

FfL Implementation Status Map

WP4 – Activity 4.1 - Fishing for Litter Implementation
Status Map

DELIVERABLE D4.1.2

Partner in Charge: PP1 (ISPRA)

Partners involved: PP1 (ISPRA), PP2 (M.A.R.E.), PP4 (IZOR)

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ML-Repair Reducing and preventing, an integrated Approach to Marine
Litter Management in the Adriatic Sea – Axis 3 – SO 3.3

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1 PROJECT PRESENTATION

1.1 *Project description*

The ML-REPAIR project (REducing and Preventing, an Integrated Approach to Marine Litter Management in the Adriatic Sea) started on 01.01.2018 and lasted 21 months, ending on 30 September 2019. The general objective of the ML – REPAIR project was to prevent and reduce the input of waste in the Adriatic Sea through the involvement of the main stakeholders. The Adriatic Sea is a semi-closed basin with slow streams, making it vulnerable to pollution. Marine Litter (ML) is defined as any solid, manufactured or processed solid material discarded, disposed of or abandoned into the marine and coastal environment. It is a growing cause of concern for the degradation of the marine and coastal ecosystems, potentially endangering the functionality of the ecosystem itself and reducing the quality of coastal waters for fishing and tourism. Sea cross-border issues due to their cross-border effects require common approaches from different countries and their joint efforts. Within the ML-REPAIR project, activities have been carried out in Croatia and Italy, and the main focus of the project was to involve the target groups – fishermen and fishing associations/cooperatives, local communities and the younger population, the tourism sector, public administration bodies and the FLAG – (Fisheries Local Action Groups in Croatia and Italy) and LAGs (Local Action Groups). The project leader was Ca' Foscari University of Venice, and partners were the Italian National Institute for Environmental Protection and Research (ISPRA), the cooperatives M.A.R.E. and LIMOSA for Italy and the Institute of Oceanography and Fisheries (IZOR), Public Institution RERA S.D. for the coordination and development of the Split-Dalmatia County and the Association for Nature, Environment and Sustainable Development (Sunce), for Croatia.

1.2 *WP 4 - Supporting the Implementation of Fishing for Litter activities*

The Fishing for Litter (FFL) scheme is a clean-up activity that aims to remove marine litter from the seafloor: fishing vessels collect marine litter caught in their nets during fishing activities and dispose of it on the quayside. FFL initiatives, at the present time, are strongly recommended by International Organizations as UE, UNEP MAP (Decision IG.22/10 Implementing the Marine Litter Regional Plan in the Mediterranean), as a key activity to remove marine litter from the sea by involving and sensitizing fishermen, the main stakeholders of the sector. Despite the increasing number of directives and strategies to address marine litter and the extensive public interest and media coverage, barriers to implementing the FFL scheme in the Adriatic-Ionian macroregion are still in place (Ronchi et al., 2019). One of the aims of the WP4 was to facilitate the implementation of FFL schemes by creating useful tools for decision-makers, in order for them to promote a National strategy for FFL implementation. In particular, the WP aimed to verify and clarify needs and concerns of the full implementation of the FFL in the two countries and to improve the available data on quantities and composition of marine litter and ALDFG (Abandoned, Lost or otherwise Discarded Fishing Gears) both on the seafloor and in vulnerable N2000 sites. As several participative projects (DeFishGear, GAP1, and GAP2) clearly demonstrated, the interaction between scientists and fisheries stakeholders is a key tool for the success of every initiative concerning the marine

environment. WP4 engaged fishermen in monitoring and collecting ML also experimenting innovative and “smart” and innovative tools (e.g. an application for tablet or smartphone).

Cooperative M.A.R.E (PP2) was responsible for the work package 4, which was composed of three activities:

- 4.1 Fishing for Litter Implementation Status Map.
- 4.2 Fishing for litter catches: composition and quantities definition.
- 4.3 Monitoring of ALDFG and ML affecting Natura 2000 sites.

ISPRA (PP1) was the leader of the activity 4.1.; M.A.R.E. (PP2) and IZOR (PP4) participated in the activity.

2 ACTIVITY 4.1 - FISHING FOR LITTER IMPLEMENTATION STATUS MAP (FFLISM)

2.1 Activity description

Activity 4.1 aimed to redact a first and comprehensive “map” of the actual state of the FFL activities implementation in the main fishing ports of the Adriatic Sea in the two countries, thus giving to policymakers a useful tool to implement FFL plans. The map was populated with relevant information gathered through a survey conducted by the three partners contributing to the activity: ISPRA and M.A.R.E. for Italy, IZOR for Croatia. The survey verified the implementation and feasibility of FFL initiatives taking in account: relevant legislation, administrative or legislative concerns, logistic barriers and collected adopted solutions that could be used as inspiration by ports wishing to start the FFL scheme.

The FFISM is composed by a database (excel sheet), and a web GIS especially built for the project, to ensure public access to the data. The web GIS will be constantly developed and updated after the end of the project, and it is hosted on the ISPRA server, potentially accessible for many years.

3 DELIVERABLE 4.1.2 – FFL IMPLEMENTATION STATUS MAP: REPORT (AND RELATED DATABASE)

3.1 Data collection and validation

In Italy, thanks to the effort of the Italian partners involved in the activity (ISPRA and M.A.R.E.) and to the collaboration with the CleanSea LIFE project (see Deliverable 4.1.1), 45 fishing ports of the Adriatic Sea (Table 1, Fig. 1) could be included in the FFLISM1.

Table 1 – Fishing ports included in the FFL Implementation Status Map in Italy

N.	Name of the Port	Administrative Region
1	Pescara	Abruzzo
2	Ortona	Abruzzo
3	Cesenatico	Emilia Romagna
4	Bellaria	Emilia Romagna
5	Rimini	Emilia Romagna
6	Riccione	Emilia Romagna
7	Cattolica	Emilia Romagna
8	Goro	Emilia Romagna
9	Porto Garibaldi	Emilia Romagna
10	Ravenna	Emilia Romagna
11	Cervia	Emilia Romagna
12	Trieste	Friuli Venezia Giulia
13	Monfalcone	Friuli Venezia Giulia
14	Grado	Friuli Venezia Giulia
15	Portonogaro	Friuli Venezia Giulia
16	Marano Lagunare	Friuli Venezia Giulia
17	Lignano Sabbiadoro	Friuli Venezia Giulia
18	San Benedetto del Tronto	Marche
19	Fano	Marche
20	Pesaro	Marche
21	Ancona	Marche
22	Civitanova Marche	Marche
23	Bari	Puglia
24	Trani	Puglia
25	Bisceglie	Puglia
26	Molfetta	Puglia
27	Santa Margherita di Savoia	Puglia
28	Barletta	Puglia
29	Manfredonia	Puglia
30	Monopoli	Puglia

¹ From the Port Authorities we also received questionnaires from additional 27 Italian ports located in the Tyrrhenian Sea, Central Mediterranean, Ligurian Sea and Ionian Sea: these ports are not included in the database nor in the web tool, at present.

N.	Name of the Port	Administrative Region
31	Mola di Bari	Puglia
32	Bibione	Veneto
33	Caorle	Veneto
34	Jesolo	Veneto
35	Venezia	Veneto
36	Giulianova	Abruzzo
37	Termoli	Molise
38	San Cataldo	Puglia
39	Otranto	Puglia
40	Castro	Puglia
41	Brindisi	Puglia
42	Chioggia	Veneto
43	Porto Levante	Veneto
44	Pila di porto Tolle	Veneto
45	Scardovari	Veneto

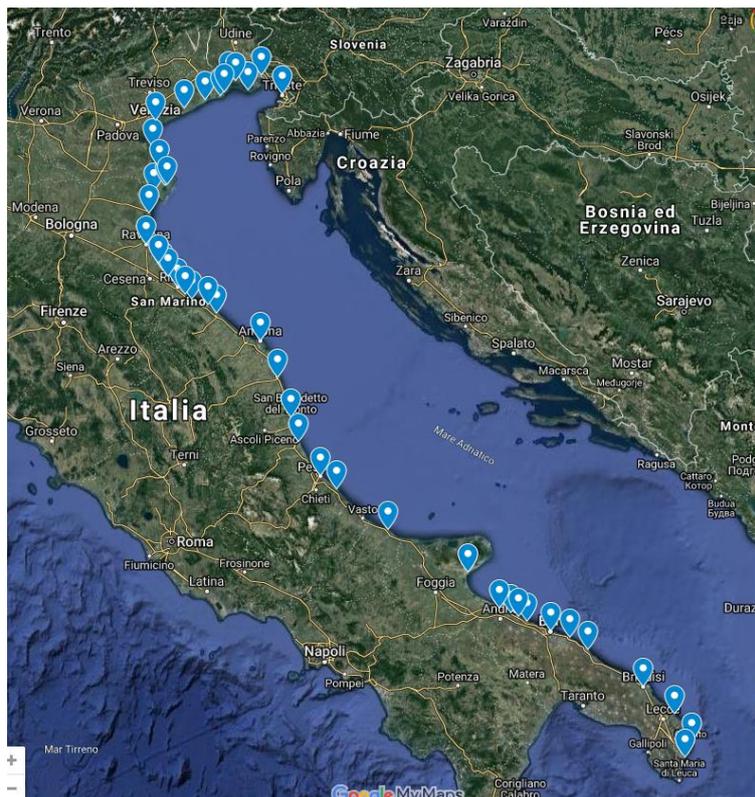


Figure 1. Ports included in the survey of the FFLISM in Italy.

For each port, ISPRA gathered data coming from different sources (e.g. Municipalities, Port Authorities, Fishery cooperatives and associations, personal communication etc.), observing some discrepancies among them. In the framework of the collaboration with the local fishery actors foreseen by the project

goals, we contacted 16 Fishery Local Action Groups (FLAGs) of the Adriatic coastline (Table 2) presenting the ML-REPAIR project, the FFL Implementation Status Map and asking for a validation, according to their best knowledge, of the acquired information.

Table 2 – FLAGs involved by the project in the data validation of the FFL Status Map, in Italy.

N.	Name of the FLAG
1	GAC FVG/ARIES Azienda Speciale C.C.I.A.A. TS
2	FLAG GAC VENEZIA ORIENTALE VeGAL
3	FLAG CAC Chioggia delta Po
4	FLAG COSTA DELL'EMILIA ROMAGNA
5	FLAG MARCHE NORD
6	FLAG MARCHE CENTRO
7	FLAG MARCHE SUD
8	FLAG COSTA BLU S.C.A.R.L.
9	COSTA DEI TRABOCCHI
10	ASSOCIAZIONE FLAG MOLISE COSTIERO
11	GAL DAUNOFANTINO S.C.A.R.L.
12	GAL PONTE LAMA S.C.A.R.L.
13	GAL SUD-EST BARESE S.C.A.R.L.
14	GAL TERRA DEI TRULLI E DI BARSENTO S.C.A.R.L.
15	GAL PORTA A LEVANTE S.C.A.R.L.
16	GAL ALTO SALENTO 2020 S.C.A.R.L.

In Croatia, 30 questionnaires were collected for 30 different ports/landing sites interviewing 9 port authorities, 6 municipalities, 5 communal companies and 1 fishing cooperative (Fig. 2). Also local and regional (county-level) port authorities were contacted - as they are commonly concessionaires of landing sites - and from 9 of them data for 18 ports were collected.

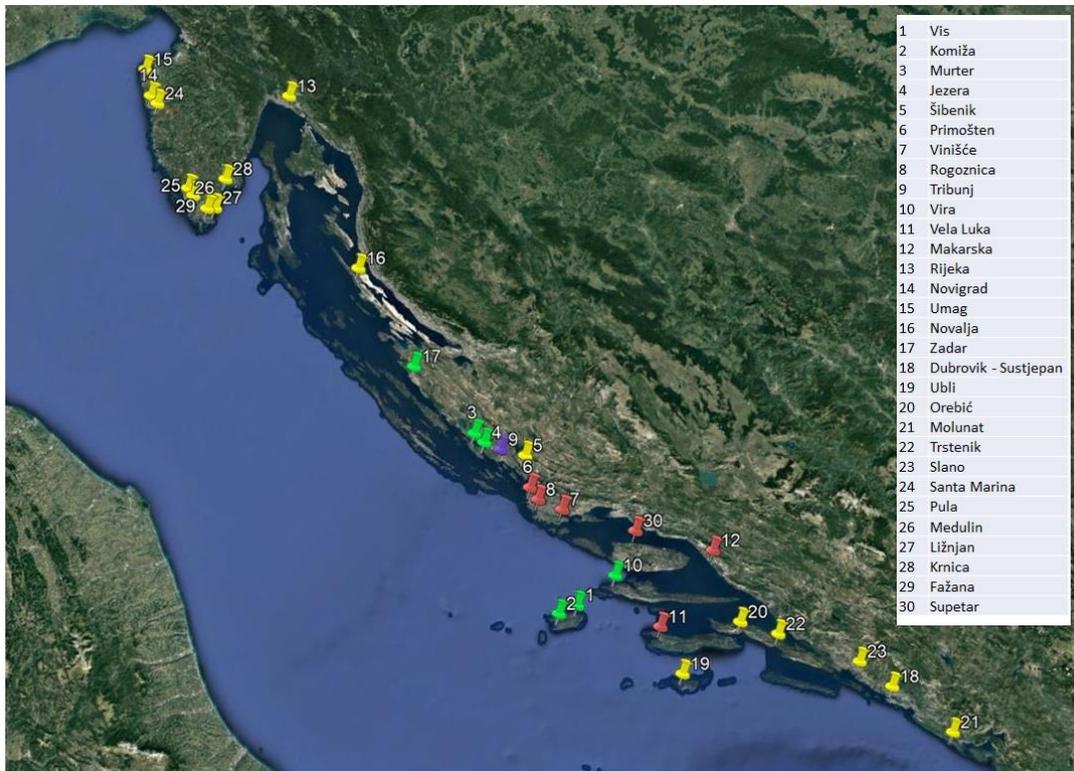


Figure 2. List and map of ports included in the survey of the FFLISM in Croatia and source of data (yellow dots – port authorities; green dots – municipalities; red dots – communal companies; purple dot – fishing association).

Italian and Croatian data were collated into a database (4.1.2 FFL ISM Database.xlsx); moreover, Croatian data were translated in English.

3.2 Fishing for Litter Web Map

To make the information about the status of the FFL implementation publicly and easily available, the database was reorganized into a WEB GIS application. To achieve this task, the project could take advantage from the expertise of the ISPRA DG-SINA group (ISPRA Office for the National Environmental Information System), which was involved in the last months of the project to develop a specific Web Map for the FFLISM (Fig. 3). The map, available online², is hosted on the ISPRA server and updated with relevant information by ISPRA.

The Web Map contains all the information collected in the 45 ports in the Adriatic side of Italy and will be soon integrated with other Italian and Croatian ports. A searchable engine allows to create simple interrogations and visualize the results both on the map and listed in a pop-up window containing the

² <http://isprambiente.maps.arcgis.com/apps/webappviewer/index.html?id=9fa59e0f71c9408fa39aacbca23ae55d>

same information for each result (Fig. 4). However, the whole set of information can be visualized as an attribute table (Fig. 5) and exported as a .csv file.

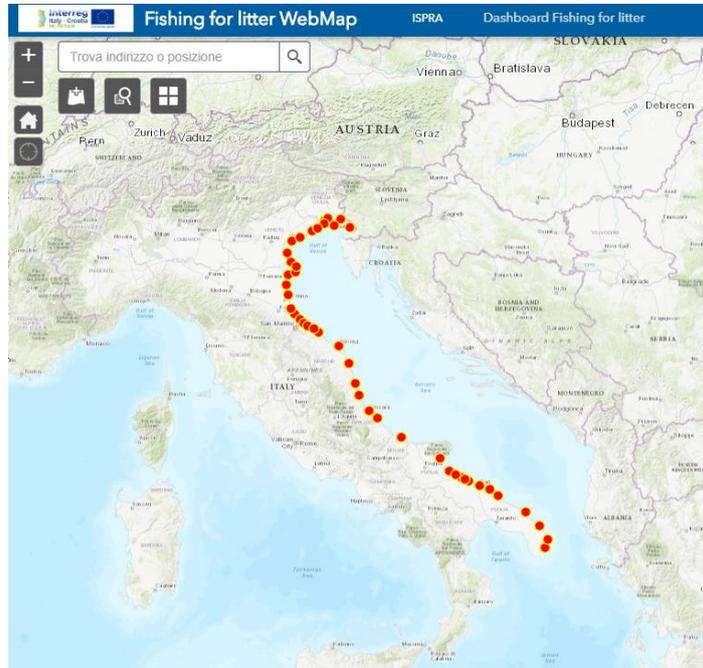


Figure 3. Web Map showing the 45 Italian Adriatic ports surveyed.

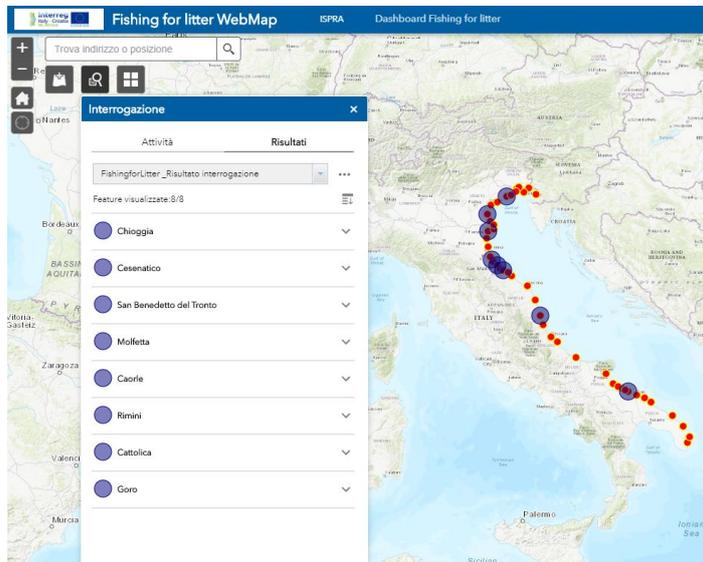


Figure 4. The results of a query are visualized both on the map (blue dots) and as text in the pop-up.

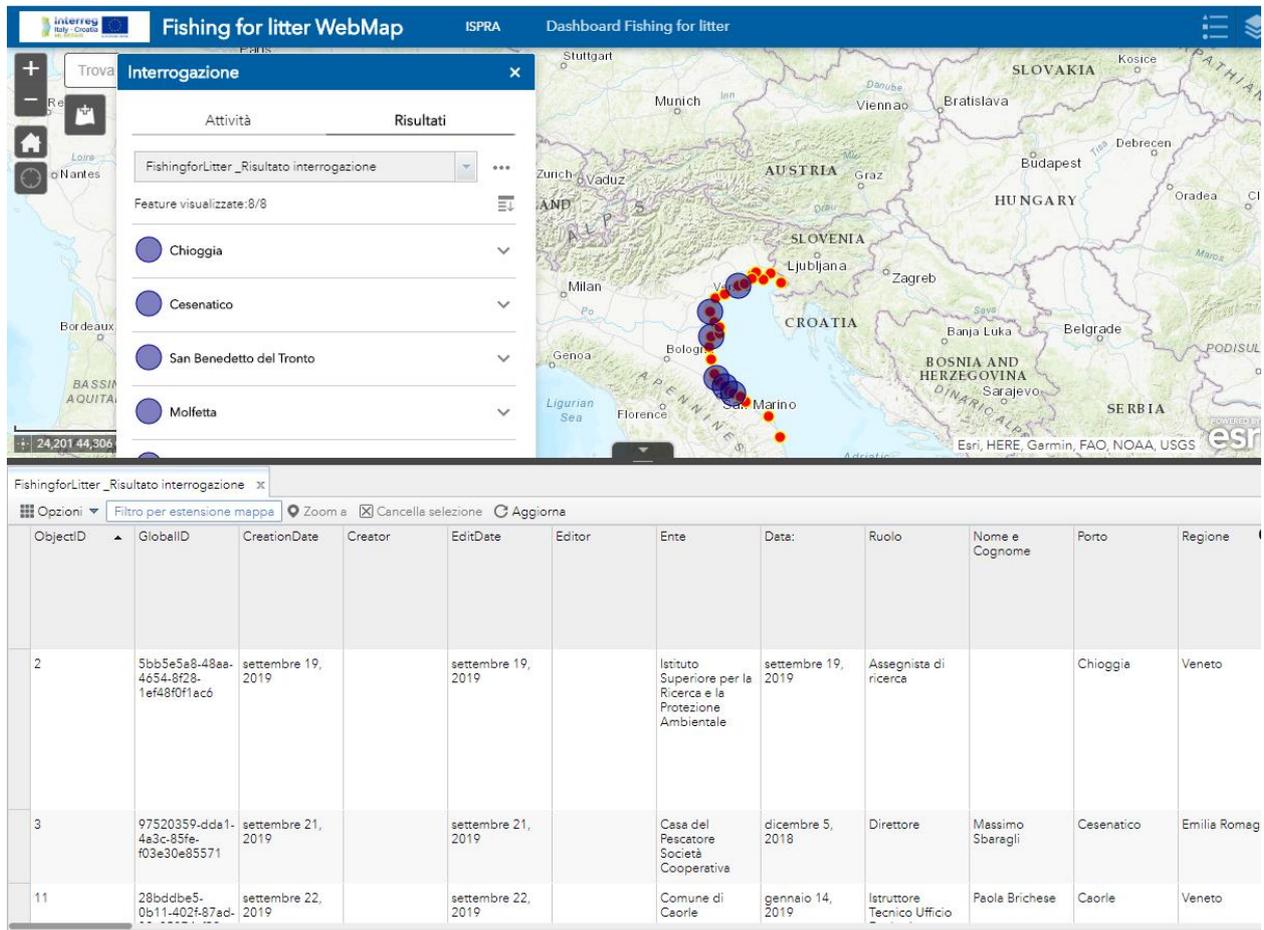


Figure 5. Attribute table containing all data referred to the search results.

3.3 Main results

Italy

The status of the FFL activity in the Adriatic coastline of Italy - updated at the beginning of 2019 - is represented in Fig. 6: in 27 ports out of 45, FFL has never been implemented, while in 16 the scheme is in place or concluded (Fig. 6). In total, more than 200 fishing vessels were involved for different amounts of time in the initiative, which represents roughly 800 sensitized fishermen.

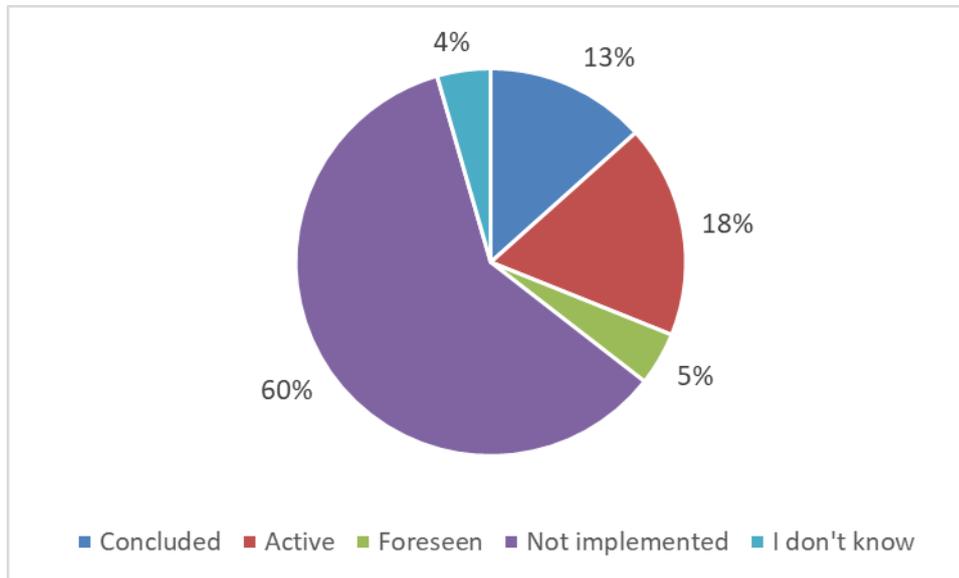


Figure 6. Proportion of ports with concluded, active, foreseen or not implemented FFL initiatives in the Adriatic Italian coastline.

Considering the 16 ports where FFL is or has been implemented (Table 3), in 14 of them, litter was disposed of in bins, while in one port (Molfetta) a service of boat-to-boat collection was adopted. In the majority of these ports (n = 13), reception facilities were located near the mooring area, confirming logistic as one of the main factors for the success of the initiative. It is also worth noting that only in four ports some kind of incentive was foreseen for fishermen (Fig. 7) and in all the cases these incentives were provided by European projects coordinating the scheme. Unfortunately, in Italy, the idea that some incentive is due to the fishermen, who are spending their time and energy to remove waste that they did not produce, is still far from being accepted or even considered by public authorities.

Table 3. Ports where FFL is or has been in place in Italy during the survey, mooring place, organizer of the initiative and entity covering the costs.

Port	Place of mooring	Who is the organizer?	Who covers the costs?
Cesenatico	Fishing port	Coop. M.A.R.E.	Municipality
Rimini	Canal harbour	Fishermen Association; Cetacea Onlus Foundation (CSL project)	Municipality
Cattolica	Fishing port	Coop. M.A.R.E.	Municipality
Goro	Fishing port	Fishermen Association	Fishermen Association
Porto Garibaldi	Fishing port	Municipality, Fishermen Association (coop. Piccola grande pesca) and Legambiente	Municipality
San Benedetto del Tronto	Fishing port	Clean Sea Life project	European Fund
Pesaro	Fishing port; commercial port	Municipality of Pesaro	European Fund

Molfetta	Fishing port	Research Institute, Fishermen Association	Municipality
Manfredonia	Fishing port	Legambiente	European Fund
Monopoli	Fishing port	Municipality	Municipality
Caorle	Canal harbour	Municipality	Municipality
Giulianova	Fishing port	Port Authority, Municipality, Producers Organization, Cogevo	Municipality
Chioggia	Canal harbour	Research Institute	Municipality
Pila di porto Tolle	Fishing port	Municipality of Porto Tolle	Municipality

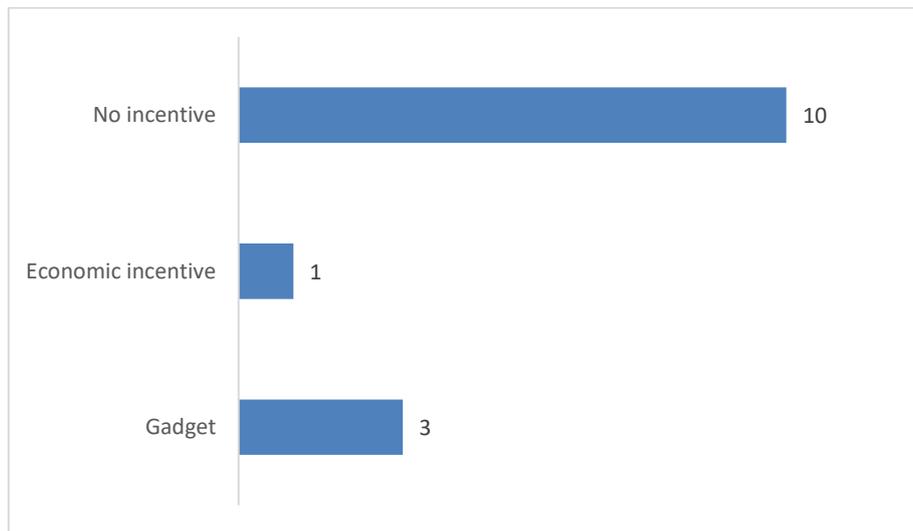


Figure 7. Presence of rewards of any kind for the fishermen in the 16 ports where FFL is or it has been implemented.

The main difficulties encountered in Italy in those ports where FFL is or was put in place (Fig. 8) were related to the organization of the scheme itself and the logistic, two factors strictly related to the lack of specific competencies for the different steps of the process and to the unclear source of financial support for the disposal of marine litter collected. These factors are the same highlighted in Ronchi et al. (2019) in a previous study performed in the whole Adriatic-Ionian macroregion.

Lastly, the survey tried to understand the feasibility of the FFL scheme in ports where it was never implemented, asking the experts for their best opinion on the matter. For one port among 27 we received a negative response, while for the majority of the others FFL seems to be a viable option and also the willingness of the fishermen to participate was judged positively (Fig. 9). When asked about which kind of incentive or motivation could foster the participation of the fishermen, the interviewees reported mainly economic incentives (also indirectly through discharges in due taxes) but also more information about the initiative and the presence of reception facilities. The inclusion in the decision-making process was also reported as an important step to gain the fishermen’s trust and thus their active collaboration (Fig. 10).

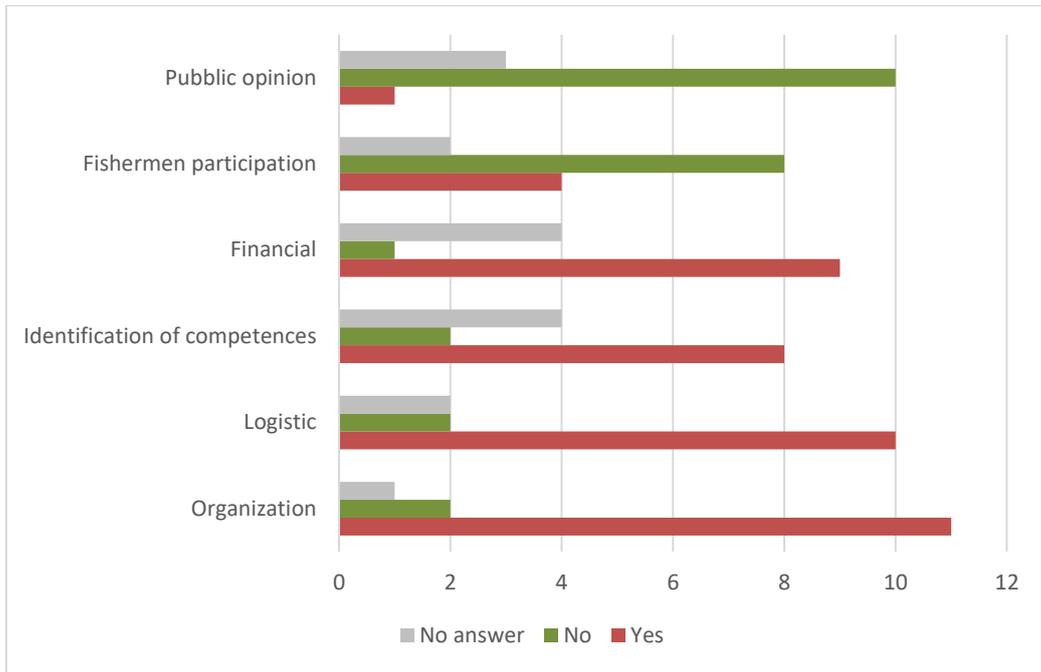


Figure 8. Main difficulties/obstacles encountered during the implementation of the FFL activities in Italy.

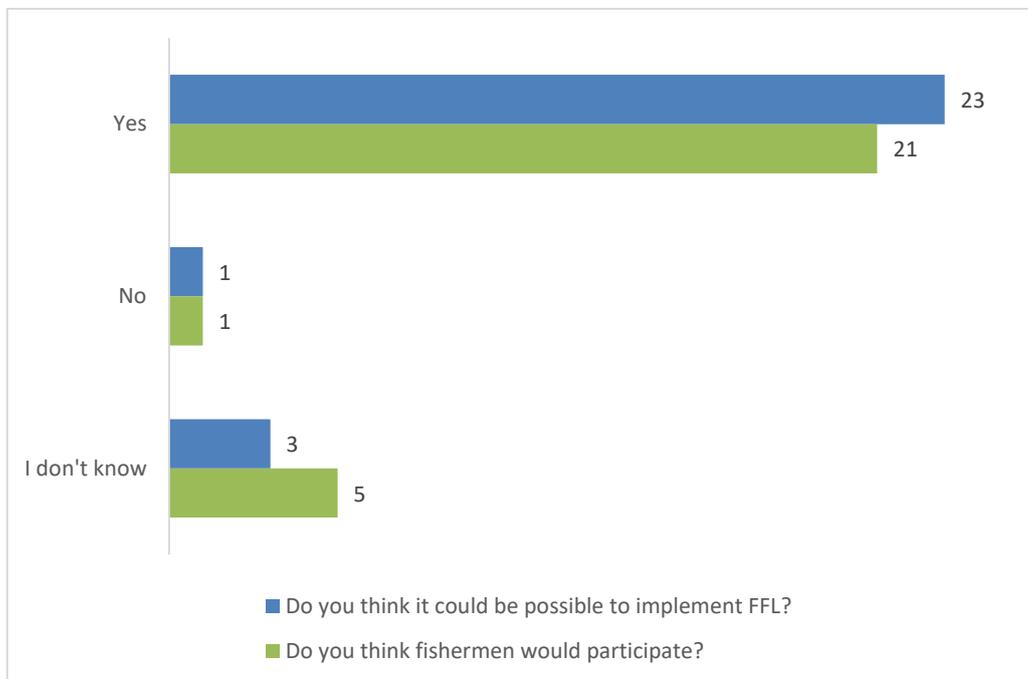


Figure 9. Feasibility of the FFL scheme in the 27 ports where the initiative was never implemented.

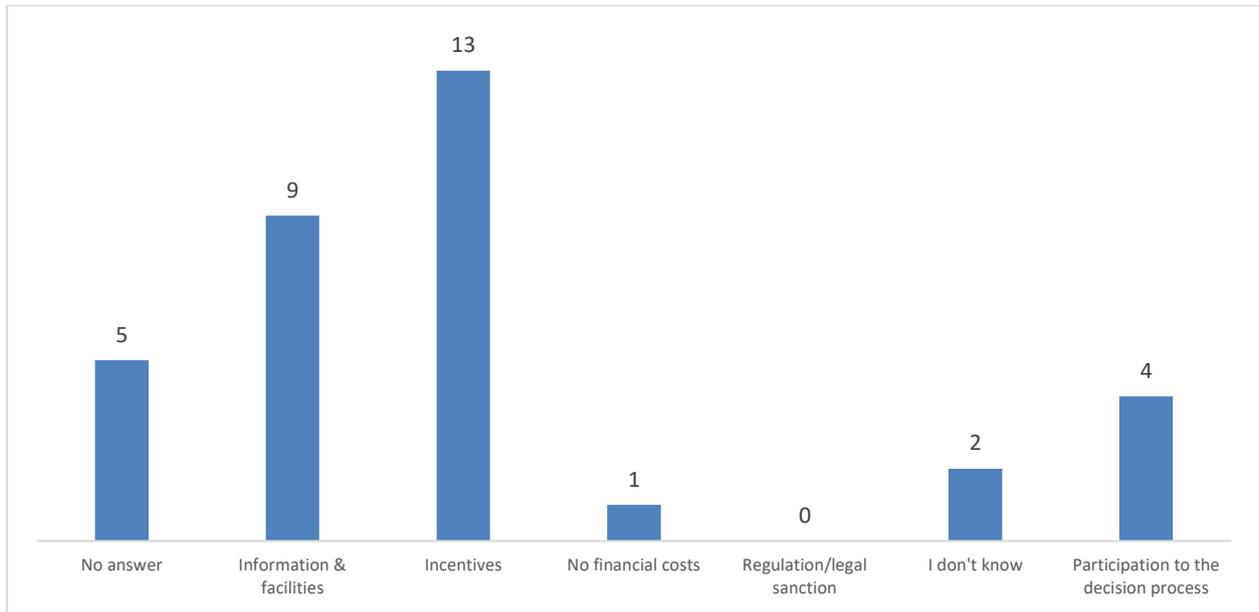


Figure 10. Main incentives identified by the interviewees to foster fishermen participation in the FFL scheme in the Italian ports where it is not in place.

Croatia

Among the 30 ports/landing sites included in the survey, FFL activities are implemented in seven ports: in Tribunj and Vira (Hvar) continuously from 2014, and in Santa Marina, Rogoznica, Vinišće, Vela Luka and Supetar just recently (Fig. 11; Table 4).

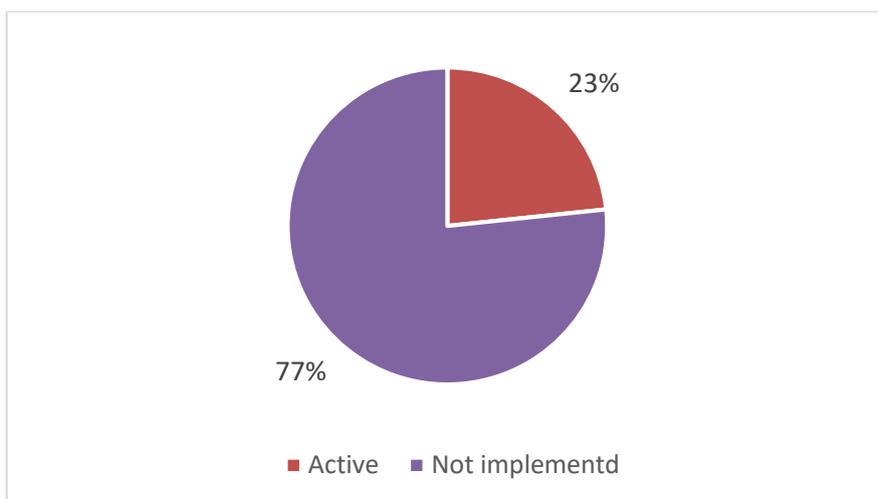


Figure 11. Proportion of ports with active and not implemented FFL initiatives in the Croatian coastline.

Table 4. Ports/landing sites where FFL is in place in Croatia during the survey, mooring place, organizer of the initiative and entity covering the costs.

Port	Place of mooring	Who is the organizer?	Who cover the costs?
Dubrovnik - Sustjepan	Port of special purpose	Research Institute	Port Authority
Rogoznica	Landing site	Research Institute	Port Authority
Santa Marina	Fishing port	Research Institute	Port Authority
Supetar	Port for public transport/operational pier	Research Institute	Municipality
Tribunj	Fishing port	Fishermen Association	Fishermen Association
Vinišće	Pier	Research Institute	Municipality
Vira (Hvar)	Fishing port	Research Institute	Municipality

In all these sites, communal containers for marine litter disposal are situated near the mooring area and are managed by local public companies. In the absence of appropriate national legislation, marine litter has been provisionally classified as mixed municipal waste. Since the initiative in those ports was implemented by IZOR, the cost of purchasing municipal containers, as well as litter removal and disposal in Tribunj and Vira from 2014 to the end of 2016, was paid by the project funds. In all seven ports, fishermen were rewarded with gadgets provided by the European projects coordinating the initiatives. When analysing the difficulties or obstacles in the implementation of the initiative (Fig. 12), all seven stakeholders think that there are no organizational difficulties and that the participation of fishermen does not pose a problem. There are some logistical difficulties in Vira, while the responsibility of the area is not clearly defined in Dubrovnik. In Tribunj there are financial difficulties since the fishing association, as a concessionaire, finds it difficult to finance the litter removal from their own means. Furthermore, they have some problems with the citizens during the summer season because the containers are used for the disposal of domestic waste.

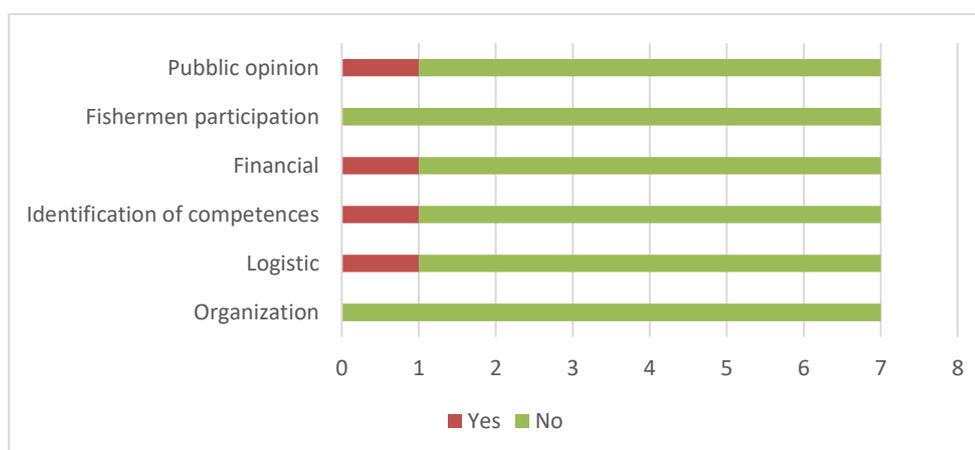


Figure 12. Main difficulties/obstacles encountered in the implementation of the FFL activities in Croatia.

FFL activity has never been carried out in the 23 landing sites/ports that have been surveyed within the ML-REPAIR project. Among them, 83% of the interviewees are aware of the fact that fishermen bring to the land litter collected in their nets with independent initiatives, while 17% do not know about this issue. 91% of the interviewees of the 23 port/landing sites where FFL is not yet implemented think that fishermen will be interested in participating in the future (Fig. 13). From a logistic point of view, the majority of the stakeholders see no problem to place disposal facilities for marine litter in the mooring area; only the staff of the Rijeka port said that FFL would not be doable due to the inability of placing a communal container at the existing landing site. When asked what could facilitate the participation of fishermen in FFL activities, the interviewees stand out as essential for the success of this activity that the fishermen are exempt from the removal and disposal costs (43%), that they receive some incentive for their participation in the activity (39%) and a chance to educate themselves through, e.g. thematic workshops (30%) (Fig. 14).

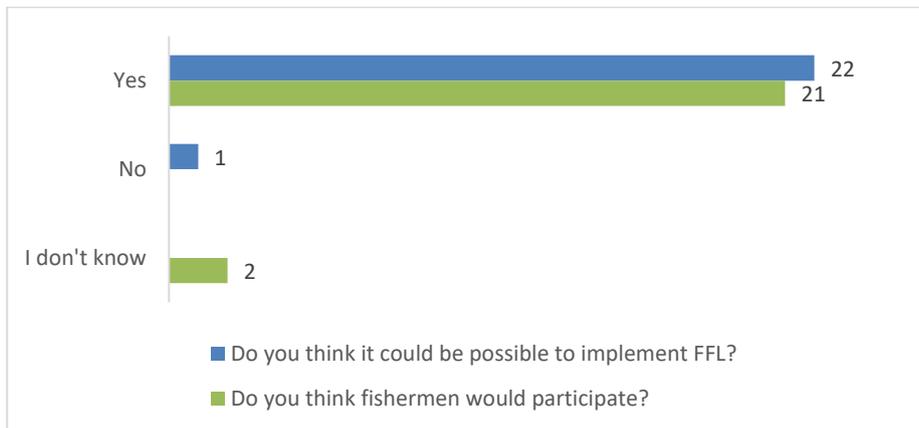


Figure 13. Feasibility of the FFL scheme in the 23 ports where the initiative was never implemented in Croatia.

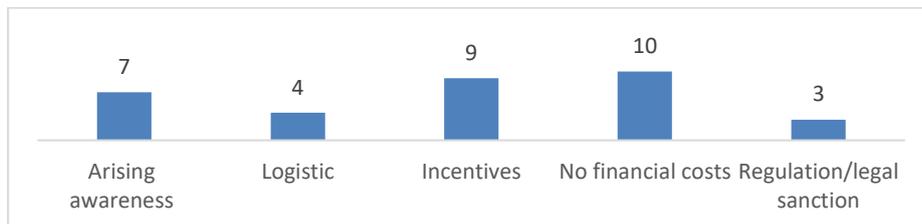


Figure 14. Main incentives identified by the interviewees to foster fishermen participation to the FFL scheme in the Croatian ports where it is not in place.

It is worth noting that among the 30 ports/landing sites surveyed, only four reported that a collection point for discarded fishing gear is available.