



**EAFE Conference 2025**

**The economic future of fisheries: resilience to climate change effects and innovation  
for the fulfilment of the SDGs**

**Theme session B – Biodiversity: the economic opportunities and challenges that it brings for fisheries and aquaculture, including ecosystem services**

## **BLUMATER: EMPOWERING FISHERS WITH DIGITAL INNOVATION FOR MARINE LITTER RECOVERY AND SUSTAINABLE SEAS**

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**Goal:** Support fishermen in marine litter recovery

**Focus:** Sustainability, traceability, and data-driven tools



**App BluMater**  
Google Play Store

A screenshot of the BluMater app login screen. At the top is the app logo (a green shopping bag with a recycling symbol above blue wavy lines) and the text 'BluMater'. Below that is the text 'Esegui il Login'. There are two input fields: 'Numero UE' with an anchor icon and 'Password' with a lock icon. A blue 'Login' button is at the bottom right. At the bottom of the screen, there are logos for NISEA, dynamic ID, and Università degli Studi di Ferrara. The copyright notice '2022 © Dynamic-ID S.r.l.' is also visible.

### What does the app do?

- Records marine litter collection activities
- Identifies, photographs, and geolocates waste
- Flags and maps non-removable litter
- Monitors operational areas
- Sends alerts to vessels



## What is the purpose of the app?

- Track the quantity and quality of collected waste with a user-friendly tool
- Highlight fishers' commitment through detailed data
- Support the development of a possible certification system

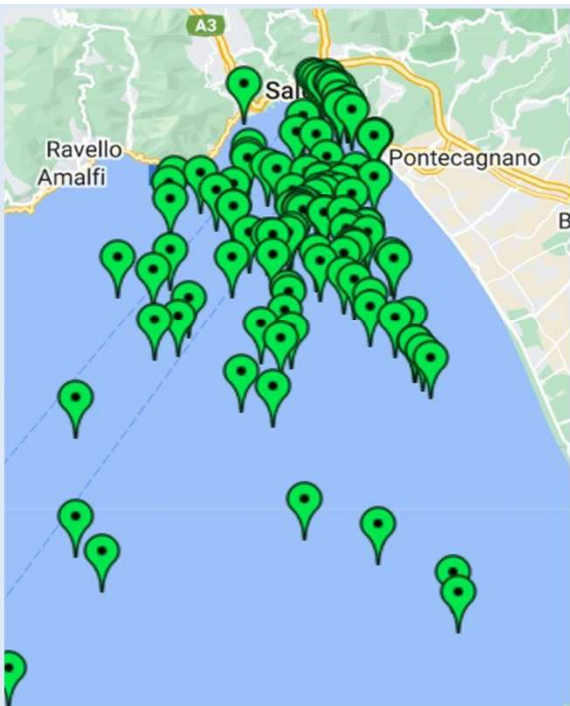
FISHING PORT	TECHNIQUE	POPULATION	SAMPE	SAMPE COVERAGE
Salerno	Trawling	16	5	31%
	Small-scale fishing gear	103	1	1%
Goro	Trawling	39	8	21%
TOTAL		14		4%

FISHING PORT	TECHNIQUE	n. of Vessels	Average days per Vessel	Total Observations
Salerno	Trawling	5	16	85
	Small-scale fishing gear	1	12	12
Goro	Trawling	8	15	120
TOTAL		14		217

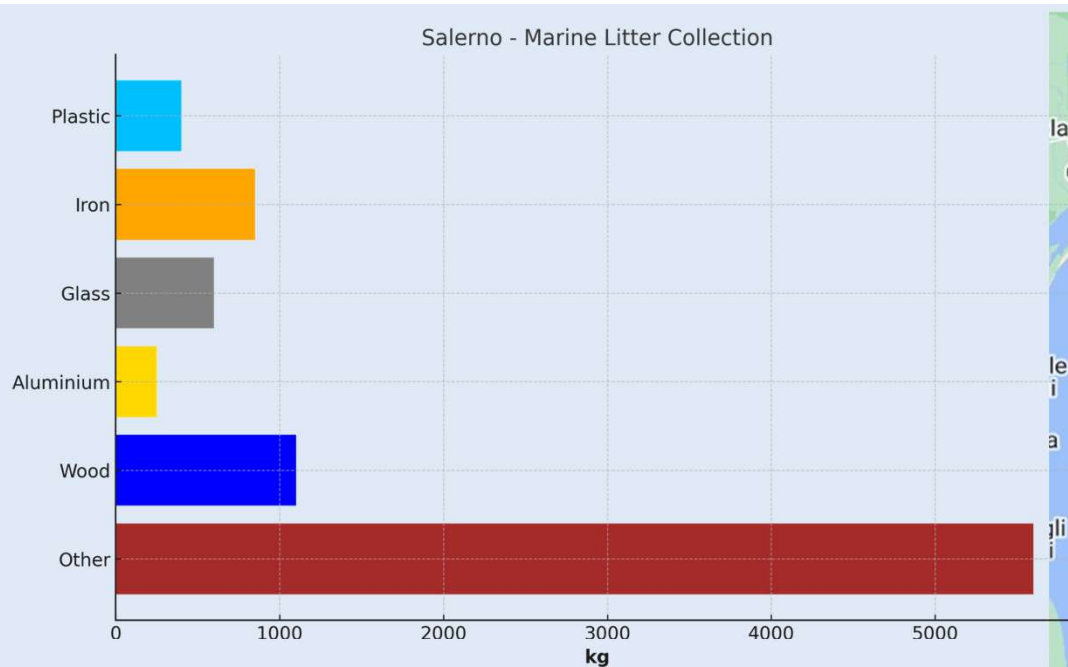
The sustainability goal is to reduce the amount of litter at sea.

This reduction brings clear **environmental benefits**.

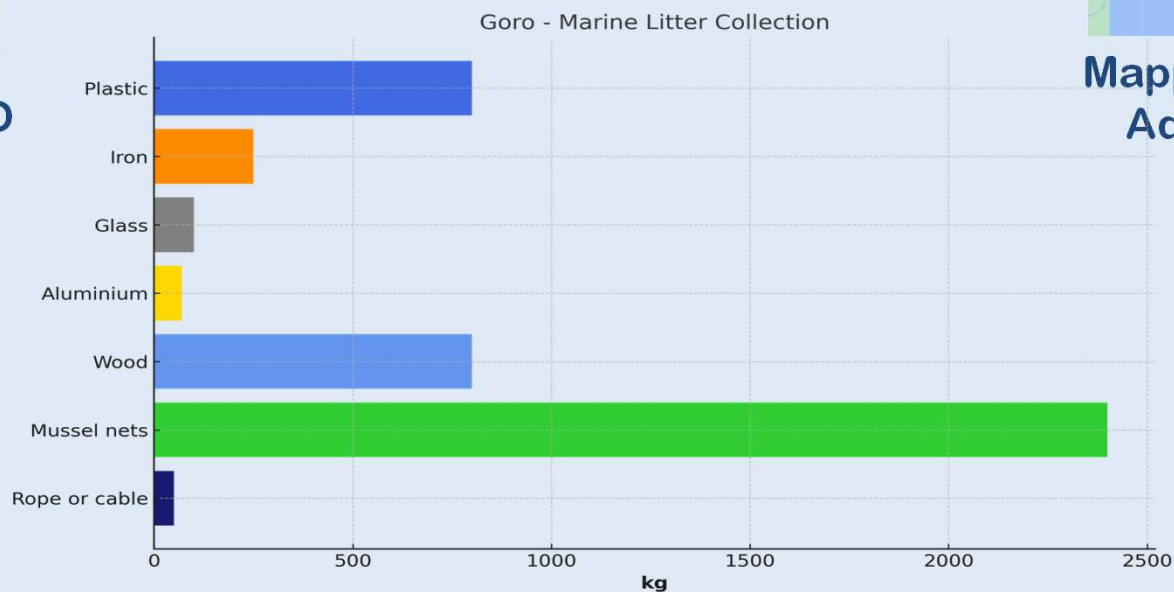
It also **provides social and economic advantages** by lowering the time and costs required for collection and disposal.



Mapping of observation in Tyrrhenian Area - SALERNO



Mapping of observation in Adriatic Area - GORO



# TRAFFIC LIGHT ANALYSIS: INDICATOR DEFINITION

## Design of Sustainability indicators according to the three pillars

### ENVIRONMENT

- Quantity of marine litter per working hour
- Quantity of marine litter per navigation hour

### SOCIAL

- Extra time spent on board to collect marine litter

### ECONOMIC

- Quantity of marine litter per fuel consumption
- Labour cost per quantity of marine litter

### GORO

Indicator	Red	Yellow	Green
Marine litter quantity per working hour (kg/h)	Low quantity >3.18	Medium quantity $0.64 < x < 3.18$	High quantity $x < 0.64$
Marine litter quantity per navigation hour (kg/h)	Low quantity > 2.56	Medium quantity $0.51 < x < 2.565$	High quantity $x < 0.51$
Cost for Extra time spent on board per day (€)	na	na	na
Extra-time per fishing trip (minuts)	na	na	na

### SALERNO

Indicator	Red	Yellow	Green
Marine litter quantity per working hour (kg/h)	Low quantity >10.81	Medium quantity $2.16 < x < 10.81$	High quantity $x < 2.16$
Marine litter quantity per navigation hour (kg/h)	Low quantity > 9.2	Medium quantity $1.84 < x < 9.2$	High quantity $x < 1.84$
Cost for Extra time spent on board per day (€)	Low quantity $x > 4$	Medium quantity $0.8 < x < 4$	High quantity $x < 0.8$
Extra-time per fishing trip (minuts)	Low quantity $x > 16.83$	Medium quantity $3.37x < 16.83$	High quantity $x < 3.37$

# PERFORMANCE INDICATORS BY PORT – TRAFFIC LIGHT OVERVIEW

Based on collected data, the Traffic Light system helps assess the sustainability level related to marine litter in the fishing areas of a specific fleet.

PILLAR	INDICATOR	Goro Trawling	Salerno Trawling	Salerno Trammel
ENVIRONMENT	Marine litter quantity per working hour (kg/h)	3.18	10.81	14,80
	Marine litter quantity per navigation hour (kg/h)	2.56	9.20	11.71
ECONOMIC	Cost for extra-time per day (€)	n.d.	4.00	1.87
SOCIAL	Extra-time per fishing trip (min)	n.d.	16.83	16.15

# DATA ANALYSIS – SCORING SYSTEM PROPOSAL

A scoring system can be developed based on the Traffic Light indicators to objectively evaluate each vessel's contribution to achieving sustainability goals within its fleet.

**THE MOST SUITABLE INDICATOR FOR MEASURING A VESSEL'S CONTRIBUTION IS:**

**QUANTITY OF MARINE LITTER COLLECTED PER WORKING HOUR  
(kg/h)**

Unlike the Traffic Light system,  
in this **SCORING APPROACH**, a  
higher amount of collected  
marine litter corresponds to a  
higher score.



This scoring system helps fishers **demonstrate their role in marine litter recovery**, especially when proof of action is required to access non-financial incentives or priority funding

# DATA ANALYSIS

## GORO

VESSEL	INDICATOR	RANKING
n1	2.63	10
n2	3.61	14
n3	3.59	14
n4	2.96	12
n5	2.41	10
n6	2.89	11
n7	3.62	14
n8	3.50	14
Total	3.18	100

## SALERNO

VESSEL	INDICATOR	RANKING
n1	12,81	23
n2	12,45	23
n3	11,37	21
n4	8,78	16
n5	9,39	17
Total	10,81	100

# QUALITATIVE ANALYSIS

Exploring the feasibility of a premium price system for seafood harvested in compliance with marine litter recovery protocols.

## Key Inputs:

- Consultation with stakeholders
- Literature review focused on:
  - **Existing labels** that certify fishers' commitment to **marine litter recovery**
  - **Consumers' willingness to pay (WTP)** for seafood products with **sustainability attributes**

There are currently no certification systems that recognize fishers' efforts in recovering marine litter linked to seafood products, and economic compensation for such activities is explicitly excluded by the National Law.

Although **no studies currently assess willingness to pay (WTP)** for seafood from fishers engaged in marine litter recovery, research shows that **Italian consumers are generally willing to pay more (14–18%, or up to 29%)** for products with strong sustainability attributes.

# Conclusion

## Lessons Learned

- Increased awareness among fishermen
- Field-tested procedures improve reliability
- Collaboration across fleets enhances practices

## Next Steps for Scaling Up

- ❖ Extend app usage and improve data collection
- ❖ Support recognition of recovery activities
- ❖ Explore eco-labeling and certification models

