Fish-X

D7.4 Report on Use cases and Feedback Disseminated to Relevant Audiences

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FISH-X

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Abstract	The deliverable 7.4 "Report on Use cases and Feedback Disseminated to Relevant Audiences" summarises the Use Cases implemented during the Fish-X project to involve small-scale fishers in practical use of the digital technologies for monitoring and reporting their activities. The trials started in

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	summer 2023 (Ireland use case commenced in June 2024) and lasted until May 2025. The feedback collected from the fishers and policy makers is presented. The Fish-X project aims at contributing to the discussion on the future of the fisheries sector and providing solutions that could help the small-scale sector remain sustainable in the long-term while safeguarding marine ecosystems' health. To achieve these goals, the Fish-X project puts the fishers in the centre, with significant time allocated to training and field demonstrations, with more than 100 fishers participating in the trials. The benefits of digital technologies have been understood by the fishers, and the ability to use the devices and applications in real life allowed the building of trust and acceptance. This engagement process is long and requires a lot of on-site support, but the two-years demonstrations has resulted in more than 85% favourable opinion among the use case fishers. For more details on the Use Cases, two other public deliverables can be consulted from the Fish-X web site: D5.3 – Live Use Cases (November 2024) D5.4 – Live Use Cases Report (November 2024)

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Acronyms and abbreviations

Abbreviation	Meaning
AI	Artificial Intelligence
AIS	Automatic Identification System
CCMAR	Centro de Ciências do Mar do Algarve (Portugal)
DG Mare	Directorate-General Maritime Affairs and Fisheries
EEZ	Exclusive Economic Zone
ERS	Electronic Reporting System
EU	European Union
FISHLog	CLS e-logbook application
FISHWeb	CLS Web-platform for the management of VMS and ERS data
GDPR	General Data Protection Regulation (EU) 2016/679
GFCM	General Fisheries Commission for the Mediterranean and Black Sea
GPS	Global Positioning System (used here as generic name for navigation systems)
ICES	International Council for the Exploration of the Sea
IPMA	Instituto Português do Mar e da Atmosfera
OSM	Open Street Map
MEP	Member of the European Parliament
MPA	Marine Protected Area
NAOS	CLS Satellite tracking buoy for fishing gears
NEMO	CLS VMS for SSF
REM	Remote Electronic Monitoring
SSF	Small-Scale Fisheries
VMS	Vessel Monitoring System

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Acknowledgements

The Fish-X partners are thankful to the fishers who accepted to participate in the various training sessions, interviews, webinars and the use cases. Fish-X also thank the Members of the European Parliament who shared their vision of the digital transformation of fisheries. Fish-X is also thankful to CCMAR - Centre of Marine Sciences of the Algarve and IPMA - Portuguese Institute for Sea and Atmosphere, for supporting the start of the sea trials in Algarve, to Docapesca for sharing the sales notes of pilot fishers in Algarve, and to the Marine Institute of Ireland which shared anonymized VMS data (historical and real-time) to complement the use cases.

1. Introduction

Figure 1 – Fish-X demonstrations addressed small fishing vessels such as this one in Croatia © Hrvoje Čeprnja WWF Adria

The Fish-X project started in June 2022 and came to an end in May 2025. The field demonstrations with small-scale fishers commenced in the spring of 2023, with the recruitment of fishers, then with the deployment of Vessel Monitoring Systems (VMS) devices and tracking applications in August 2023. Operations continued until the end of the project. Other technologies came in 2024, such as demonstrations of the electronic logbooks for catch reporting and the traceability application for the seafood value chain players.

2. Objectives of the Fish-X Use Cases: SSF fishers validating digital tools in real life

2.1 New EU Fisheries Control Regulation

Fish-X is an innovation project funded by the European Commission, with a general objective to support the digital transformation of Small-Scale Fisheries (SSF) and introduce digital tools to help fishers make their activities more visible and more sustainable. The legal framework is given by the revised EU Fisheries Control Regulation[1] which has been adopted after 5 years of consultation and includes measures specifically adapted to SSF. These measures are progressively applicable in the EU:

- The logbook and landing declarations are required by Electronic Reporting Systems (ERS) for all vessels from 10 January 2028,

[1] Regulation (EU) 2023/2842 of the European parliament and of the Council of 22 November 2023, amending Council Regulation (EC) No 1224/2009, and amending Council Regulations (EC) No 1967/2006 and (EC) No 1005/2008 and Regulations (EU) 2016/1139, (EU) 2017/2403 and (EU) 2019/473 of the European Parliament and of the Council as regards fisheries control

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- The Vessel Monitoring System (VMS) is required from January 2028 for vessels above 9 meters, and from January 2030 for vessels below 9 meters using passive gears, never at sea for more than 24 hours, and only active in the 6-nm[2] coastal area.
- For vessels less than 12 meters, the commission is developing an application for smartphones to perform the VMS and ERS functions, with the possibility to store the vessels' positions and send them when the vessel returns in cellular network coverage to minimize costs.
- Other measures include the use of Automatic Identification System (AIS) for vessels above 15 meters, similar to the previous regulation, and the installation of cameras for Remote Electronic Monitoring (REM) for vessels above 18 meters with a specific risk in the application of the landing obligation.

About the new fisheries control regulation:

"The rules are harmonized, meaning the entire fishing sector of the Union will follow the same control rules and, furthermore, the whole control process is more transparent. Also, the European fisheries sector enters into the full digitalization of its activity".

Clara Aguilera, Member of the European Parliament (9th parliamentary term, 2019-2024), in a recorded welcoming message at the first Fish-X Conference on 27 September 2023 (translated from Spanish).

2.2 Fish-X Activities

The Fish-X project has included four main types of activities:

- **Perform use cases** with field work to train fishers on new tools (VMS devices, fishing gear markers, tracking application for fishers), let them use the devices in a real environment, and collect fishers' feedback.
- **Develop technological and AI[3]-based solutions** to analyse SSF activities collected through the use cases, and share the results with wide audiences, such as the Insight maps open for all on the Fish-X web portal.
- **Develop a traceability application** for the seafood value chain, from fishers to retailers, with a use case in the Baltic Sea.
- **Produce policy papers and roadmaps** on the digital transition of Small-Scale fisheries.

[2] Nautical mile

[3] Artificial Intelligence. More details on the machine learning process to identify the fishing gear and the location of fishing activities are provided in the Insight Platform User Manual, to download from the Fish-X.eu web site.

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The feedback from fishers:

When interviewed in Autumn 2024, 85% of fishers involved in the Fish-X use cases expressed their satisfaction about their experience in the project. They considered the devices useful for their own use and prove their fishing grounds.

Questionnaire circulated to participants to the Fish-X use cases in Ireland, Portugal and Croatia. The full responses are accessible in deliverable 5.4 “Live Use Case Reports”.[4]

3. Fish-X Goes in the Field

The Fish-X approach requires a lot of field work and is specific to the context of Small-Scale Fishers, which represent a diversity of fishing techniques.

3.1 The Fish-X Method to Ensure Fishers’ Trust

Fish-X puts SSF fishers at the centre of the project by involving them at all stages. More than 100 SSF fishers were selected by Fish-X partners in Portugal, Croatia and Ireland. WWF Adria, WWF Portugal, Sciaena and IIMRO maintained a continuous contact with the fishers. Fishers were informed of the revised EU Fisheries Control Regulation imposing vessel monitoring systems and electronic reporting systems.

Fishers became volunteers to contribute to live demos by reporting their activities over almost two years. They signed an Informed Consent Form and had the guarantee that Fish-X will keep their data in good hands, protecting their individual rights, sharing only aggregated and anonymized data sets. They took part in training sessions on using the devices provided. Fishers reported their feedback during interviews following two to twelve months of operations (September 2024).

Figure 2 – Joana Oliveira, from WWF Portugal, interviewing fishers in Algarve © Camila Prisco Paraiso

[4] Accessible here: https://fish-x.eu/wp-content/uploads/20241127_FISH-X-DVL_5.4-Live-Use-Case-Reports_FINAL.pdf

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The feedback about the method from an EU policy maker:

"I believe the method used by Fish-X is one that should inspire us and that we should promote for the rest of the fishing industry. This method is based on three pillars:

Involvement / Acceptance / Transition"

Member of the European Parliament (MEP) Stéphanie Yon-Courtin from France, at the Fish-X event in the European Parliament, 23 April 2025 (translated from French).

3.2 Great Diversity of Fishing Activities

Small-scale fishing vessels are very polyvalent. Each day, fishers choose which species they will target using a given fishing gear. The Fish-X partners WWF, Sciaena and IIMRO installed the VMS units, sometimes with the active support of the fishers. This work took place onshore or at mooring, and it revealed to be simple without any cables to be connected.

Figure 3 – Fisher hauling a pot and traps line in Algarve © CLS

At the same time, the Fish-X partners performed individual interviews to better understand the individual fishing methods, asking questions such as: *Which fishing gear do you use? For which fish species? Is there any risk of by-catch? How long do you go fishing and in which area?* These pieces of information are used for the machine learning (see section 5.5 on the Insight Platform). They are protected by GDPR compliance rules.

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Figure 4 – Nicolas Blanc from Sciaena installing a NEMO VMS device in Algarve © Camila Prisco Paraiso

In each country, the methods and targeted species are specific, so working locally and talking to fishers is important to understand the fishing methods.

The Portuguese fisher participants of the Fish-X project own multiple fishing licenses, and they are mainly using gillnets, trammel nets, and longlines. They were selected to avoid overlapping with other SSF projects that were monitoring vessels for clam dredges and octopus pots.

The Croatian SSF fishers employ various fishing gears suited to these needs, such as gillnets, trammel nets, longlines, and traps, tailored to different species, habitats and fishing areas.

The Irish fishers on the offshore islands employ gillnets and hook-and-lines for pollack or pelagic mackerel or herring, and pots for lobster, crab or other shellfish.

3.3 Tangible Benefits

It is an essential part of the method that fishers understand the Fish-X solutions, their recommendations are taken in consideration, and they see the solutions in action. They have access to their own vessels tracks and can share them. It is easier for them to accept and see practical applications, such as managing their daily activities and proving their fishing grounds.

In parallel, an inventory[5] has used some of the GPS vessel data collected on seven of the Croatian fishing vessels, to estimate CO_2 emissions from SSF, forming a robust baseline for future mitigation strategies. Fuel consumption can be calculated using GPS-derived speed, distance, and duration data, distinguishing between stationary and active phases of fishing

[5] Authors: Alberto Caccin, Alice Stocco, Pietro Gorgosalice (GreenSea), Sanja Matić-Skoko (IOR), Hrvoje Čeprnja (WWF Adria), personal communication (results are not yet published)

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trips, and applying average fuel efficiency values per engine power class in order to enable the quantification of seasonal emission variations and emission intensity per unit of catch and economic value.

Fish-X is also demonstrating benefits at the fishers' community level. The fishing activity maps (at association level or at wider level) could be used to secure access to the maritime space. This has been relevant in two of the three demo cases as future projects involving aquaculture farms or offshore renewable energy plants are planned. The fishers' associations acquire a more accurate insight on their members' activities and could be more influential. The fact that fishing activity data are updated every day also allows more responsive decision making, while usually it was necessary to wait for months or years to access to statistics.

4. Equipment and Applications in the Use Cases

4.1 Use Case Summary

The following table summarizes the number of devices and applications that were deployed during the Use Cases.

Country	NEMO Installations	NAOS Installations	Apps tested
Croatia	**Total : 30** 17 in 2023, 13 in 2024	**Total: 9**	FISHWeb
Portugal	**Total: 59** 18 in 2023 41 in 2024	Not used	FISHWeb FISHLog (electronic logbook)
Ireland	**Total: 13** 3 in 2022 (out of Fish-X) 10 in 2024	**Total: 2**	FISHWeb
Baltic Sea			Ourz Traceability App
Total installed	**102**	**11**	

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4.2 NEMO VMS device to track the SSF vessels

NEMO is an automatic Vessel Monitoring System (VMS) specially designed for SSF. It runs on its solar panel and communicates via satellite and cellular networks. NEMO can be configured to acquire vessels positions and transmit when needed.

For the Fish-X trails NEMO was logging in every 3 minutes then sending a batch of 10 positions every 30 minutes. The choice for high-frequency positioning intervals was made from previous scientific trials[6] results. The grouping of positions by batch of 10 was preferred as it provides accurate trajectory description and saves the energy of the internal battery. NEMO reduces its positioning interval when the vessel is in port to save the battery.

NEMO includes an alert button which could be used to transmit request for assistance to identified points of contact (although it does not replace a GMDSS device and it was not monitored by search and rescue services in the project).

NEMO also transmits its battery status. In Portugal and Croatia, the battery level always remained above 80%. In Ireland, for activities starting in March, the battery level varied much more because of the short daylight duration in spring, from 20% to 90%, and some VMS units had to be charged manually. There were no cases of transmission interruption.

[6] Recommendations from the ICES working group on VMS, or from SCAR-Fish, Strategic Working group on Fisheries and Aquaculture Research, and tested by CLS during the Starfish project in 2022.

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4.3 NAOS to track the deployed fishing gears

NAOS is an electronic fishing gear marking buoy. A few units were given to fishers in Croatia and Ireland, to be attached to their fishing gears at sea. Unlike NEMO, NAOS uses only satellite transmissions and reports positions acquired every hour in order to save energy. Its reporting interval is preset (every 1, 2, 4, 6, 12 or 24 hours) and transmissions may last months or years depending on the reporting interval.

Figure 5 – Four NAOS gear markers ready for longline marking in Croatia
© Hrvoje Čeprnja WWF Adria

4.4 FISHWeb application for fishers

FISHWeb is a simple web interface previously developed by CLS. It is used by the fishers to monitor their own tracks collected by NEMO and NAOS. FISHWeb can generate email alerts upon zone entry or exit, or when the vessel is stationary. Fishers are free to share this personal information with their family and friends, but the individual tracks are not displayed in the Insight Platform developed during Fish-X to protect their privacy.

Figure 6 – FISHWeb map with fishing trip of a Croatian fishing vessel was only visible by the fisher.

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4.5 FISHLog electronic Logbook application

The new EU fisheries control regulation will require fishers to report their activities using an Electronic Reporting System (ERS). This technology is not new for larger scale fishing vessels, generally it runs on a PC aboard the vessel. Fishers with vessels under 12 meters do not have to report electronically until 2028, this will be a new obligation for them to send their report for each individual fishing trip before landing of the catch. The report for SSF is simpler than for larger vessels, it does not contain a start of trip and end of trip.

FISHLog is an electronic logbook app designed by CLS to run on fishers' smartphones. Due to time constraints, it was not distributed to the fishers and was tested by the partners to generate fishing activity reports (by species and quantities). For greater accuracy and faster operation, the vessel position at time of the activity is collected from the VMS device.

After the logbooks are received, they are processed and visualized in the Insight Platform.

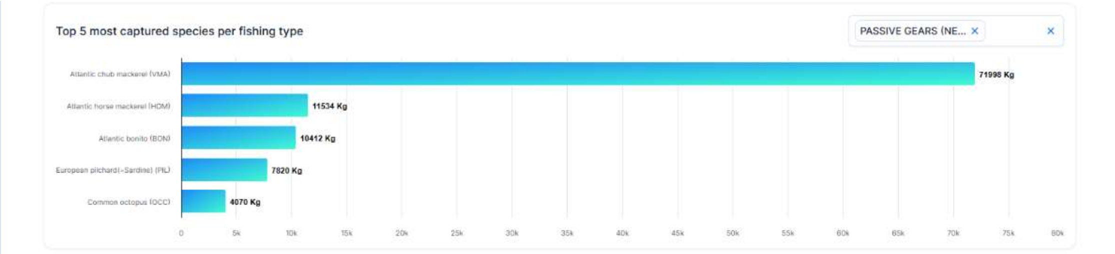

Figure 7 – Insight Platform dashboard of catches per species reported by electronic logbook

4.6 Ourz Traceability Application

The **Traceability app** designed by Ourz is made for seafood retailers and consumers to identify the origin of the fish. It was demonstrated to German companies, the interest was mainly coming from deep-sea fishing groups, and it was not possible to combine a case using both the traceability app and the VMS tracks.

4.1 The Insight Platform

The Insight Platform is an open access web site which was used to demonstrate what are SSF fishing activities to general audiences.

All data entering into the Insight Platform is anonymised, and aggregated before the maps are produced, so individual fishers' trajectories are not displayed (a difference with FISHWeb which displays the vessel track for the individual fisher or owner). This is a new concept as

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there is few geographic information systems used to communicate on SSF with dynamic information on maps. Insight could contribute to the communication of fishers' associations to make their fishing grounds better known by authorities, consumers, maritime spatial planners etc. A seafood retailer could use the Insight Platform to show the origin of their products.

5. Analysis of Results[7]

The results collected from the demonstrations in Portugal, Croatia and Ireland were analysed and allowed to better understand the particularities of SSF.

Figure 8 –SSF vessel in Ireland © IIMRO (picture edited to remove vessel markings)

5.1 Duration of fishing trips

Detecting the start and end of a fishing trip for small-scale fishing vessels is not as easy as it seems. Not all vessels are at berth; some remain anchored at mooring offshore. The detection of the departure of the mooring place, which changes the vessel status to "active", is performed using machine learning for each vessel. The fishing trips appear to be rather short and vary during seasons:

- In summer: about 4 hours in Portugal, 5 and a half hours in Croatia, 6 hours in Ireland,
- In winter: about 3 hours in Portugal, 5 and a half hours in Croatia, limited fishing in Ireland

[7] This section is an abstract of the use case reports. To simplify, some figures are rounded and aggregated (e.g. about 5 hours, about 30%). Find the detailed monthly distributions in the report D5.3 – "Technical Analysis of Tested Devices in the Use Cases", available here: https://fish-x.eu/wp-content/uploads/FISH-X_D5.3_Live-Use-Cases_FINAL.pdf

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5.2 Proportion of days at sea

The SSF fishers don't go fishing every day, as weather conditions may make their activity more dangerous, less productive and more costly.

- In summer: about 30% of days at sea in Ireland, 40% in Portugal and Croatia
- In winter: about 25% of days at sea in Croatia, 40 % in Portugal

5.3 Daily distance travelled

Once the vessel is active and until it returns to port, the system calculates its distance travelled, cumulating transit and fishing activities.

- In summer: about 12 nm in Portugal, 17 nm in Croatia and Ireland
- In winter: about 13 nm in Portugal, 14 nm in Croatia

5.4 Cumulated distances travelled

The tools could also be used to perform an approximative estimate of fuel consumed over a season by a group of fishers.

- In Croatia, 17500 nm were travelled in a total of 2500 hours,
- In Portugal, 10000 nm were travelled in a total of 1800 hours,
- In Ireland, 3900 nm were travelled in a total of 580 hours.

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5.5 Going one step further with AI analysis

Figure 9 –Croatian SSF vessel
© Hrvoje Čeprnja WWF Adria
(picture edited to remove vessel markings)

One of the Fish-X technological objectives is the development of artificial intelligence (AI) based on machine learning to support the automatic analysis of VMS tracks and process the fishing effort. It is expected that many more vessels will report their activities in the next few years when the new control regulation is in place, and automatic analysis under expert supervision will be required to avoid saturation and delays.

To illustrate this objective, the Fish-X Insight Platform analyses a set of fishing vessel trajectories (the fishing trips) which is documented by fisheries analysts using the fishers' questionnaires. After a training period, the tools detect the specific features of each new trajectory: when does the trip start and end, what is the most probable fishing gear used, and where the fishing activity really taking place.

The ultimate goal is to develop a model for each fishing gear which can be encountered on the SSF vessels, so that the process can adapt in real-time.

By the end of the Fish-X project, five models were developed with the various types of SSF vessels involved in the use cases:

- A common model for three most common passive gears (gillnets, pots & traps, set longlines)
- Drifting longlines
- Handlines
- Purse seines
- Dredging vessels[8]

[8] The Fish-X consortium is thankful to the Irish Marine Institute, which shared the anonymized data sets of 106 dredging vessels from 2022 until 2025 to test the dredger model.

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These results were used to produce the daily activity maps in the Insight Platform, aggregating all vessels activities per statistical squares of variable sizes, from 1.6 degree to 0.0125 degree.

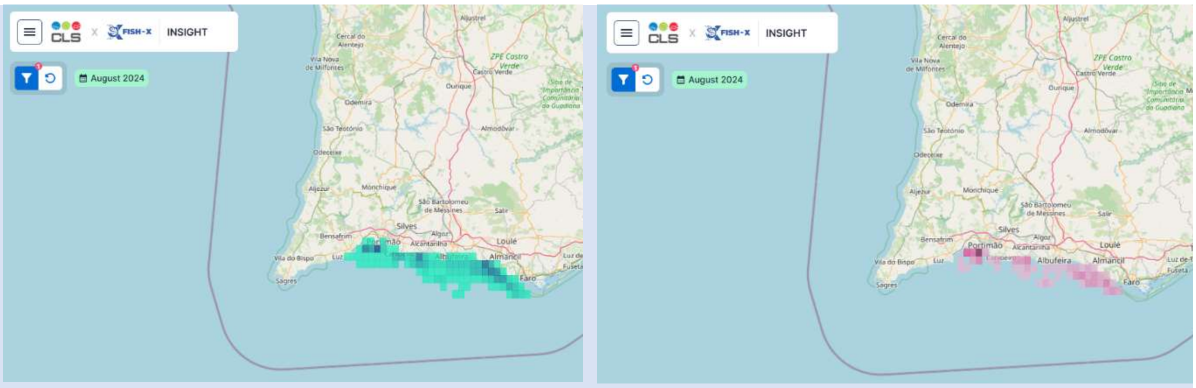

Figure 10 –Insight Platform maps of vessel presence (left) and fishing effort (right) in Portugal

The first map represents the vessel presence counted in number of vessels or number of hours (in this case the transiting and fishing hours are cumulated). The second map represents the fishing effort, which is the result of a model applied to the vessel trajectories, first to identify the fishing gear, then to identify the locations and times of setting and hauling the gear. The map is different of the first one as only the fishing ground are visualized.

6. Feedback from pilot fishers

6.1 Fishers in Portugal

In Portugal, WWF Portugal and Sciaena performed 5 training sessions over the course of the project and interviewed six fishing associations of the Western Algarve from Alvor to Quarteira.

At first, many fishers were not aware of the revised EU Fisheries Control Regulation (2023/2842, effective January 2024). However, outreach and engagement efforts on the ground gradually increased their understanding, which in turn motivated the installation of the VMS devices.

Fishers also began to recognize the importance of demonstrating the extent and location of their traditional fishing grounds. Another key driver was the establishment of a new marine protected area (MPA), where the use of these devices will be mandatory to continue fishing.

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Despite initial scepticism regarding the installation of the devices, the solar-powered NEMOs received very positive feedback compared to previously installed systems: 93% of fishers found the VMS devices useful, 87% considered them easy to use, and 81% highlighted the alert button function as an important feature.

6.2 Fishers in Croatia

In Croatia, WWF Adria also performed training and final evaluation of the use cases. The Croatian fishers appear well informed of future control regulations (80% are aware). Despite the initial resistance, a noticeable shift in attitude towards the technological innovations, including VMS and NAOS e-gear tracking devices, has occurred during the project. Overall, the trial highlighted a positive reception to digital tools, with over 80% of fishers satisfied with their Fish-X experience, and 70% of fishers seeing significant advantages of using VMS to enhance the management and sustainability of their operations. The FISHWeb platform, accessible via mobile phones and providing real-time data on vessel movements, allowed fishers to monitor their own activities, offering a level of control and transparency that was previously absent. Some fishers proposed evolutions of the FISHWeb app and NAOS.

Feedback from a fisher in the Velebit channel (Croatia):
"I think that these devices could be a great thing for the sustainability of fisheries, if they are controlled in the right way… I believe that the sustainability of fishing will increase drastically when greater control is exercised over all vessels."

Figure 11 –Marko Kozul, Croatian fisher, at the Fish-X event at the European Parliament, 23 April 2025

6.3 Fishers in Ireland

As IIMRO joined the Fish-X project only in 2024, the trials last comparatively shorter and involved only 14 fishers. 5 out of 6 fishers were already informed about the revised EU Fisheries Control Regulation, through the IIMRO, the authority, the media and other fishers.

Fishers are very conscious of the competition for the maritime space represented by the offshore renewable energy and marine protected areas. Feedback from users on NEMO and

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FISHWeb has been positive to date, and most are happy to recommend the devices to other fishers.

Initial questions about privacy and the public availability of an individual’s private data were relieved by safeguards such as data ownership, compliance with the General Data Protection Regulation (GDPR), anonymisation, secure storage and restricted access to data via a formal data sharing and ownership agreement between participants and the project.

The feedback about using NAOS:
“The fisher reported that NAOS proved to be a freliable tracker: one part of the pots and traps line was taken away by a vessel anddrifted for 31 days over almost 900 nm, to land on a beach of the Shetlands islands where it was recovered !”

Séamus Bonner, Irish Islands Marine Resource Organisation (IIMRO)

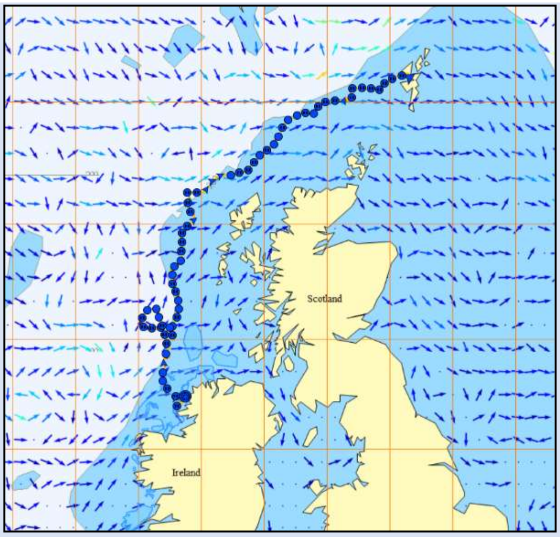

Figure 12 – NAOS track displayed in FISHWeb app with wind map overlayed

7. Feedback from the organisations representing fishers in the project

As observed during the fishers’ interviews in autumn 2024, there was a mixed understanding by fishers of the revised EU Fisheries Control Regulation requirements for vessel monitoring. Among information channels to find out about fisheries regulations, the communication between fishers and the fishing organisations is the most efficient. So, the national administrations need to establish direct contacts with the local fishing associations to clarify “when” and “how” new measures will be implemented, and to enhance fishers’ cooperation and compliance in this process.

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The Fish-X participants recognised the support of their fishing representative organisation. They see the benefits gained through the use of the devices, namely safeguarding their fishing grounds in an ever more crowded maritime space.

Keys to success appear to be:

- **Provide advanced information** on regulations to fishers, and practical guidance to use the tools to comply with regulations,
- **Simple and robust devices and applications** making results available to fishers to enhance trust and transparency,
- **Clear rules for data protection and sharing** must be defined with all partners (fishers, data users) to share anonymized data.

8. Feedback from the European policy makers

Through several online events and two in-person high level events at the European Parliament in 2023 and 2025, Fish-X captured the attention of the fisheries policy makers and advisory bodies.

Feedback from policy makers:

"I strongly believe that we cannot talk about marine protection without protecting the people who depend on the sea. This is precisely why I welcome the Fish-X project. It represents an innovative effort to bridge environmental, social, and economic priorities – creating win-win solutions for both the ecosystem and the small-scale fishers…" **MEP Željana Zovko from Croatia**, at the Fish-X event in the European Parliament, 23 April 2025.

"I also want to emphasize that with "Fish-X", it is the artisanal fishing sector that is sending a strong signal by being at the forefront of the digital transition". **MEP Stéphanie Yon-Courtin from France,** at the Fish-X event in the European Parliament, 23 April 2025.

9. Fish-X project description and goals

Supported by the Horizon Europe Programme, the Fish-X project wants to make a key contribution to sustainable EU fisheries management by supporting a digital transformation in the SSF industry. The project's main goals are to improve data management via new technologies, to empower fishers with the co-design of future seafood supply chain

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monitoring and traceability systems, and to actively contribute to more sustainable fisheries management. To achieve these objectives, the Fish-X project aims to create a new secure and interoperable digital infrastructure, comprising three components: 1) the Fish-X Data Space, 2) the Insight Platform, and 3) the Traceability Platform. Fish-X is carried out by nine consortium partners: TransMarTech (TMT, Germany), EU Tech Chamber (EUTECH, Germany), Collecte Localisation Satellites (CLS, France), north.io (Germany), Sciaena (Portugal), OURZ (Germany), and WWF (European Policy Office, ANP/Portugal, Mediterranean Marine Initiative and Adria), Low Impact Fishers of Europe (LIFE, Belgium), Irish Islands Marine Resource Organisation (IIMRO).

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