



Fish-X

White Paper 2 - Digital traceability driving sustainable seafood consumption in the European Union

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Abstract	The Fish-X series of white papers reflects on exchanges of information and opinions between stakeholders around the implementation of the EU Fisheries Control Regulation and other regulations that are relevant to small-scale fisheries (SSF), suggesting improvements needed for industry bodies and regional fisheries organisations. The white paper series is also a tool for mapping out policy priorities within the fisheries sector in the medium to long term, feeding into the writing of final policy



recommendations and the Fish-X EU Fisheries Roadmap for Digitalisation by 2030.

The present white paper is the second white paper of the Fish-X white paper series. It is an outcome of the 2nd Fish-X Conference, entitled “Digital traceability: Boosting sustainable seafood consumption in the EU” which took place in Brussels on 10 April 2024. This white paper seeks to inform decision makers at European, national, regional and local levels, as well as external stakeholders such as non-governmental organisations, fishing and seafood industry actors, scientific bodies and think tanks on the state of play of digital traceability aimed at promoting seafood sustainability all along the supply chain.



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1. Fish-X White Paper Series

The white paper series is a set of policy documents produced by Fish-X. The Fish-X project aims to overcome key challenges in fisheries transparency and seafood traceability, including data collection and sharing, particularly from small-scale and recreational fisheries, as well as accessing, managing, and utilising data to strengthen the management, monitoring, control and sustainability of fisheries in the European Union (EU). The three technological outputs of the project are a Fisheries Dataspace, an Insight Platform, and a Traceability Platform.

A white paper is a concise policy document taking stock of the current policy landscape while providing a forward-looking vision on a given topic. The Fish-X series of white papers reflects on exchanges of information and opinions between stakeholders around the implementation of the EU Fisheries Control Regulation and other regulations that are relevant to small-scale fisheries (SSF), suggesting improvements needed for industry bodies and regional fisheries organisations.¹ The white paper series is also a tool for mapping out policy priorities within the fisheries sector in the medium to long term, feeding into the writing of final policy recommendations and the Fish-X EU Fisheries Roadmap for Digitalisation by 2030.

The present white paper is an outcome of the 2nd Fish-X Conference, entitled “Digital traceability: Boosting sustainable seafood consumption in the EU” which took place in Brussels on 10 April 2024. This white paper seeks to inform decision makers at European, national, regional and local levels, as well as external stakeholders such as non-governmental organisations, fishing and seafood industry actors, scientific bodies and think tanks on the state of play of digital traceability aimed at promoting seafood sustainability all along the supply chain.

2. Introduction

This document aims to support the effective implementation of the European fisheries and seafood market management as laid down in the EU Common Market Organisation Regulation (CMO)² and in the revised EU Fisheries Control Regulation.³ Therefore, this white paper puts forward recommendations to advance the development of a digital traceability system, taking into account all stakeholders along the seafood value chain with a focus on SSF in the EU. Ultimately, this paper showcases the benefits of a digital traceability system to enable sustainable seafood supply and

¹ Fish-X White Paper 1, The digital transition of small-scale fisheries in the European Union, May 2024. Retrieved from: <https://fish-x.eu/wp-content/uploads/Fish-X-White-Paper-1-%E2%80%93-The-Digital-Transition-of-SSF-in-the-EU-final.pdf>

² Regulation (EU) No 1379/2013 of the European Parliament and of the Council of 11 December 2013 on the common organisation of the markets in fishery and aquaculture products, amending Council Regulations (EC) No 1184/2006 and (EC) No 1224/2009 and repealing Council Regulation (EC) No 104/2000

³ 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



consumption, fair economic returns for small-scale fishers and reliable information on seafood products for consumers.

According to the European legislation on food law and food safety, traceability is defined as “the ability to trace and follow a food, feed, food-producing animal or substance intended to be, or expected to be incorporated into a food or feed, through all stages of production, processing and distribution”.⁴ Article 18 of the same law specifies the conditions to achieve a robust traceability, indicating that these should (1) be established at all stages of production, processing and distribution, (2) provide the supplier’s identification, (3) indicate a system and procedure to identify the supplier and share information with authorities, and (4) provide food and feed labelling or identification.

Fishery and aquaculture products are subject to special rules covered by the CMO which include the marketing standards defined in three older Regulations from the Council of the European Union.⁵ These marketing standards set out seafood quality characteristics and certain requirements for a given product’s content and presentation. They apply to both EU and non-EU products placed on the EU’s internal market. A revision of the marketing standards was expected in 2022 to allow for “modern, sustainable marketing standards for seafood to provide comparable information to consumers and operators in the supply chain on the environmental and social sustainability of seafood and on its carbon footprint”.⁶ However, its revision was delayed until the new European Commission takes shape in autumn 2024 and unveils its programme.

This document is divided into six main sections, kicking off with a description of traceability measurement tools and technological innovation. The second section dives into the new requirements on traceability stemming from the revised EU Control Fisheries Regulation, providing tools to collect comprehensive data on seafood. The third section leverages new technological solutions and regulatory rules to foster sustainable seafood consumption. The fourth section digs into the traceability platform developed by Fish-X that is tailored to the needs of SSF. The fifth section provides a short summary of the discussion that took place at the second Fish-X in person conference on the same topic. Finally, based on the previous sections, this white paper concludes with recommendations to European and national fishery authorities, producers, seafood businesses and technology providers.

⁴ Regulation (EC) No 178/2002 of the European Parliament and of the Council of 28 January 2002 laying down the general principles and requirements of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety

⁵ Regulation 2406/96 for certain fishery products, Regulation 1536/92 for preserved tuna and bonito and Regulation 2136/89 for preserved sardines and sardine-type products.

⁶ Communication from the Commission to the European Parliament, the Council, the European Economic and social Committee and the Committee of the regions on a new approach for a sustainable blue economy in the EU Transforming the EU’s Blue Economy for a Sustainable Future, COM/2021/240 final, <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52021DC0240>



3. Traceability for trustworthy seafood

3.1 Improving fisheries management with traceability

Fishery and aquaculture products are among the most traded commodities in the world.⁷ The EU is one of the largest seafood markets worldwide, with imports of seafood products supplying up to 70% of is the total amount of seafood consumed in the EU.⁸ With such extensive trade of seafood products, ensuring robust and verifiable traceability is key for three main reasons. First, traceability is a requirement to track a given product back to where it was caught, by whom, and with what fishing gear. Second, transmitting Key Data Elements (e.g. weight/quantity of catch, vessel name, vessel registration, gear type, catch area, species,) along the seafood supply chain is needed to prevent seafood products deriving from illegal, unreported and unregulated (IUU) fishing from entering the EU market. With one out of six fish imported in the EU at risk of being untraceable, much still needs to be done.⁹ Finally, traceability provides authorities with the information needed to assess the sustainability of a product, including economic, social and environmental impacts of given fishery and aquaculture products. Traceability helps secure healthy fish populations, fair living standards and decent income for fishers, and better information for consumers.

3.2 Traceability markers along seafood supply chains

Traceability is measured by the collection of Key Data Elements (KDE) across Critical Tracking Events (CTE). The KDEs are “critical data that are required to successfully ‘trace’ a seafood product and/or its ingredients through all relevant CTEs within the supply chain”.¹⁰ The CTEs are considered as a “point in the supply chain where a seafood product is moved between actors, premises, or is transformed, or at a point which is determined to be where data capture is necessary to maintain traceability”.¹¹ CTEs cover the whole seafood supply chain and involve the phases of production, landing, transportation, transformation and depletion. As an example, the Dover sole (*Solea solea*) is a demersal flatfish species caught by British beam trawlers and sold in auction houses at Brixham, Newlyn and Plymouth in the

⁷ Food and Agriculture Organisation (FAO), Trade in fisheries and aquaculture products: a major, international commodity, 2021. Retrieved from <https://openknowledge.fao.org/server/api/core/bitstreams/9fb67a0f-c305-49d6-89d9-4499139ce341/content>

⁸ EUMOFA, The EU fish market, 2024. Retrieved from: <https://eumofa.eu/the-eu-market>

⁹ WWF, Seafood traceability, exemptions risk fuelling illegal fishing, 2021. Retrieved from https://wwf.eu.awsassets.panda.org/downloads/wwf_seafood_traceability_exemptions_risk_fuelling_illegal_fishing_jan_2021.pdf

¹⁰ Data Requirements for Catch Documentation and Traceability in Southeast Asia: Critical Tracking Event and Key Data Element Framework and Glossary, Tetra Tech, 2017. Retrieved from: https://www.researchgate.net/publication/377181581_Data_Requirements_for_Catch_Documentation_and_Traceability_in_Southeast_Asia_Critical_Tracking_Event_and_Key_Data_Element_Framework_and_Glossary

¹¹ Ibid.



south west of England. Thereafter, Dover sole is bought by processors, export companies, wholesale markets or fishmongers, with 79% of landings being ultimately exported from England in 2021.¹²

The United Nations Food and Agriculture Organisation (FAO) steers global traceability by providing technical guidance on how to ensure robust traceability with a thorough gathering of KDEs at key moments along the seafood value chain. The FAO also sheds light on private initiatives such as the Global Dialogue for Seafood Traceability (GDST).¹³ Building on internationally recognised Global Standards 1 (GS1), the GDST has developed traceability standards and guidelines to be followed by seafood companies across the globe to enable trade and sale of seafood products as well as seafood-related data exchange. The Electronic Product Code Information Services (EPCIS) format is used by the GDST as a global standard to share supply chain information.¹⁴ Adhering to these standards enables the interoperability of digital traceability systems, thus facilitating effective data sharing and verification. However, seafood traceability remains underdeveloped and fractured across geographies and sectors. Gaps have been observed with regards to awareness, commitment, technology and standards as well as inconsistencies within and between institutions.¹⁵ This points to the need for increasing the adoption of international recognised standards and consistent reporting of key data elements along supply chains.

3.3 Digital traceability system

Moving from a paper-based to an electronic traceability system allows for automatic, accurate, uniform and harmonised data collection. It also facilitates data exchanges between various operators located in different parts of the world. In the context of a globalised seafood market with multiple supply chain operators, having a robust digital traceability system in place is essential to deliver key information about a given food product's journey from sea to plate.

3.4 Existing digital traceability initiatives for small-scale fisheries

Digital traceability systems need to adapt to the scale of the fleets, especially for small-scale ones which do not have the same means as larger ones. Two initiatives showcase how SSF are using digital traceability tools.

¹² C.R. Hopkins, S.I. Roberts, A.J. Caveen, C. Graham, N.M. Burns, Improved traceability in seafood supply chains is achievable by minimising vulnerable nodes in processing and distribution networks, *Marine Policy*, Volume 159, 2024, 105910, ISSN 0308-597X, <https://doi.org/10.1016/j.marpol.2023.105910>

¹³ Blaha, F., Vincent, A. & Piedrahita, Y. 2023. Guidance document: Advancing end-to-end traceability – Critical tracking events and key data elements along capture fisheries and aquaculture value chains. Rome, FAO. Retrieved from: <https://doi.org/10.4060/cc5484en>

¹⁴ GDST, Standards & Guidelines for Interoperable Seafood Traceability Systems — Core Normative Standards (Version 1.2), June 2023. Retrieved from: <https://thegdst.org/resources/standard/>

¹⁵ FAO. 2016. Seafood traceability systems: gap analysis of inconsistencies in standards and norms, by Melania Borit and Petter Olsen. Fisheries and Aquaculture Circular No. 1123. Rome, Italy



Launched in South Africa, ABALOBI is a not-for-profit initiative developing technological solutions adapted to the needs of small-scale communities in areas such as data collection, skill-building and establishing a cooperative marketplace. The technologies are co-designed in partnership with small-scale fisheries communities to achieve the main objectives that are to promote fair market access, transparent supply chains, and broader food security.¹⁶ In addition, 88% of participant fishers declared that they were “food secure” after one year of engagement with ABALOBI.¹⁷

TrazApp is another example of the use of technology to support sustainable SSF. Developed by WWF-Peru jointly with actors from the artisanal fisheries supply chain and government entities, Trazapp is an Electronic Catch Documentation and Traceability System (eCDT) aimed at improving food safety, legality and product quality. In addition, the purpose of Trazapp is to allow all stakeholders along a given supply chain to access, share and connect information in a digital manner and in a simple way with a mobile application and web platforms.¹⁸ The project participated in reducing illegal, unreported and unreported fishing and to match an increased international demand for sustainable and legal fishing. As a result, policy recommendations were drawn up such as ensuring equitable access by fishers to eCDT and to identify and highlight needs, incentives and benefits for fishers from the beginning.¹⁹

These two examples showcase how technology can be used to advance the digitalisation of SSF in areas such as better traceability, improved communication between actors involved in the seafood value chain, and reinforcing local capacity of small-scale communities. Importantly, these examples underscore the importance of digital tools being easy-to-use, user-friendly and co-developed with the SSF community.

4. Dive into the revised EU Control Fisheries Regulation

Entering into force on 9 January 2024, the EU Fisheries Control Regulation introduces major changes to the EU monitoring, control and surveillance obligations of the EU fishing sector.²⁰ This piece of legislation brings policy coherence to key EU fishery legal texts operating under the umbrella of the EU Common Fisheries Policy (CFP). For example, the revised Control Regulation promotes a transition towards fully digital EU fishing fleets, requests the recording of landing declaration data regardless of vessel size, as well as the recording of minimum traceability information for fishery product lots (i.e. a batch of units of fishery or aquaculture products).

On the external dimension, a digital information management system will be put in place for imports and exports outside of the European Union (CATCH system) to be integrated into the Trade Control and Expert System (TRACES).

¹⁶ <https://abalobi.org/>

¹⁷ <https://abalobi.org/impact/#tbl>

¹⁸ <https://www.trazapp.org/>

¹⁹ Leslie, A., Lugo-Mulligan, F., (2021). The Application and Evolution of eCDT Systems in Seafood Supply Chains: Addressing the Issue of Governance. A report for WWF.

²⁰ DG Mare, The EU fisheries system gets a major revamp, 2024. Retrieved from: https://oceans-and-fisheries.ec.europa.eu/news/eu-fisheries-control-system-gets-major-revamp-2024-01-09_en#:~:text=The%20regulation%20enters%20into%20force,years%2C%20from%2010%20January%202026



All fishing vessels are now obliged to electronically report their catches and to have a fully-functioning tracking device or application on board to respond to the law's requirement for a Vessel Monitoring System (VMS). A remote electronic monitoring (REM) system is also now mandatory for vessels above 18 metres that are at high risk of non-compliance with the landing obligation, which requires all species subject to catch limits to be landed. The geolocation of all vessels at sea, including small-scale vessels, allows for precise identification of a given catch area. Coupled with the unique fishing trip identification number that is generated by the electronic fishing logbook for each fishing trip, the information now provided by the fishers allows for more comprehensive traceability, and closer monitoring of the volume and composition of catches.

4.1 Article 58 on traceability rules

Article 58 of the EU Fisheries Control Regulation lays out the traceability provisions for lots of fishery and aquaculture products which must be traceable at all stages of production, processing and distribution, from catching or harvesting to retail. Paragraph 5 of Article 58 details the list of information to be made available:

- (i) identification number of the lot,
- (ii) for products not imported into the Union: unique fishing trip identification number for fishery products or the name and registration number of the producer for aquaculture products,
- (iii) for imported products: the IMO number (unique ship identifier) or the registration number of the aquaculture production unit,
- (iv) FAO alpha-3 code of the species and scientific name,
- (v) relevant geographical area for fishery products caught at sea,
- (vi) category of fishing gear,
- (vii) date of catches,
- (viii) quantities in kilogrammes.

Operators are required to ensure that these data sets are kept on record and made available to the operators to whom the products are supplied. This implies the use of inter-operable systems along the value chain.



4.2 Minimum traceability information for prepared and preserved seafood

Paragraph 9 of Article 58 of the EU Fisheries Control Regulation indicates that the European Commission should conduct a feasibility study on traceability systems and procedures, including minimum traceability information, for fishery and aquaculture products falling under heading 1604 and 1605,²¹ which are “Prepared or preserved fish; caviar and caviar substitutes prepared from fish eggs” and “Crustaceans, molluscs and other aquatic invertebrates, prepared or preserved” with a view to defining rules for such products. It is also specified that the study should include an analysis of available digital solutions or methods which meet the requirements on traceability.

5. Towards seafood sustainability assessment

As detailed in the communication of the European Commission for a sustainable blue economy in the EU, the revision of the Marketing Standards for fishery and aquaculture products should take into account the environmental and social sustainability of seafood and its carbon footprint. Considering the various challenges faced in European waters by the fisheries sector when it comes to overfishing, high rate of bycatches, carbon footprint of the fisheries and seafood sectors, and impacts of human activities on the seabed and coastal ecosystems, the seafood sector has a responsibility to reduce its environmental impacts and to be more transparent on the sustainability assessment of its products. Traceability is a powerful tool to gather various information on fishery and aquaculture products that can be screened against a series of criteria to assess seafood sustainability levels, and ultimately inform consumers on the environmental impact of the seafood they buy.

The CMO aims to establish a level playing field for all seafood products marketed in the EU by reinforcing the capacity of the seafood sector with a network of 200 producer organisations, defining clear marketing standards, requiring food labelling that provides a minimum amount of information to consumers, outlining competition rules and improving market intelligence.²² However, in the implementation report on the CMO released in February 2023, the European Commission points out that the existing framework plays a limited role in ensuring that products marketed in the EU are sustainable, requiring a revision of the marketing standards and a harmonised EU approach to sustainable food production.²³ As a follow up, the European Parliament issued a report, as part of its right of initiative to write a report and present a motion for a resolution, to echo the need for improving

²¹ European Commission, Explanatory notes to the combined nomenclature of the European Union, Retrieved from: [https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52015XC0304\(03\)&from=GA](https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52015XC0304(03)&from=GA)

²² Regulation (EU) No 1379/2013 of the European Parliament and of the Council of 11 December 2013 on the common organisation of the markets in fishery and aquaculture products, amending Council Regulations (EC) No 1184/2006 and (EC) No 1224/2009 and repealing Council Regulation (EC) No 104/2000

²³ Implementation of Regulation (EU) No 1379/2013 on the common organisation of the markets in fishery and aquaculture products, COM(2023)101 final



consumer information on sustainability, tackling mislabeling, as well as simplifying and modernising the marketing standards.²⁴

5.1 The Sustainable Food Systems Framework Law

In 2020, the European Commission announced the proposal for a legislative framework for sustainable food systems (FSFS) as part of the “Farm to Fork” strategy. While the SFSF proposal was expected to be released by October 2023, it has still not been published, despite its key role to bring sustainability to the forefront of the design of food production systems.

The new European Commission should not delay in delivering this long-overdue proposal and should make sure it includes three policy instruments: minimum requirements to push for more sustainable practices, a sustainability labeling scheme to empower consumers to make informed and sustainable food choices, and a sustainable public procurement mechanism.²⁵ The policy instrument on labeling should be either a voluntary or mandatory scoring label for all food products, regardless of whether they are domestic or imported.

While the SFSF will cover all food product types, seafood will need to be tackled in a specific way given its unique nature of being a common good, collectively managed under a European regime with the CFP, and supplied by both wild-capture fisheries and aquaculture. Therefore, possible options to measure seafood products sustainability should be developed by the Scientific Technical and Economic Committee for Fisheries (STECF).

5.2 The development of fishery sustainability indicators

The STECF is mandated by the European Commission to develop fishery-specific sustainability criteria and indicators to better assess the sustainability of seafood products.²⁶ Eight measurable and verifiable criteria were selected: fishing pressure, fisheries management, impact on endangered, threatened, protected (ETP) and sensitive species, unwanted landings and discards, impacts on the seabed, impact on marine food webs, carbon footprint, and waste and pollution.²⁷ Identified as key sustainability issues,

²⁴Report on the implementation of the Common Market Organisation (CMO) Regulation in fisheries and aquaculture - Regulation (EU) 1379/2013 (2023/2049(INI)). Retrieved from: https://www.europarl.europa.eu/doceo/document/A-9-2023-0406_EN.html.

²⁵ DG SANTE, Food information to consumers - legislation, 2024. Retrieved from:

https://food.ec.europa.eu/safety/labelling-and-nutrition/food-information-consumers-legislation_en

²⁶ Scientific Technical and Economic Committee for Fisheries, Fishery sustainability indicators, 2024. Retrieved from:

https://stecf.ec.europa.eu/index_en

²⁷ European Commission, Joint Research Centre, Scientific, Technical and Economic Committee for Fisheries, Druon, J., Gascuel, D., *Scientific, Technical and Economic Committee for Fisheries (STECF) – Criteria and indicators to incorporate sustainability aspects for seafood products in the marketing standards under the Common Market Organisation (STECF-20-05)*, Druon, J.(editor), Gascuel, D.(editor), Publications Office, 2021, <https://data.europa.eu/doi/10.2760/211065>



three of these indicators were selected to develop a scoring system, namely: fishing pressure, impact on ETP and sensitive species, and impact on the seabed.

To fine tune the scoring system, the STECF recommends the revision of the CMO to better define types of fishing gear to distinguish, for instance, gear used in pelagic versus demersal fisheries. In addition, the STECF is calling for the CMO revision to require full and robust traceability of products originating from non-EU, waters which the implementation of the CATCH IT system under the revised EU Fisheries Control Regulation would help to ensure. CATCH IT is an EU-wide information technology system to manage the EU catch certification scheme for fishery products entering the EU market.²⁸

5.3 Initiatives to assess seafood sustainability

Initiatives to integrate different criteria to assess a given fishery's sustainability already exist at national level, such as Valduvis in Belgium or VAL+ in Portugal.

Valduvis is a tool to measure and visualise the sustainability of Belgian fisheries. The tool consists of 11 indicators (five ecological, three social and three economic) presented in a 'sustainability star'. Via Valduvis, the sustainability data of the entire Belgian fisheries sector, can be easily displayed on the tool, facilitating comparison to the wider fleet performance. This can be done at the level of an individual vessel as well as for the entire fleet and both for one individual sea voyage and for several years.²⁹ However, the assessment of multispecies fisheries can require further work to come up with an overarching indicator including stock status, discards and retained species.³⁰ It should be noted that this tool has been developed for a relatively limited fleet, as Belgium has just 64 vessels, of which half are small-scale.³¹ Therefore, the replicability of this tool for a greater number of vessels and for multispecies fisheries will require careful assessment.

VAL+ was a project developed by Docapesca, Sciaena and the Portuguese Society for Birds Study in Portugal. Its objective was to develop and test a series of criteria to assess the sustainability of SSF and create a sustainability matrix which could then be used by anyone to assess their fishery's performance. The final criteria were decided with the scientific guidance from the Portuguese Institute for the Ocean and Atmosphere and were tested with several fisheries along the Portuguese coast. The matrix includes 35 indicators used to measure social, economic, environmental and fisheries management dimensions.³²

At the transnational level, WWF has proposed its own methodology: the WWF Common Assessment Methodology (CAM) assesses the sustainability of seafood species from wild-capture fisheries and

²⁸ Frequently Asked Questions, WHAT IS NEW IN THE EU CATCH CERTIFICATION SCHEME AFTER THE AMENDMENT OF THE EU IUU REGULATION (May 2024). Retrieved from: https://oceans-and-fisheries.ec.europa.eu/document/download/4b92c8f5-9f96-46ec-babc-3bc880ff4ad3_en?filename=FAQ-amendment-IUU-Regulation_en.pdf&prefLang=fr

²⁹ <https://valduvis.be/>

³⁰ Arne Kinds, Kim Sys, Laura Schotte, Koen Mondelaers, Hans Polet, VALDUVIS: An innovative approach to assess the sustainability of fishing activities, Fisheries Research, Volume 182, 2016, Pages 158-171, ISSN 0165-7836, <https://doi.org/10.1016/j.fishres.2015.10.027>.

³¹ ANNUAL FLEET REPORT 2021 – Belgium 'Sustainable balance between fishing capacity and fishing opportunities' 31.5.2022

³² <https://www.valmais.com/>



aquaculture, translating the results into a color-coded ‘traffic light’ system. Used for the WWF seafood guide, the CAM accompanies consumers in choosing their seafood products.³³ The methodology for assessing wild-capture fisheries is comprised of 25 criteria that are grouped under three umbrella categories: addressing the stock status, the environmental impacts and the quality of the fishery management. A selection of assessments is reviewed on a yearly basis to keep the CAM up to date.

Digital traceability can be harnessed to encourage more sustainable choices and practices, leading to the achievement of desired changes in supply and consumption patterns with environmental benefits. The Fish-X project aims to put useful technologies in the hands of SSF, to support them in sustaining socio-economic activities that are respectful of marine ecosystems and continue to provide jobs in coastal areas.

6. The Fish-X traceability platform

One of the major technological outcomes of the Fish-X project will be the development of a prototype for a traceability platform, specifically tailored to the needs of SSF in the EU. It will be based on the traceability platform framework established by OURZ, one of the Fish-X consortium partners, and adjusted according to the results of a dedicated practical use case. To this end, OURZ has set up meaningful collaborations with relevant stakeholders across the entire seafood supply chain, effectively following a co-development approach to inform the successful implementation of the traceability platform.

To ensure a holistic execution, an exemplary seafood supply chain model was used as a starting point. Four separate supply chain steps were defined (namely fishing operations; transportation and storage; processing and packaging; branding and retailing) to guide the overall platform development process. For each of these steps, a thorough analysis was conducted and information from various sources were incorporated, such as the collaboration with trial partners, regulatory requirements, market and bibliographic research, as well as discussions and conclusions from a series of Fish-X events. This process allowed for effective preliminary scoping of the individual interfaces on the platform, which will be continuously refined and adjusted throughout its incremental development and testing until the end date of the Fish-X project.

The traceability platform aims to be tailored to the needs and specifications of the SSF sector while adhering to the regulatory requirements set out by the EU. In addition, it aims to support the sustainable sale and consumption of seafood in the EU. In this vein, OURZ is therefore also developing a consumer-centric app which will allow informed and conscious purchasing by providing consumers with detailed information regarding the origin and journey of their seafood, as well as other relevant insights pertaining to the sustainability of any given product. The specificity of the Fish-X traceability platform relies on its focus on the Baltic region, its emphasis on the SSF sector, as well as the objective to effectively combine sustainability-focused messaging with regulatory compliance.

³³ https://wwf.panda.org/act/live_green/out_shopping/seafood_guides/methodology/



7. Digital traceability driving sustainable seafood consumption: Takeaways from the second Fish-X conference

The second Fish-X conference took place on 10 April 2024, gathering 42 participants from EU institutions, research institutes, civil society and the fisheries sector, as well as fisheries advisors from national authorities.³⁴ The conference's objective was to explore how digital traceability can steer sustainable seafood consumption by effectively implementing relevant EU legislation and providing meaningful information to consumers.

The first panel discussion revolved around the implementation of new traceability measures in the revised EU Fisheries Control Regulation. The discussion highlighted the need for ensuring accurate, consistent and harmonised collection of traceability data across all supply chain actors as well as across national authorities. Traceability should also be made profitable and tailored to the needs of producers, including small-scale segments, to provide accurate information to consumers and better differentiate locally caught products from imported ones. As a key word often cited, interoperability of data and devices is essential to speed up exchanges and complete assurance checks. Traceability is key to enabling trustworthiness in seafood certification schemes, such as the Marine Stewardship Council. The collection and exchange of data should follow global standards such as the ones developed by the GDST. Finally, transparency requires granular information collection and comprehensive coverage of the entire seafood value chain, including the food service sector.

A technical session focused on policy tools, i.e. labeling, certification and sustainability ranking, to boost seafood sustainability. The session found that effectiveness of policy tools depends on their mandatory or voluntary application, public or private initiative, more or less obvious and visible display to the consumer, among other components. Further, implementation of the EU Fisheries Control Regulation could be hindered by the quantity of collected data, the implementation timeline's feasibility, changing political contexts, as well as the buy-in and capacity of relevant stakeholders. There is a need to clearly define sustainability, to adopt a holistic approach and a sound methodology for how to rank sustainability, to require the same information for fresh, frozen, prepared and processed products regardless of whether they are sourced in the EU or imported, to require this information along the entirety of the food service sector, and to build sufficient capacity to process the data collected by digital tools (i.e. REM, logbooks, VMS).

The second technical session examined the main traceability challenges faced by seafood supply chains and solutions to overcome these. Challenges raised included the lack of IT infrastructure and of technical capability, knowledge gaps on regulations, compliance issues for some actors, as well as the provision of standardised and verifiable data on traceability and access to this data by consumers. Suggestions for improvement included reinforcing capacity for meeting the traceability's requirements, showcasing the benefits of reporting traceability information for fishers, fostering interoperability of data exchanges among small-scale organisations, provoking a mentality shift about fishery data

³⁴ The summary report of the conference is available here: <https://fish-x.eu/wp-content/uploads/Report-Fish-X-Conference-10-April-2024.pdf>



disclosure under certain conditions, promoting a collective approach to designing traceability tool, and valuing products sourced from transparent supply chains.

Finally, the conference ended with a second panel discussion on the use of digital traceability tools to increase consumption of sustainable seafood products. Several initiatives were presented, such as the Metro business-to-business digital tool that utilizes a QR code to share a wealth of information on the origin and composition of fresh and frozen products. Another example from France showcased fish boxes delivered by Poiscaille with a selection of seafood products originating from low-impact and local fisheries. The Fish-X traceability platform was also presented as a blockchain based technology with the aim of providing a marketing and differentiation tool while also ensuring regulatory compliance throughout the SSF sector. The WWF CAM for grading the sustainability of seafood products was showcased as a relevant tool for setting time-bound and ambitious goals from seafood retailers for the products they sell, and to provide clear information for consumers to make more-informed and sustainable purchasing choices.

8. Recommendations

Based on the outcomes of the second Fish-X conference and on learnings accumulated since the Fish-X project started, a series of policy recommendations is presented below. To support the meaningful development of digital traceability systems, the Fish-X consortium recommends to European and national fishery authorities, producers, seafood businesses and technology providers the following:

Traceability requirements should be coherently applied as laid out in the EU's Marketing Standards for fishery and aquaculture products, the Common Market Organisation and the Fisheries Control Regulation. The requirements should apply to processed and prepared products, as is already done for fresh and frozen products, as well as to imported and domestically-produced products. The information displayed to consumers should be standardised for all retail actors, including the food service sector. Supplying granular and reliable information, including more precise data on the catch area, is crucial for efficiently assessing the legality and safety of seafood products and ultimately improving fisheries management.

Improve data collection along the entirety of the value chain with comprehensive and robust data sets, including for processed and prepared seafood products. Collected data should be made available for scientific purposes, including the work conducted by scientific bodies such as the STECF and the International Council for the Exploration of the Sea. Establishing benefits and opportunities for better data collection would be beneficial for improving monitoring programs and overall transparency of the seafood industry.

Data exchange should occur in an interoperable, harmonised, and standardised way. The GDST standards – which are based on the internationally recognised “Global Standards 1”, but applied to seafood - offer a strong guidance for software development to exchange data. Data ownership by fishers and supply chain actors is an important part of building trust with all involved stakeholders. Specific and robust strategies for achieving high levels of stakeholder engagement, such as workshops and consultations, should be put in place.



A cross-EU sustainability assessment for seafood products should be developed. The provision of sustainability indicators on seafood products would incentivise seafood operators to improve their practices, better inform consumers and ultimately protect and preserve marine ecosystems by reducing environmental and climate impacts of seafood products. The long-awaited EU Sustainable Food System legislation must be put forward and establish cross-cutting sustainability scoring for all food products, including seafood.

Adaptation to the needs of SSF must be central to ensure the buy-in from this sector. Digital reporting tools should be easy to use and useful for fishers, for which co-designing is essential. Activities to raise awareness and build digital literacy towards traceability should be done to ensure proper implementation and compliance with relevant EU legislation. In addition, the benefits to SSF from improved transparency and traceability should be made clear with regards to market access, product valorisation and fair economic return (amongst other potential uses and benefits). Seafood product labelling could turn traceability information collected along the full supply chain into eye-catching displays to promote products harvested by small-scale fishers and how these generate socio-economic benefits.

Ensure effective data infrastructure across the EU with strong mobile data coverage to support robust data collection, management and storage complying with traceability requirements and standards. Data infrastructure should fit within SSF distribution along coastlines and the multiplicity of landing sites.

9. Fish-X project description and goal

Supported by the Horizon Europe Programme, the Fish-X project works towards more sustainable EU fisheries management by supporting a digital transformation in the SSF sector. The project's main goals are to improve data management via new technologies, to empower fishers with workable digital tools and to provide innovative solutions for seafood supply chain monitoring and traceability systems. 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), Low Impact Fishers of Europe (LIFE, Belgium), Irish Islands Marine Resource Organisation (IIMRO) and WWF (European Policy Office, ANP|Portugal, Mediterranean Marine Initiative and Adria).