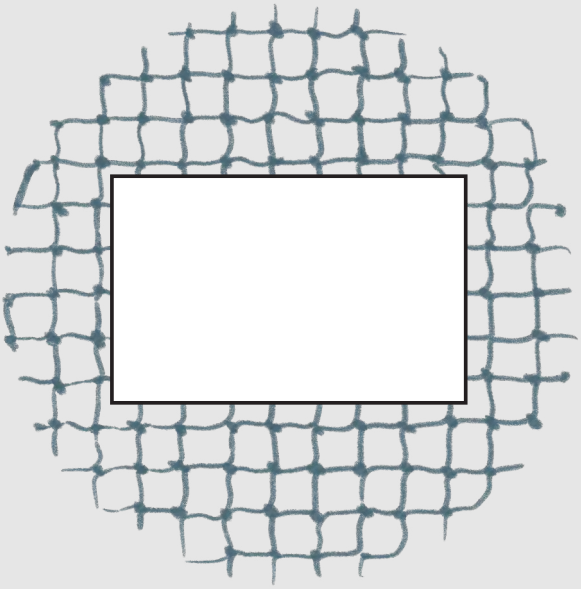
or
- **Continues to ghost fish**



Got it. Everything Is clear—now to make sure all my gear meets these standards before heading out to sea.

FISHERIES-BASED WASTE MANAGEMENT RESOURCE

GEAR MARKING CASE STUDY BY PELAGIKOS



DOCUMENT NUMBER

8

This case study highlights work that is a collaboration between Pelagikos and the Operation Division of the Department of Fisheries and Aquatic Resources Sri Lanka

2024

The Mannar Region Systemic Solutions (MARESSOL) project is in partnership with SALT Lofoten, IUCN Sri Lanka, Suganthi Devadason Marine Research Institute Tamil Nadu and the Lanka Environment Fund in collaboration with the Ministry of Environment and Department of Fisheries and Aquatic Resources

MARESSOL
Mannar Region Systemic Solutions

Norwegian Retailers' Environment Fund

IUCN

SALT

LANKA ENVIRONMENT FUND

SDMRI

PILOT PROJECT ON DESIGNING THE MOST APPROPRIATE GEAR MARKER FOR MULTIDAY FISHERY IN SRI LANKA BY PELAGIKOS

Fishing Gear markers are used widely to identify the ownership of fishing gear thereby contributing to the prevention of Abandoned, Lost and Discarded Fishing Gear (ALDFG).

The Sri Lankan Fishing Gear Marking Regulation of 2015, the national regulation for marking fishing gear, sets out a comprehensive guideline for gear marking to a national standard, and the Operational Division of the Department of Fisheries and Aquatic Resources requested Pelagikos to design a gear marker to achieve the following outcomes.

- **The total price of the gear marker needs to be an affordable price for fishermen**
- **It must not disturb the fishing activities**
- **The design needs to be simple, so fishermen can make them themselves**
- **Materials which are used to make the gear marker need to resist the harsh conditions of the marine environment**

In addition, the Indian Ocean Tuna Commission (IOTC) tasked the IOTC Secretariat to develop standards for the marking scheme by considering the FAO Voluntary Guidelines on the Marking of Fishing Gear. The **"Resolution 19/04 Concerning the IOTC record of vessels authorised to operate in the IOTC Area"** also emphasizes that

> "Each Contracting Party and Cooperating Non-Contracting Party (CPC) with the IOTC shall ensure that: Each gear used by its fishing vessels authorised to fish in the IOTC area of competence is marked appropriately"

In designing the gear markers, Pelagikos tested 3 solutions with fishing communities to understand the durability in the open environment and costs to fishers.

1

LETTER EMBOSSING FOR GEAR MARKERS

AFFORDABILITY	✓	DURABILITY	✓✓✓
AVAILABILITY	✓✓	ATTRACTIVENESS	✓✓✓

The registration number of the vessel was laser cut into a floater with black paint, which despite its attractiveness, was also too high of a cost for fishers at 700 LKR. The second drawback was that laser cutting was only done by certain people and was thought to be a challenge when producing gear markers for the whole fishing fleet.

2

CLOTH TAGS AS A GEAR MARKER

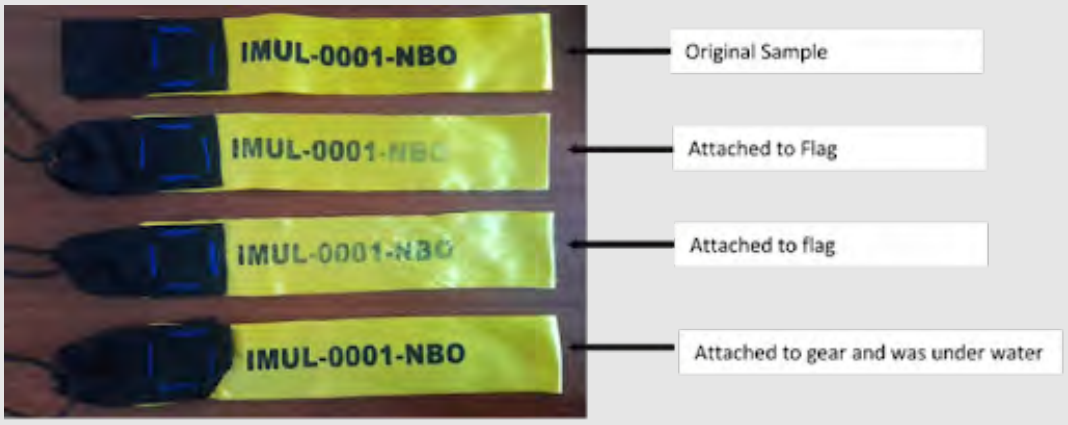
AFFORDABILITY	✓✓✓	DURABILITY	✓✓
AVAILABILITY	✓✓	ATTRACTIVENESS	✓✓✓

PHASE 1

A gear marker made by cloth tag was the next step of the design.

The tag was prepared with two stripes of cloth ribbon, used for handles of the school bags. The vessel registration number was printed inside the stripes. The total cost of the cloth tag was 215 LKR. In phase I of the pilot project the gear marker made by cloth tag was distributed to seven crew-based observers from Negombo and Chilaw to be tested during a fishing expedition. Some cloth tags were fixed with the gear which submerged in marine water, some tags were attached to the flag.

Feedback was received from two vessels. Both vessels targeted yellowfin tuna using long lines. The trip duration of the first vessel was 65 days and they attached the cloth tag to both underwater gear and to a flag. The following image shows the results



The trip duration of the 2nd vessel was 48 days and they attached the cloth tag only to the flag. Following were the results. The reason for the colour fading was continuous exposure to bad weather conditions. The partial succession of phase I moved the pilot project to Phase II with the request of the Operation Division of DFAR.

PHASE II OF THE PILOT PROJECT

At the request of the Operation Division of the Department of Fisheries and Aquatic Resources, 500 cloth tags were given to Beruwala harbour. Tags were attached to 20 multiday vessels (10 – longline, 10– gillnet). Comments of the skippers in four vessels were gathered by harbour officers in Beruwala through a questionnaire.

All four vessels used gillnet and three of them attached the cloth tag to the gear. The minimum trip duration was 19 days and the maximum was 48 days. Tags attached to the gear were heavily damaged, due to entanglement with the gear during the setting and hauling process. The yellow color material was completely damaged and crushed and the print was totally faded away. Therefore, the cloth tag is not suitable as a gillnet fishing gear marker.

The material of the cloth tag was crushed and damaged, the print has gone away

The cloth tag attached to the flag was not damaged. Still, there were no comments received from Longline fishermen in Beruwala.

3

PAINTING AS A GEAR MARKER (TESTING)

AFFORDABILITY	Testing	DURABILITY	Testing
AVAILABILITY	✓✓✓	ATTRACTIVENESS	✓✓✓

Commercially available marine paints are mostly suitable for substrates such as iron, metal, and concrete. They are also used for steel structures, gutters, fences, wrought iron, machinery, and trailers in marine and industrial environments. The next step of the project planning is to buy some marine paint and different types of buoys made with different materials and paint the registration number of the vessel with a stencil. Trials will be done in Negombo and Beruwala to check the resistance of the paint to the marine environment.

ABOUT THE PROJECT PARTNERS:

SALT is a Norwegian private advisory and research enterprise based in Norway. SALT specializes in services related to enabling sustainable marine environments and coastal communities.

Lanka Environment Fund (LEF) is a not-for-profit organization established in 2019 in Sri Lanka. The Fund aims to support existing conservation and environmental initiatives with their work and to foster a sense of stewardship of the island's exceptional beauty and natural value.

International Union for Conservation of Nature (IUCN) Sri Lanka is a membership union uniquely composed of both Government and Civil Society organizations serving in Sri Lanka for more than 30 years. IUCN is an organization dedicated to safeguarding the environment by supporting sustainable natural resource management initiatives covering conservation and management of critical habitats, policy/legal and institutional support and environmental education and awareness.

Suganthi Devadason Marine Research Institute (SDMRI) is a research and higher education organization, based in Tamil Nadu, India. Research is focused on the needs of marine and coastal ecosystems in India; to promote higher education in marine science; to enhance societal involvement in marine resource conservation and to assist the coastal folk in the improvement of socio-economic conditions.

Special thanks to all collaborators from whom we have learnt about ALDFG, and who have inspired local resources. Thank you to Bureo, Environmental Justice Foundation, Global Ghost Gear Initiative, Lanka Upcycles, Olive Ridley Project, Pelagikos, PlasticCycle, SPM Tech and The Pearl Protectors.

More resources and a stakeholder directory can be found in the QR code below: