“Piloting of eco-innovative fishery supply–chains to market added–value Adriatic fish products”

Priority Axis: Blue innovation

1.1 - Enhance the framework conditions for innovation in the relevant sectors of the blue economy within the cooperation area

D5.4.1 Joint cross-border training modules

WP5: BUILDING UP VALUE CHAIN AND MARKETING OF ADRIATIC ECO-INNOVATIVE FISHERY PRODUCTS / A5.2 CONSUMER ATTITUDE TOWARDS ECO-INNOVATIVE SEAFOOD PRODUCTS

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0 INTRODUCTION

Along with the joint cross-border training modules provided by WP3 on sustainable and eco-certified fisheries and by WP4 on innovative tools and processes for fisheries, this report provides the joint cross-border training modules realized in the framework of WP5, which means training modules related to the economic aspects addressed by the project, including:

- the identification of the best markets for the sale of innovative seafood products and the analysis of consumer preferences for three eco-innovative seafood products (fillets of sardines, clams preserved with high pressures, burgers of mullets and shrimps), including indications on willingness to buy and willingness to pay for them;
- the description of the structure and the main features of business models to be adopted by firms (specifically Producer Organisations) to exploit the market potential of eco-innovative seafood.

In total, two training modules have been realized:
Module 1 – "Consumer attitude towards eco-innovative seafood products";
Module 2 – "Business models for eco-innovative value chains"

Each module is articulated in various sections, including:
1. An **introduction** and the **learning goals** of the module;
2. the **learning units** dealing with the specific topics of interest;
3. a **self-assessment test;**
4. a **glossary** of the most relevant abbreviations or definitions.

The contents of each module are described in detail in chapter 1 and 2 of this report, and they have been designed to allow for their deployed in different ways.

A first possible implementation would be as e-learning courses of about 1-hour duration each. In fact, the modules are suitable to be distributed on any web-based electronic educational platform that, when implementing international standards and certifications (such as the Advanced Distributed Learning initiative – ADL and the Shareable Content Object Reference Model -SCORM), will allow for their widest dissemination among stakeholders.
Specifically, the training modules will be published on the **EUSAIR (**EU Strategy for the Adriatic and Ionian Region) **STAKEHOLDERS PLATFORM** available at: https://esp.aimacroregion.eu

As a second option, the training modules provide a valuable knowledge base to be shared with stakeholders during both online and live events (webinars, fairs, master courses, …).

This was already done by Prizefish Partners in five occasions during the project lifespan, as reported in the following table.
In such events the training modules have been adapted to the needs of the audience and delivered by means of multimedia materials (e.g. power point presentations and videos) and simultaneous translations and made available online.
A short description of each of these five events and the links to the multimedia material available online is provided in the Annexes (section 4) at the end of this report.

Date	Place	Title of the event	WP5 specific	Organizer	Link
06-08/07/21	Split	Forum on the fishery management of the Adriatic Sea (FAIRSEA)	No	RERA	IT (07/07) EN (08/07)
23/09/21	Only remote	Lecture at Blue Growth Master	Yes	OGS	EN
01/10/21	Ancona	Tipicità in Blu: Valorization of quality and sustainability of Adriatic fisheries	No	ASSAM	HR IT EN
19/10/21	Zadar	Joint cross border training	No	ZADAR COUNTY	IT/HR
03/11/21	Only remote	Consumer preferences and business models for the commercial exploitation of eco-innovative seafood products	Yes	RER, UNIBO	HR IT EN

1 Module 1 – “Consumer attitude towards eco-innovative seafood products”

1.1 Introduction

The European Union is one of the most relevant world’s markets for Fishery and Aquaculture Products (FAP), in terms of consumption and economic relevance.
Despite being a globally relevant producer, the EU demand is such significant that can be fulfilled and sustained only through imports from outside the Union. As a matter of fact, the EU fish-balance position is being a net importer whose specific commercial deficit for FAP’s amounted at around 21 billion Euros during 2019 (Eumofa, 2020)[1].
However, European markets do not share the same characteristics on fish catches and consumption and should be considered, for a deeper understanding, as separated but highly interrelated markets.

1.2 Learning goals

This course aims to provide a comprehensive understanding of the main recent consumers’ trends by exploring appreciation and concerns of customers regarding relevant attributes of seafood, such as Quality, Sustainability and Local Production.
Specifically, you will learn about:

1. the **general consumer attitudes towards seafood** (main drivers and barriers to seafood consumption)
2. the **reaction of consumers on specific new proposed eco-innovative products**, in terms also of willingness to buy and willingness to pay
3. the **perceived importance of ecologic/sustainable choices** inside fishery supply chain by consumers (e.g., certifications).

[1] Eumofa (2020). The EU fish market, Publications Office of the European Union

1.3 Learning units

1.3.1 "General consumer attitudes towards seafood"

A drop on supply for European citizens has been registered in recent years, supposedly because of a mix of reasons comprehending the lower volume of available catches, the reduced production of farmed fish and the increased export of wild-caught products.
Despite this average decrease, some countries moved against the general trend or in the same direction but with a different and thereby noticeable magnitude.
From 2017 to 2018, Italian apparent consumption increased in volume by 1% (up to 31.02 Kg/capita/year) and Croatian increased by a strong 6% (to 19,19 Kg/capita/year). Spain instead presented a reduction of 1% (to 46,01 Kg/capita/year).

According to CBI Ministry of Foreign Affairs (2020)[2], the European Union can be divided into three homogeneous blocks:
1. **Southern Europe** (Portugal, Spain, France, Italy and Greece): contains the main producers and consumers of FAPs. Those are also the major processing nations of the continent.
2. **Northwestern Europe** (Netherland, Belgium, Germany and the United Kingdom until Brexit): contains countries with relevant consumption and a strong commercial trade vocation.
3. **Eastern Europe** (Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia): contains eleven countries with a lower consumption but greater growth possibility, especially now after the pandemic by shifting supply chains post-COVID 19, benefitting from the willingness of being less dependent from other markets.

During 2019, all the EU household spent more than the previous year on fishery and aquaculture products.
Italy, Spain and Croatia are among the most important EU markets for seafood.
The per capita nominal **household expenditure** in 2019 **increased by 1% for Spain, by 2% for Italy** (who historically is the member state with highest total expenditure) and **by 5% for Croatia** (Eumofa, 2020).

Some recent trends have been probably boosting fishing consumption in the last years:

[2] CBI Ministry of Foreign Affairs (2020). *What is the demand for fish and seafood on the European market?*, available at https://www.cbi.eu/market-information/fish-seafood/what-demand

Table 1 Main trends boosting seafood consumption

MAIN TRENDS BOOSTING SEAFOOD CONSUMPTION	
1. Convenience and practicality	In modern lifestyle, families averagely have **less time** to spend on grocery shopping and preparing the food, becoming more sensible to convenience and to the possibility to buy **ready-to-eat** or **ready-to-cook** dishes. A longer **shelf-life** guaranteed to the product can also be seen as convenience, as the product can be bought without an already organized occasion to consume it.
2. Health and well-being	The growing interest on well-being good practices, in particular referring to food habits and correct diets, boosts the demand.
3. Sustainability and responsible consumption	The fishery sector presents endemic problems of sustainability. There is the need to find an **equilibrium between business profitability and safeguard of the wild fish stock**. New generations and consumers in general appear to be more focused on the environmental impact of their actions.

1.3.2 "CONSUMERS' REACTIONS TO SPECIFIC NEW ECO-INNOVATIVE PRODUCTS"

European Commission defines **eco-innovation** as "*any innovation that makes progress towards the goal of sustainable development by reducing impacts on the environment, increasing resilience to environmental pressures or using natural resources more efficiently and responsibly*".

The fact of sustainability being a credence attribute makes very difficult even for ethic consumers to really understand what's in their dish and the real effects of their food choices on the environment. Eco-innovations can be in this sense a way for producers to signal to the customers (and to the whole market) their attention to the issue.

Three eco-innovative product concepts have been built through a collaborative evaluation process within PRIZEFISH partners, including universities and producers.
The product concepts have been conceived with the aim to add value to the benefit of economic actors and to ensure sustainability along the fishery supply chain. In fact, they have three main features:

1. they exploit species that have been declared or are considered suitable for sustainable exploiting,
2. they allow for an extended shelf-life and
3. they provide ready-to-cook or ready-to-eat solutions to meet the needs of modern consumers.

After a first testing period on different ingredients composition, the three final product concepts have been defined as follows (Table 2):

Table 2 The eco-innovative product concepts

Product Concept	Main specifications	Key innovative aspect
Product concept 1 Sardine Fillets 	Presented on trays with transparent film of 200g each (2-3 portions). Protected by an innovative Modified Atmosphere Packaging (MAP) which consists in the reduction of Oxigen level in the packaging and its consequent substitution with Argon or NO2. By reducing oxidation reactions and microbiological spoilage and if correctly stored between 1° and 4°C , it can be conserved 4 days more than the conventional packaging systems (up to 12 days) without any loss on organoleptic characteristics or food safety.	The key innovative element of the product is the long-lasting aspect, along with the convenience (no cooking skills needed for the cleaning operations).
Product concept 2 Clams 	Presented on trays with transparent film of 500g each (2-3 portions), this product concept is processed with a High Hydrostatic Pressure (HHP). If correctly conserved within 1° and 4°C, their shelf-life is extended from about 6 days of a conventional product, up to 2-3 weeks (at least +100%), with stable quality characteristics.	The key element of this product is the long-lasting aspect while still being a fresh product.
Product concept 3: Fish burger 	Presented on trays with transparent film of 500g each (2-3 portions), this product concept is processed with a High Hydrostatic Pressure (HHP). Thanks to the conservation technologies applied which keeps the temperature between 1 and 4 °C, the shelf-life is extended from about 5 days of a conventional product up to 30 days, with stable quality characteristics (i.e., microbiological aspects, color, etc.).	The key elements of this product are the product innovation (possible to eat it raw and mixed combinations of ingredients, e.g., mullet-crustaceans burger) and the long-lasting aspect.

Consumers' attitudes on products and certifications have been evaluated through both qualitative and quantitative analysis.

First, in the **qualitative analysis**, attitudes towards seafood of around 190 consumers engaged in online discussion rooms have been evaluated in Croatia, Italy and Spain.

The qualitative analysis also collected information on consumers' purchasing habits and preferences concerning seafood.
Respondents had to evaluate a list of product attributes indicating how much they agree with a series of statements on a score from 1 (disagree) to 9 (completely agree) for all three eco-innovative products.
Furthermore, consumers' attitudes towards seafood have been evaluated using two techniques:

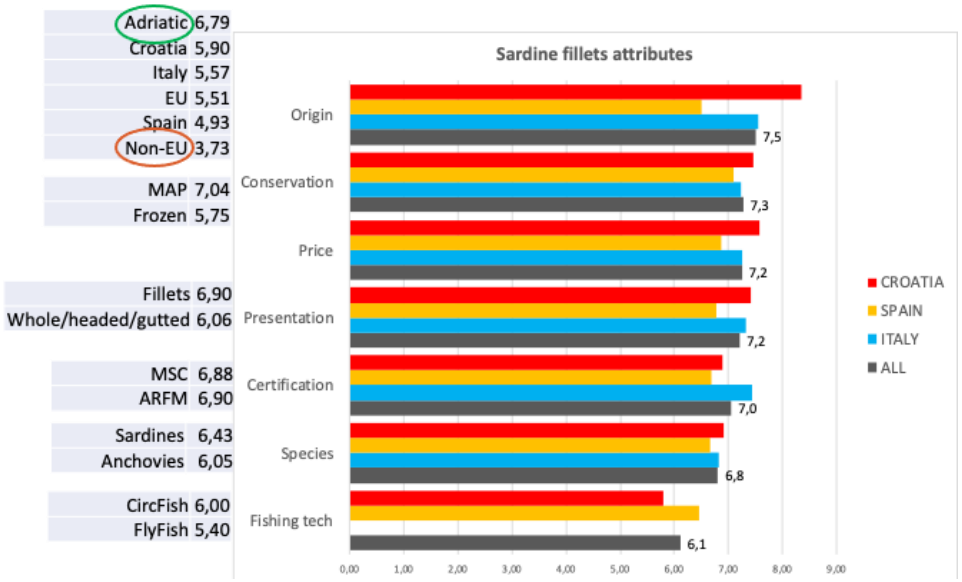
a) **sentiment analysis**: it has been used to study people's sentiments, opinions and attitudes towards services and products. Sentences given by the interviewees are classified in positive, negative, or neutral, according to a score range from -1 to +1.
b) **emotion analysis**: it has been used to study a series of emotions associated with the eco-innovative products developed. This analysis considers 8 types of emotions: 2 positive emotions (joy and trust), 2 ambivalent (surprise and anticipation), and 4 negative (sadness, fear, disgust and anger).

The **quantitative analysis** instead was carried out through structured direct interviews on a panel of 3760 purchasers of seafood in Croatia, Italy and Spain. Furthermore, a choice experiment was conducted to assess consumers' **Willingness to buy (WTB)** and **Willingness to pay (WTP)** for the three eco-innovative products proposed.

PRODUCT 1 - SARDINE FILLETS

Attributes evaluation: Based on the interviews, it has been observed that consumers assign higher scores for attributes related to the **origin, conservation and price** when it comes to choose sardine fillets.
In particular, Croatian and Italian respondents seem to mostly pay attention on the origin of the product while Spanish respondents tend to focus more on conservation. Price seems, instead, an attribute particularly relevant only for Croatian and Italian respondents.

FIGURE 1 Attributes' evaluation sardine fillets



Sentiment and emotion analysis: **positive** connotations are associated with almost all three proposed eco-innovative products in all the three countries. This has been confirmed also by the emotion analysis where the three most registered emotions were trust, anticipation and joy among all countries. Specifically, sardines have been the **most positively accepted product** among the three eco-innovative options, in all three countries.

Willingness to buy (WTB)

- **Shelf-life attributes**: while only **Croatian consumers** tend to prefer the **frozen product compared to the conventional** refrigerated product under protective atmosphere, the majority of consumers tend to prefer the conventional product over both the frozen and innovative options. Once considering also the no buy option, it seems that **consumers are open to new options in all the three countries**.
- **Price:** all consumers do not like to pay additional prices for sardines.
- **Origin:** they prefer to **buy sardines only from their country of origin** and not from abroad.

Attributes like city location, city size and income have also been considered.

- **City location:** Croatian consumers from inland have preferences for sardines regarding price similar to people from the coast.

- **City size and income:** Spanish people instead living in bigger cities associate higher prices of sardines with better quality while in Italy the same behavior is found in consumers with higher income.

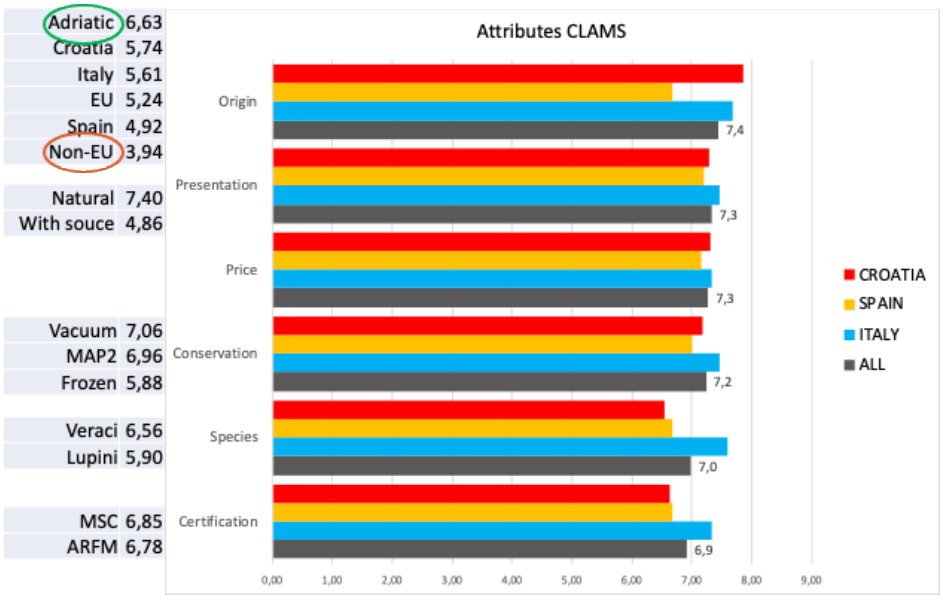
Willingness to pay (WTP)

- **Origin:** only **Italian and Spanish** consumers are willing to pay a **higher premium price** for sardines originating from their countries (respectively max + 6.22€ in Italy and max +5.81 € in Spain), compared to the ones from Croatia.
- **Certifications: Italian** consumers are also willing to pay a premium price for certified sardines with **RFM** while **Spanish** consumers for sardines certified with **MSC**.

PRODUCT 2 - CLAMS

Attributes evaluation: Consumers assign higher scores for attributes related to the **origin, presentation and price** when it comes to choose clams. Similar to sardines, Croatian and Italian respondents still mostly pay attention on the origin of the product. Unlike for sardines, when it comes to clams, Spanish respondents tend to focus equally on both presentation and price of the product.

FIGURE 2 Attributes' evaluation clams



Sentiment and emotion analysis: Clams have mostly received a **positive** connotation among all three countries, especially by Italian respondents. This has been confirmed by the emotion

classification where the three most registered emotions were again trust, anticipation and joy among all countries.

Willingness to buy (WTB)

- **Shelf-life attributes**: once again **Croatian consumers** tend to prefer the **frozen product compared to the conventional** refrigerated product, however the majority of consumers tend to prefer the conventional product over both the frozen and innovative options. Once considering the no buy option, it is confirmed again that **consumers are open to new options in all the three countries**.
- **Price:** all consumers do not like to pay additional prices for clams (higher values for Italy)
- **Origin:** they prefer to **buy clams only from their country of origin** and not from abroad.

The attributes of city location, city size and income have been considered for this product too.

- **City location:** Croatian consumers from inland have preferences for clams regarding price similar to people from the coast, and the same behavior is to be found among Italian inland and coast consumers.
- **City size:** the size of the city does not seem to affect consumers' preferences on clams
- **Income:** preferences related to income are instead similar among countries, indeed, people with higher incomes associate better quality to clams with higher prices.

Willingness to pay (WTP)

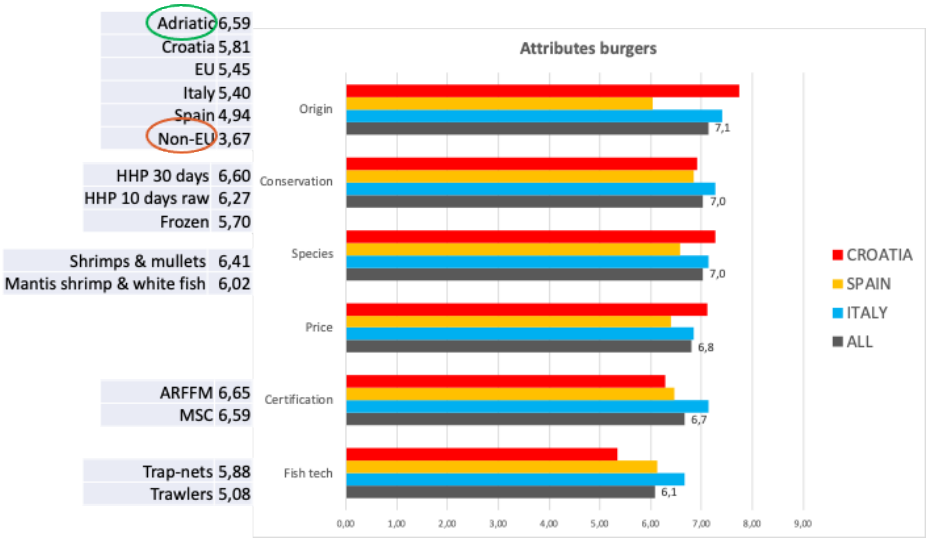
- **Origin:** Similar to sardines, **Italian and Spanish** consumers are willing to pay a **higher premium price for clams originating from their countries** (respectively max +10.5€ in Italy and max +32 € in Spain) compared to the ones from Croatia.
  Unlike before, consumers from Italy and Spain are willing to pay a premium price for clams originating from Spain and Italy respectively, meaning that there is generally a **low preference for Croatian clams**.
- **Certifications:** **Italians** appreciate both **RFM and MSC** certifications, but they are willing to pay a higher premium price for RFM.
  Spanish consumers prefer **both certificates** too but are willing to pay a **much higher** premium price for the **MSC.**

PRODUCT 3 - BURGERS

Attributes evaluation: Consumers assign higher scores for attributes related to the **origin, conservation and species** when it comes to choose burgers. Origin is still the highest scored

attribute for both Croatian and Italian consumers while Spanish respondents do not seem to pay too much attention on this attribute, but mostly on conservation. Croatian and Italian consumers seem also to pay much attention on the attribute of species as component ingredients of the product.

FIGURE 3 Attributes' evaluation burgers



Sentiment and emotion analysis: Burgers have been mostly received a **positive** connotation among all three countries, especially by Italian respondents. This has been confirmed by the emotion classification where the three most registered emotions were again trust, anticipation and joy among all countries.

Willingness to buy (WTB)

- **Shelf-life attributes:** unlike sardines and clams, **in all three countries consumers are not interested in buying neither the frozen option nor the innovative burger** product compared the conventional one. However, once consumers are put in front of more than a choice, consumers seem to be open to new options.
- **Price:** all consumers do not like to pay additional prices for burgers.
- **Origin:** they prefer to **buy burgers only from their country of origin** and not from abroad.

Once considering additional attributes:

- **City location:** unlike before, Croatian inland consumers associate a better quality to burgers with high prices compared to people living in the coast.

- **City size:** In Croatia, the city size does not affect consumers' preferences while in Spain and Italy people living in bigger cities tend to consider higher prices of burgers with better quality.
- **Income:** if in Italy income does not affect preferences, in Croatia and Spain instead people with higher incomes assign to higher prices a better quality for burgers. In addition, Spanish consumers with higher incomes prefer burgers originating from Spain and with the RFM certificate.

Willingness to pay (WTP)

- **Origin:** once again only **Italian and Spanish** consumers are willing to **pay a higher premium price for the burgers** originating from their countries (respectively max +9 € in Italy and max +10.2 € in Spain) compared to the ones from Croatia.
- **Certifications:** unlike for sardines and clams, **Italian** consumers are **not willing to pay** a premium price **for certified** burgers while **Spanish** consumers are willing to pay a premium price for burgers with **MSC** certification.

1.3.3 "CONSUMERS' PERCEIVED IMPORTANCE OF ECOLOGIC/SUSTAINABLE CHOICES"

Two important certification schemes exist in the fishery sector:

- the **MSC** certification, the main reference seafood certification scheme for sustainable fishing at international level in the current fishery production system.
- the **RFM** certification, a third-party certification program for wild-capture fisheries documenting responsible seafood sourcing practices and proof of origin.

The PRIZEFISH project has also proposed a new RFM certification to be adapted to specific fishery areas of the Adriatic Sea, being referred to as **ARFM** (Adriatic Responsible Fisheries Management) certification.

The main features of the certification schemes are summarised in the following table:

Table 3 The certification schemes

Type of certification	Description
Marine Stewardship Council (MSC)	Marine Stewardship Council is a non-profit organization that works to spread sustainable fishing. The MSC standard for fishing companies is widely used in products marketed by modern distribution. The MSC fishing standard is based on three key principles: • fishing must have a management system that leaves enough resources in the sea to ensure that the stock can reproduce, and the fishing activity can thus continue over time; • fishing must be carried out with gear and in areas that minimize its impact, allowing habitats and marine animals to thrive; • fishing must be managed by administrations and companies responsibly and in compliance with applicable laws.
Responsible Fisheries Management (RFM)	A RFM standard is developed on the basis of responsible fishing guidelines developed by FAO. This type of approach is already active in Alaska and Iceland. The RFM fishing standard is based on three key principles: • an efficient and adaptive management system, with clear sustainability objectives and which guarantees monitoring, control and surveillance of fishing activity; • availability of assessments of the status of the target resource and the ecosystem that hosts it, considering the specific impact of the fishing activity concerned;

	• the fishing activity must be characterized by compliance with social and safety at work policies and with economic indicators that highlight profitable activities.
Adriatic Responsible Fisheries Management (ARFM)	The ARFM certification process is developed as part of the PRIZEFISH project. The certification of fishing companies according to the ARFM standard will be voluntary and may be coupled with the MSC certification. This standard is open to all companies involved in fishing in the Adriatic (Geographical Sub Areas 17 and 18) and will include many fish species exploited with different types of tools. When a fishing activity is certified according to the ARFM Standard, its certified catch can be sold with a special mark that will document not only that the product was caught in the Adriatic, but also that the fishing practice is carried out in a responsible way.

Sentiment and emotion analysis on consumers' perceptions towards certifications have been conducted too.
Sentiment and emotion analysis: **positive** connotations are associated with almost **all three certification** concepts (certifications in general, certification ARFM and certification MSC) in all the three countries. This has been confirmed also by the emotion analysis where the three most registered emotions were trust, anticipation and joy.
Specifically, **MSC** certification has been associated with a **more positive** sentiment in **all countries compared to the ARFM** certification, with the exception of Croatia where respondents on the inland had a higher level of trust for certification ARFM.
Once we consider certifications, some additional considerations related to each eco-innovative product can be made:

- **Sardines:** **Croatian** consumers do not particularly rely on certifications while purchasing sardines, still, they have a very low preference for RFM certificate. Similarly, **Italian** consumers prefer RFM certificate compared to no certificate or MSC. On the other hand, **Spanish** consumers prefer MSC certificate compared to no certificate, and they do not particularly prefer RFM.
- **Clams:** **Croatian** consumers do not seem to particularly rely on certifications while purchasing this product. Contrary to Croatia, in Italy and Spain consumers prefer clams with certificate to no certification at all. **Italian** consumers prefer both types of certificates, however, they seem to have a slightly higher preference for RFM certificate

compared to the MSC. On the other hand, **Spanish** consumers prefer MSC certificate compared to no certificate and they do not particularly prefer RFM.

- **Burgers**: **Croatian** consumers do not particularly rely on certifications in their purchasing habits. However, **Italian and Spanish** consumers do not particularly appreciate burgers that do not have any certificate. Still in Italy they prefer mostly the new RFM certificate and in Spain the MSC.

We can, hence, sum up main consumers' preferences on certifications, as follows:

Table 4 main consumers' preferences on certifications

Sardines/Clams/Burgers	
Croatia	No certification
Italy	Certification RFM
Spain	Certification MSC

1.4 Summary

In conclusion, the most important attributes which seem to be consistently common among seafood consumers are the following ones:

- **Origin:** in all the three countries, consumers seem to particularly care about the origin of the product they purchase. Consumers would prefer to buy products from their country of origin. However not all of them would be willing to pay a premium price for this attribute (only Spanish and Italian except for Croatian).
- **Shelf-life attributes:** even though consumers showed positive sentiments towards these eco-innovative products, they do not seem to particularly prefer innovative products over conventional ones. However, they seem to be open to new options.
- **Certifications:** in each country consumers showed to have preferences towards specific certifications. Italian consumers seem to prefer the RFM certification and are willing to pay a premium price for it. Spanish consumers tend to prefer the MSC certification and are also willing to pay a premium for these certified products. Croatian consumers, instead, do not seem to have specific preferences towards certifications and they would not be willing to pay any premium for it.

1.5 Self-assessment test

1. **Seafood consumption trends across EU countries are:**
   a. exactly the same
   b. very similar

c. quite different from country to country [CORRECT ANSWER]

2. **The main seafood producing and processing countries are:**
   a. Portugal, Spain, France, Italy and Greece [CORRECT ANSWER]
   b. Belgium, Germany, Netherland and the United Kingdom
   c. Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia and Slovenia

3. **What are the key features of eco-innovation?**
   a. Sustainable fishing, processing and marketing
   b. Reduced environmental impact and more efficient and responsible use of natural resources [CORRECT ANSWER]
   c. Economic and financial sustainability

4. **What attributes are mostly appreciated by consumers in the eco-innovative products proposed by the Prizefish project?**
   a. Origin [CORRECT ANSWER]
   b. Price
   c. Processing methods

5. **Which of the following certifications has been developed in the Prizefish project?**
   a. Marine Stewardship Council (MSC)
   b. Responsible Fisheries Management (RFM)
   c. Adriatic Responsible Fisheries Management (ARFM) [CORRECT ANSWER]

1.6 Glossary

Apparent consumption: proxy measure for consumption of a product or material, defined as production plus imports minus exports of the product or material.

Emotion analysis: the process of identifying and analyzing underlying emotions expressed in textual data by classifying the text into different types of emotion categories (anger, disgust, fear, happiness, sadness, and surprise)

Ready-to-Eat (RTE) Foods: a group of food products that are pre-cleaned, precooked, mostly packaged and ready for consumption without prior preparation or cooking.

Ready-to-Cook (RTC) foods: foods consisting of raw ingredients that are precut, seasoned and mixed, where some preparation or cooking is required through a process that is given on the package.

Sentiment Analysis: a natural language processing (NLP) technique used to identify and categorize opinions expressed in a text to determine whether data is positive, negative or neutral.

Shelf-life: the length of time during which a food product may be stored without becoming unsuitable for use or consumption, remains safe, retains desired sensory, chemical, physical and biological characteristics.

Willingness to Buy (WTB): the behavioral intention of a consumer willing to buy a product at a given price.

Willingness to Pay (WTP): the maximum price at or below which a consumer would be willing to pay for one unit of a product

2 Module 2 – “Business models for eco-innovative value chains”

2.1 Introduction

Through an iterative process undergone along the whole Prizefish project, some eco-innovations have been identified as particularly capable of adding more value to the supply chain while respecting the environmental ecosystem, opening in this way the road to new valorization paths for local species and resources.
However, from a firm’s perspective, the development of eco-innovative products and efficient value-chains requires the adoption of an appropriate business approach and dedicated managerial tools.
The business model approach and the business model canvas can be used to support firms in the exploitation of new market opportunities.
The following contents are intended to be implemented by Producers Organizations (or co-operatives) involved in fisheries and processing, however they could also be used by companies of other legal forms (or supply chain stage) with some adaptations.

2.2 Learning goals

This course aims to provide a comprehensive understanding of the Business Model conceptual approach and the possible use of the Business Model Canvas tool as a solution supporting entrepreneurs and managers to exploit the market potential of innovative seafood.

2.3 Learning units

2.3.1 “The Business Model approach and the business model canvas”

An enterprise’s business model is the description of the core logic for creating value or, in other words, the description of the enterprise’s mechanism to earn money[3]. In this sense, describing a business model is a good proxy to describe the underlying value-chain.
The scientific community proposed several definitions of business model over the years, whose least common ground can be identified in *the fundamentals of creation and value capture by the organization*[4]. One of the most complete and appreciated definitions on the other side is the one from Osterwalder, the creator of the Business Model Canvas:

[3] Changing Business Models: Surveying the Landscape, Jane Linder & Susan Cantrell, 2000
[4] Innovation and Business Model: a case study about integration of Innovation Funnel and Business Model Canvas. F.Bonazzi, M.Zilber, Rivista brasileira de Revista Brasileira de Gestão de Negócios, vol. 16, núm. 53, 2014

A business model is a conceptual tool that contains a set of elements and their relationships and allows expressing a company's logic of earning money. It is a description of the value a company offers to one or several segments of customers and the architecture of the firm and its network of partners for creating, marketing and delivering this value and relationship capital, in order to generate profitable and sustainable revenue streams.[5]

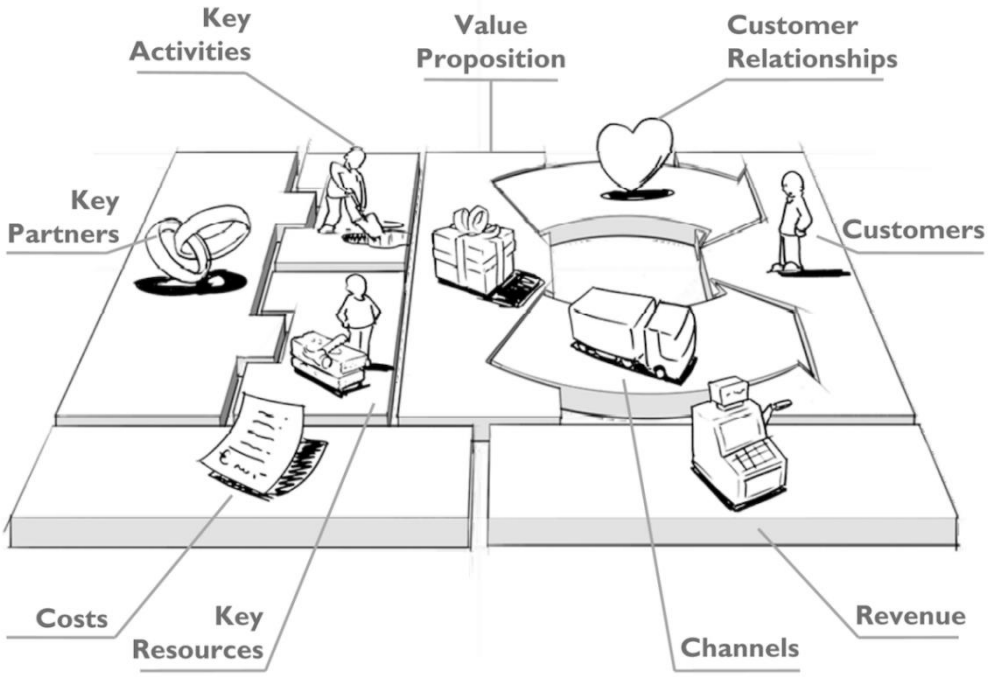
During the last years, business model research gained a major attention in the entrepreneurial world. A business model can in fact be a very versatile and effective tool to answer at five different categories of functions, namely: understanding & sharing, analyzing, managing, prospects and patenting.[6]
According to Osterwalder, who recalls a similar nomenclature from Linder and Cantrell (2000), business models are distinguishable into three categories: Abstract BMs Concepts (generic models of elements, components and relationships), Operating BMs (already implemented and existing) and Scenario BMs (which encompass virtual business models, not already existing).

The Business Model Canvas is a business design template firstly proposed by Alexander Osterwalder in 2004[7]. It's a very versatile tool as it can be used by enterprises independently from their dimension or core business. As stated by Tjitradi (2015)[8], the BM Canvas is a *business model that can be used as the evaluation and design of a new business model that is better and more modern for the ongoing effort in the future*. Moreover, Boedianto and Harjati (2015) highlighted that *BMC can be used as an approach for creating business development strategies*.

The main point of this design concept is the ability to distinguish, visualize and analyze the relationship that the business owners share and farms with their partners and their customers. The graphic representation of those relations is rendered through the identification of nine blocks, related to each other by different kind of linkages.

5 The business model ontology: a proposition in a design science approach, Alexander Osterwalder, Phd thesis, Universite de Lausanne, 2004
6 The business model ontology: a proposition in a design science approach, Alexander Osterwalder, Phd thesis, Universite de Lausanne, 2004
7 The business model ontology: a proposition in a design science approach, Alexander Osterwalder, Phd thesis, Universite de Lausanne, 2004
8 Tjitradi, Elizabeth Cindy. 2015. Evaluation and Design of Business is based on the Business Model Business Model. Journal of the University of Petra. Surabaya

Figure 4 Business Model Canvas representation, extracted from Business Model Generation, Osterwalder&Pigneur, Pag.18-19



2.3.2 "CUSTOMER SEGMENTS"

It is considered the hearth of the business model. It's a description of the customer segments that the enterprise aims to serve. A correct segmentation should delimit all the people that share common needs, behavior and other attributes.

This block answers the questions:

- For whom are we creating value?
- Who are our most important customers?

Analysis on consumption trends indicate that the preferred place for buying seafood products is supermarkets. This is much truer in the case of processed or semi-processed products. Consumer segmentation indicates that there are specific clusters of consumers that are particularly interesting for the development of eco-innovative seafood products. These are:

- Ready to eat driven consumers
- Healthy-foods oriented consumers
- Freshness and origin driven consumers
- Conscious consumerism movement

"Ready to eat" or "ready to cook" driven consumers are modern citizens that have not the skill, the time or the will to wash, clean and prepare complicated seafood dishes. Thus, they need products that are easy and quick to cook. Shelf life is also important, since these people normally make large purchases at supermarket once per week, and need products that can be preserved for a long number of days.

Healthy-foods oriented consumers are a natural target since fish and seafood have been recognized as a health-promoting food for human consumption since a very long time, and nowadays doctors and nutritionists strongly recommend their presence in the human diet.

Freshness and origin driven consumers look for local products or, in other cases, products characterized by a strong geographical personality. Freshness is also associated to local production, since it is not necessary to recur to heavy processing or preservation techniques to manage local supply chains. For this very reason, for this segment, fresh products are normally preferred to preserved products, but high value processed products can find niche opportunities if geographic attributes are well communicated.

Finally, conscious consumers are those (in particular new generations) who are becoming more and more careful to environmental aspects and are focused on the impact of their actions. Many are aware that the fishery sector presents endemic problems of sustainability. For these consumers, labelling schemes such as MSC or "Friend of the sea" are the main tools that may guarantee the quality of the products. It is to be noticed that, at the moment, it is very difficult for the Italian and Croatian markets to provide local eco-certified wild fish, while this is relatively easier in the case of aquaculture products and processed imported products.

2.3.3 "VALUE PROPOSITION"

Here it is explained what are the products and services that create value for the consumers. In other words, it tells what's the need or the problem of the customer that the enterprise can solve. This block answers the questions:

- *What value do we deliver to the customer?*
- *Which consumer needs are we satisfying?*

Taking in mind the characteristics of the consumers previously considered, the main characteristics that an eco-innovative seafood product should have to meet consumers' needs are:

- The geographical attribute
- The sustainability or fishery responsibility attribute
- The convenience (ready to cook or to eat)
- An extended shelf life

The geographical attribute is important since surveys clearly indicate that people prefer national origin. However, there are cases where a geographical attribute can be appreciated abroad if sufficiently communicated and promoted. For example, in Italy, fillets of anchovies from the Cantabrian Sea are very appreciated; similarly, processed products whit the label "Seafood from Norway" (going with a Norwegian flag) represent a clearly identified product meeting consumers' expectations.

Sustainability or fishery responsibility are attributes that will become more and more important in the future. In Northern Europe and North America, labels like MSC and "Friend of the sea" are largely adopted and recognized by consumers. These products are still missing and not well known in Italy and Croatia, but the trend is clear and Adriatic fishers must be ready to face the competition of imported products (mainly processed) that have this certification. The Adriatic Responsible Fishery Management (ARFM) label can be a tool to satisfy, with only one certification, the requirement for both geographical typicality and sustainability.

Finally, processed or semi-processed products are necessary to satisfy the needs of ready to cook foods and the increased necessity of shelf-life duration.

It has to be noted that all these aspects, required by the consumers, allow to increase the value of the raw fresh fish, and permit to increase the revenue of fishers.

2.3.4 "Customer Relationships"

Customer relations refers to the methods a company uses to engage with its customers and improve the customer experience. This includes providing answers to short-term roadblocks as well as proactively creating long-term solutions that are geared towards customer success.

In this block it is necessary to define the nature of the relationship established with specific customer segments. The kind of relationship is generally guided by three main motivations: the customer acquisition, the customer retention or boosting the sales (upselling).

Questions answered by this block are:

- *What type of relationship does each of our customer segments expect us to establish and maintain with them?*
- *Which ones have been established?*
- *How expensive are they?*

Producer Organization are very important as they permit to have a more powerful relationship as an intermediary between the fishers and the buyers (e.g. wholesalers, large retailers, Horeca). The role of a large (and well managed) organization is key to increase the market power and the contractual power of isolated fishers. It permits to receive orders from customers and fixing catches on the base (or below) of these needs, so to maintain the price high and not landing unnecessary fish. It permits to better define quality standards necessary for the market. It also permits to enter in new markets where minimum and constant quantities must be guaranteed (i.e. supermarkets).

2.3.5 "CHANNELS"

Channels describe the company interface with consumers, the communication techniques implemented in order to reach the customers and deliver the value proposition. The choice of the correct channel (or the mix of channels) should be carried out choosing a medium that helps consumers to evaluate the value proposition, to easily buy product and services from the firm. This block answers the questions:

- *Through which channels do our customers want to be reached?*
- *How are we reaching them?*
- *Are our channels integrated?*

The main channel to reach consumers with eco-innovative seafood products is supermarkets, thus Producers' Organizations need to establish strategies to open these markets (isolated fishers would not be able to establish relations with supermarkets).

However, eco-innovative products have the right characteristics to use alternative channels to reach different segments of consumers, including Horeca and exporters.

2.3.6 "KEY ACTIVITIES"

Key activities encompass the most important activities that a firm needs to do in order to operate successfully and to provide the value attributes previously discussed.

This section answers the question:

- *What key activities do our value proposition, distribution channel, customer relationships and revenue stream require?*

In our seafood case, the key activities that Producers' Organizations mainly deal with are:

- Responsible catches
- Certification
- Processing

Certification procedure is an inevitable process to obtain whatever label, and in order to obtain an eco-label it could require several changes (depending on specific fisheries) in fishing techniques, gears, and restrictions. This would affect the flow of costs and revenue. Differently from similar eco-schemes adopted in agriculture, this change is something that cannot be realized by a single isolated fisher, since the sustainability of fish stocks (that are a common resource) is something related to the behaviour of all the fleets using the resource. For this reason, operating as a large Producer Organization is essential to guarantee sustainability and to obtain eco-certifications.

On the other hand, processing is something that Producers Organizations could efficiently realize for the benefit of all their members as normally happens in many agri-food sectors and as a few examples of Adriatic fishery POs are currently realizing.

2.3.7 "KEY RESOURCES"

Key resources enclose all the assets and the resources the firm needs in order to run the business model and create the Value Proposition. Different business models require different key resources. Those have to be intended as physical (facilities, buildings, machines, point-of-sale), financial (lines of credit, cash, stock option pools), intellectual (brands, knowledge, patents, copyright, customer database) or human (social capital, expertise).

This block answers the question:

- *What key resources do our value propositions, distribution channels, customer relationships and revenue streams require?*

To produce eco-innovative seafood products, many assets are necessary, but we would focus on:

- Sustainable stocks

- Responsible fishing techniques (and gears)
- Management capacity
- Processing plants
- Processing know how

The first three point are the key assets that are necessary in order to fish in a sustainable or responsible way. Stocks must be maintained in good health. To do it, POs must have the management capacity to co-manage them and to use the appropriate fishing techniques.

Processing plants and know how are, on the other hand, the basic assets needed for creating high value added, ready to cook, long shelf-life seafood products. In many cases, such resources are impossible to be acquired and managed by single fishers, but they can by POs.

2.3.8 "KEY PARTNERSHIP"

This block describes the suppliers' network and highlights other relevant partners that make the business model work. The reasons standing behind the need of partnership are three: the search for economy of scale (optimization in resource allocation, cost reduction), the reduction of risk and uncertainty (strategic alliances could mitigate highly competitive markets) or the acquisition of particular resources or activities (patents).

This block answers the questions:

- *Who are our key partners?*
- *Who are the key suppliers?*
- *Which key activity do partners perform?*

For the development of eco-innovative seafood products by Producers' Organizations, several key partners can be considered, and in particular:

- Management or co-management authorities
- Cooperative members
- Technology providers
- Research centers
- Certification authorities

A strong relationship with national management authorities or co-management authorities is key to prepare fishery management plans that can satisfy the requisites for sustainability certification. The case of co-management in the clam sector (i.e. COGEVO/COGEMO, consortia

for clam management) represents a best practice in the Adriatic Sea, since in several Italian regions we can find a strong relationship between COGEMOs and Producers' Organizations in order to decide daily catches on the base of customers' daily needs.

Cooperative members are naturally the main providers of each PO, and a strong agreement among them and the organization is necessary in order to define the quality and quantity of the product to be caught.

Technology providers are required to satisfy key needs both for the fishery stage and for the processing stage of production. Research centers are necessary to define biological indicators and catch limits, as well as to provide information and suggestion about available technological innovations. Finally, certification authorities are necessary to obtain eco-labels.

2.3.9 "COSTS AND REVENUE"

These are two separate blocks that present the costs and revenues that are generated by the activity. There are two possible business model structures:

a) Cost Driven and
b) Value-Driven.

The **Cost Driven** business models aims at the minimization of costs wherever possible, involving maximum automation and extensive outsourcing. The **Value Driven** business model is more focused on value creation than on costs implications.

These blocks answer to the questions:

- *which prices and revenues can be obtained?*
- *What are the most important costs in our business model?*

Eco-innovative seafood products entail a value-driven business model. There are several reasons why these products should guarantee higher revenues for fishers:

- Processed products of high quality (ready to cook, long shelf life) permit to generate added value that Producers' Organizations distribute to their members.
- Consumer willingness to pay is higher for products with recognized eco-labels and renowned geographical indications.
- Common commercialization through Producers' Organizations guarantees higher contractual and marketing power.

On the other hand, it is clear that POs (and consequently their members) have to face increased costs linked to:

- Costs for certification schemes
- Investments for new fishing gears
- Investments and yearly costs for processing activities
- Transaction costs for horizontal (i.e. PO management) and vertical coordination.

Finally, sustainability practices entail decreased revenue in the short term (since catches must decrease to reach Maximum Sustainable Yield), but higher revenue (and lower fishing costs) in the long term when MSY is reached.

2.4 Self-assessment test

1. **What is a business model?**
   a. A conceptual tool that contains a set of elements and their relationships and allows expressing a company's logic of earning money [CORRECT ANSWER]
   b. A template to distinguish, visualize and analyze the relationship that the business owners share and farms with their partners and their customers
   c. Both answers are incorrect

2. **Which of the blocks of the business model canvas answers to the question "*Which consumer needs are we satisfying*?**
   a. Customer segments
   b. Value proposition [CORRECT ANSWER]
   c. Customer relationships

3. **What are the most interesting clusters of consumers for the development of eco-innovative seafood products?**
   a. Ready-to-Eat driven consumers
   b. Freshness and origin driven consumers
   c. Both Ready-to-Eat and Freshness and origin driven consumers [CORRECT ANSWER]

4. **What are the main roles of Producer Organizations in the fishery sector?**
   a. to increase the market power and the contractual power of isolated fishers
   b. to better define quality standards necessary for the market
   c. Both answers are correct [CORRECT ANSWER]

5. **What business model structure is entailed by the development and exploitation of eco-innovative seafood products?**
   a. a cost-driven structure
   b. a value-drive structure [CORRECT ANSWER]
   c. it depends on circumstances

2.5 Glossary

Business model: a plan for the successful operation of a business through which a company creates, distributes and captures value to acquire competitive advantage on the market

Business model canvas: a strategic management tool, invented by Alex Osterwalder, that helps businesses to describe, design and analyze their business models, made up of nine building blocks showing the logic of how a company intends to deliver value and make profits.

Eco-schemes: payment schemes in agriculture aiming at the protection of environment and climate. As a future Common Agricultural Policy innovation, eco-schemes shall provide support for farmers who voluntarily observe agricultural practices beneficial for the environment and climate. It is a measure to reward and incentivise farmers for taking action towards a more sustainable farm and natural resource management.

Horeca: the sector of the food service industry that consists of establishments which prepare and serve food and beverages. The term is a syllabic abbreviation of the words Hotel/Restaurant/Catering.

Maximum Sustainable Yield (MSY): the largest yield (or catch) that can be taken from a species' stock over an indefinite period. Fundamental to the notion of sustainable harvest, the concept of MSY aims to maintain the population size at the point of maximum growth rate by harvesting the individuals that would normally be added to the population, allowing the population to continue to be productive indefinitely.

Producer Organization (PO): officially recognised bodies, set up by fish producers to manage the activity of their members; including the promotion of sustainable fishing and the management of their Member's quota.

3 ANNEXES

3.1 ANNEX 1. Forum on the fishery management of the Adriatic Sea (FAIRSEA)

LINK: 7th July Fairsea 0707.mp4 - Google Drive
8th July https://www.youtube.com/watch?v=JWKYDf4_bsU&t=1479s

This event was realized in Split, on 6-8 July 2021, organized by RERA in the framework of the FAIRSEA project.
During this event, there were two different moments where the results of PRIZEFISH have been communicated to the stakeholders:

1) On 7th July (12:00-13:00) Synergy projects PRIZEFISH & FAIRSEA. A working example: How to exploit the potential of ecological, economic and social sustainability in Adriatic fisheries? Live Questions & Answers from Luca Mulazzani (UNIBO - fisheries economist) to a PO Representative (OP BIVALVIA - Mauro Vio).
2) On 8th July (16:00-17:30) Interacting with other projects for finding next steps for an EAF implemented: Round table with representatives of related projects of Axis 1 - Blue Innovation in the area.

If the second event (with the participation of Alessia Cariani and Luca Mulazzani, for UNIBO) was more general presenting the overall project objectives and results, the first was realized with a specific training approach for the stakeholders participating to the event. In fact, the 06-07 July meeting was especially realized for stakeholder involved in the FAIRSEA project.
The training module was organized as an interview from Luca Mulazzani (UNIBO - fisheries economist), to Mario Vio (director of OP BIVALVIA), in order to present the best practices, in terms of business model, of this organization. Mario Vio answered to a list of questions related to the organization of the cooperative, the relationships with clients, the adoption of ecolabels, and the processing and trade of their production.

	Questions for Mario Vio
1)	The management of clams is characterized by the existence of COGEMO or COGEVO consortia. Many of the people who listen to us may think that it is a very particular type of fishing, whose successes can hardly be generalized to other types where consortia do not exist. So, I ask you: what kind of relationships (formal and informal) exist between OP Bivalavia and the COGEVO of Veneto? How are COGEVO important for the efficient operation of the OP? And so, if absurdly COGEVO no longer existed, what should be the functions that the OP should incorporate? Do you think it would be feasible?

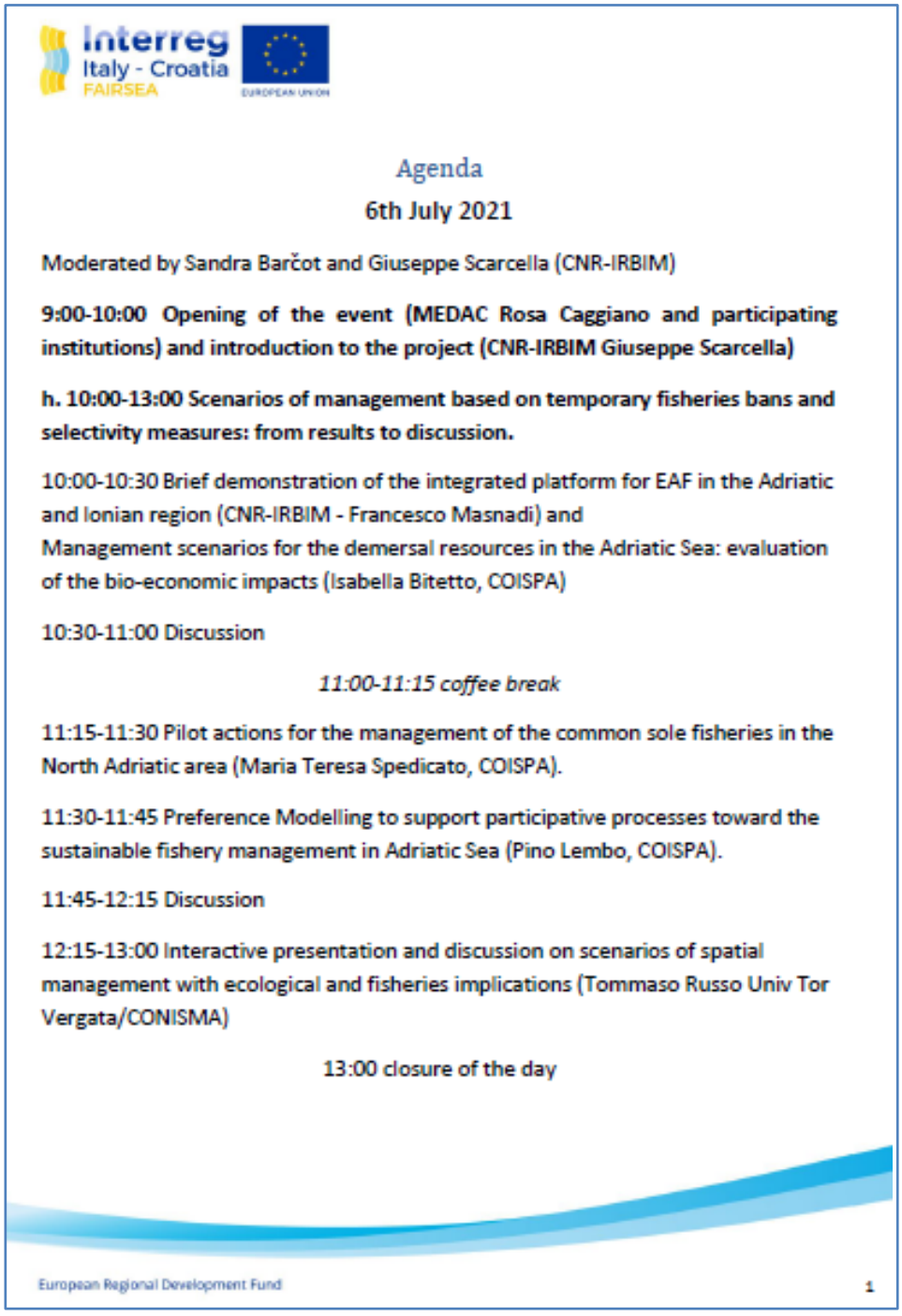
2) How are the daily quantities that each boat participating in the PO catches decided? Is it based only on biological parameters (i.e. how much resource there is at sea) or does it depend on the orders received from your customers? And is the price that will be paid to individual fishermen already known when you go to sea or will it be only after landing the clams?
3) Could you describe what kind of bargaining takes place daily between the PO and the different customers? Does the PO have a way of influencing the price, for example by limiting the quantities fished, or is the price decided exclusively by the buyers?
4) We know that OP Bivalvia is a cooperative, so members during the meeting have to make important decisions on how to divide the company's profits between repayments and investments. Without going into too much detail, could you tell us what kind of choices the cooperative adopts on average in terms of investments?
5) The clams of Veneto are the first product of the whole Mediterranean to have obtained the MSC certification. What would you put on the balance of costs and benefits of this operation? Do your customers value this certification or has the price of your clams remained almost unchanged?
6) You have invested a lot to give added value to your product. You have freezing plants and now you are thinking about new forms of transformation. What are the advantages of being able to sell processed products as well as fresh products?
7) Lately you have started selling products through social networks and distributing them door to door. For a large company like yours it would seem a marginal activity. What idea have you about the prospects of this form of sale and distribution?

Furthermore, participants was asked to interact in the discussion and to provide their feedback for a wide application of OP-BIVALVIA best practices. This was realized through discussion and through a list of question that participants had to answer.

Questions for participants

1) On the basis of your experience, please order the following ideas according to the priority level of each option in relation to the others (1=most important; 5=less important)
    a. Shared management of fishery resources through individual quotas, fishing days calendar, rotational fishing areas, etc
    b. Centralised bargaining between the cooperative and the buyers: total supply of production by the members to the cooperative
    c. Investments by the cooperative for the processing or storage of the productCertifications of sustainable fishery (i.e. MSC)
    d. Sales through digital platforms and door-to-door product delivery
2) On the basis of your experience, please order the following ideas according to the level if difficulty in the implementation of each option in relation to the others (1=most difficult; 5=less difficult)
    a. Shared management of fishery resources through individual quotas, fishing days calendar, rotational fishing areas, etc
    b. Centralised bargaining between the cooperative and the buyers: total supply of production by the members to the cooperative
    c. Investments by the cooperative for the processing or storage of the product
    d. Certifications of sustainable fishery (i.e. MSC)
    e. Sales through digital platforms and door-to-door product delivery
3) Where and for which products/fisheries/organizations of producers would be possible the Shared management of fishery resources through individual quotas, fishing days calendar, rotational fishing areas, etc?
4) Where and for which products/fisheries/organizations of producers would be possible the Centralised bargaining between the cooperative and the buyers: total supply of production by the members to the cooperative?
5) Where and for which products/fisheries/organizations of producers would be possible the Investments by the cooperative for the processing or storage of the product?
6) Where and for which products/fisheries/organizations of producers would be possible the Certifications of sustainable fishery (i.e. MSC)?
7) Where and for which products/fisheries/organizations of producers would be possible the Sales through digital platforms and door-to-door product delivery?


Interreg
Italy - Croatia
FAIRSEA
FAIRSEA
Fisheries in the Adriatic Region – a shared Ecosystem Approach
FAIRSEA (ID 10046951) is financed by Interreg V-A IT-HR CBC Programme (Priority Axis 1 – Blue innovation)
Final international stakeholder meeting
6-7 July 2021, Split (Croatia)
European Regional Development Fund
www.italy-croatia.eu/fairsea



Interreg Italy - Croatia FAIRSEA

Agenda

6th July 2021

Moderated by Sandra Barčot and Giuseppe Scarcella (CNR-IRBIM)

9:00-10:00 Opening of the event (MEDAC Rosa Caggiano and participating institutions) and introduction to the project (CNR-IRBIM Giuseppe Scarcella)

h. 10:00-13:00 Scenarios of management based on temporary fisheries bans and selectivity measures: from results to discussion.

10:00-10:30 Brief demonstration of the integrated platform for EAF in the Adriatic and Ionian region (CNR-IRBIM - Francesco Masnadi) and
Management scenarios for the demersal resources in the Adriatic Sea: evaluation of the bio-economic impacts (Isabella Bitetto, COISPA)

10:30-11:00 Discussion

11:00-11:15 coffee break

11:15-11:30 Pilot actions for the management of the common sole fisheries in the North Adriatic area (Maria Teresa Spedicato, COISPA).

11:30-11:45 Preference Modelling to support participative processes toward the sustainable fishery management in Adriatic Sea (Pino Lembo, COISPA).

11:45-12:15 Discussion

12:15-13:00 Interactive presentation and discussion on scenarios of spatial management with ecological and fisheries implications (Tommaso Russo Univ Tor Vergata/CONISMA)

13:00 closure of the day

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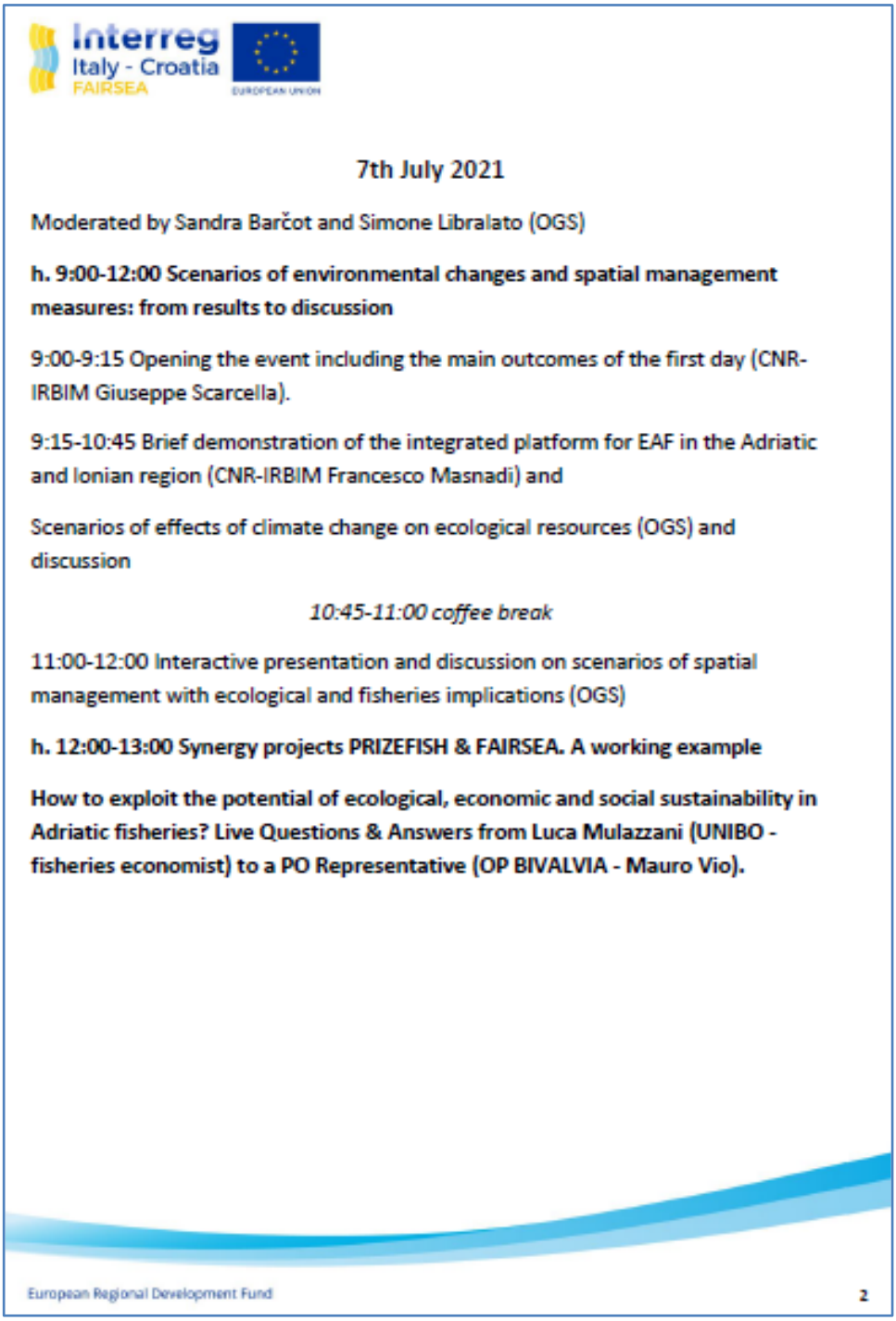

Interreg Italy - Croatia FAIRSEA EUROPEAN UNION

7th July 2021

Moderated by Sandra Barčot and Simone Libralato (OGS)

h. 9:00-12:00 Scenarios of environmental changes and spatial management measures: from results to discussion

9:00-9:15 Opening the event including the main outcomes of the first day (CNR-IRBIM Giuseppe Scarcella).

9:15-10:45 Brief demonstration of the integrated platform for EAF in the Adriatic and Ionian region (CNR-IRBIM Francesco Masnadi) and

Scenarios of effects of climate change on ecological resources (OGS) and discussion

10:45-11:00 coffee break

11:00-12:00 Interactive presentation and discussion on scenarios of spatial management with ecological and fisheries implications (OGS)

h. 12:00-13:00 Synergy projects PRIZEFISH & FAIRSEA. A working example

How to exploit the potential of ecological, economic and social sustainability in Adriatic fisheries? Live Questions & Answers from Luca Mulazzani (UNIBO - fisheries economist) to a PO Representative (OP BIVALVIA - Mauro Vio).

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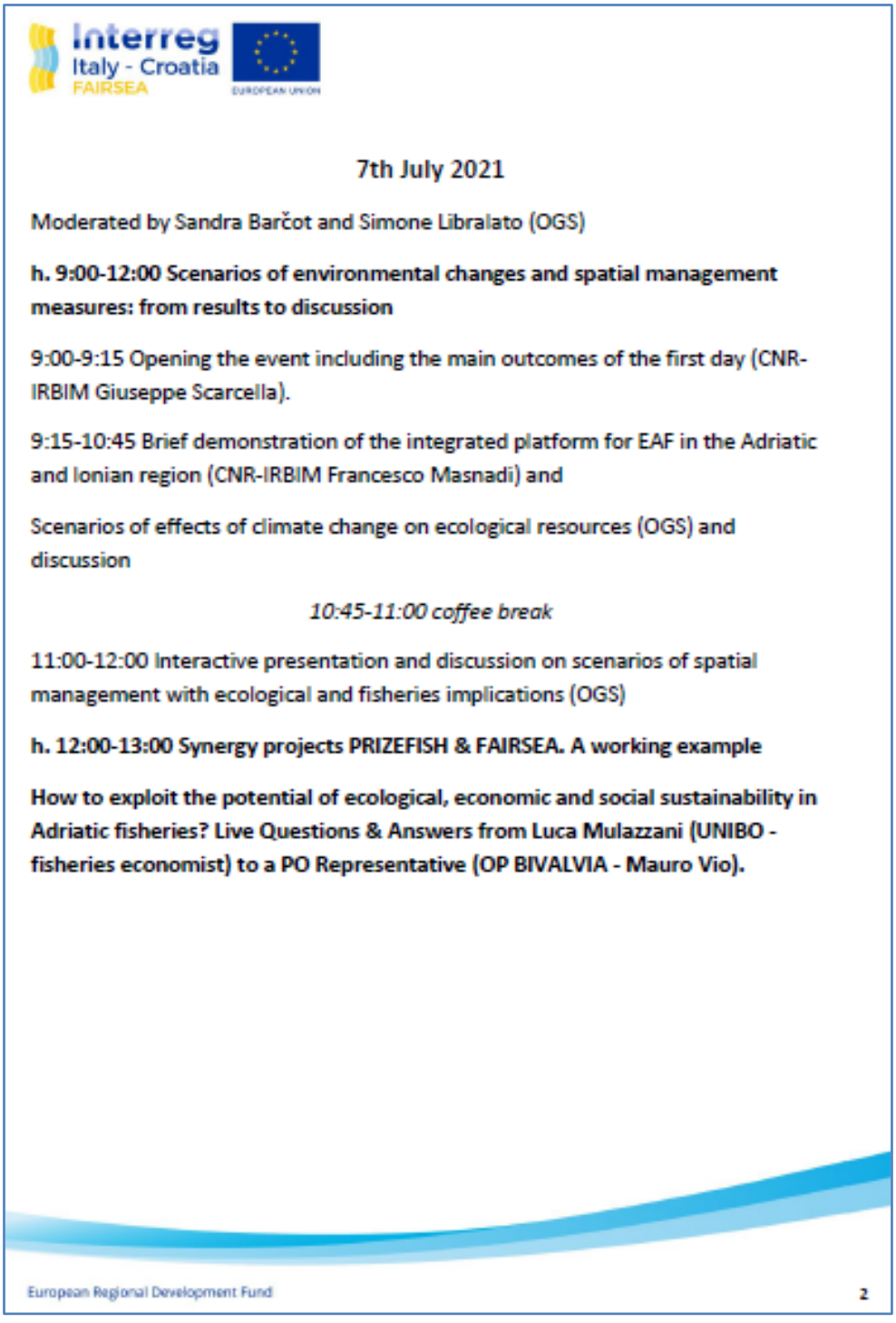

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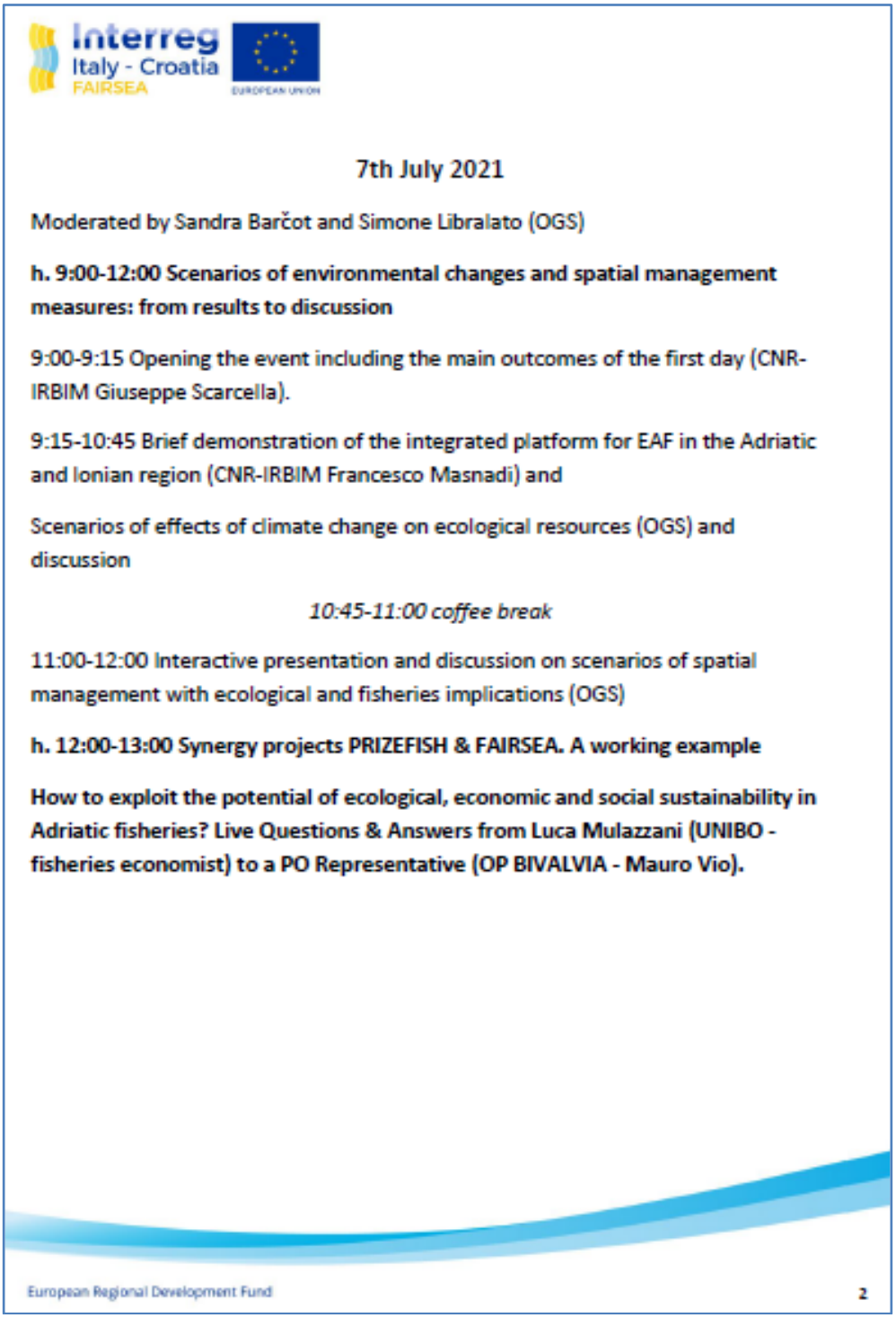

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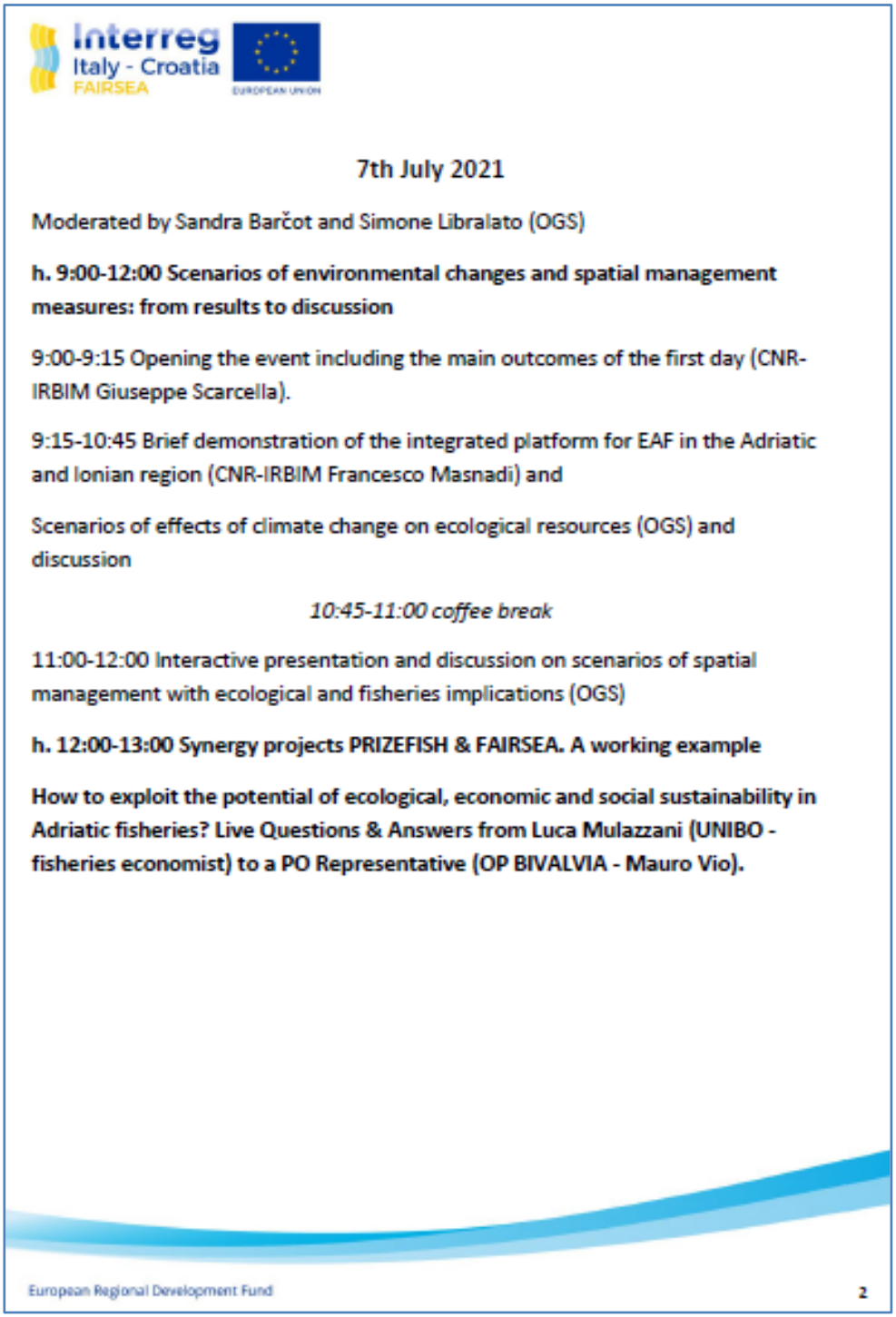

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European Regional Development Fund 2

3.2 ANNEX 2. Lecture at Blue Growth Master

LINKS:
https://drive.google.com/file/d/1pGpeKBWLqNoa6f58bpMhNSS1KsjFXVSy/view?usp=drivesdk
https://blueskills.inogs.it/advancedmaster/program

The Master in Sustainable Blue Growth is established to bring scientific excellence and technological innovation at the center of several Blue Growth initiatives. The Master is jointly organized by the University of Trieste and OGS to support the creation of stable and attractive blue career pathways throughout strengthening professional skills and enhancing competencies in fields related to sustainable blue growth.

The lecture was realized on September 23rd by Luca Mulazzani (UNIBO - fisheries economist) on the theme "Design and marketing of eco-innovative seafood products - Results from Prizefish Project".

Participants were international students with professional and background skills in Blue Growth issues. In total 24 students attended to the lecture, with background in fields that included Maritime Spatial Planning, Marine Biology, Marine Sciences and Coastal Management, Project Management & Geography, Remote sensing, Oceanography and Marine Geosciences, Aquatic Biodiversity, Management of Territory, Environmental Engineering, Marine resource ecology, Aquaculture, International ocean governance.

The lecture provided an overview of the project rational and then focused on the aspects related to consumer analysis and business model key points, in the case of PO processing ecoinnovative seafood products.

3.3 ANNEX 3. Valorization of quality and sustainability of Adriatic fisheries (Ancona)

LINK: HR Joint capacity building and cross-border training in Italy hrvatski - YouTube
IT Joint capacity building and cross-border training in Italy italiano - YouTube
EN Joint capacity building and cross-border training in Italy English - YouTube

The event was organized in Ancona (Sala Vanvitelli – Mole Vanvitelliana, Banchina Giovanni da Chio 28) by ASSAM on 1st October 2021.
Thirty-five participants were attending to the meeting in Ancona, while 53 were connected via web.
Several issues were discussed by panelists, not only related with WP5, including quality, certification and sustainability of the fishery industry, marketing as value chain and innovation of Adriatic fishery products.
WP5 themes were mainly discussed in Session II (16.15 – 17.45) "Marketing, value chain and innovation of the Adriatic fishery products", with two modules:

1) Consumers analysis and competitive positioning of eco-innovative Adriatic products (results of PRIZEFISH project), by Luca Mulazzani - University of Bologna
2) The APP of the Prizefish project for the valorisation of the Adriatic fisheries, by Uriano Meconi – ASSAM

Thus, the first communication was focused on the preferences of seafood consumers from three countries (Italia, Croatia, Spain) and the consequences that these beliefs have for a correct business strategy, in terms of ecoinnovative product characteristics and marketing choices.
The second communication was, on the other hand, focused on the development of the PRIZEFISH app, realized for the e-commerce of local seafood.


Interreg
Italy - Croatia
PRIZEFISH
EUROPEAN UNION
Prizefish Webinar
Friday 1st October
2021 - 2.30 p.m.
Emilia-Romagna Region
is pleased to invite you to the Webinar:
VALORIZATION OF QUALITY AND SUSTAINABILITY OF ADRIATIC FISHERIES
JOINT CAPACITY BUILDING AND CROSS-BORDER TRAINING EVENT
(in presence at Sala Vanvitelli – Mole Vanvitelliana, Banchina Giovanni da Chio 28 – Ancona)
14.30 – Welcome Speech and introduction
Uriano Meconi, ASSAM
Piergiorgio Vasi, Emilia Romagna Region
Alessia Cariani, University of Bologna, Project Coordinator
Paolo Rotoni, Italy Croatia JS Project manager
Moderator of the capacity building: Valentina Tepedino, director of the Eurofishmarket journal

14.45 – 16.00 Session I
"Quality and certification of the fishery products"

- **The certification scheme ARFM (Adriatic Responsible Fisheries Management) developed within the Prizefish Project.**

Giuseppe Scarcella - *CNR-IRBIM Ancona*

Giulia Sandalli - *CNR-IRBIM Ancona*

- **The ARFM chain of custody standards for the entire chain sustainability**

Eva Merloni - *Area Europa, University of Bologna*

- **Case Study, the Producers Organization Bivalvia and the MSC certification**

Mauro Vio - *PO Bivalvia director*

- **Valorisation of the sustainability of Small-Scale Fisheries, the EU certification label**

Francesco Cavraro - *Ca' Foscari University of Venice*

- **"QM label - Marche guaranteed quality" applied to the fishery chain"**

Silvia Palladino - *ASSAM, Representatives of the Ancona Fish Market*

16.00 - 16.15 Coffee break

16.15 – 17.45 Session II
"Marketing, value chain and innovation of the Adriatic fishery products"

- **Innovative technologies tested in the project:**
  - Raising the quality of raw materials entering the processing facility, Omega 3 case.
  - Upgrade of processing technology – gaining more from raw material, Istria case

Ivan Matijašević – *Omega 3*

- **Prototyped innovative products tested and results, training ont he technologies used:**
  - Chilled sardine filets, prolonged shelf life by MAP (with novel gas mixture)
  - Ready_to_cook calms with enhanced shelf_life and quality using high pressure treatment (HHP)

- Fish and Shellfish Burger with enhanced shelf_life and quality using high pressure treatment (HHP)

Pietro Rocculi - *University of Bologna - Department of Agricultural and Food Sciences*

- **Consumers analysis and competitive positioning of eco-innovative Adriatic products** (results of PRIZEFISH project)

Luca Mulazzani - *University of Bologna - Department of Agricultural and Food Sciences*

- **The APP of the Prizefish project for the valorisation of the Adriatic fisheries**

Uriano Meconi – *ASSAM*

17.45 - Discussion and conclusions

18.30 - Cooking show with Adriatic products

Info-desk of the project PRIZEFISH will be present during the Tipicità in Blue Initiative.
The event will be available on-line (Zoom platform) and in presence with limited seating capacity.
Translation services will be provided in English, Italian and Croatian language with the cooperation of Emilia-Romagna Region.

Registration to receive the zoom link:

https://www.eventbrite.it/e/prizefish-1-october-2021-tickets-177190059237

The registration will be closed on 1st October 2021 at 3,30 p.m.

Places to attend in presence are limited upon invitation due to Covid-19 restrictions.

Per info e contatti:
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perretta_francesca@assam.marche.it

European Regional Development Fund

3.4 ANNEX 4. Joint cross border training (Zadar) (Innovative projections achieved by the organization of pilot projects in business and market environment through the PRIZEFISH project)

LINK: Joint Cross Border Training in Croatia - YouTube

The event was organized by Zadar County in the framework of a larger, three-days (19-21 October), program that included, on days 20th and 21st, for people that attended in person, site seeing to Mišlov d.o.o., Omega3 and Sardina d.o.o. companies (the last visit organized by RERA and IZOR).
Only the first day (19th October) the meeting in Zadar was mixed, that is online mode and in person, with contribution of experts regarding ecocertification, innovative technologies and market solutions for added value fishery products.
Participants were 46 in person, and 39 online.
WP5 themes were mainly discussed in two modules:

1) Preferences towards innovative fish products on the Italian and Spanish market, by Luca Mulazzani, University of Bologna
2) Preferences towards innovative fish products on the Croatian market, by Marija Cerjak, University of Zagreb

In both communications, with a different geographical focus, the authors dealt with the preferences of seafood consumers and the consequences that these beliefs have for a correct business strategy, in terms of ecoinnovative product characteristics and marketing choices.

JOINT CROSS BORDER TRAINING in CROATIA
ZADAR - SPLIT (19-21. October 2021.)

„Soluzioni innovative realizzate tramite le iniziative pilota in ambito imprenditoriale e di mercato del progetto PRIZEFISH"

/

„Innovative projections achieved by the organization of pilot projects in business and market environment through the PRIZEFISH project"

DAY 1.
martedì 19. Ottobre 2021. a Zara
Tuesday 19. October 2021. in Zadar

- APPUNTAMENTO IN PRESENZA E ONLINE /Meeting LIVE and ONLINE (10:00:18:00)
- Luogo/Place – INOVAcija - Ustanova za razvoj kompetencija, inovacija i specijalizacije Zadarske županije, Put Murvice 3A, 23000 Zadar

Agenda/Live and online

Moderatrice/Moderator- Valentina Andrić – Ministero dell'Agricoltura Croato

10:00 – 10:15 *Registrazione dei partecipanti*/Registration

10:15-10:30 *Introduzione*/Entrance speech - **dipl.ing. Daniel Segarić (Zadar County)**

10:30–10:45 *Presentazione del progetto PRIZEFISH*/About PRIZEFISH - **prof.PhD Alessia Cariani**

10:45–11:00 *Principi per la certificazione della pesca in Adriatico: lo schema di certificazione ARFM sviluppato nel progetto PRIZEFISH*/Principles for certification of Adriatic fisheries: the ARFM certification scheme developed by PRIZEFISH - **prof.PhD.sc. Giuseppe Scarcella, PhD Giulia Sandalli**

11:00-11:15 *Lo sviluppo di filiere ittiche eco-innovative per promuovere sul marcato prodotti ittici ad alto valore aggiunto*/Piloting of eco-innovative fishery supply–chains to market added–value Adriatic fish products – **prof.PhD Eva Merloni, Msc. Nikola Matović**

11:15–11:30 *Il valore nutrizionale dei piatti a base di pesce*/Nutritional value of fish dishes – **dipl.ing. Dragana Milosavljević**

11:30–12:00 Coffee break

12:00–12:15 *Le preferenze dei consumatori rispetto ai prodotti ittici eco-innovativi nel mercato Italiano e Spagnolo*/Preferences towards innovative fish products on the Italian and Spanish market -**prof.PhD Luca Mulazzani**

12:15-12:30 *Le preferenze dei consumatori rispetto ai prodotti ittici eco-innovativi nel mercato Croato*/Preferences towards innovative fish products on the Croatian market - **prof.PhD.sc. Marija Cerjak**

12:30-12:45 *Il percorso verso la gestione della pesca dei piccoli pelagici*/Roads and detours of fishing management targeting small pelagic - **PhD Lav Bavčević**

12:45-13:00 *Innovazioni di processo e di prodotto realizzate nell'ambito del progetto PRIZEFISH* /Innovative process and product projections through the PRIZEFISH project – **mr.sc. Mario Lovrinov**

13:00- 13:15 *Domande*/Questions

13:30-15:00 *Pausa per il pranzo*/Lunch pause

15:00 -15:15 *La manipolazione del pesce a bordo per una maggiore qualità del prodotto finale*/Manipulation of fish on board in search of added quality of the final product - **PhD.sc. Tibor Janči**

15:15-15:30 *La selezione dei piccoli pelagici al fine di preservare lo stock in Adriatico*/Selection of small pelagic fish as a method of preserving fish stocks in the Adriatic - **prof.PhD.sc. Daniel Matulić**

15:30 -16:00 *Domande*/Questions

16.00 *Conclusione* / Conclusion

3.5 ANNEX 5. Consumer preferences and business models for the commercial exploitation of eco-innovative seafood products

LINK: HR Preferences and models for the commercial exploitation of eco-innovative seafood products_hrvatski - YouTube

IT Preferences and models for the commercial exploitation of eco-innovative seafood products_English - YouTube

EN Preferences and models for the commercial exploitation of eco-innovative seafood products_italiano - YouTube

This online training event (held on November 3rd 2021) was specifically organized by Regione Emilia Romagna and University of Bologna to present, in more detail, the results obtained by PRIZEFISH from an economic and business perspective, and their possible marketing application by firms dealing with fish catching, processing and trade. The research carried out has in fact made it possible to improve the knowledge of consumer orientation for fish products in general, as well as for the three eco-innovative products designed and manufactured by the project partners: sardine fillets, clams and burgers with shrimps and mullets ready-to-cook with an extended shelf-life. In addition, strategic guidelines and organizational solutions have been proposed that are useful for fishery firms to seize the opportunities offered by the demand for products with attributes linked to origin, sustainability and ease of use. Some case histories and a pilot action currently underway for the enhancement of fish products through e-commerce tools will be presented.
Participants assisting to the reining event were 30.
The meeting was moderated by Prof. Giulio Malorgio (University of Bologna) and the specific themes discussed were divided in five modules:

1) Consumer preferences of seafood products: results of online chat rooms - Prof. Marija Cerjak (University of Zagreb)
2) Willingness to pay and preferences for eco-innovative fish products in Croatia, Italy and Spain - Dr. Vilma Xhakollari (University of Bologna)
3) Business models for processing-oriented fishing firms - Dr. Luca Mulazzani (University of Bologna)
4) Success stories in the e-commerce of seafood products - Dr. Andrea Forgione (University of Bologna - CREA-PB)
5) The PRIZEFISH app for the commercial exploitation of Adriatic fish - Dr. Cristina Frittelloni (ASSAM - Agri-food Sector Services Agency of the Marche)

Each module was culminated by a set of questions from the participants, with the contribution and moderation of Prof. Giulio Malorgio, and with a very small questionnaire (two questions) addressed to the participants in order to verify their degree of learning. Correct answers were immediately provided and discussed by the panelists.

Emilia-Romagna Region

is pleased to invite you to the Webinar and cross-border training module:

"Consumer preferences and business models for the commercial exploitation of eco-innovative seafood products."

The webinar presents the results of the PRIZEFISH project, funded by the Interreg Italy-Croatia program, with regards to the development of market opportunities by fishing firms in the Adriatic. The research carried out has in fact made it possible to improve the knowledge of consumer orientation for fish products in general, as well as for the three eco-innovative products designed and manufactured by the project partners: sardine fillets, clams and burgers with shrimps and mullets ready-to-cook with an extended shelf-life. In addition, strategic guidelines and organizational solutions will be proposed that are useful for fishery firms to seize the opportunities offered by the demand for products with attributes linked to origin, sustainability and ease of use. Finally, some case histories and a pilot action currently underway for the enhancement of fish products through e-commerce tools will be presented.

AGENDA

Moderator: Prof. **Giulio Malorgio**

15:00 – Welcome and presentation

15:15 - 1° speech - "*Consumer preferences of seafood products: results of online chat rooms*"

- Prof. Marija Cerjak (University of Zagreb)

15:30 - Discussion – Q & A

15:40 - Survey

15:45 - 2° speech - "*Willingness to pay and preferences for eco-innovative fish products in Croatia, Italy and Spain*"
- Dr. Vilma Xhakollari (University of Bologna)
16:00 - Discussion – Q & A
16:10 - Survey

16:15 - 3° speech - "*Business models for processing-oriented fishing firms*"
- Dr. Luca Mulazzani (University of Bologna)
16:30 - Discussion – Q & A
16:40 - Survey

Break

16:55 - 4° speech - "*Success stories in the e-commerce of seafood products*"
- Dr. Andrea Forgione (University of Bologna - CREA-PB)
17:10 - Discussion – Q & A
17:20 - Survey

17:25 - 5° speech - "*The PRIZEFISH app for the commercial exploitation of Adriatic fish*"
- Dr. Cristina Frittelloni (ASSAM - Agri-food Sector Services Agency of the Marche)
17:40 - Discussion – Q & A
17:50 - Survey

18:00 - Conclusione

Registration to receive the zoom link:

https://www.eventbrite.it/e/prizefish-1-november-2021-tickets-198183571397

As soon as you obtain the link of Zoom platform, you will also receive a meeting ID and a mandatory password required to access the meeting.
The registration will be closed on 3rd November 2021 at 4.00 p.m.

Per info e contatti:
benedetta.lapilli@labidee.it

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