

“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

D3.2.2 Report on Consultation Meeting with relevant fishing operators in Croatia

WP3 - Piloting of sustainable and eco-certified fishery productions/ A3.2. Selection of sustainable fisheries and guidelines on how to reach sustainability standards

April / 2020

PP2 – National Research Council
Partners involved: PP1, PP3, PP4, PP6,
PP7,PP8,PP9

Final version
Public document

ORDER	CNR – IRBIM	
TYPE OF DOCUMENT	PROJECT PRIZEFISH - Piloting of eco-innovative fishery supply- chains to market added-value Adriatic fish product REPORT D.3.2.2	
DELIVERY PERIOD	M16	
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1. Introduction

The present report, corresponding to deliverable **D3.2.2 ‘Report on Consultation Meeting with relevant fishing operators in Croatia’** details the outcomes of the second round of Prizefish partners and stakeholders consultations carried out in the framework of the Activity 3.2. **‘Selection of sustainable fisheries and guidelines on how to reach sustainability standards’** of the Work Package 3 (WP3) **‘Piloting of sustainable and eco-certified fishery productions’** of the Prizefish project.

The purpose of the consultation meetings was to understand which are the fishing operators in the Croatian side of the Adriatic Sea potentially interested in entering a new certification process ad-hoc implemented for the Adriatic fisheries. The consultation provided, in addition, information and data regarding the social and economic importance of fisheries at local level and on traditional fisheries skills to be integrated in the ‘guidelines on how to reach sustainability standards’ (deliverable D3.2.3). The consultations have been planned in accordance with the first selection of fisheries carried out in the mapping phase, under Activity 3.1 (See deliverable D3.1.2: Report of the mapped fisheries in Croatia). The meetings have been organised in Porec (Istria County) and in Benkovac (Zadar County).

In Porec, the meeting (February 25th) has been held at the “ISTRA” Fishery Cooperative premises. The Fishery Cooperative ISTRA, partner number 9 of the Prizefish project (PP9), is a leading fishermen cooperative in Istria, founded in 2004 and counting 50 active members and a few more subcontractors. In 2017, it was recognized as a producer organization (OPISTRA) of sole and oyster.

In Benkovac, the meeting (February 26th) has been held at the “OMEGA 3” Fishing Association premises. OMEGA 3, partner number 8 of the project (PP8), was established in 2008 and is specialised in fishing for small pelagic fishes (sardines and anchovies). The catches of the OMEGA 3 members has a significant share in total Croatian catches, where they participate with over 20% of the total national catch of small pelagic fishes. It gathers 16 associates and owns a fleet of 21 vessels. In 2015, it was acknowledged by the Ministry of Agriculture – Directorate of Fisheries, as the first fish organization of producers (PO) in the Republic of Croatia. All the meetings were attended by a mix of fishing operators and scientists.

2. Objectives, tasks and main findings of Activity 3.1: Analysis of state, management and seasonality of fisheries in the Adriatic Sea/ Mapping of Croatian Fisheries

During the meetings a brief overview of the Work Package 3 (hereinafter the WP3) main objectives and first findings was provided to attendees, in order to create the right context for discussion.

The main aim of the WP3 is to integrate the sustainability standards outlined in the most used certification bodies as a tool to drive management and sustainability improvements and transfer best practices. This can be achieved through the development of a new certification scheme for the Adriatic fisheries, whose novelty is the combination of environmental protection with the economic dimension and social aspects. The overall expected outcome is the improvement of Adriatic seafood market by recognizing and rewarding sustainable fishing practices and influencing the consumer choices when buying and consuming seafood, adding a benefit to products from responsible fisheries.

The object of this report falls under Activity 3.2, whose main purpose is the selection of sustainable fisheries and the implementation of guidelines on how to reach sustainability standards. In the framework of such activity, a detailed scrutiny of the fisheries, taking into account also the social and economic importance at local level as well as the traditional fishery skills is planned. The development of precise guidelines on how to reach sustainable standards, which will lead to deliverable D3.2.3: Sustainability guidelines will be customized taking into account the peculiarities of the fishing activities carried out in both sides of the Adriatic Sea.

The aim of the consultation meetings has been to allow understanding of which are the potential operators that are interested in the certification process along the Croatian side of the Adriatic. The selection process starts from a first list of fisheries, pre-selected during Activity 3.1, whose results has been an extensive overview and mapping of all the Adriatic fisheries, according to available statistics and providing data on the most important association gear/species, ending up with a first list of the most important fisheries for the Croatian side of the Adriatic Sea (deliverable D3.1.2: Report of the mapped fisheries in Croatia).

The list (table 9 in the D 3.1.2 Report) includes the top-20 species in terms of value (average 2015-2016 data), among which, the most important (first two) are Deep-water rose shrimp fished by bottom otter trawl and Common sole fished by trammel nets.

Considering their potential high value on the market, in addition to the top-20 species in terms of value, the following fisheries have been added as potential source of eco-labelled products: the European pilchard (=Sardine) and the European anchovy both fished by purse seines. Such fisheries have been selected, taking into account, the biology of target species and the selective characteristic of the fishing method.

3. Overview of current fishing with a focus on the key fisheries identified as fisheries of interest under D3.1.2

In the following paragraphs, details will be provided on the outcome of the two consultation meetings held in Croatia in the week commencing the 23th of February 2020.

3.1. ISTRRA consultation meeting

Date: 25th of February 2020

Location: Ribarska Zadruga Istra, MATE VLAŠIĆA 24/B, Porec

Attendees: CNR-IRBIM (PP2), POSEIDON (external expert), ISTRRA (PP9).

ISTRAPO counts of 50 members and few more subcontractors, with 45 boats (15 are 12-15m and 30 are under 12m in length). These fish mostly with 'rampon' (beam trawl) and bottom otter trawl. Some fishermen work seasonally (December -February) using also trammel net, switching between these gears day to day. Member vessels agree to sell at least 80% of their catch through the PO, but this is difficult to enforce in practice. They supply the boats with ice to encourage good catch handling and selling back to the PO. The PO handles and freezes much of the landings, supplying HORECA (140 restaurants). Demand increases in the summer when there is less fish (as well as less fishing with some busy in the tourist trade) so freezing balances out supplies. Boats get a mix of shellfish, mainly musky octopus, cuttlefish, queen scallop (sort, clean and freeze) and grey mullet (fillet and freeze), red mullet (head off frozen) and sole (whole frozen). Also whatever other species are landed by the member boats.

Ninety percent (90%) of the PO's throughput is from these vessels, but the PO also buys other species from outside this group, including the deepwater rose shrimp from another company, Peter Pan, based further south, that fish with 5 vessels that are over 15m in length. Members of Peter Pan ? would like to invest in bigger boats that are less weather dependent, but at present time it could be too expensive. As regards surveillance, control and data collection is considered to be relatively good in Croatia – all quantities have to be reported even if below 50kg – but some is likely to be sold direct to restaurants by vessels.

During the consultation meeting, ISTR A confirmed that they are enthusiastic to enter in the eco-labelling process developed in the framework of Prizefish, with an interest in progressing these fisheries agreed under the project, in particular: **common sole (*Solea solea*) by trammel net, deep water rose shrimp (*Parapenaeus longirostris*) by trawl and musky octopus (*Eledon moschata*) by rampon.**

Common sole by trammel net

ISTR A boats engaged in common sole fishing using trammel nets go three miles far away from the coasts during the fishing season, generally overnight. Some of these boats operate in Porec, others in Pula. They use trammel nets or rampon, but not the same days: there is no significant difference in the commercial value of soles fished with the two different instruments. Trammel nets are lost rarely, and have relatively low impact on protected/vulnerable species and in terms of unwanted catches. Key markets are local restaurants (domestic demand) and Italy (as export). Three to six fishermen per boat are locals, but probably in the future more people from Philippines and Nepal will be hired onboard. Boats are manufactured in Italy whereas trammels are bought from local shops.

Deep water rose shrimp by trawl

ISTR A purchases deep water rose shrimps (fresh not frozen) from the fishing Company 'Peter Pan' based in Rijeka, whose vessels operate also in Zadar and Split. Afterwards, shrimps are sold to local restaurants or processed through a de-shelling machine, for the production of Shrimp burgers'.

Musky octopus by rampon/trawl

As regards musky octopus fished by rampon or trawl, ISTR A expressed its intention to start the production of processed food, such as 'octopus salad' or 'octopus burger', which could benefit from a certification scheme developed in the framework of Prizefish.

However, this fishery, especially when carried out with rampon has a great potential impact on the sea bottom both on benthos and other demersal non-target species. the framework of a PILOT

PILOT ACTION: CNR-IRBIM will provide during RP4 modified rampon produced by a manufacturer in Italy who is expert in producing low impact gear with specific features that would reduce the impact on benthos and non-target species but having similar fishing yields for target species as musky octopus. The modified gear would also improve the fuel use/efficiency.

Further information about the three fisheries agreed with Istra is presented in the table below.

Table 1 - Fisheries agreed with ISTRA

Criteria	Common Sole with trammel net	Musky octopus with rampon	Deepwater rose shrimp with trawl	
Economic	Commercial interest (current value)	160t in 2016, which has decreased	Over €1m/yr for whole of HR Istra PO approx 40t/year	300-500kg per year of tails at €12-13/kg, whole €3/kg
	Potential value (opportunity to grow)	Depends on the stock – annual survey & stock assessment	Good for market growth but quantities difficult to forecast.	From Peter Pan vessels landing in Zadar and Split. More could be purchased
	Key markets (export, regional, domestic)	Direct sales to restaurants up to €20/kg, to Italy it is €12.90 for large	Freeze and sell locally and to Italy.	
	Market potential (what could be developed)	Price for trammel caught sole is higher in some markets (0.50 to 1/kg). sold on quality in IT, not sold as HR fish.	Added value product	Added value product
	Added-value (potential product development)	Whole fish, but frozen.	Octopus salad or 'octopus burger'	'Shrimp burgers' using de-shelling machine (creates 'pulp' not whole tail): a 40/60 mix with frozen hake (import)
	Environment	Selectivity (extent of by-catch)	TBC – mullet and other fish species. Bigger mesh size used in HR than IT.	Rampon – oyster, Q scallop, cuttlefish and some ray species. Trawl- red mullet, cuttlefish & whiting. PILOT

Social			ACTION foreseen	
	Selectivity (extent of unwanted catch)	little unwanted catch	Catch used, but not very selective	TBC
	ETP impacts (protected/vulnerable species)	Dolphins take some catch, but do not get entangled	Possible ray/shark species	Possible ray/shark species
	Habitat impacts (type and severity)	limited as static gear	Expected to be significant PILOT ACTION foreseen	Expected to be significant
	Fleet performance (fuel use/efficiency)	Good as static gear, nearby	Could be improved PILOT ACTION foreseen	Could be improved
	Fleet performance (waste management)	Not deepwater, but risk of ghost fishing	Gear loss not a big issue	Gear loss not a big issue
	Fleet Interest (in project participation)	High, but a very seasonal fishery		TBC – interest of buyer (Istra)
	Governance (extent & efficacy of management)	Relatively limited – Med Reg and proposal for sole sanctuary in N Central Adriatic. Each f'man has own area to avoid gear conflict.	Relatively limited – Med reg and specific Croatian regulation.	Relatively good. GFCM demersal MAP and Pomo pit management area.
	Fair labour (ILO requirements)	Salary is good, but a hard job: mix of min fixed salary and catch bonus	Salary is good, but a hard job: mix of min fixed salary and catch bonus	TBC
	Jobs supported (fishing)	3 to 6 per boat all local, but problem to get locals.	3 to 6 per boat all local, but problem to get locals.	TBC
	Jobs supported (supply chain)	19 in Istra PO Many in tourism	19 in Istra PO Many in tourism	TBC
Small-scale fishers (participation)	Many would be	Some are SSF	Not SSF	

		considered SSF	
Cultural importance (traditional/iconic fishery for the area)	yes	Yes – octopus important locally	limited

3.2. Omega 3 consultation meeting

Date: 26th of February 2020

Location: FC OMEGA 3, Ind. zona Šopot bb, 23 420, Benkovac

Attendees: CNR-IRBIM (PP2), POSEIDON (external expert), ZADAR COUNTY (PP1), OMEGA (PP8).

OMEGA 3 has 16 members owning 21 vessels, accounting for 20-25% of the Croatian catch of sardine and anchovy. Most of them are from the famous fishing island of Kali. It operates a factory employing 88 people on a permanent basis that has a 7,000t storage capacity and 5t/hour max throughput.

Vessels fish 120 days per year as per the management plan, but this can be further limited by weather. In 2014 the total small pelagics catch in the North Adriatic was 71,000t which has been reduced year on year, at 63,000t last year (2019) and is intended to reach 60,000t by 2021.

The consultation meeting focused on small pelagics caught by purse seine.

OMEGA 3 insists that the vessels ice their catch, which if good quality can go to IQF for the factory. A small proportion (4%) still goes as feed to the tuna farms at a much lower price (€0.3-0.4 per kg compared to €0.8 for Omega 3 use). Each boat lands 4-5 tonnes with 8-12 crew depending on size of vessel. 80% of the catch is sardine, 20% anchovy with small catches of other species (e.g. locada, *scomber japonicus*).

Table 2 - Seasonality of catch 2019
(in May the fishery is closed for spawning season)

January	0
February	143
March	830
April	832
May	0
June	473
July	383
August	645
September	857

October	1092
November	661
December	685
total	6,600

During the consultation meeting, OMEGA 3 confirmed their enthusiasm to participate in Prizefish with the fishery of the two small pelagic species sardine (*Sardinapilchardus*) and anchovy (*Engraulisencrasicolus*) both fished by purse seine.

With reference to sardine purse-seine fishery, in June 2017, Omega 3 signed a Memorandum of Understanding with WWF Adria and the Ministry of Agriculture of Croatia (Directorate of Fisheries) for the 'Adriatic small pelagic fishery improvement project' – (GSA 17 and 18) fisheries improvement project (FIP). During the period from May 2018 through May 2022, the project will address the following objectives:

- Achieve MSC certification for the Croatian small pelagic purse seine fishery
- Establish co-management principle in managing small pelagic fishery at Croatian national level in order to ensure better compliance between authority, industrial and scientific sector
- Reduce fishing mortality to support stock rebuilding, while maintaining livelihoods
- Develop a socio-economic study in order to determine vessel income and profitability in relation to catch size and fish quality
- Support Croatian small pelagic fleet to reduce catch and improve quality
- Improve/establish market access for premium fish
- Develop better infrastructure for ensuring premium fish at landing sites
- Improve stock assessment and management strategy through supporting ongoing improvements in the methodology for the regional stock assessment and setting of the management targets for the stock
- Develop a national data assessment as a mean to add value to the regional stock assessment process
- Adapt fisheries management measures based on new regional management strategy
- Improve information for stock assessment and adaptive management through ensuring a better understanding of the collection, analysis and interpretation of fisheries data as well as stock assessment techniques
- Improve knowledge of sardine role in the ecosystem, evaluate key LTL status of sardine
- Record information on discards (slipping) and interactions with ETP species through development of data collection protocols, observer programme
- Put in place additional management measures if mortality rates of ETP species are too high.

Therefore, the development of a certification process ad-hoc implemented for the Adriatic fisheries in the framework of the Prizefish project must be interconnected with the FIP objectives. In addition, during the meeting it was stressed that that the Prizefish certification process could ‘anticipate’ at regional level some elements increasingly included in MSC standards, such as social aspects and new issues related to environmental protection (e.g. reduction of marine plastic waste). Finally, developing regional, responsible fisheries standards could support tourism development, which is one the first economic sector in Croatia.

Further information about the three fisheries agreed with OMEGA 3 is presented in the table below.

Table 3–Fisheries agreed with OMEGA 3

Criteria		Sardine with purse seine	Anchovy with purse seine
Economic	Commercial interest (current value)	€4 million based on 80% of O3 throughput	€1 million based on 20% of O3 throughput
	Potential value (opportunity to grow)	Aim to increase in price to €1/kg for fishermen (20%) and far more with fresh markets	See sardine – but lower price
	Key markets (export, regional, domestic)	1. Spain, 2. Portugal 3. Croatia 4. Greece 5. Italy	
	Market potential (what could be developed)	Fresh market, branded local product, HORECA and retail segment (canning has declined and Adria factory closed)	
	Added-value (potential product development)	Looking at MAP to enable longer shelf life (2 days) for fresh product to be sold in these markets.	
Environment	Selectivity (extent of by-catch)	Use of small pump system for catch enables more selectivity (exploring survivability). Improves quality, animal welfare and 1 less crew needed	
	Selectivity (extent of unwanted catch)	Very limited – clean catch often a	

Social		sardine/anchovy mix
	ETP impacts (protected/vulnerable species)	Dolphins are said to be an issue to fishermen as scare fish and can break nets, but say they are not caught.
	Habitat impacts (type and severity)	None- pelagic fishery
	Fleet performance (fuel use/efficiency)	Very good kilo protein to energy ratio compared to other food production
	Fleet performance (waste management)	V little gear lost as purse seine where keep hold of the net. Polystyrene box use could be explored.
	Fleet Interest (in project participation)	Very high – strong interest in MSC certification and working with WWF Adria to progress
	Governance (extent & efficacy of management)	N Adriatic small pelagics management plan shows more in place than most other stocks, but current impasse. Omega 3 management of own fleet is strong – could apply own measures if necessary.
	Fair labour (ILO requirements)	Getting local crew is an issue (so reducing crew by 1 with pump is not negative) and looking to neighbouring countries. Pay is good, but hard work. All have contracts.
	Jobs supported (fishing)	160-200 in the fishery.
	Jobs supported (supply chain)	88 in the factory Others in upstream and downstream sectors.
Small-scale fishers (participation)	Not considered small scale	
Cultural importance (traditional/iconic fishery for the area)	Strong history with this fishery. Local seafood festival developed by FLAG.	

4. Conclusions: rapid assessment of fisheries of interest

According to what reported in the previous paragraphs, a first assessment of the all above mentioned fisheries against the main aspects (economic, environmental and social) has been carried out. For all the fisheries taken into account there is a clear interest in improving the economic performance, most of the time held back by very low prices, consequence of a very fragmented marketing system. In particular, there is an interest in incrementing product added-value, in some cases (deep water rose shrimp by trawls and musky octopus by rampon) also through the development of new processed products that could be supported by a new certification process developed in the framework of Prizefish. Market potential is high also as regards fresh market.

From an environmental point of view, the analysed fisheries have a relatively good performance in terms of responsible fishing practices. Fisheries as trammel net for sole and purse seine for small pelagics are quite selective and in general have a low impact on the environment. The pilot action could potentially improve the rampon fishery.

As far as the social dimension, at a first glance all the fisheries comply with the main security and health requirements. Furthermore, some of the fisheries have a strong cultural component, being in most cases traditional fisheries or iconic for local consumers. Local seafood festival is organised, for instance, by FLAGs for small pelagics. Octopus by rampon and shrimps by trawls are also important locally. As far as the governance aspects, there is a good evidence of efficacy for demersal fishery management measures as the Pomo pit permanent closure.

Therefore, all the fisheries (intended as species/gears combinations) analyzed in the previous paragraph can be considered as relevant and potentially interested in the certification process developed in the framework of the Project, as regards the Croatian side of the Adriatic Sea.

During the meeting, in addition, a very first draft of the standards that will constitute the core of the certification proposed by the project was presented to fishing operators. The standards cover the three dimensions: economic, environmental and social (Table 4).

In conclusion, the fisheries that will be further scrutinised in the framework of activity 3.3 and for which pre-assessments (Deliverable 3.3.3) will be carried out are:

- purse seine targeting European anchovy and/or European pilchard(=Sardine);
- trammel net for common sole;

- Beam trawl (rampon) for musky octopus;
- Bottom otter trawl for deep-water rose shrimp;

Other fisheries in Croatia would be further considered, in the case other partners will evidence such need.

Table 4 – Draft of the criteria presented to fishing operators during the consultation meetings

Dimensions	Criteria
Economic	Commercial interest (current value)
	Potential value (opportunity to grow)
	Key markets (export, regional, domestic)
	Market potential (what could be developed)
	Added-value (potential product development)
Environment	Selectivity (extent of by-catch)
	Selectivity (extent of unwanted catch)
	ETP impacts (protected/vulnerable species)
	Habitat impacts (type and severity)
	Fleet performance (fuel use/efficiency)
	Fleet performance (waste management)
Social	Fleet Interest (in project participation)
	Governance (extent & efficacy of management)
	Fair labour (ILO requirements)
	Jobs supported (fishing)
	Jobs supported (supply chain)
	Small-scale fishers (participation)
	Cultural importance (traditional/iconic fishery for the area)

5. Site visits

After the meeting the conveners have allowed attendees to visit the sites. In Porec, attendees were able to visit the fishing ships in the port and the ISTRA plant where fish is subject to different treatments: cleaning operation, refrigeration, packing.

In Benkovac, it was possible to visit OMEGA 3 premises and to have a look at the processing operations.



Fig. 6.1. - Meeting at ISTRA premises and visit at the Porec fishing port

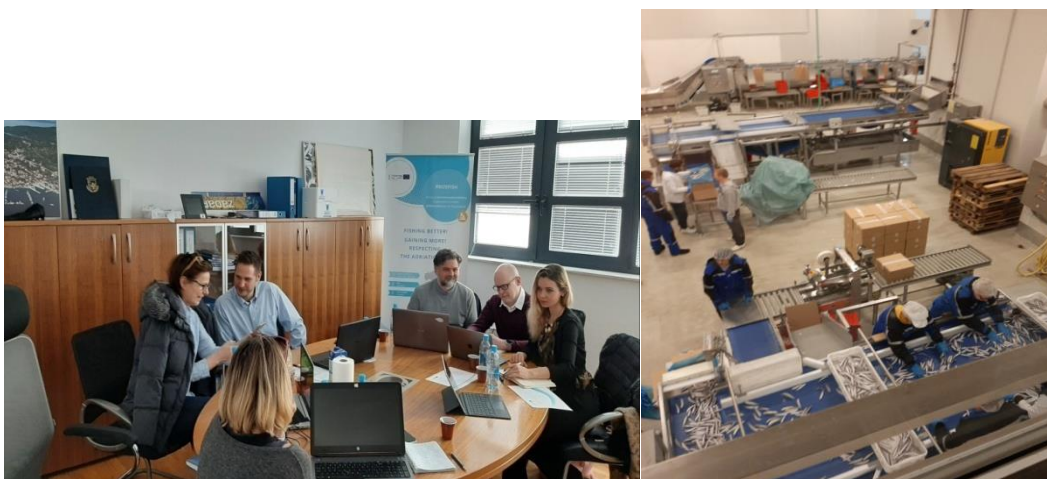


Fig. 6.2. - Meeting at the OMEGA 3 premises and visit to the processing plant

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