Seafood innovations showcased in industry-governance workshop at AquaBioTech Group

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Stela Karovic & Freya Robinson - AquaBioTech Group

This month AquaBioTech Group hosted a workshop in collaboration with two of their funded research projects – FishEUTrust and PROFIUS. The workshop targeted industry and governance and aimed to get a better understanding of the Maltese seafood industry's needs and challenges, as well as to showcase innovative solutions for seafood traceability and valorising unused fish biomass after harvest. Amongst the attendees were representatives from the Malta Ministry for Agriculture, Fisheries and Animal Rights, Malta Food Agency, Malta Council for Science and Technology and MFF Ltd., alongside AquaBioTech Group staff who work on the two projects and experts in the field of aquaculture and fisheries.

The workshop showcased the tools, sensors and digital solutions being developed as part of the **FishEUTrust project** that will be used across the seafood supply chain. These technologies will be utilised to strengthen the traceability of the supply chain and enhance its transparency to improve consumer trust and encourage the consumption of more sustainably produced seafood. The tools and sensors will detect pathogens, freshness and origin of the fish by analysing the bacteria in the gills and skin. The other digital solutions tackle data sharing so that information from these sensors and tools, such as water quality from the production stage or temperature and humidity during transport, can be used by the other parts of the supply chain and by the end users through QR codes to get information about the safety of their product.

The other project presented in the workshop, **PROFIUS,** shined some light on the innovative world of reutilisation and preservation of fish by-products. When tuna is harvested, 40-55% of the total biomass is side stream. This is in part used to make high-end pet foods,

AquaBioTech Group

FishEUTrust

https://www.fisheutrust.org/

https://www.linkedin.com/company/fisheutrust-project/

https://www.linkedin.com/company/fisheutrust-malta-living-lab/

Coordinator Dr. Nives Ogrinc
nives.ogrinc@ijs.si

PROFIUS

https://profius-project.com/

https://www.linkedin.com/in/profius-project-bb9b15232

Coordinator Dr. Ann-Dorit Moltke Sørensen
adms@food.dtu.dk

while the rest is discarded as waste. Aiming towards a more sustainable and circular economy, PROFIUS is investigating transforming these side-stream biomasses into new feed products for other fish species. Moreover, the partners of the project are investigating the possibility of using tuna side-streams as a source of valuable bio compounds, such as gelatine, bio-active peptides, and antioxidants, that can be used in the pharmaceutical, nutraceutical and cosmetic industries. The project is also investigating methods for the preservation of side streams and extending their shelf life to ensure a healthy and safe product from a chemical and microbiological perspective.

In 2021, the results of a survey conducted among EU member countries showed that Maltese consumers were among the least likely to eat seafood. The Eurobarometer survey also demonstrated that only 46% of people living in Malta consume seafood once a week. AquaBioTech Group wanted to explore why these statistics of seafood consumption are so underwhelming. The participants of the workshop engaged in an enthusiastic discussion about how to make the Malta seafood industry more productive and sustainable. One of the concepts discussed was “Identity”. It was considered that Maltese seafood could benefit from a more recognised identity on the global market which could be focused on specific, unique, and traditional products of the island. Another conversation centred around species diversification and the governmental and industrial bottlenecks that impact new species taking hold in the aquaculture industry in Malta. One participant commented on the need for synergies between different disciplines and professions to help develop the industry in line with Malta’s Multiannual National Plan for the Development of Sustainable Aquaculture to increase the aquaculture industry’s capacity by 20% over the current production by 2030.

Co-creation is an important theme to improve the seafood sector**,** and this workshop gave the perfect opportunity for presenting the new technologies developed to professionals with different backgrounds within the industry. Interesting feedback was provided by the stakeholders who attended the workshop. The sensor to detect freshness was voted the most popular among the presented with several attendees indicated that they would implement it in their own businesses as it would be very useful during official controls and audits to check if the fish is truly freshly caught. The participants were also very enthusiastic about the tools for the detection of antibiotics, food spoilage, authenticity and area of origin and they all agreed that having access to this information would encourage consumers to eat more seafood.

The discussion session about reutilisation of tuna side-streams in Malta was also very interesting. Participants were positive about the potential for the use of fish side streams with a lot of emphasis on the approach towards circular economy and sustainability. However, the workshop also highlighted some major issues that need to be addressed. For example, the fact that the tuna industry still relies on wild caught juveniles generates concerns about standardisation and guarantee of quality, and safety of the product. The workshop provided invaluable insight and gave new perspectives and ideas to overcome weaknesses and bottlenecks in the seafood industry. The event also played a role in facilitating the conversation about potential solutions and future direction under the scope of FishEUTrust’s Malta Living Lab. A living lab is a user-centred environment that strives to enable innovation, co-creation and development using feedback, formal and informal learning activities, and measurable outcomes. The Malta Living Lab aims to host a series of events and activities, for industry, government, the seafood supply chain, and the public, with the greater aim of forming a seafood cluster or hub on a Maltese or even Mediterranean level. The hub will further facilitate

conversations and discussions amongst different actors aspiring to support the growth of Malta's seafood industry. It will also offer education opportunities around sustainable seafood and circular economy to encourage a more positive consumer perception of seafood. If you want to find out more about the activities of the Malta Living Lab and get involved in our future activities you can find us on LinkedIn.

Figure 1. Participants of the Industry Workshop writing their thoughts on the use of tuna side streams.

Figure 2. Participants of the Industry Workshop engaging in a discussion about productivity of the seafood industry in Malta.

About the projects:

FishEUTrust is a collaborative project of 22 partners across a variety of disciplines, from 14 different countries. **FishEUTrust** aims to establish five Co-creation Living Labs in the Mediterranean Basin, the North Sea and the Atlantic Sea. These will enable innovation and process validation and demonstrate the project's supply chain solutions. Examples of supply-chain innovation include creating sustainable business models, protecting cultural and culinary heritage, short food supply chains, exploiting underused fish species, and innovative engagement activities to stimulate positive consumer behaviour. The project will also develop tools to maximize trust by guaranteeing the quality, safety, and traceability of seafood products based on smart control systems (sensors), metagenomics, genetic biomarkers, isotopic techniques, and labelling/product passport/blockchain). These tools will be integrated into a single digital **FishEUTrust** data platform.

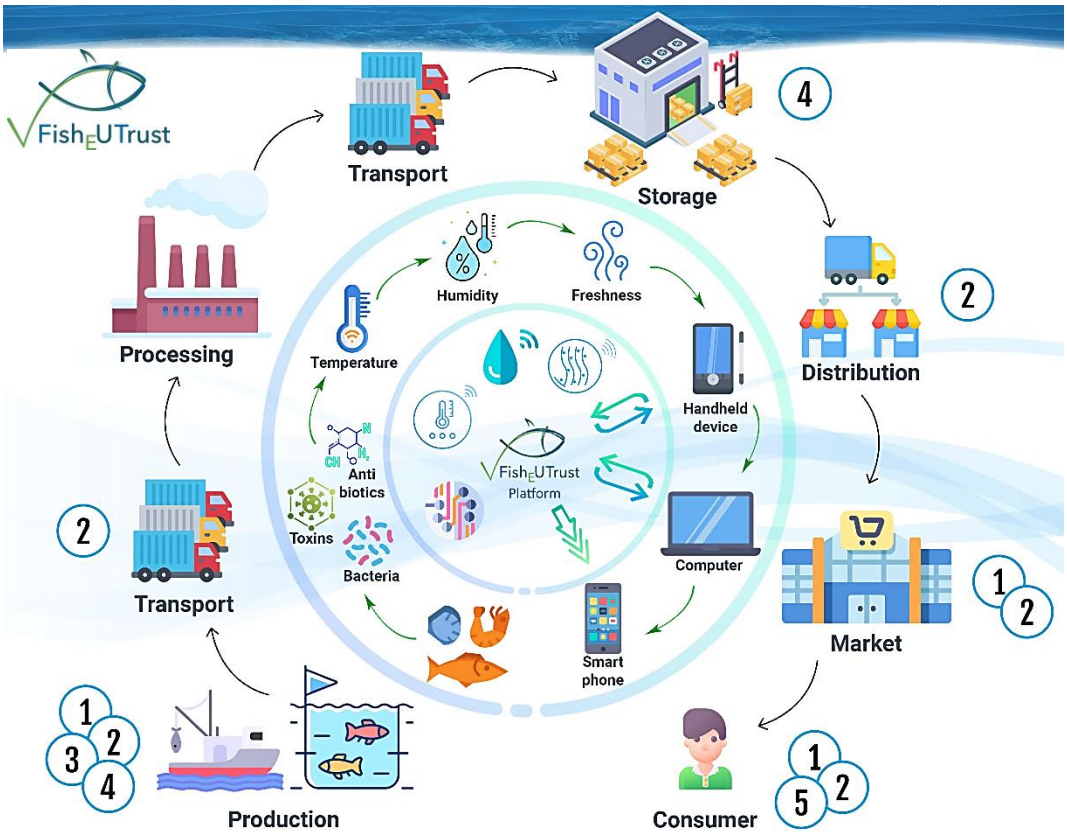

Figure 3. The FishEUTrust Concept showing how the different tools and sensors will be used in the supply chain.

PROFIUS is a collaborative effort by six partners from industry and research from five different countries Denmark, Norway, Iceland, and Malta. **PROFIUS** aims to address challenges in the supply chain related to lumpfish (roe and carcass) and tuna side-streams by developing preservation solutions for maintaining quality and improving utilization of the entire biomass. Improved preservation methods will be developed to enhance the quality and shelf life of lumpfish roe and thereby reduce waste. **PROFIUS** will also study the processes responsible for the chemical and microbial deterioration of tuna side-streams and develop strategies to prevent them. Furthermore, **PROFIUS** will look into new applications of lumpfish and tuna side-streams including logistics and development of gelatin extraction processes for lumpfish, and development of fish feed based on tuna side-streams. The goals of **PROFIUS** will address supply system challenges for:

- Wild caught lumpfish roe and the carcass remaining after the roe has been removed.
- Lumpfish are used as a cleaner fish in salmon farming.
- Side-streams obtained after filleting of farmed tuna.

The FishEUTrust project has received funding from the European Union's Horizon Europe programme under grant agreement No 101060712. Project PROFIUS is funded by the Malta Council for Science and Technology through the BlueBio ERA-NET Cofund

About Horizon Europe:

Horizon Europe is the EU's key funding programme for research and innovation with a budget of €95.5 billion. It tackles climate change, helps to achieve the UN's Sustainable Development Goals, and boosts the EU's competitiveness and growth.

The programme facilitates collaboration and strengthens the impact of research and innovation in developing, supporting, and implementing EU policies while tackling global challenges. It supports the creation and better dispersing of excellent knowledge and technologies.

It creates jobs, fully engages the EU's talent pool, boosts economic growth, promotes industrial competitiveness, and optimises investment impact within a strengthened European Research Area. Legal entities from the EU and associated countries can participate.

https://research-and-innovation.ec.europa.eu/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe_en

About Blue Bio ERA-NET cofund:

The Blue Bio COFUND is the result of a collaboration between JPI Oceans and the former ERA-NETS COFASP and ERA MBT and consists of 27 partners from 16 countries.

The main objective of the COFUND is to establish a coordinated R&D funding scheme that will strengthen Europe's position in the blue bioeconomy. The first co-funded call launched on 17th December 2018. The COFUND partners have committed EUR 23,5 million, which will make up a maximum total budget of EUR 30 million including EUR 6.5 million co-funding from the European Commission.

The goal is to identify new and improve existing ways of bringing bio-based products and services to the market and find new ways of creating value from in the blue bioeconomy. Next to the co-funded call, the COFUND plans to contribute to the national priorities as well as to the strategic research agenda of JPI Oceans, and the ERA-NETs COFASP and MBT.

https://bluebioeconomy.eu/about-2/

Figure 4. The participants of the Industry Workshop hosted by FishEUTrust and PROFIUS.