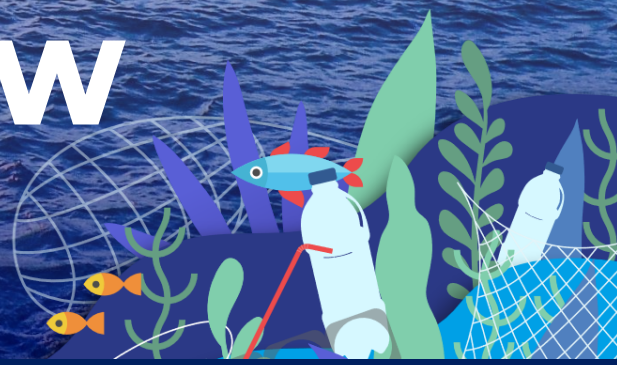
AQUA-LIT

VIRTUAL LEARNING LAB

PROJECT OVERVIEW

Virtual Learning Lab – February 14th, 2020.

Presented by: Mariana Mata Lara, Geonardo Ltd.



Preventive measures for averting the discarding of litter in the marine environment from the aquaculture industry

GEONARDO · eurocean · VLIZ · s.Pro sustainable projects · INSTITUTO ESPAÑOL DE OCEANOGRAFÍA · Nausicaá BOULOGNE-SUR-MER · FRCT FUNDO REGIONAL PARA A CIÊNCIA E TECNOLOGIA

PROJECT PROFILE

EASME-EMFF funded project

Duration: **01/01/2019 – 31/12/2020**

7 partners from 6 different countries

3 Learning Labs + Virtual LL

Mediterranean Sea

North Sea

Baltic Sea

Who?

GEONARDO • SME, Hungary

European Centre for Information on Marine Science and Technology • Non-profit organisation, Portugal

Flanders Marine Institute • Non-profit organisation, Belgium

sustainable projects GmbH • SME, Germany

Instituto Español de Oceanografía • Public body, Spain

Regional Fund for Science and Technology • Public body, Portugal

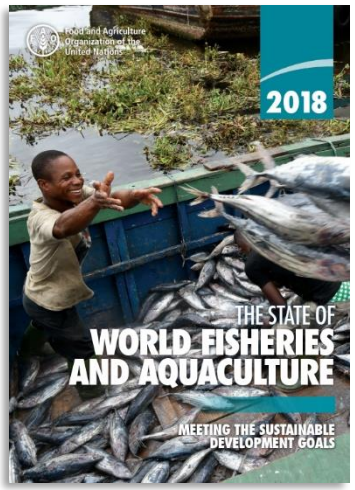
National Sea Centre in Boulogne-sur-Mer • Local public enterprise, France

Why AQUA-LIT?

Aquaculture activities **expand globally at** an annual rate of **5.8% since 2000**[1] and it is a priority for the **EU to increase the aquaculture production** (4.5 million annual tons by 2030).

"Aquaculture is expected to be the sector that meets future demand for food, predicted to rise by 40 percent by 2030"

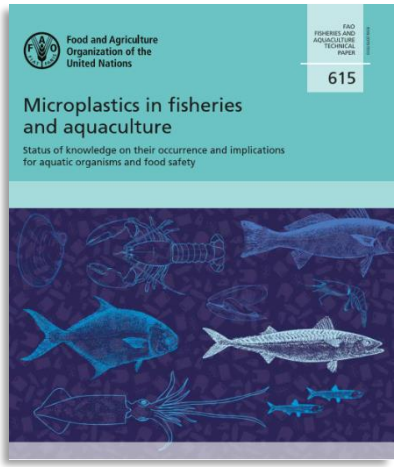
The State of World Fisheries and Aquaculture 2018

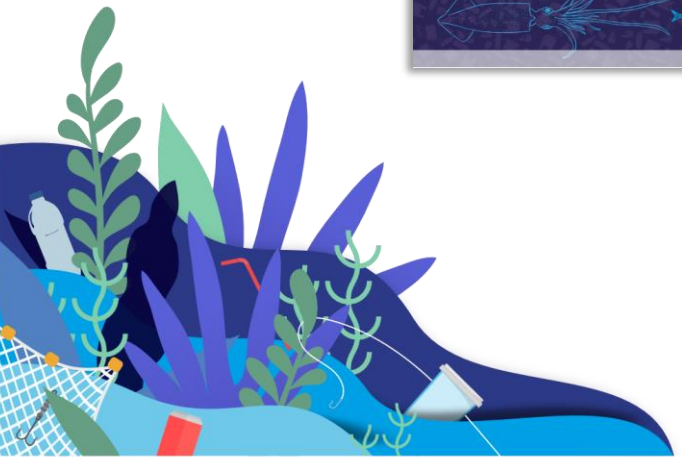


[1] *The State of World Fisheries and Aquaculture, 2018*

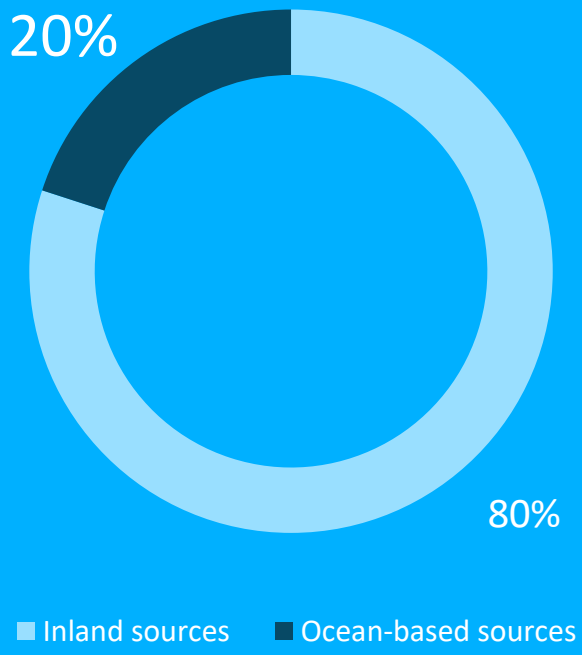
"There are no global estimates of the amount of plastic waste generated by the fisheries and aquaculture sector."

FAO, technical paper 615, 2017

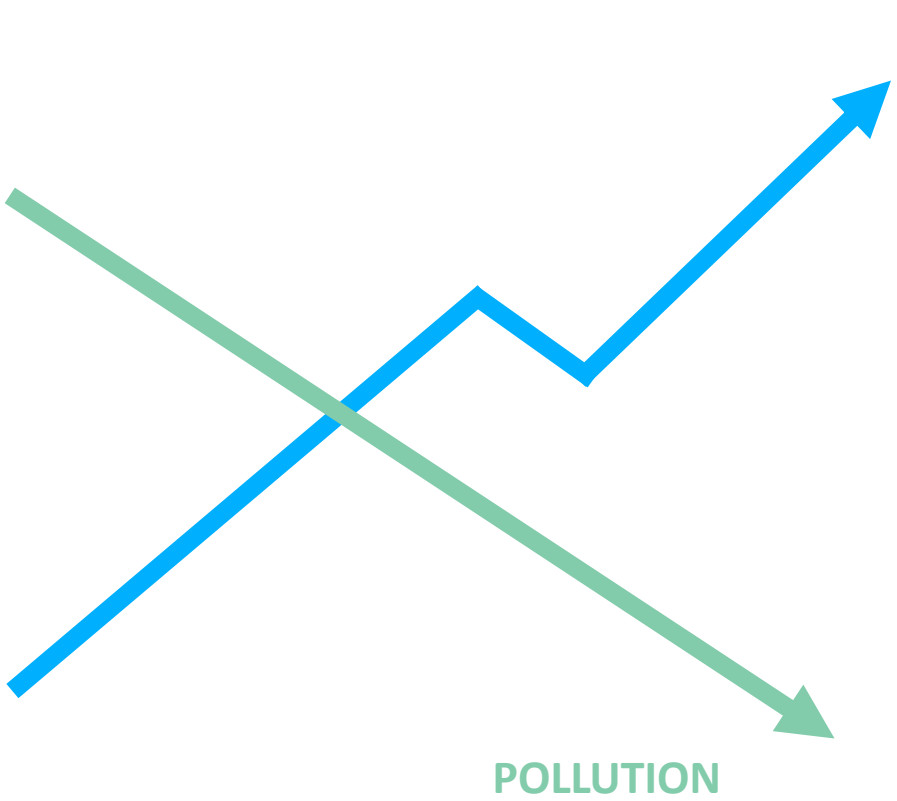




- Plastics account for most of debris in the Ocean and **20%** of these come from **ocean-based sources** (like fishing and aquaculture activities).



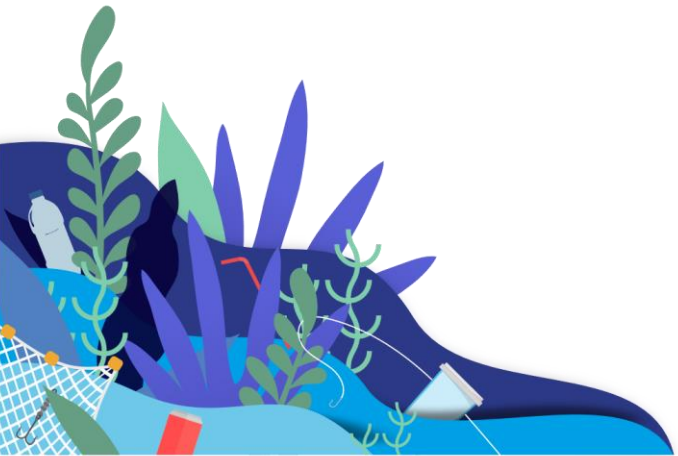
Put simple

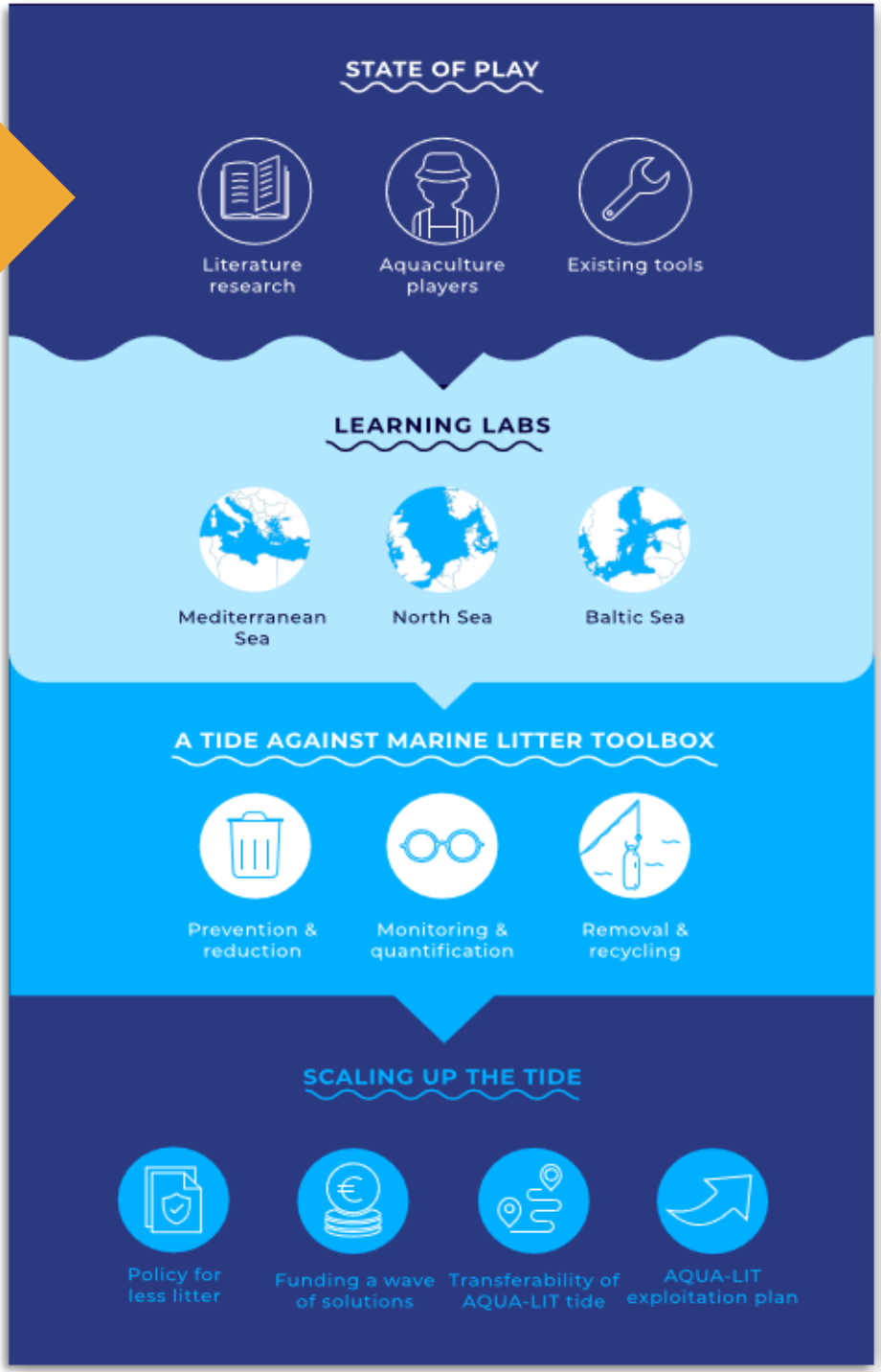


Why AQUA-LIT?

AQUA-LIT thus aims at **increasing the understanding, awareness and availability of solutions that tackle marine littering,** so the increase on aquaculture production doesn't imply an increase on marine littering.

How?

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Literature research
Aquaculture players
Existing tools
LEARNING LABS
Mediterranean Sea
North Sea
Baltic Sea
A TIDE AGAINST MARINE LITTER TOOLBOX
Prevention & reduction
Monitoring & quantification
Removal & recycling
SCALING UP THE TIDE
Policy for less litter
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Transferability of AQUA-LIT tide
AQUA-LIT exploitation plan

State of Play

Literature research

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Existing tools

Marine Litter inventory

A **solid knowledge base on marine litter from aquaculture activities**. This database includes information on the main types of debris as well as the quantities in which they occur in the marine environment, identifying specific sources of marine littering coming from aquaculture activities.

Regional maps on aquaculture litter

Sea basin maps generated for visualising information on the **geographic position of aquaculture facilities**, in combination with the **quantitative data of aquaculture-related litter**. These maps are provided for the three sea basins and give an initial indication of the source-sink story of aquaculture-related litter, which are a useful tool for the various stakeholders and policy makers.

MARINE LITTER INVENTORY

[PLASTIC]

The item inventory is a solid knowledge base on marine litter from aquaculture activities which is divided into general [A], specific [B] and other potential [C] items.
Each item is characterized by an identification

AQUA-LIT

Tahitians[B11]

Item type: **Structure**

Material: **Plastic**

Description:
Plastic structure from oyster cultures

Aquaculture species: Bivalves (mussel)
Aquaculture type: Stake method / longline culture

Source: *OSPAR beach litter guidelines nr 30*

Heavy-duty longlines[B12]

Item type: **Structure**

Material: **Plastic**

Description:
Sub surface longlines who smaller growth ropes together

Aquaculture species: Bivalves (oyster), brown seaweed
Aquaculture type: Longline culture

Source: *Niaounakis, 2017*

DOWNLOADBALE!

https://aqua-lit.eu/marine-litter-inventory/menu

MARINE LITTER INVENTORY

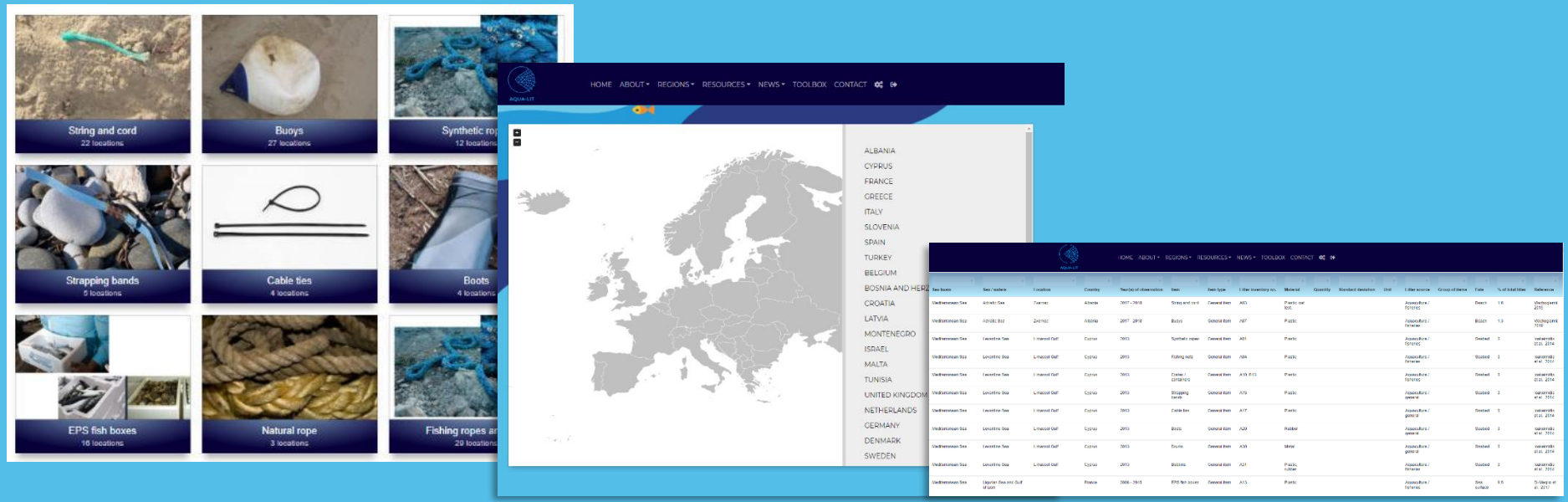
ONLINE VERSION

SEARCH BY TYPES OF LITTER

EXPLORE BY SEA BASINS

EXPLORE LITTER GEOGRAPHICALLY

VIEW ONLINE TABLE

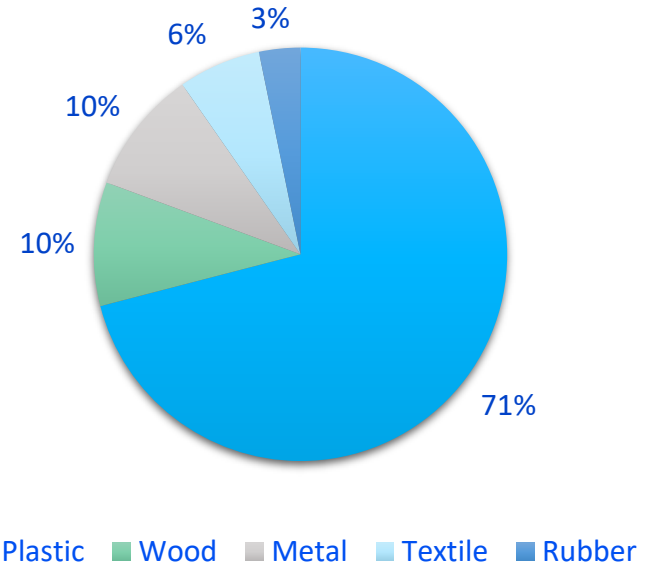


General items

Used by multiple offshore sectors

Total: 31

- Plastic: 22
- Wood: 3
- Metal: 3
- Textile: 2
- Rubber: 1



Specific items

Uniquely linked to aquaculture activities

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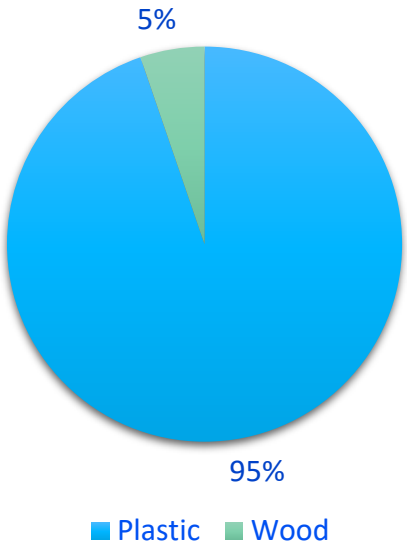
Description:
Sub surface longlines who smaller growth ropes together

Aquaculture species: Bivalves (oyster), brown seaweed
Aquaculture type: Longline culture

Source: *Niaounakis, 2017*

Total: 19

- Plastic: 18
- Wood: 1

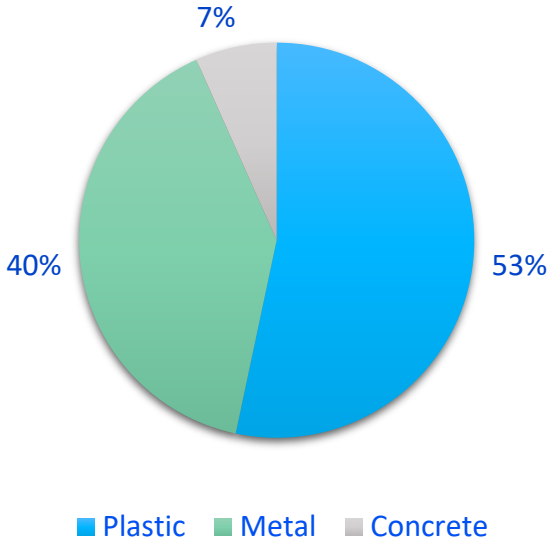


Other potential items

Aquaculture items that are not reported in literature or databases

Total: 15

- Plastic: 8
- Metal: 6
- Concrete: 1



State of Play

Literature research

Aquaculture players

Existing tools

REGIONAL MAPS

1 - Playa de Bolnuevo
2 - Playa Isla Plana
3 - Playa El Portús
4 - Cala Cortina
5 - Cala del Barco
6 - Playa de Calblanque
7 - Spiaggia di Voltri
8 - Spiaggia Sturla
9 - Marina di Vecchiano
10 - Castello Sonnino
11 - Porto Sant'Elpidio
12 - Pineto
13 - Fotini
14 - Schoinias

Legend

Aquaculture facilities

- Seaweed
- Shellfish
- Finfish

Aquaculture litter

- × No aquaculture litter
- • Aquaculture litter measurements (average number of items per 100 m beach for the period 2013-2019)

5	Bivalve net or bag
5	Lobster or fish tags
5	Mussel sheeting
5	Oyster tray

State of Play

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REGIONAL MAPS

The maps are a result of the collection of results from three different databases (OSPAR, HELCOM and Marine LitterWatch) where the information was recalculated per category to average number of **collected items per 100 meter beach**, and was later transformed into its visualization on three regional maps representing the **North Sea, Baltic Sea** and the **Mediterranean Sea** basins.

State of Play

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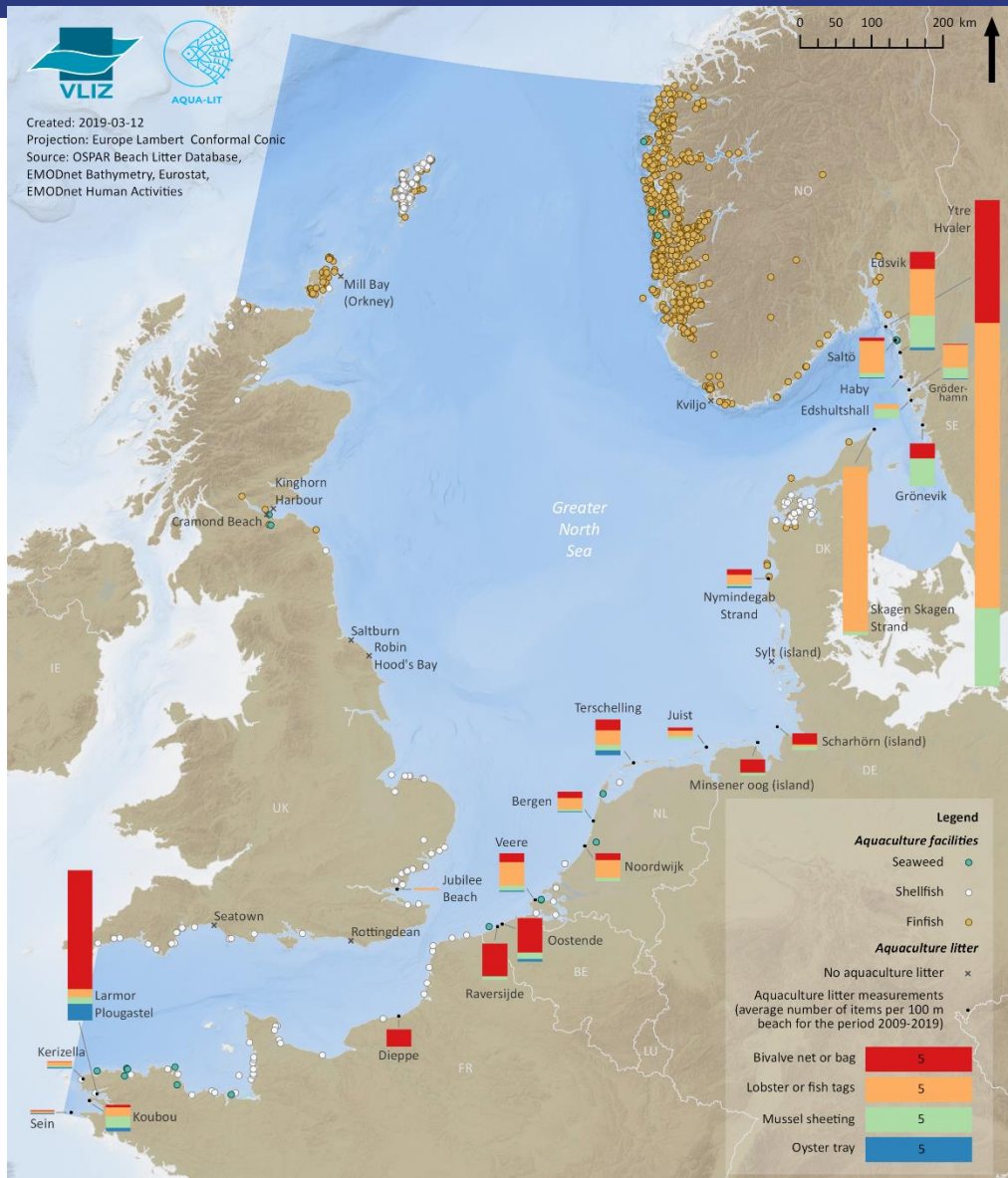
Existing tools

REGIONAL MAPS

Distribution of aquaculture facilities and aquaculture related beach litter in the Greater North Sea.

- ➔ Shellfish facilities and debris are mainly found in the English Channel and Southern North Sea
- ➔ Finfish facilities and debris are primarily located and recovered in the Northern North Sea, Skagerrak and Kattegat



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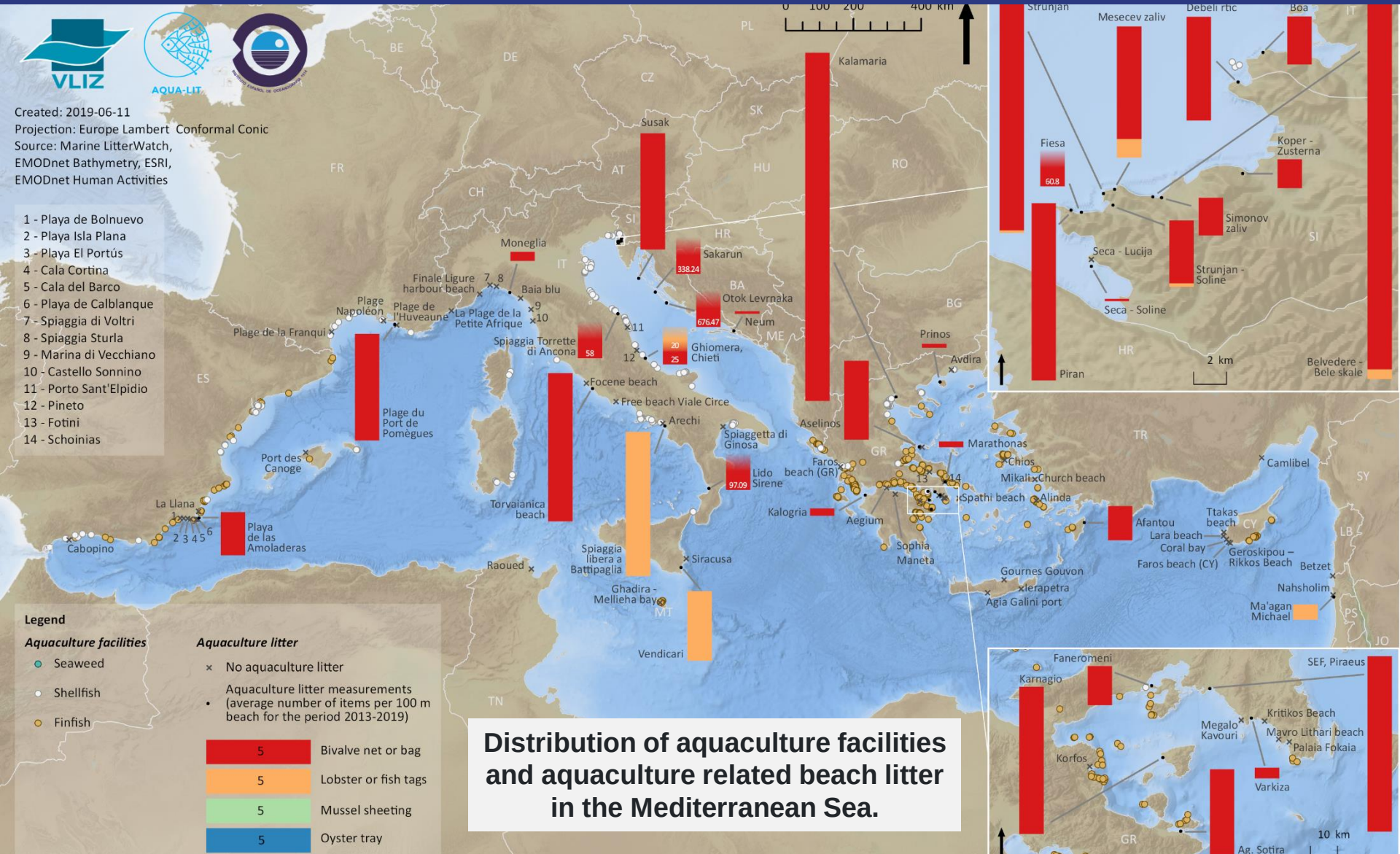

Distribution of aquaculture facilities and aquaculture related beach litter in the Mediterranean Sea.

State of Play

Literature research

Aquaculture players

Existing tools

REGIONAL MAPS

Distribution of aquaculture facilities and aquaculture related beach litter in the Baltic Sea.

State of Play

Literature research

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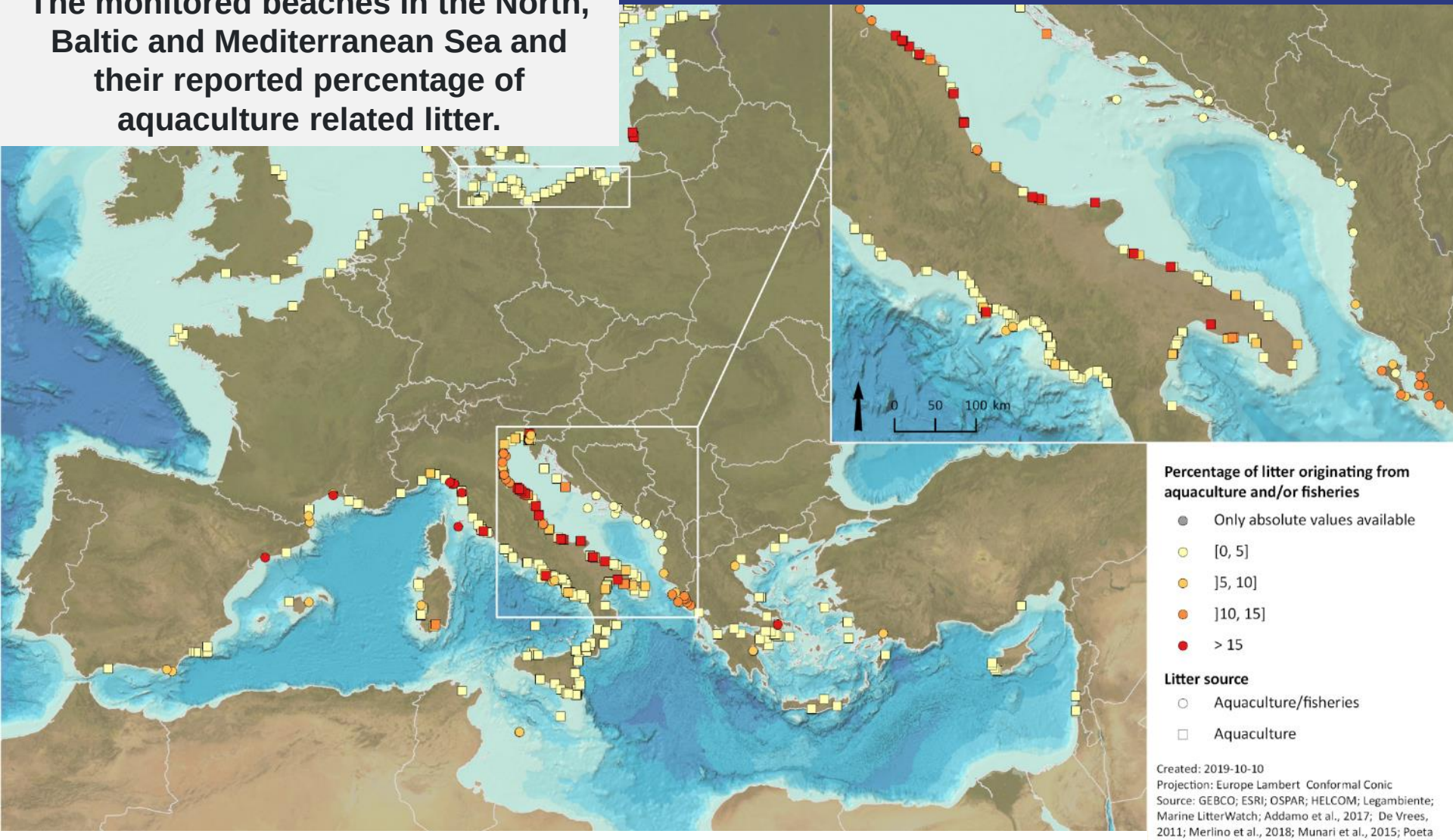
Existing tools

The monitored beaches in the North, Baltic and Mediterranean Sea and their reported percentage of aquaculture related litter.



Beach litter ➔ 12.33%

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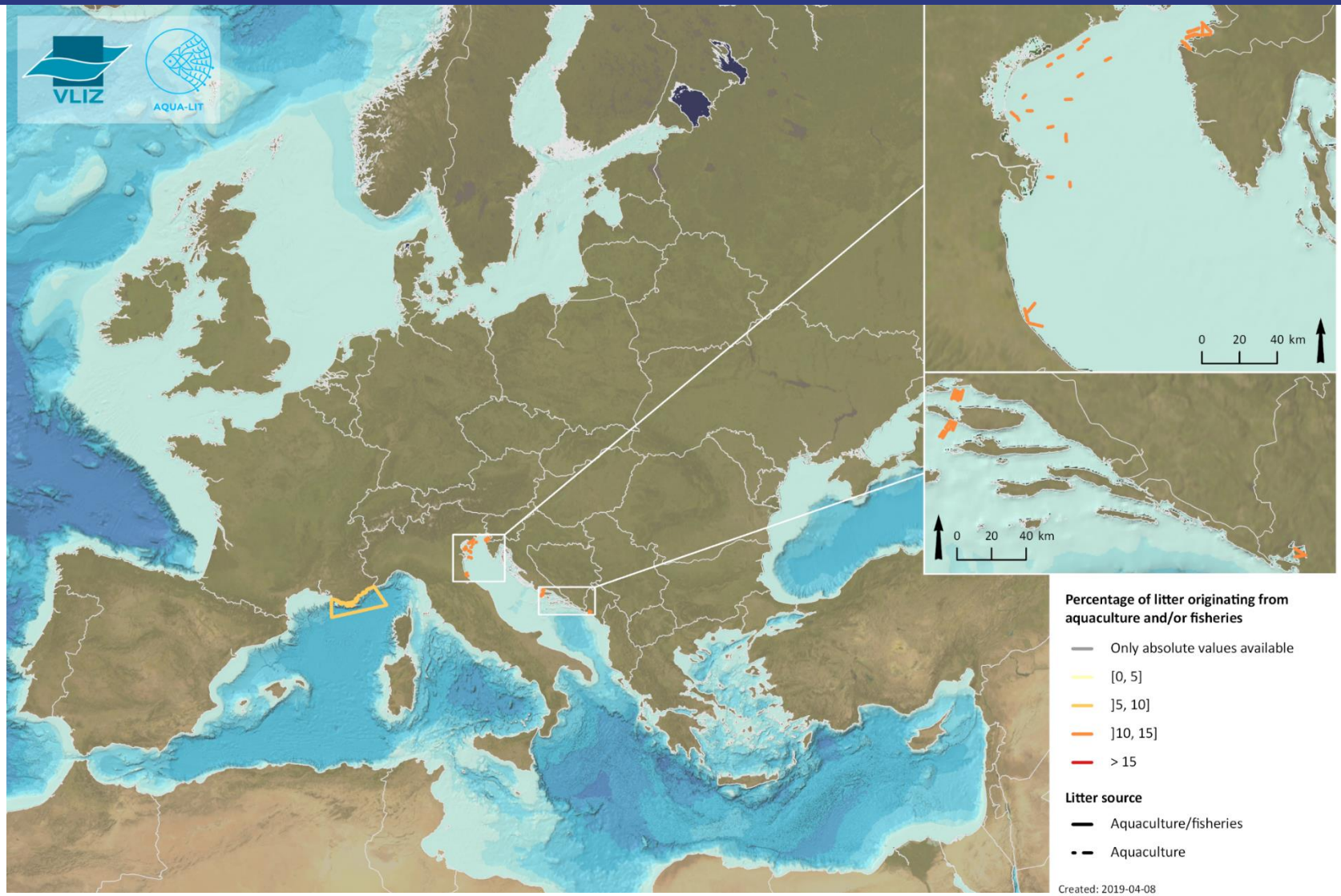

Floating litter ➔ 11.25%

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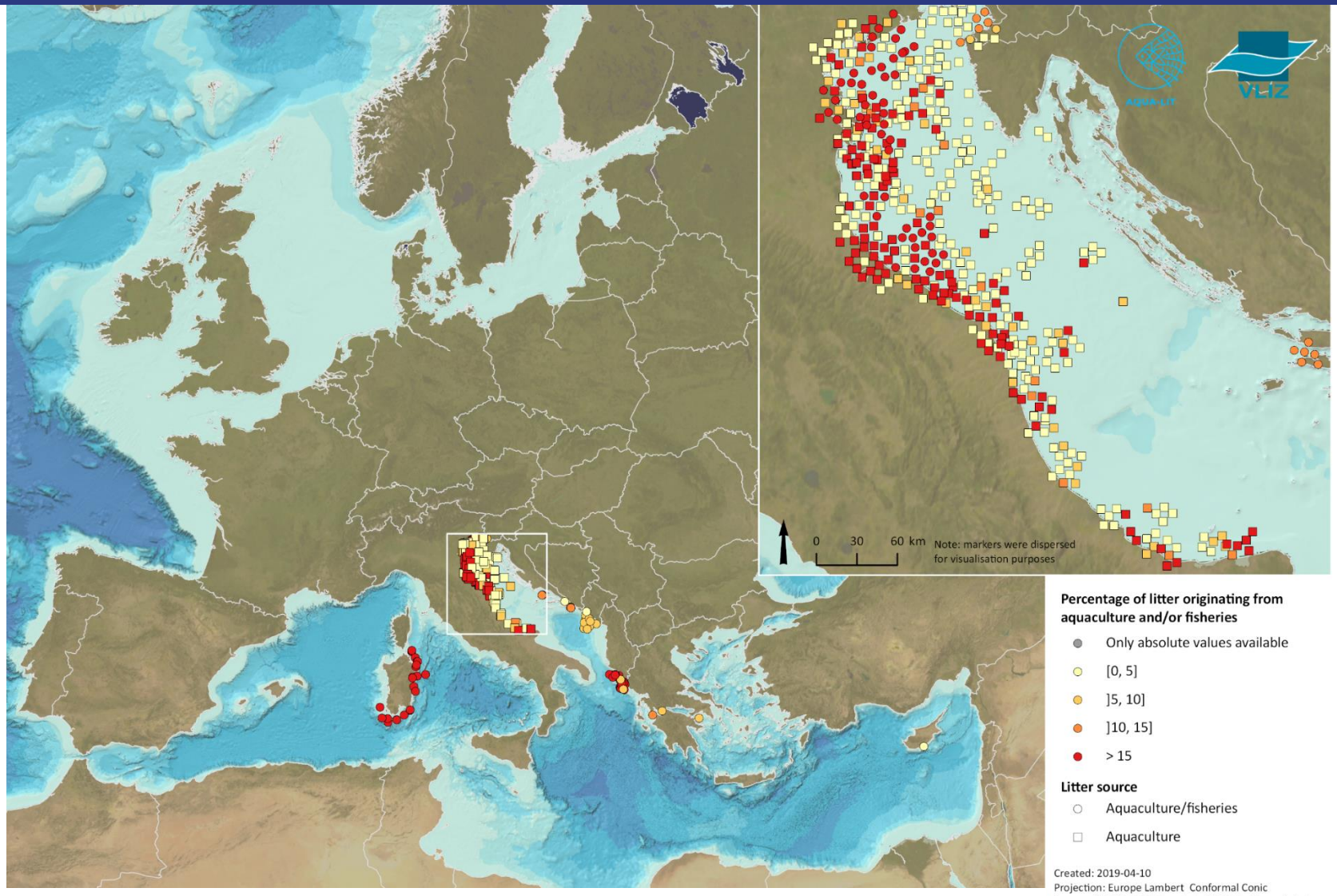


Seafloor litter ➔ 14.75%

State of Play

Literature research | Aquaculture players | Existing tools

Available policy tools and measures

Overview of the global, regional, European and national action plans and documents that contain measures to reduce or avoid marine litter from the aquaculture sector

GLOBAL

SUSTAINABLE DEVELOPMENT GOALS

7 GERMANY
Schloss Elmau

UNEP

REGIONAL

OSPAR COMMISSION

EU Strategy for the Adriatic and Ionian Region
EUSAIR

EUROPE

MARE

European Commission

NATIONAL

Examples

Prevention & reduction

CleanSea – Summary of Marine Litter Policy Options

*Use of **alternative materials** in aquaculture (e.g. cotton mussel socks).*

Monitoring & quantification

OSPAR Commission – Marine Litter Regional Action Plan

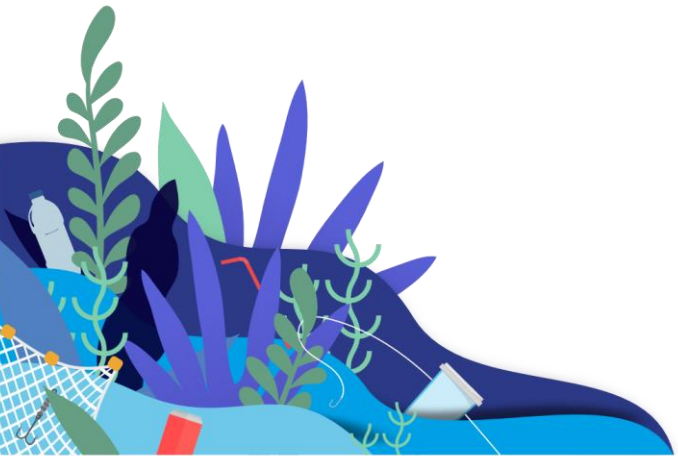
*Identify the options to address key waste items from the fishing industry and aquaculture, which could contribute to marine litter, including deposit schemes, **voluntary agreements** and **extended producer responsibility**.*

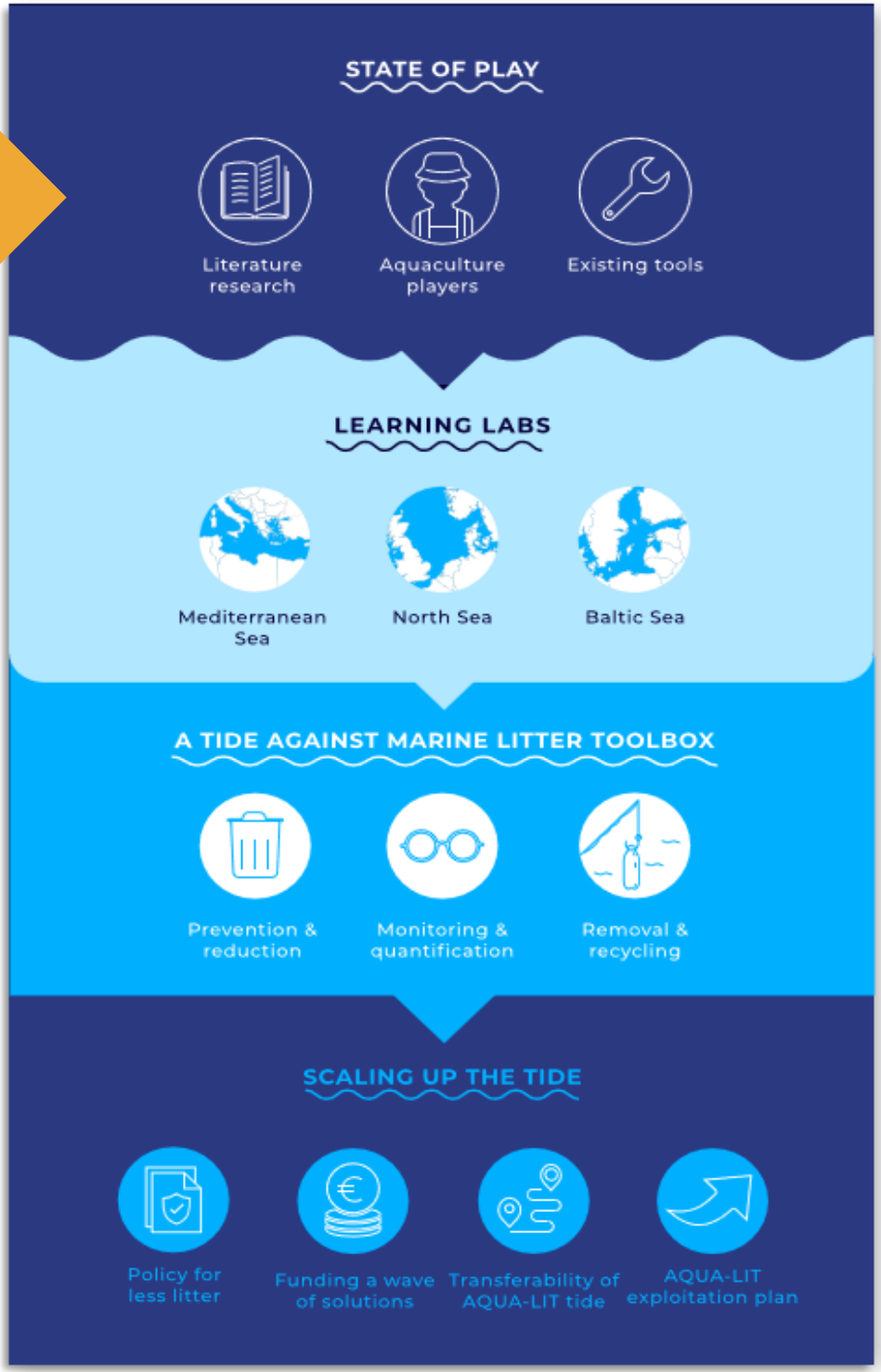
Removal & recycling

European Commission – DG Environment

*Remove financial disincentives to bringing waste ashore including marine litter found at sea (litter retention). **Port reception facilities** play an important role and can be complemented with **national recycling and disposal systems** for items that require special processing such as nets and gear made from composite materials.*

How?

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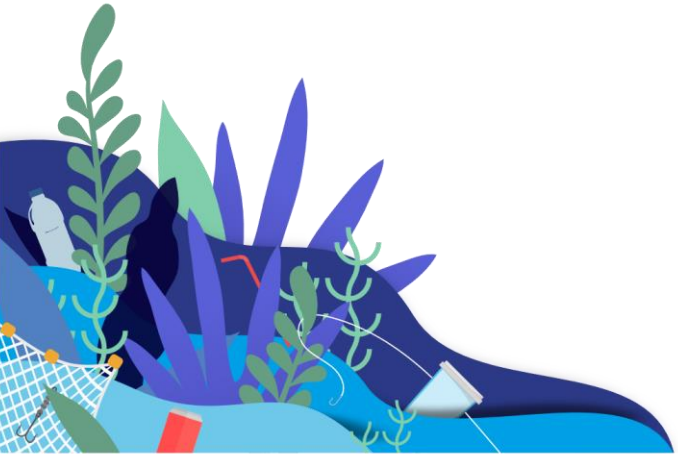

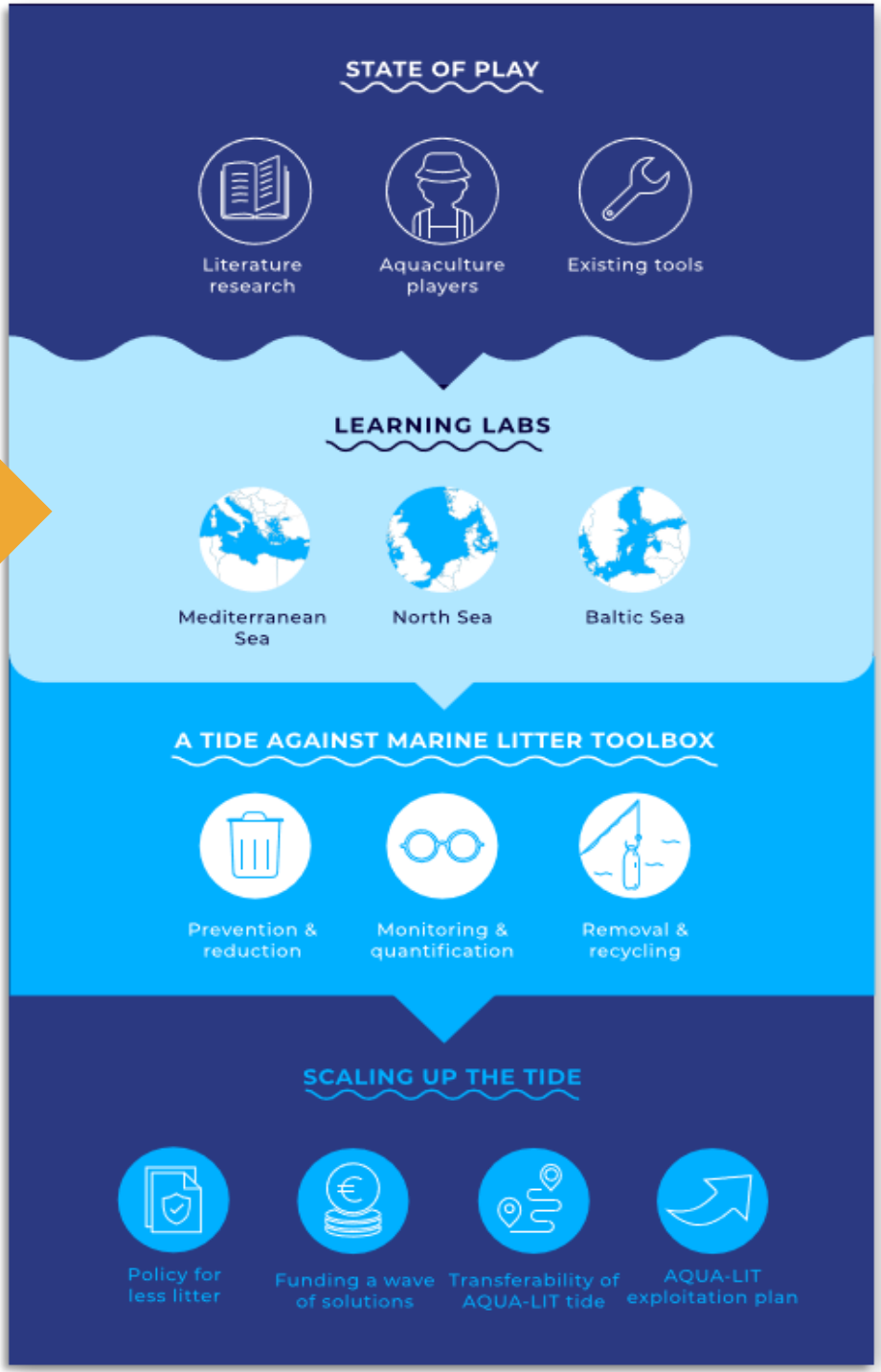
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Where?

North Sea

Baltic Sea

Mediterranean Sea

Learning Labs


Mediterranean Sea


North Sea


Baltic Sea


Baltic Sea


North Sea


Mediterranean Sea

AQUA-LIT's LEARNING LABS


AQUA-LIT

How can the aquaculture sector contribute to reducing marine litter?

AQUA-LIT's Baltic Sea Learning Lab,
an interactive workshop organised by s.Pro Sustainable Projects!
October 9th, 2019 - Berlin, Germany.

AQUA-LIT's North Sea Learning Lab,
an interactive workshop organised by the Flanders Marine Institute!
November 26th, 2019 - Ostend, Belgium

AQUA-LIT's Mediterranean Sea Learning Lab,
an interactive workshop organised by the Spanish Institute of Oceanography (IEO)
February 4th, 2020 – Valencia, Spain.

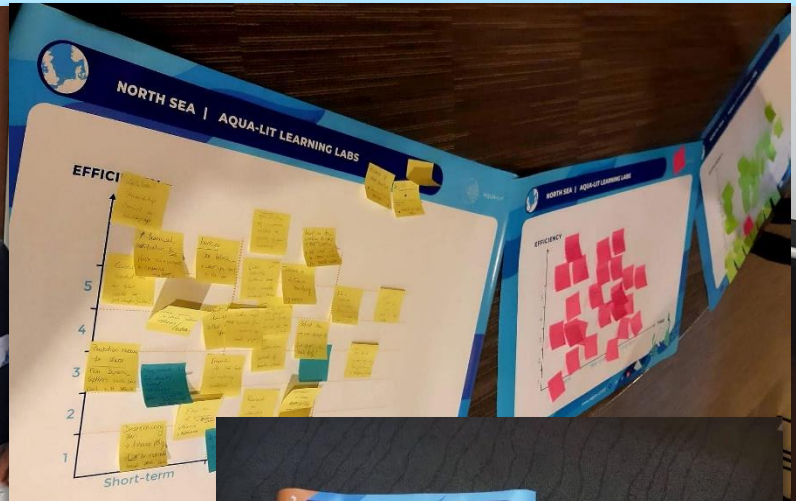
This project has received funding from the European Union's EASME-EMFF funding programme under grant agreement EASME/EMFF/2017/1.2.1.12/S2/04/S12.789391.

Learning Labs


Mediterranean Sea


North Sea


Baltic Sea



AQUA-LIT

How can the aquaculture sector contribute to reducing marine litter in the North Sea?

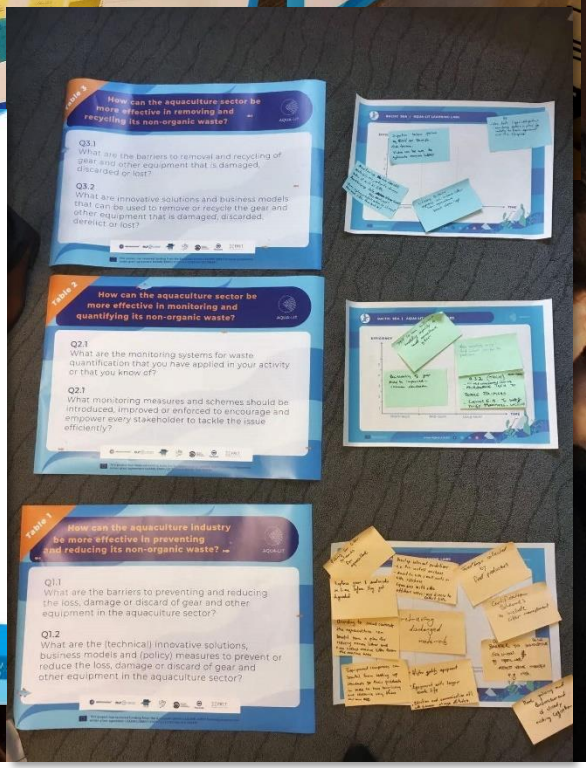
Aquaculture is the fastest growing food-producing sector in Europe, with an annual expansion rate of 0% in the last three decades. With this growth rate, there is an opportunity for such a booming industry to act as a precursor on fighting marine litter by reflecting on preventive measures and innovative solutions on how to manage the non-organic waste, which could become exemplary and point out the path for other sectors.

Therefore, the AQUA-LIT project is developing a toolbox of solutions for preventing, reducing, removing and recycling non-organic waste that the aquaculture industry would be able to implement.

NORTH SEA CONTEXT

In the North Sea fed aquaculture (fish), facilities are clustered in favourable areas in the outer regions of the Greater North Sea. Atlantic salmon (*Salmo salar*) is the most important aquaculture species in Europe that benefits from natural conditions with good sea temperatures, salinity and currents in sheltered fjords. Most of the farmed Atlantic salmon are produced in floating cages in sea, while there are a few land-based farms. Norway, followed by the UK, are the most important producing countries in Europe. Rainbow trout (*Oncorhynchus mykiss*) is the second most important aquaculture species in this region. This freshwater species is grown in floating cages in the protected waters of the Scandinavian fjords. Today, nearly all rainbow trout on the EU market comes from aquaculture.

The extractive aquaculture (shellfish and seaweed) sector is gaining traction across the EU, with a wide range of commercial applications going beyond human consumption (e.g. poultry and fish feed, biofuel, chemistry, pharmaceuticals, etc.). In the North Sea, mussel cultivation (predominantly blue mussel, *Mytilus edulis*) is dominated by France and the Netherlands. Other smaller producers of the blue mussel are Denmark, Norway, Sweden and the UK. There are three different culture techniques – using poles ("bouchots"), suspended ropes or bottom culture. Oyster farming has a long history. After several years of decreasing production caused by the 2008 disease outbreak in French oyster farming areas, production has increased again since 2014 (European Commission, 2019). In Europe, commonly farmed oysters include the European flat oyster, Colnes oyster, and the Pacific cupped oyster, *Crassostrea gigas*. In the North Sea, oyster culture is dominated by France, while the Netherlands and the UK have limited production capacity. Marine macroalgae, or seaweed, are traditionally harvested for the extraction of hydrocolloid for industrial purposes. EU macroalgae production is limited but the



Learning Labs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VIRTUAL LEARNING LAB

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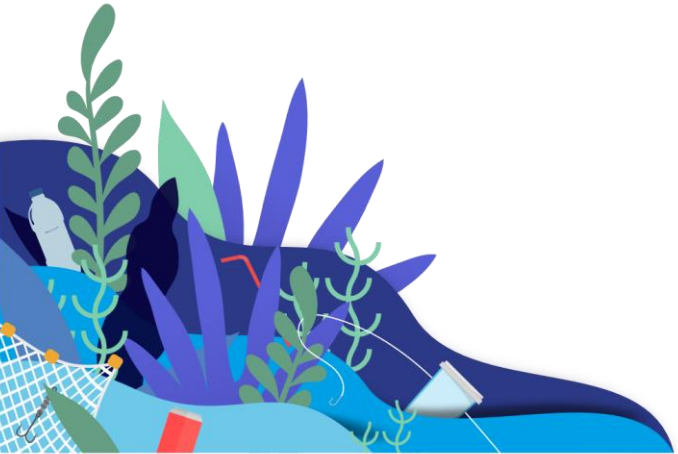

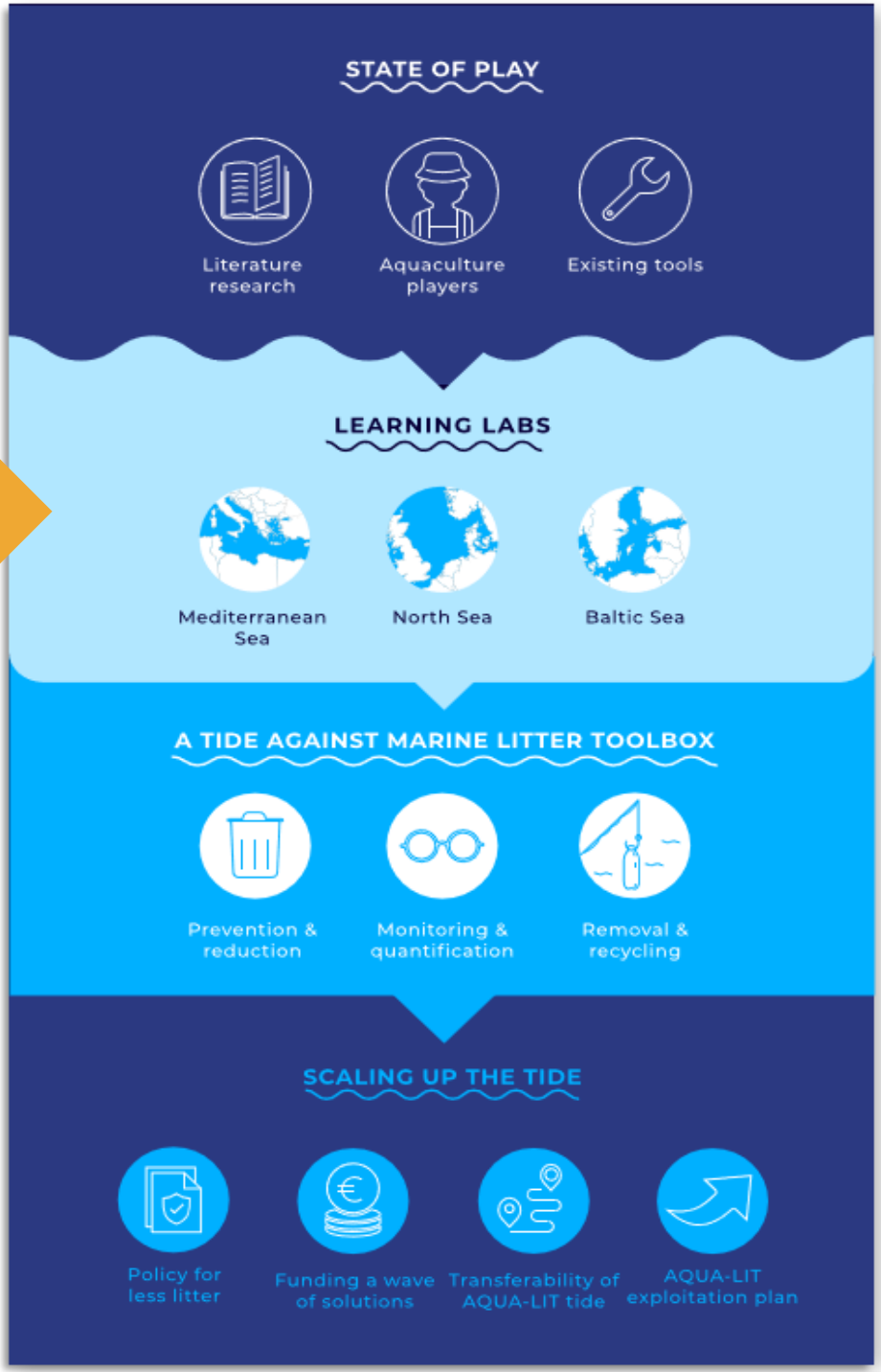
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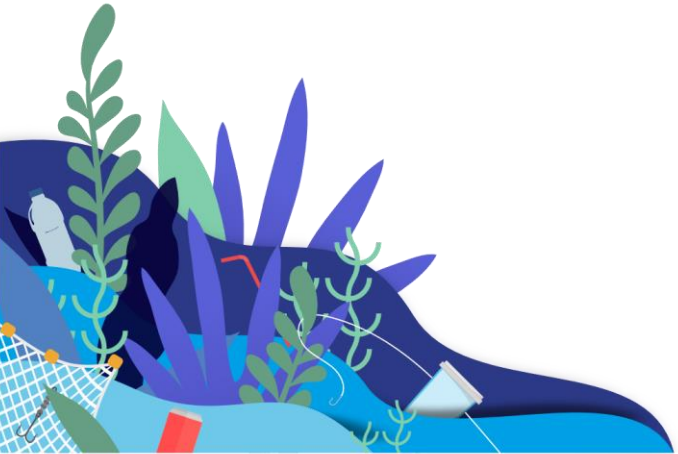

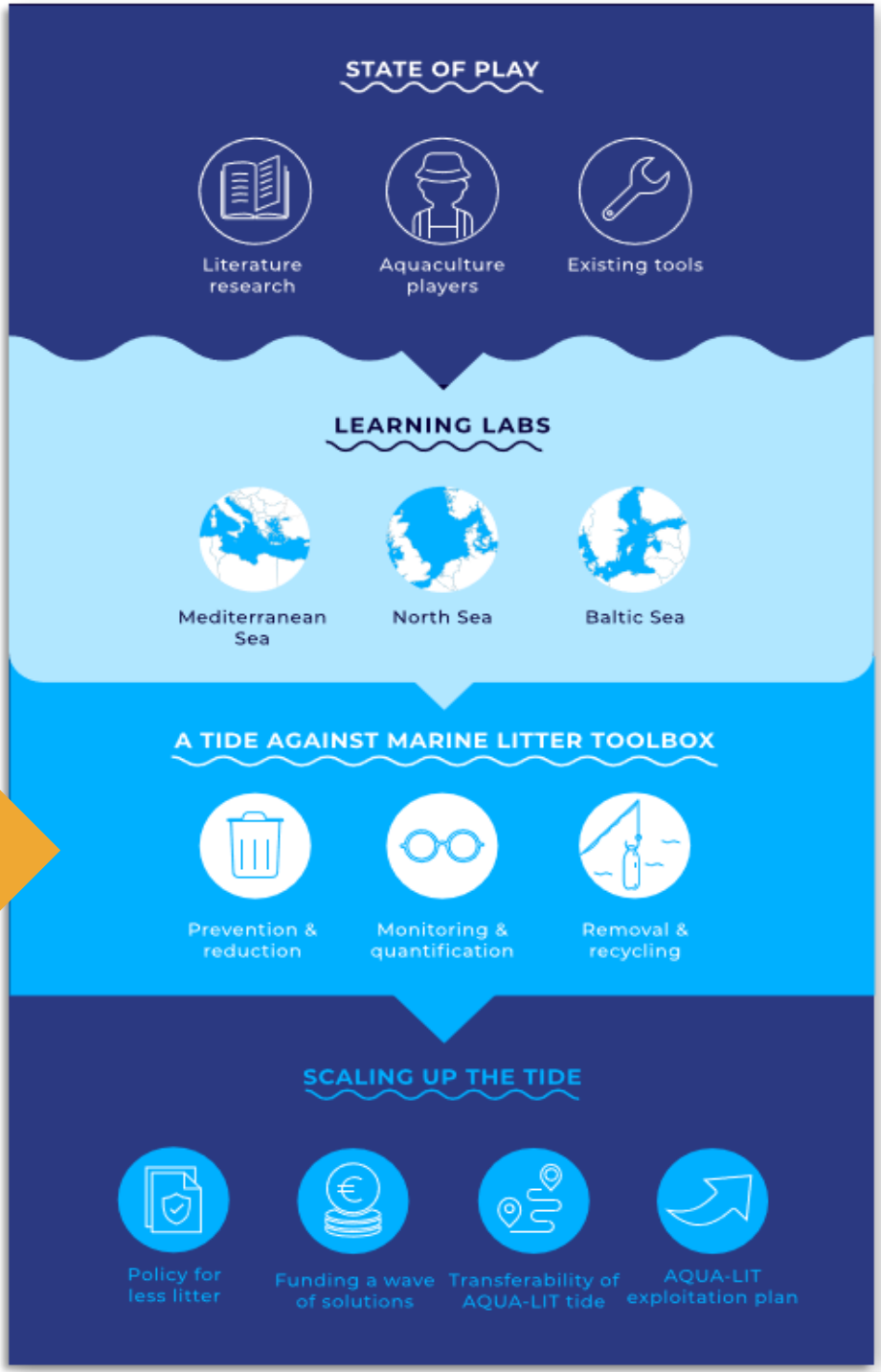
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What?

A toolbox against marine litter addressing:

Prevention & Reduction

Monitoring & Quantification

Removal & Recycling

What?

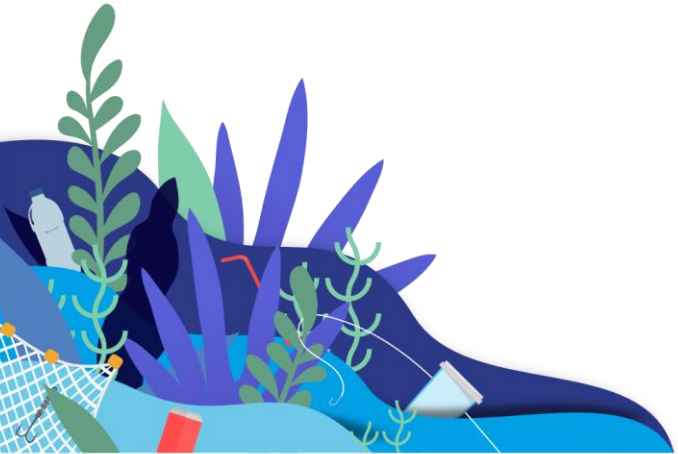
A toolbox against marine litter addressing:

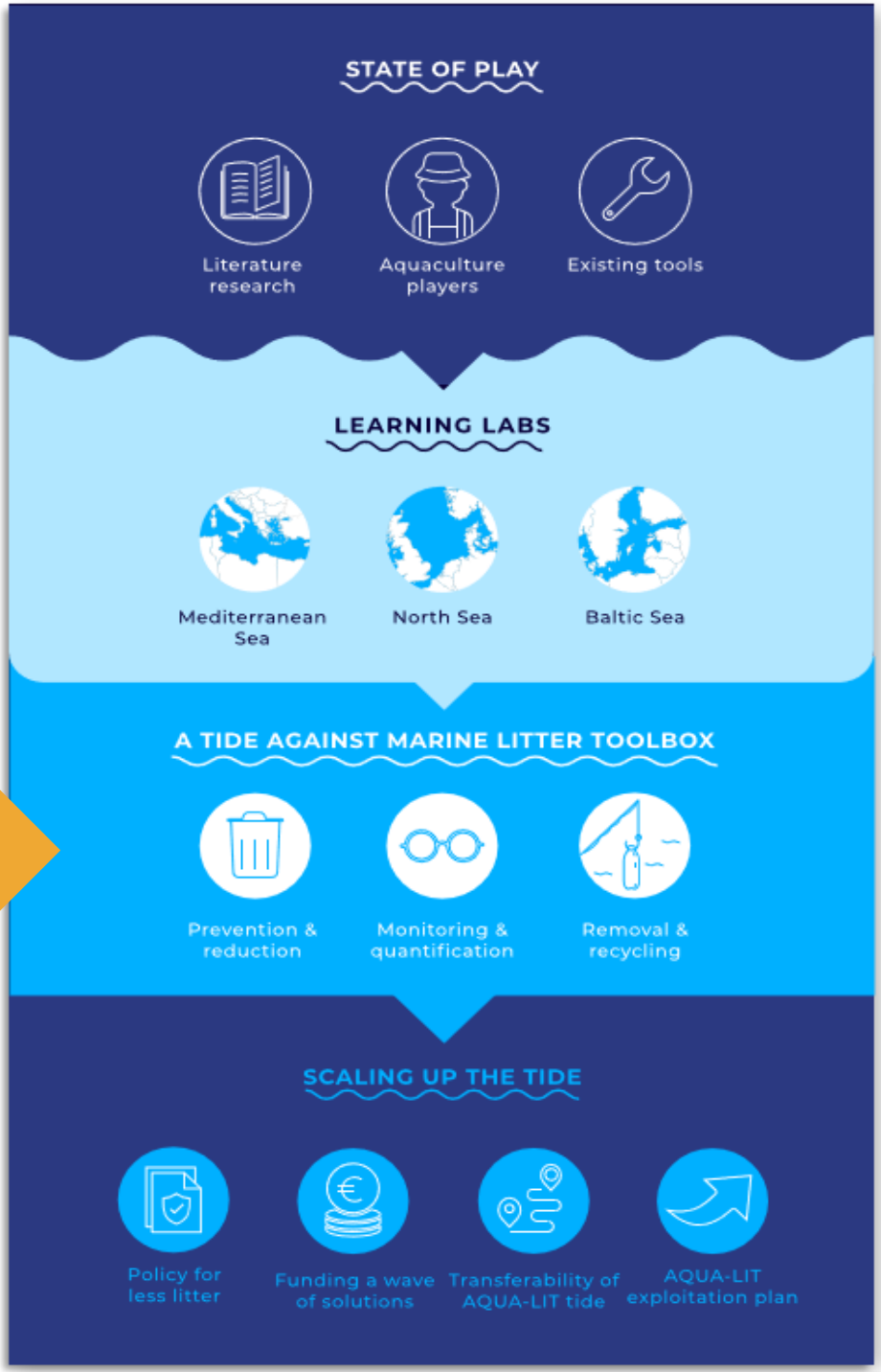
Existing, upcoming and already implemented **tools**, **case studies**, **best practices**, a **database** and **links between stakeholders** in different regions.

Online platform

App

How?

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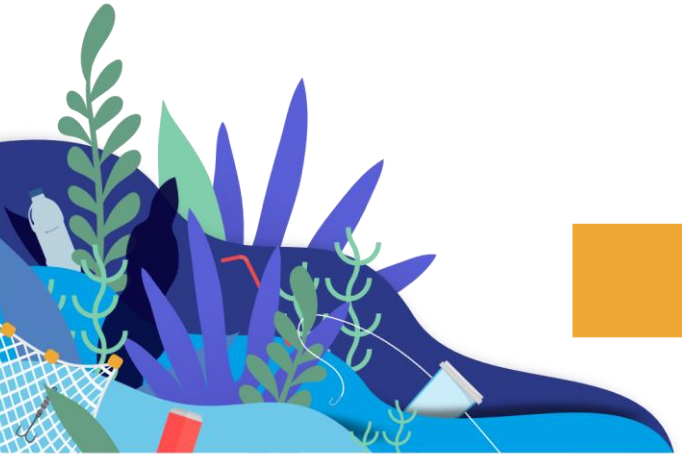
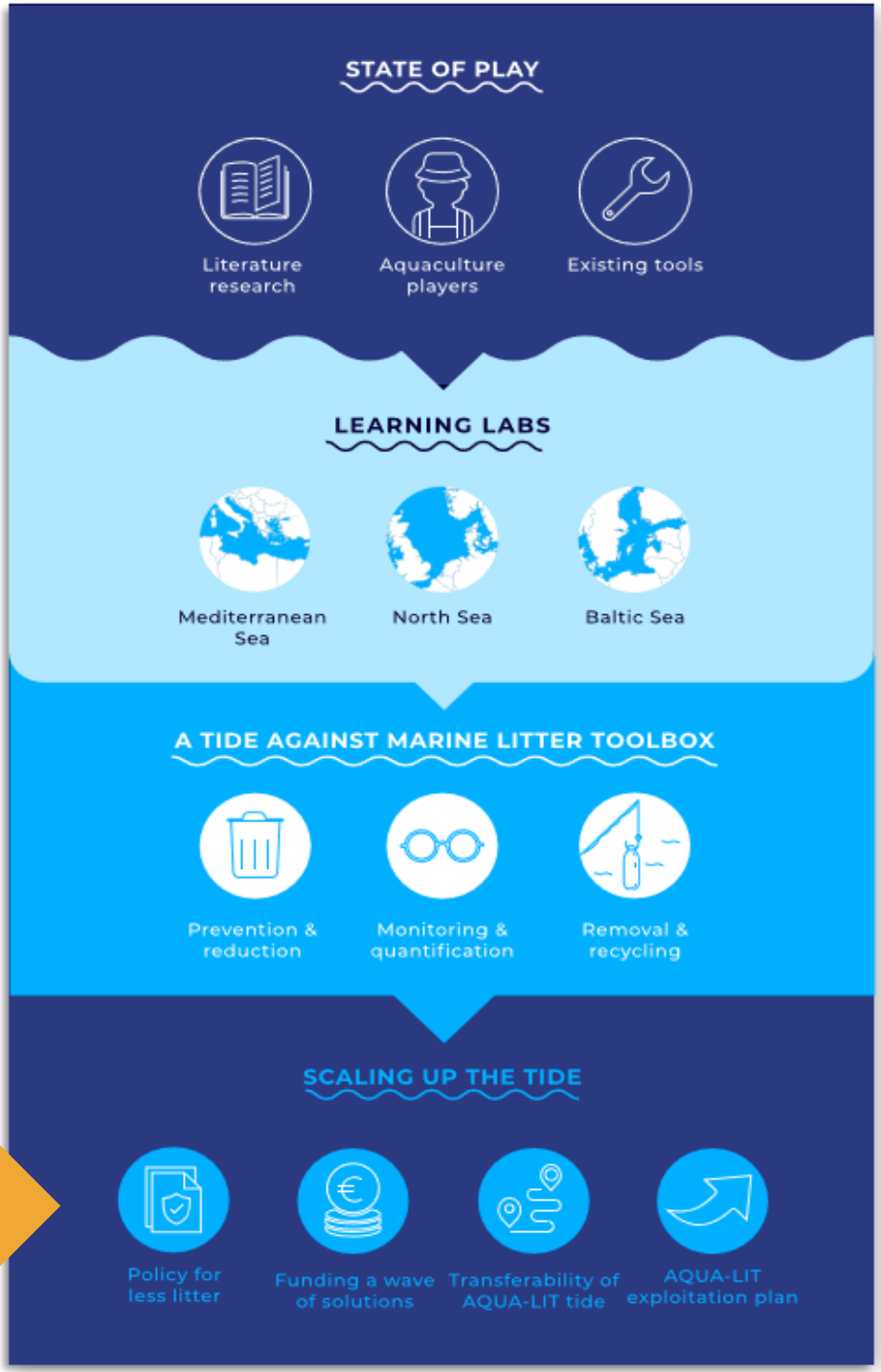
How?




STATE OF PLAY
Literature research
Aquaculture players
Existing tools
LEARNING LABS
Mediterranean Sea
North Sea
Baltic Sea
A TIDE AGAINST MARINE LITTER TOOLBOX
Prevention & reduction
Monitoring & quantification
Removal & recycling
SCALING UP THE TIDE
Policy for less litter
Funding a wave of solutions
Transferability of AQUA-LIT tide
AQUA-LIT exploitation plan

Furthermore

SCALING UP THE TIDE

Policy for less litter

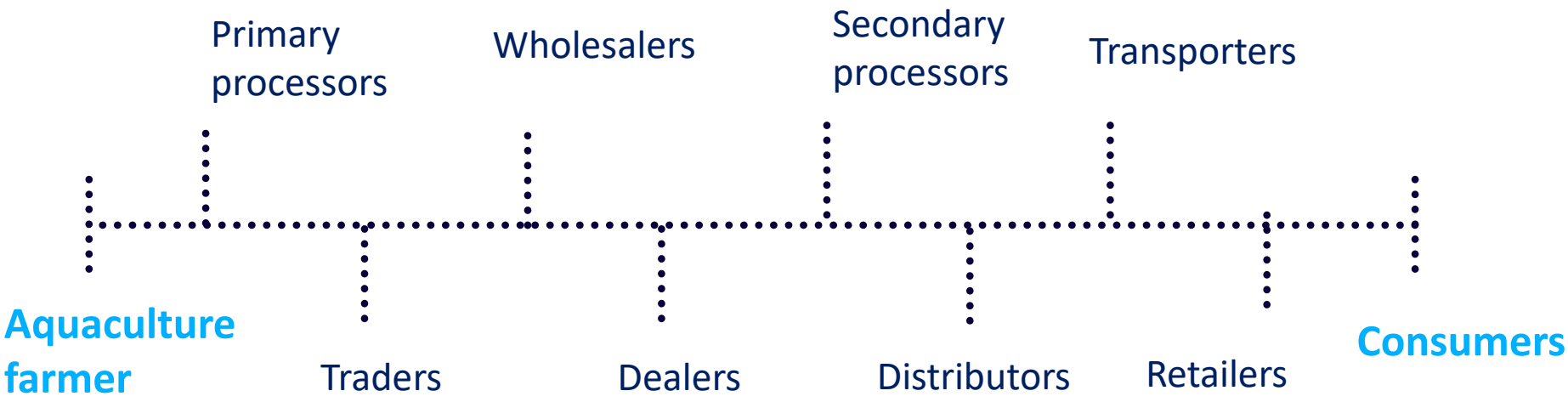
Funding a wave of solutions

Transferability of AQUA-LIT tide

AQUA-LIT exploitation plan

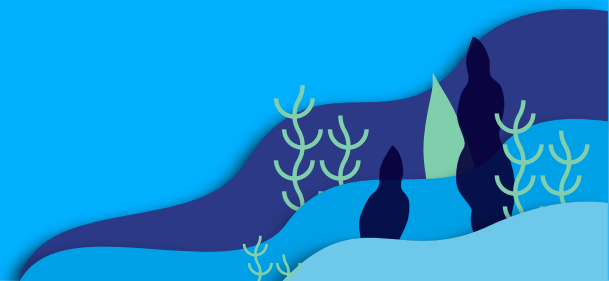
For whom?

Everyone along the aquaculture chain



FIND OUT MORE!

www.aqua-lit.eu



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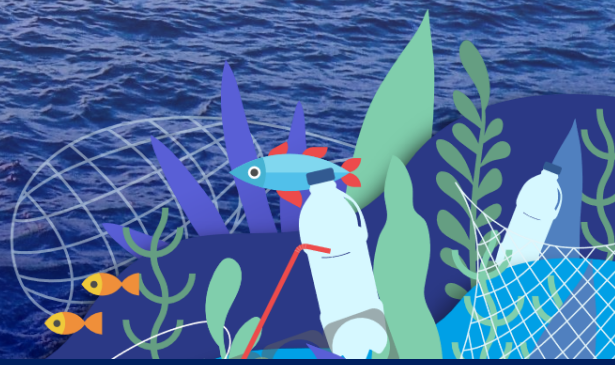
THANK
YOU!

AQUA-LIT

VIRTUAL LEARNING LAB

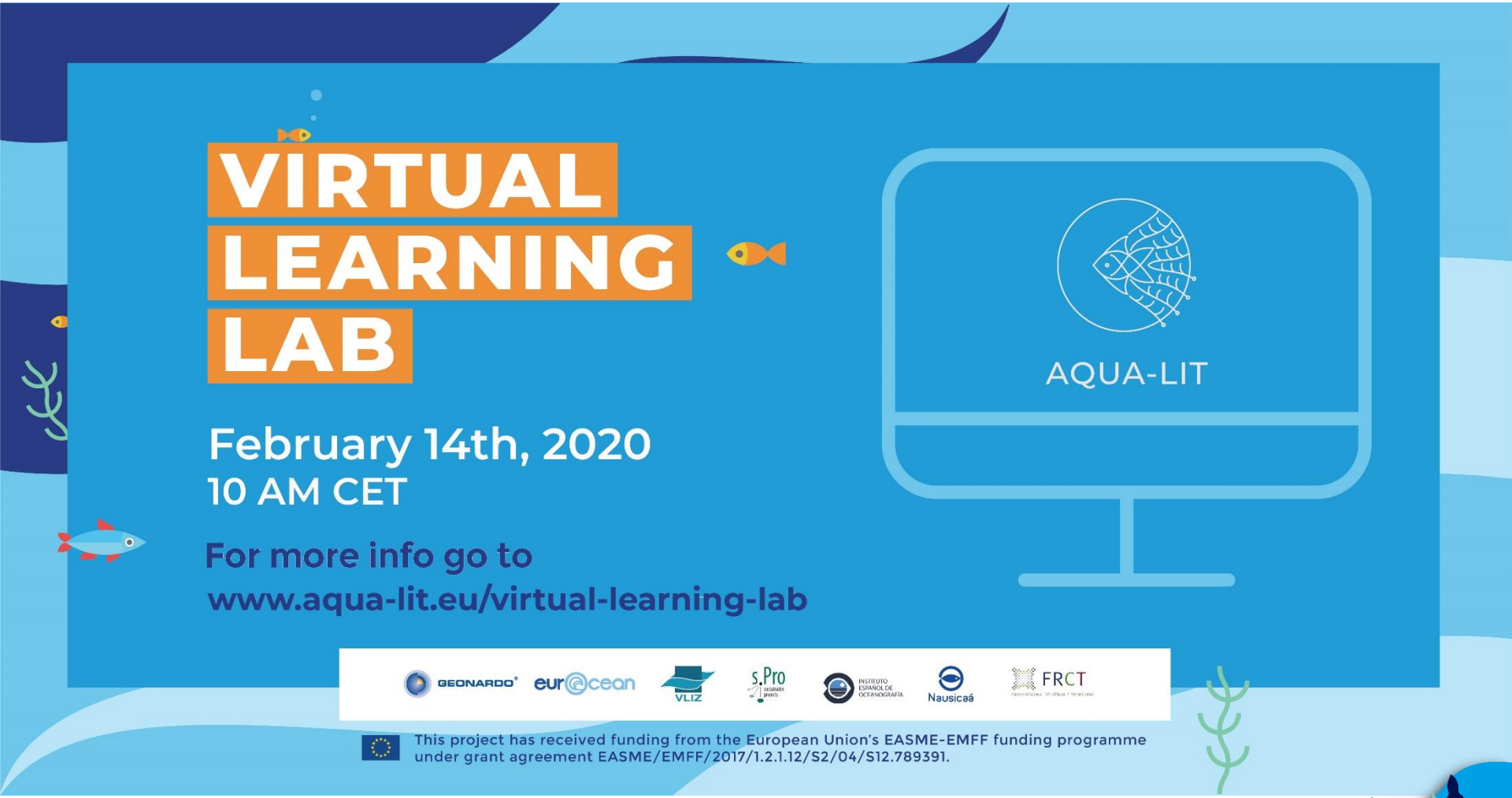
Virtual Learning Lab – February 14th, 2020.
Presented by: Mariana Mata Lara, Geonardo Ltd.



Preventive measures for averting the discarding of litter in the marine environment from the aquaculture industry

GEONARDO · eurocean · VLIZ · s.Pro sustainable projects · INSTITUTO ESPAÑOL DE OCEANOGRAFÍA · Nausicaá BOULOGNE-SUR-MER · FRCT FUNDO REGIONAL PARA A CIÊNCIA E TECNOLOGIA

General info



Aim

- To encourage knowledge sharing, discussions, and co-creation of solutions that help tackle marine litter from an aquaculture industry perspective.

- Better understand the impact of aquaculture activities on the marine environment through litter **monitoring and quantification frameworks,**
- Provide the aquaculture industry **with preventive measures** that help reduce marine litter,
- Provide mechanisms that help **remove the existing marine debris,**
- Provide **solutions for recycling** plastic waste, aiming towards a circular economy, and
- Examine which **policies** need to be adapted or put in place to underpin these practical actions.

Discussions

How can the aquaculture sector contribute to reducing marine litter?

Prevention & Reduction

Monitoring & Quantification

Removal & Recycling

Agenda

10:00-10:15	**Welcome + logistics**
10:15-10:45	**Plenary Session** ▪ Introduction to AQUA-LIT ▪ State of play of non-organic litter from the aquaculture sector ▪ Objectives of the Learning Lab and expected outcomes
10:45-11:00	**Division of groups and access to new link**
11:00-13:15	**Round tables** Interactive workshop where participants will work in groups to identify and assess solutions and methodologies from three perspectives:
11:00-11:45	**Part 1 – Prevention and Reduction** How can the aquaculture industry be more effective in **preventing and reducing** its non-organic waste?
11:45-12:30	**Part 2 – Monitoring and Quantification** How can the aquaculture sector be more effective in **monitoring and quantifying** its non-organic waste?
12:30-13:15	**Part 3 – Removing and Recycling** How can the aquaculture sector be more effective in **removing and recycling** its non-organic waste?
13:15-14:00	**Plenary Summary Session** ▪ Presentation of results by 3 keynote speakers & rapporteurs ▪ Discussion & wrap-up ▪ Participant questionnaire
-14:00	**Closing of the session**

Logistics

Group 1

FRCT

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Group 2

s.Pro sustainable projects

Nausicaá

Group 3

GEONARDO

eurocean

Group 1

- Konstantina Rizopoulou
- Emin Selahattin Umdu
- Andrea Fabris
- Senne Aertbeliën
- Roel Bosma
- Christina Deligianni
- Nelly Brugerolle
- Margherita Vece
- Abdelhak Semmar
- Jonathan Harvey

María Vidal

Claudia Lopes

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Link:

https://global.gotomeeting.com/join/643843981

Group 2

- Imen Zribi
- Maria João Coelho
- Cristiano Sousa
- Heloisa Labella Fonseca
- Jenny Ioannou
- Alessandro Gibertini
- Richard Takyi
- Blanca Partida
- Martha Bonnet Dunbar
- Julia Janeth Velez Colmenares

Susanne Altvater

Iwona Gin

Nausicaá

Link:

https://global.gotomeeting.com/join/482415781

Group 3

- Lia Papadranga
- Olga Novillo Sanjuan
- Mihails Pupins
- Tim de Rooij
- Jella Kandziora
- Ana Perez del Olmo
- João Rito
- Antara Sen Gupta
- Ignasi Mateo
- Mar Villar
- Aga Kempny

Mariana Mata-Lara

Margherita Zorgno

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Go to your group sessions!

Thank you