



# **GENERAL FISHERIES COMMISSION FOR THE MEDITERRANEAN COMMISSION GÉNÉRALE DES PÊCHES POUR LA MÉDITERRANÉE**

**DRAFT**

## **ENHANCING SMALL-SCALE FISHERIES VALUE CHAINS IN THE MEDITERRANEAN AND BLACK SEA**

*Thematic session IV – part 2*

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## INTRODUCTION

The maintenance of small-scale fleets is a widespread policy objective in many countries. In fact, small-scale fisheries contribute about half of global fish catches and employ over 90 percent of the world's capture fishers and fish workers; considering also fish processing and other related jobs, about half of the persons employed are women (FAO, 2013). In many marginalized coastal areas of the world, small-scale fisheries represent a key economic activity of direct and indirect employment and provide nutritious food for local population. Furthermore they tend to be strongly anchored in local communities, reflecting often historic links to adjacent fishery resources, traditions and values, and supporting social cohesion. In contrast, in some regions, such as in EU, regional income and employment generated by small-scale fisheries is very low compared to the other economic sectors (Macfadyen et al., 2011).

Despite the marginal impact on the economy and the general trends indicating that fishing activity (especially small-scale fisheries) is decreasing in EU, the recognition of the social and cultural role of small-scale fishermen was explicitly included in the European Commission's Green Paper on the Reform of the common fisheries policy (CFP). On the other hand, existing data (Sacchi, 2011) seem indicating that the fleets of Middle Eastern and North African countries have tended to grow, in line with the development policies of these countries.

Actually, knowledge of small-scale fisheries is still limited, especially in the case of non-EU countries. In the EU, however, only a few case studies have been well documented, while most of the statistics can show only limited and aggregated indices of production and effort. Thus, we can see that the EU small-scale fleet has declined by 20 percent in terms of numbers of vessels over the last 10 years, to just over 70 000 vessels. Greece (23 percent), Spain (11.3 percent), Portugal (11 percent), Italy (13.3 percent) and France (8.8 percent) account for the largest share of the total small-scale fleet (Macfadyen et al., 2011).

The total value of landings of the fisheries sector in EU-27 was estimated at about Euro 7.9 billion, of which Euro 2.1 billion (27 percent) was produced by small-scale fisheries. Between 2006-2008, small-scale fisheries employed on average around 90 000 people, compared to some 78 000 on board of vessels over 12 meters of length overall. The average value of landings per person employed was about Euro 23 000, while the larger vessels achieved a turnover of Euro 75 000 per employed person. This seems to indicate that part-time employment is quite wide spread within the small-scale fleet (Macfadyen et al., 2011).

There are no many information about complementary activities carried out by the fishermen; one useful source is the FAO Regional Project COPEMED<sup>1</sup>, which produced a comprehensive listing of all the communities performing artisanal fisheries in the Western and Central Mediterranean including their localization, description, practices, pictures and some other ancillary information (Coppola, 2006). Actually, this study reports that Mediterranean artisanal fishermen fish mostly throughout the year; more than half of them (54.4 percent) reported no interruptions in their activity. On the other hand, there are important cases where fisheries is not the only activity realized by fishermen, as in the case of Nador Lagoon (Morocco) where a little of agriculture is realized, or in Dikky (Morocco), where a cooperative of fishermen-beekeepers has been created, while a specific project has been developed for women groups in fishing correlated activities (sardines processing) or in independent activities (weaving).

Aggregate EU statistics also indicate that most of the vessels below 12 meters of length overall use passive gear (about 73 percent); differences however can be significant on a country by

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<sup>1</sup> Coordination to Support Fisheries Management in the Western and Central Mediterranean (COPEMED).

country basis. The use of passive gear is generally considered important to reduce the negative impacts of fisheries on the environment (i.e. by-catches and effects on sea bottom). In this perspective small-scale fisheries have a positive ecological function compared to other fisheries.

A study realized for the EU Commission (IFREMER coord. 2007) on nine small-scale fisheries, of which only two are from the Mediterranean Sea (one in Greece<sup>2</sup> and the other in Corse<sup>3</sup>), can provide some more detailed data:

- Average age of vessels is 23 years (25 in Greece, 26 in Corse), that is just a little higher than large scale vessels in the same areas (22 years)
- Average crew is 2 (1.8 in Greece, 1.3 in Corse), compared to 5.3 of large scale vessels in the same areas.
- Average age of vessel owner is 46 (52.3 in Greece, 49.1 in France), higher than in large scale fisheries in the same areas (42.9).
- Average gross revenue per boat is €61 000, but extremely variable depending on the fishery (in Greece €7 000-25 000 depending on the vessel size); in the same areas revenue for large scale vessels is €356 000.

Differently from expectation, the multispecificity of EU small-scale fisheries (always considering the 9 cases of IFREMER coord. 2007) is limited; all extra-Mediterranean cases depend on 1-3 species (number of species representing 70 percent of the revenue), and only for the Greece and Corse cases the fisheries depends respectively on 8 and 5 species.

PlanBleu (Sacchi, 2011), collecting several international and national sources, stated that the total number of small-scale vessels in the Mediterranean Sea (including EU and non-EU States, Black Sea is not considered) in 2008 was 68 100 (83 percent of total vessels), with the most large fleets found in Greece, Tunis, Italy and Turkey (together these nations represent 63 percent of the small-scale Mediterranean fleet). Bulgaria and Romania jointly count another 3 150 boats. Number of fishermen in small-scale fisheries was around 136 900 in the Mediterranean (55 percent of total) mostly employed in Tunis (36 100 fishermen), Greece, Italy, Algeria and Turkey. The mean number of fishermen aboard small-scale vessels was (depending on country) included between 1 and 5. Larger crews were found in Morocco, Tunis, Palestine (4 fishermen) and Algeria (5 fishermen).

As observed in the literature, small-scale fisheries generally attain higher prices than large-scale fisheries. This may be explained by both the differences in quality, linked to the freshness of the products and trip duration, by the marketing channels but also by the steps taken to better identify the products. The relatively low quantities landed by most small-scale fisheries also allow the crew to devote more time to cleaning and preparing the landings for favourable presentation and that is likely to be more richly rewarded products. Distinctions, however, should be made case by case: in fact, the small size of the vessels may inhibit on-board handling and storage facilities and that may have negative connotations, which might even reduce the quality of the product. In other cases, the absence of appropriate infrastructures in the fishing ports may have the same results, determining a first weak point of small-scale fisheries products in the value chain. Marketing channels for some live products are logistically difficult requiring significant investment in on-board but especially on onshore storage facilities. Finally, in some cases, that large volume of landings of large-scale fisheries on the markets may seasonally have a significant impact on the price of the products also landed by the small-scale fisheries. Price impact of illegal landings is not to underestimate, too. In other cases (where product is addressed to export), price of products is subject only to international price drivers (IFREMER coord. 2007). We cannot forget that the Mediterranean area (as well as the

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<sup>2</sup> Mesolonghi Lagoon and Gulf of Patras small-scale fishery.

<sup>3</sup> Spiny lobster and finfish netters of southern Corsica.

EU) is more and more dependent on import of fish from other regions, with clear repercussions on all prices.

It is also important to state that, using FAOSTAT and World Bank data, PlanBleu (Sacchi, 2011) found that the total self-sufficiency degree of Mediterranean countries (including aquaculture production) was 69 percent; only 3 countries resulted to be self-sufficient and were Morocco (313 percent, thanks to the Atlantic production), Turkey (112 percent) and Egypt (108 percent). The mean consumption of aquatic produce in Mediterranean countries was 18.6 kg per capita. Six countries were above this average: Spain (40 kg per capita), France (35 kg per capita), Malta (30 kg per capita), Italy (24 kg per capita), Croatia (23 kg per capita) and Greece (21 kg per capita) (Sacchi, 2011). These data seem to attest that fish can be considered a food for high income population. Furthermore, while Turkey, Algeria, Syria and Morocco are strong consumers of pelagic fish (characterized by lower prices), EU countries like Spain, France and Italy consume more demersal species.

The scarcity of resources, the low investments of small enterprises, the weak market position, the sanitary and safety problems linked to new distribution markets, are all elements causing important difficulties for small-scale fishermen. Thus, against the high number of enterprises abandoning the fishing sector, we can see several attempts of diversification and reconversion, in order to generate alternative and/or integrative forms of income (e.g. fishing-tourism). This can also be a way to put in more contact fishermen and community at large. A large diffusion of the culture and tradition linked to the fishing activity in Mediterranean areas is, in fact, considered essential for a higher appreciation of fish products (and thus to get higher prices) and for the development of extra-fishing activities in coastal areas. Finally, fisheries development should be a part of a larger development strategy of the coastal areas, finding all possible synergies with the other marine and maritime sectors.

On the other hand, it is important to give specific emphasis to those remote areas where alternative activities to fishery are not easily identifiable, and where small-scale fishing still represents the main or even the only work opportunity. In this case, it is possible to consider the relevance of both infrastructures for the integration of landings in the market (i.e. development of auctions, vertical and horizontal cooperation), and infrastructures for improving the quality of life of fishermen communities.

## **A. INVESTING IN QUALITY IMPROVEMENT: QUALITY OF LIFE OF SMALL-SCALE FISHERS**

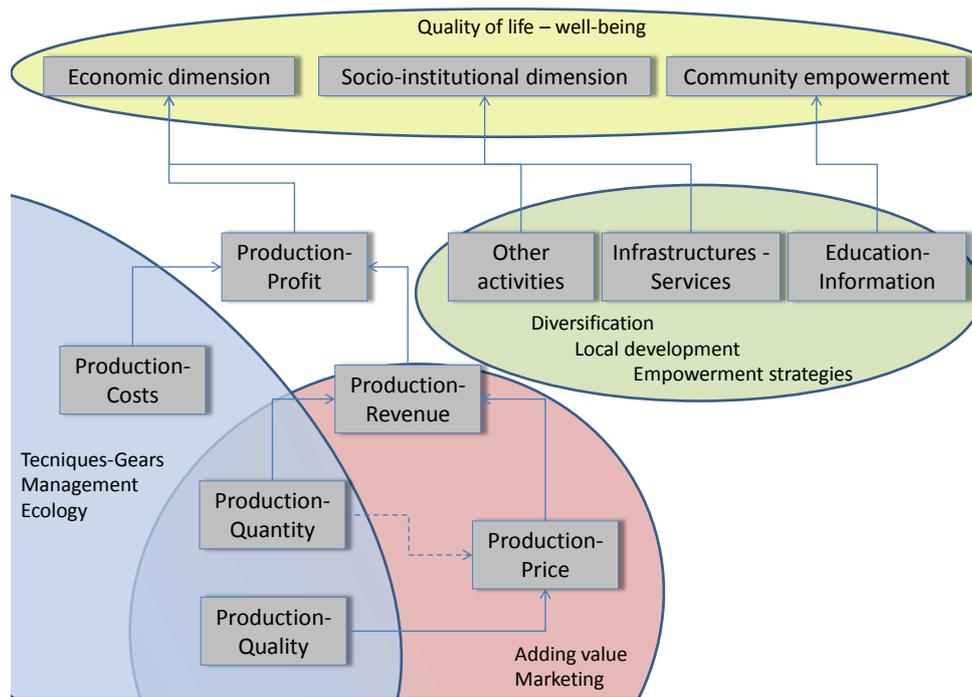
Frequently, when the well-being of fishermen is discussed, the main preoccupation is finding a way to increase fishermen income. In EU, the gross value added (GVA) per employed in small-scale fisheries is around the half of the GVA generated by the large-scale fisheries, and around 18 percent compared to the GDP (14 percent in Spain, 26 percent in Italy) generated by persons employed in coastal areas (Macfadyen et al., 2011). This low earning capacity is negatively affected by a high level of part-time employment and by the low capital intensity of this activity. Broadly speaking, small-scale fisheries are characterized by low levels of investments at any level of the value chain, which include pre-harvest, harvest and post-harvest stages. On one hand, this low level of investments is probably a characteristic allowing a higher adaptability and resilience of fishing communities, because economic risks are reduced and there are fewer restraints in work mobility. On the other hand, low investments involve difficulties in getting new technologies and consequently low productivity and low capacity to meet market requirements. Young people are then few attracted by traditional fisheries and are led to find new opportunities in other activities and other regions (urbanization).

In a technical perspective, strategies to increase fishermen incomes mainly entail actions leading to higher production and lower costs through, for example, sustainable management of fish resources, and/or technological improvements (this issue will not be part of this paper). In a marketing perspective, increased income can be the result of higher product prices, through some specific strategy allowing increasing the added value of the raw material (e.g. processing, direct sale, labelling, etc.); in a different perspective (local development), increased income can be the result of integrating fishing incomes with other economic activities (diversification).

On the other hand, economic issues are just a part of fishermen well-being. As attested by FAO (2013), where poverty exists in small-scale fishing communities, it is of a multidimensional nature and is not only caused by low incomes but also due to factors that impede full enjoyment of human rights including civil, political, economic, social and cultural rights. Small-scale fishing communities are commonly located in remote areas and tend to have limited or disadvantaged access to markets, and may have poor access to health, education and other social services. The opportunities available are limited, as small-scale fishing communities may face a lack of alternative livelihoods, youth unemployment, unhealthy and unsafe working conditions, forced labour, and child labour (FAO, 2013).

Gender mainstreaming should also be an integral part of all small-scale fisheries development strategies, and policies should recognize the fundamental importance of capacity development for empowering small-scale fishing communities and creating an enabling environment that allows them to effectively participate in decision-making (FAO, 2013). Under this framework, we will discern in this paper between actions improving the socio-institutional environment, and actions aimed to community empowerment. Improvements of the socio-institutional environment entail an external (institutional) actor which directly supply a new (or improved) service or some infrastructure. Community empowerment, on the other hand, entails encouraging and developing the skills for self-sufficiency, with a focus on eliminating the future need for external aid in the individuals of a group (Iscoe and Harris, 1984; Zani, 2012). While some specific objectives regarding the quality of life (e.g. the physical and institutional structure of a new fish market) can be obtained with both tools, the deep purposes are completely different: in fact, the first way consist of a top-down approach directly providing the improvement needed (e.g. the market), or supposed to be needed; community empowerment, in contrast, provides the education, information and know-how needed to understand that an improvement is needed (the market) and the capacity to realize it. Intermediate forms of external aid and community empowerment are possible; in other cases, infrastructures and services can be realized exclusively by the public authorities (e.g. schools, hospitals) but empowerment can be important in order to activate people to demand for their rights.

Several non-economic improvements can be though for fishermen communities; two broad areas are distinguishable: a first area is specific to fishermen and their activity; the second area is shared with all members of the coastal community. In the first area we can consider work conditions on vessels, including security. It is quite clear that, the incomes being equals, fishermen can improve their quality of life if vessels are improved or are better equipped to reduce accidents. This is particularly true for small-scale fisheries, where boats are frequently old, lack wheelhouse, electronic and deck equipment (such as GPS, radar, sounders and hauling devices), and where engine power is low and crews are very small (sometime only one person). However, statistical knowledge on accidents and safety risks is very limited, in EU too.



**Figure 2. Drivers determining the well-being of fishing communities (author elaboration).**

Specific inland investments and infrastructures facilitating work conditions of fishermen include the state of moorings, markets, and warehousing services. Here we are moving towards investments that can also have an economic impact on fishermen activities in addition to simplify landing and selling. States should also support the development of other services that are appropriate for small-scale fishing communities such as savings, credit and insurance schemes, with special emphasis on ensuring the access of women to such services (FAO, 2013).

Community empowerment entails that specific results can be obtained through courses and training instead of capital investments. Human capital can be improved thank to courses on many different aspects, from technical and marketing issues to administrative steps for the creation of a cooperative. One empowerment typical strategy is to assist marginalized people to create their own organization, using the rationale that only the marginalized people, themselves, can know what their own people need most. We will back to several forms of profit and non-profit organization in the last section of the paper.

Another important aspect related to the quality of life of fishermen is the social insurance system which includes the pension system, the unemployment assistance, and rights related to maternity/paternity, incapacity, death and work-related accidents. In this case, the external intervention of the state is essential, but empowered fishermen organization can lobby for their rights. All these elements are quite unknown, especially for developing countries.

It is important to state that access to immaterial services and civil rights such as unemployment assistance, social security schemes, and credit facilities are key elements for breaking the vulnerable condition of fishing communities. Finally, broader actions realized for improving the quality of life of coastal communities have also an important impact on fishermen, their families, and their decision of continuing fishing and not moving to a large city. Again, investments can me in material (infrastructures), non-material (improved services) and empowering (alphabetization programmes) assets. This is a crucial element if we do not want to see a constant emigration process from marginal to urban areas, especially of young people.

## **B. ASSESSING EXISTING STRUCTURAL AND COMMUNITY NEEDS AND SOCIO-ECONOMIC APPROACHES TOWARDS MULTIFUNCTIONALITY AND DIVERSIFICATION**

Many steps have been carried out in fishery policies to preserve fish stocks and fishery industries but, despite this, most predictions suggest that the number of fishermen and women who can make a living from fishing alone is likely to continue to fall, due to both biological constraints and competition from external markets (FARNET, 2011a). Furthermore, the development of new coastal and maritime economic activities, through increased pressure on land prices, competition for the use of the sea and lobbying, can mean that fishermen become marginalized and isolated.

However, many economic activities have been undertaken at the local level and by individual operators of small fishing independently, and previously by the guidelines and measures taken by the authority. The simplicity of the technique of production and the level of involvement in employment has led fishermen to combine activities with other economic activities in the coastal area allowing on the one hand the opportunity to supplement familiar income, and on the other to guard the coast.

For these reasons, it is important that, for a sustainable development of fisheries areas, strategies for the diversification of the fishermen economies be included and the multifunctionality of fishing activity be recognized.

While multifunctionality (a term taken by the agriculture sector) refers to the existing non-trade benefits of fisheries, that is, benefits other than commerce and food production, diversification entails the decision of fishermen to change something in their economic activity as far as undertaking a new work outside the fisheries sector.

### ***Multifunctionality***

Multifunctionality is a quite new concept in fisheries. The key elements of multifunctionality, taken by the agriculture discussion, are (OECD, 2001): i) the existence of multiple commodity and non-commodity outputs that are jointly produced; and ii) the fact that some of the non-commodity outputs exhibit the characteristics of externalities or public goods, with the result that markets for these goods do not exist or function poorly.

In the case this concept were accepted for the fishing sector such as for agriculture, a policy issue would arise in governments to ensure that the non-commodity outputs correspond in quantity, composition and quality to those demanded by society.

The principal issue on the production side of multifunctionality concerns the nature and degree of jointness in the production of commodity and non-commodity outputs. If production were non-joint, the non-commodity outputs (externalities) could be supplied independently of fisheries commodities, and domestic non-trade concerns could be pursued irrespective of trade considerations (OECD, 2001). The question is: do small-scale fisheries provide non-commodity outputs (positive externalities)? Actually, this issue has been largely debated neither in academic nor in political environments. Employment and food security concepts can be easily taken from discussion on agriculture and should be debated in the same way. Are there other non-trade benefits more directly linked to the fishing activity? A preliminary classification of the functions of small-scale fisheries could be as follows:

Food production: this function clearly concerns a tradable commodity but also entails non-trade aspects such as food security and food safety.

Environmental functions: small-scale fisheries are linked to positive externalities (or reduced negative externalities) on environmental issues.

Territorial functions: small-scale fisheries allow the monitoring of the sea, preserve cultural traditions and contribute to socio-economic development of coastal communities.

Social functions: it concerns impacts that help improving the local quality of life in coastal communities, including employment and reduced emigration rates.

We will discuss briefly these last three functions with some example.

### *Environmental functions*

Do fishermen provide positive externalities on environment issues, especially on non-target species and on sea-bottom? Differences with agriculture and forestry are clear, since fishermen cannot have a major direct influence to increase fish stocks; they can only affect the size and development of fish stocks through adjustments in the harvest quantity and indirectly through the impacts of their harvesting methods on the aquatic ecosystem (OECD, 2001). Secondly, while each plot of land in farming and forestry is generally tied to a single enterprise, which has well defined property rights on this resource, fisheries are often managed as a common-property resource with access for a certain number of users. In other words, failing well-defined property rights on resources and aquatic spaces (i.e. Territorial Use Rights Fisheries - TURFs), it is not clear if fishermen can claim some right for the preservation of resource and the environment. Have they to be rewarded for using less intensive techniques or have they simply to respect specific limits in order to preserve public resources? For example, assuming that small-scale fisheries have less impact on the environment than large-scale fisheries, should citizens and governments compensate small-scale fishermen in order to avoid that they are substituted by more impacting industries?

Until now, it seems that these arguments have not found large consideration. Actually, in the real world, only few and well specified environmental functions have been considered worthy of compensation by a few countries. The French government introduced in 2008 the Blue Contracts scheme (Contrats Bleu), based on the concept of the agri-environmental measures of the Common Agricultural Policy (CAP), in order to encourage a more sustainable and responsible approach to fishing. Within this framework, fishing vessels are compensated for undertaking certain measures that contribute to a more sustainable fishing or to the protection of the marine environment. Measures included in the blue contracts fall into three categories: partnerships between fishermen and scientists; adoption of more sustainable fishing practices; environmental protection, such as clean-up activities (FARNET, 2011a).

### *Social and territorial functions*

Another externality, which evokes parallels to multifunctionality in agriculture, is the economic and employment impact of fishing activities on coastal communities, including their social fabric and traditional lifestyles. As known, a considerable number of coastal regions are economically dependent on the commercial fisheries sector and there are few economic alternatives to fishing.

Finally, in the case where tourism is widespread, traditional fisheries and lifestyle represent an attraction for visitors. Visitors like to see boats in the ports and fishes in the markets. This is clearly a positive externality produced by fishermen of which tourist entrepreneurs take advantage.

### ***Diversification***

Diversification in the context of the fishing sector can be understood in many different ways. From a more restricted to a broader level we can mean diversification as (FARNET, 2011a):

- a. diversification of primary production activities (e.g. new fishing techniques and gear) – i.e. diversification within the fishing sector;
- b. diversification of activities within the fish value chain (often into those that add value to fish products: direct sales, marketing, etc.);
- c. pluri-activity, whereby fishermen and their families continue to obtain some income from fishing but also carry out complementary activities, such as tourism or catering;
- d. broader diversification of the fisheries area into sectors unrelated to fishing, such as social services, renewable energies or other emerging sectors.

While the first category concerns primary production technical strategies (associated or not to management prescriptions) that are not pertinence of this paper, and the second category (adding value) concerns post-landings activities that will be further analyzed in the next section, in this section we will focus on the third and (in a lesser extent) to the fourth categories of diversification, i.e. those activities that are outside the fishing sector.

It is very important to note that post-harvest and other diversification strategies can employ more people than the primary production subsector; furthermore, most of them may be women, whom active participation in economic and social life can be increased.

Examples of diversification can be ordered starting from cases that are closer to fishery production toward completely diverse activities (FARNET, 2011a):

- a. activities related to by-products from fishing;
- b. opportunities linked to the environment and the green economy;
- c. activities related to tourism;
- d. using arts and culture as a spring board for local economic development;
- e. social services such as care, leisure services and skills acquisition.

From a public and social perspective, it should also be remembered that some economic sectors may have greater potential to create new jobs without displacing existing ones: for instance, the social sector and creative industries, where there are likely to be unmet needs and where markets can be less competitive than in other sectors. The opposite may be true of sectors such as tourism and retail trade, where it is possible that a new restaurant simply competes for the existing market with other local restaurants, thereby impacting negatively on their business. In a free market, this is not a preoccupation for a fisherman who wants to diversify its activity and legitimately enters in competition with other enterprises; on the other hand, if diversification is the objective of public strategies (maybe with public funding), it is important that actions create additional income and jobs, and not replace or displace existing ones.

Here we will list some concrete example of diversification.

### *Activities related to by-products from fishing*

From over 140 million tons of fish and seafood available worldwide each year from the fisheries and aquaculture sector, it is estimated that only half is used for human consumption (FARNET, 2011a). Waste from fisheries, including fish skin, heads, liver, guts, bones, shells etc., have large use in several sectors ranging from agriculture, where it may be used to make animal feed or fertilizer, to highly specialized products such as pharmaceuticals. Added value generated in these processes varies according to the final destination. It is to be highlighted that for developing and selling sophisticated new products, it is necessary to have sufficient expertise and establish good networks.

In addition to the already cited cases of fertilizers and animal feed (which has become a highly competitive industry), a rather new use of fish waste is bio-fuels. For these uses, selling of raw material will probably provide small profits to fishermen. Larger added value could be got by developing the know-how to process final products, but this would entail large competition with existing actors in terms of volume and quality. To sum up, several requirements are necessary for these activities which are: a suitable location, availability of abundant waste, easy access to other raw materials, an established (or potential) market of final products, availability of human resources.

New and most valuable uses of waste fish include dietary supplements, new food products (e.g. gelatin from fish bones and skin) and elements for cosmetics and pharmaceuticals. In fact, most of the waste produced from fish processing contains protein of high nutritional value, polyunsaturated fatty acids, such as omega 3, as well as antioxidants, minerals and trace elements which can provide important health benefits (FARNET, 2011a). Research projects and building links with actors (such as universities and private companies) that possess the needed know-how could help fisheries communities to grow their capacity to take advantage of this untapped resource. In Finland, a project was launched with courses on fish skin tanning and processing, in order to produce skin items.

### *Opportunities linked to the environment and the green economy*

The European Commission's 2007 Blue Book on an Integrated Maritime Policy for the EU refers to the role fishermen can play as 'guardians of the sea', performing 'environmental and other services to the community'. How this role can be played in a competitive free economy is however not clear, unless considering a new approach of government interventions for multifunctionality (see below). Occasional revenue possibilities can be linked to data collection and research, to clean-up services, or to combating environmental hazards and guaranteeing marine conservation. The presence and wide dispersal of fishing vessels in the seas can provide, for example, a readymade infrastructure for scientific monitoring and observation (FARNET, 2011a). Within the framework of the State run Contrats Bleu scheme in France, fishermen are actively engaged in activities that contribute to conservation. This includes water quality monitoring or patrolling against illegal fishing in certain conservation areas as well as data collection and participation in scientific work.

Co-presence of small scale-fisheries and protected areas can provide synergic opportunities for fishermen, which can take tourists to visit specific locations and explain, such as guides, the characteristics and main elements of the marine and coastal ecosystems. This educational role may easily bypass financial constraints linked to a theoretical public recognition, and find market possibilities in areas where tourism is developed, or where developing strategies are going to be applied. Furthermore, small-scale fishermen can successfully join public authorities and scientists to ensure adapted and regulated co-management. A successful case study of this kind is given by the Torre Guaceto Marine Protected Area (Italy), where small-scale fishermen have formed a cooperative

and created a quality mark for fish caught, once a week by a limited number of boats, inside the protected area<sup>4</sup>.

Finally, fishermen can find revenue possibilities in the new renewable energy (i.e. offshore wind) sector (not developed yet in the Mediterranean). Fishermen have, in fact, a number of assets (boats, access to ports and water, ability to handle heavy machinery in high winds and rough seas, knowledge of the waters and the sea bed) that can allow them to generate a financial return from the development of offshore energy farms, through the supply of vessels, transport, guard ships, logistical support, survey work and offshore maintenance (FARNET, 2011a). On the other hand, it is more probable that large-scale vessels and owners, rather than small-scale, could benefit from these opportunities.

### *Activities related to tourism*

Tourism tends to be among the first ideas that spring to mind when considering options to diversify the local economy of fisheries areas. Indeed, fisheries areas typically have many natural and cultural assets and offer a variety of activities that can appeal to tourists.

Tourism activities can create direct and indirect benefits to the territory, supporting the development of other services needed by tourists in a virtuous cycle of new jobs and added value. However some tourism requirements should be considered before launch new investments; here, we will consider some of the elements included in the FARNET (2011a) analysis:

Tourists have a variety of needs (sleeping, eating, travelling, doing, and visiting) and an isolated project is unlikely to be successful if the area does not address this range of needs.

It is not enough to have a good offer: it is necessary to have an offer that is better or different than that of others.

Information and promotion are of crucial importance as well as skills and knowledge to deal with visitors.

Potential and limits of the territory should be carefully considered both in a spatial (carrying capacity of the environment) and temporal (seasonality, possibilities to expand tourism periods) dimension.

There exist plenty of examples of fishermen which, alone or in organized groups, have developed touristic structures for accommodation and food provision. This is known as *ittiturismo* in Italy and is governed by national and regional legislations<sup>5</sup>. When the food provided to the tourists is the same fish that fishermen have caught, we are in the case of adding value to the product through a processing phase (cooking) and a shortening of the supply chain (direct sale to final consumer).

Examples of family-run restaurants can be found wherever, and in most cases it requires a crucial role and initiative of fishermen's wives: in the small fishing village of Tajao, in southern Tenerife (Spain), there was no restaurant at all until 1980; then, the wife of one fisherman started preparing fish dishes and selling them to tourists and local workers; the activity quickly succeeded and other women followed the example so that now there are 8 restaurants. In Corsica (France), the

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<sup>4</sup> [www.riservaditorreguaceto.it/](http://www.riservaditorreguaceto.it/)

<sup>5</sup> According to the Italian Law 7 august 2012, n. 134 the fishing-tourism is a tourist and recreational activity that takes place on board the craft of artisanal fishing; the *Ititurismo* integrates the tourist offer of the fishermen with a range of services on the ground.

fishing port of Centuri is also famous for its local lobsters offered in family-run restaurants. Some of the most characteristic restaurants rely on the highest quality of its products, such as “The Captain’s Galley” in Scotland, which is not run by a fisherman family but is thought to provide only fresh (in season) and local products and where the menu is decided on a daily basis depending on which species are available on local boats and market, especially lesser known species being underutilized (examples taken from FARNET, 2011a).

Finally, fishing-tourism is probably the most original form of tourist service directly linked to fishing activity.

In Cilento (Italy), in 1996 the fishermen from Camerota established a fishing-tourism cooperative (Consorzio Mare Cilento) with 13 members to better manage the tourism activities. Ten of these members were fishermen, each with their own vessel. Three new traffic boats, with a capacity of 112 people on board, have been acquired by the cooperative with the income from the trade, to meet the growing request for boat tours (Colloca et al, 2002).

A recent study performed in Sardinia (Italy) reveals that in the island there are 84 enterprises authorized for fishing-tourism and 9 for ittitourism (Pili and Sai, 2012). In both cases, cooperatives are the most common juridical forms, but interesting differences in the structural characteristics of these two activities do exist. In particular, while a large amount of fishing-tourism employees are men over 40, in ittitourism enterprises the majority of employees are young (less than 40), and almost a half of them are women. At the same time, the study reveals that fishing-tourism employees need education on foreign languages, marketing and informatics, while ittitourism employees, who already have more of this knowledge, would need on the other side, education on fish biology and traditional culture and cooking.

In EU Member States, main challenges for the development of these activities are related to legislative issues. Besides Italy, where two laws have established the conditions for carrying out fishing-tourism, “it seems that little legislation exist dealing specifically with tourism on professional fishing boats. This absence of specific legislation means that such activities tend to be carried out as commercial activities which, moreover, are subject to the conditions that apply to transporting passengers. Such conditions can sometimes imply unrealistic demands for fishing boats” (FARNET, 2011a).

In Spain, for example, national legislation prevents taking passengers on professional fishing boats, while in France there are taxation problems due to a special regime for fishermen which cannot be used for tourist activities. A specific project, “Pescatourisme 83”, has been launched in Var (Mediterranean coast of France) in 2009 establishing the necessary conditions to put fishing-tourism into practice in the area, adapting experience gained in Italy to the local context (FARNET, 2011a).

Other tourist activities which can be offered by fishermen include recreational fishing, marine tourism (e.g. visits to marine parks or other interesting sites), as well as water sports such as diving, surfing and sailing. Recreational fishing, on the other hand, is frequently considered as a competitor on resources for small-scale fisheries. However, in a diversification perspective also this activity, when properly managed, can be important to attract visitors and develop work opportunities for coastal communities, for example by implementing approaches of catch & release as promoted by the international committees ‘International Game Fishery Association (IGFA)’ and ‘European Federation of Sea Anglers (EFSA)’.

### *Other activities*

Theoretically any economic activity can be thought as a diversifying strategy for fishermen and their families. Furthermore, in many contexts small-scale fishery is already a part time activity representing the main or, in other cases, a secondary source of income.

From a perspective of coastal development we can still list some cultural activities which entail appreciation for traditional fisheries heritage, such as museums, exhibitions or festivals. These can both provide job opportunities to fishermen and increase interest for fisheries products. Interesting ideas include cooking competitions and demonstrations, such as the cooking “jam session” organized in the restaurant run by the fisherman’s Cofradía<sup>6</sup> of L’Escala (Spain), where well-known chefs are invited to improvise fish recipes in front of an audience (FARNET, 2011b).

Cultural events and festivals are often (with different levels of importance) based around local food products. In Barycz Valley (South Western Poland), “Carp Days” have been organized since 2006, attracting up to 5 000 visitors every year: in 2010, 25 events and 17 restaurants selling different carp products were involved; this innovative concept provides a means for producers to add value to their product through direct sales, and has also led to the development of new products, such as smoked carp. Furthermore, restaurants took part in the competitions and prepared different carp dishes. The best restaurants were nominated “Master of Carp”, and awarded with the right to use the sign “Barycz Valley recommended”. This initiative was instrumental in promoting different ways of preparing carp and as a result, carp is now proposed in almost every local restaurant (FARNET, 2011b).

To conclude, there are many possibilities to diversify an economic activity. However, several conditions for entry into a new activity/sector exist, and these should be considered carefully, possibly with an external consultancy, before leaping. The product/service proposed must have distinctiveness which make it attractive compared with competitive products/services; furthermore, in a public perspective, it must meet an unsatisfied demand creating new job opportunities and not displacing the existing ones. An optimal scale of investment is required and the entrepreneur must acknowledge it. Size and trends of the existing/potential market must be known as well as the degree of internal and external competition and the degree of accessibility to the market. An essential element for some of the activities analyzed is the state of legal, administrative and fiscal barriers. Finally, other conditions for a good result of the activity are, inter alia, the quality of complementary infrastructures and services, the skills available locally, the seasonality characteristics of demand and supply, and other key factors.

### **C. OPTIONS TO MAXIMIZE THE PRICE OF SMALL-SCALE FISHERIES CATCHES AT TIME OF SALE, INCLUDING SPECIFIC CERTIFICATION REQUIREMENTS (LABELLING, ETC.)**

Flows and destination of primary production are generally not well known for fish and should be investigated more. Depending on specie and countries, prevalent flows can be bound, for instance, to local retailers, export, processing and urban supermarkets (processing can be an intermediate stage before export or national consumption). In Morocco for example in 2011, production of small-scale fisheries was mainly sold for fresh consumption (39 percent), while 13 percent was conserved, 38 percent was frozen and 18 percent was used for animal feed; shares changes considerably from region to region, depending on structural characteristics of each coastal area and on species distribution (ONP, 2012). In Emilia Romagna region (Italy) in 2006, 62 percent of landings were sold

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<sup>6</sup> Cofradia: Cofradias de Pescadores or Fishermen's Guilds are non-profit sectoral public law corporations which represent the economic interests of fishing vessel owners and workers from the fish catching sector, which act as consultative and collaborative organisms for the competent administrative bodies in areas of sea fishing and regulating the fishing sector, the management of which is carried out in order to meet the needs and interests of its associate members, with a commitment to contributing to local development, social cohesion and sustainability.

to local wholesalers, 25 percent was directly sold to consumers, 12 percent was exchanged through auctions and only 1 percent was bought by large retailers (Malorgio and Camanzi, 2006).

Despite many possible uses, a substantial number of fishermen find it difficult selling their products, including in countries where there is high dependency on imported fish (as said, Morocco, Egypt and Turkey are the only self-sufficient countries; Sacchi, 2011). The fish market, especially in the case of small-scale fisheries, is in fact characterized by a complex network of relations among the different parties involved in the supply chain, showing a non-integrated structure where the dominant position is generally held by the distribution sector. On the other hand, the high dispersion of production, through a high number of ports and selling points, does not foster a concentration of suppliers, which could be the first step for some sort of cooperation between producers, wished for a stronger position in front of buyers.

Market and chain fragmentation also can result in a high number of intermediaries with complex consequences on price levels. This in fact causes a high variability of equilibrium prices that can be found between and within production and distribution areas, depending on local and seasonal levels of supply and consumption. This fragmentation normally favours economic actors with more information and choice possibilities: in other words, large wholesalers.

In this framework, the level of prices in ex-vessel markets is completely independent from structured objectives and fishermen's considerations on costs and profit maximization. Fishermen are price-takers and prices depend on short-term, unforeseen, fluctuation in demand and supply. Actually, local ex-vessel markets (where developed) do not seem able to provide a more defined and informed structure to fish market; probably, they mostly benefit large wholesaler who can more easily manage larger quantities and choose between market places where prices are lower.

In conclusion, depending on fish species and structural characteristics of fishing regions, we can find very differentiated situations, where prices can be decided in local markets (i.e. minor species, isolated markets dominated by small buyers, such as fishmonger and restaurateurs), regional/national markets (i.e. important species, well-structured networks of ex-vessel markets, not relevant import-export) or international markets (i.e. species included in the global market, with high import-export flows). In the same market place, the price of one important species can be decided by the international equilibrium between demand and supply, while a minor species can have prices decided by local fluctuations.

Actually, fishermen's strategies must be chosen and adapted depending on the market situation. Considering the characteristic of small-scale fisheries, solutions must be found, in most cases, out of the ordinary market channels; in fact, ordinary channels generally do not fit (but exceptions do exist) some of the peculiarities of small-scale fisheries such as multi-specificity, small and inconstant quantities, less known and valued species, strong seasonality. Opportunities should exist, considering the high dependency on import in most of EU and Mediterranean countries but, on one hand, producers have to meet the expectations of today's consumers, and on the other hand, the power relationship with players downstream in the chain should be re-balanced via the structuring action of initiatives based on collective bargaining.

We will discuss of collective actions in the next section, while we will focus here on initiatives intended to meet changing needs and expectations of consumers: in other words, adding value to their production. Generally speaking, small-scale fisheries products are currently not adequately valued in local markets, and fishermen communities have not the right means to develop marketing tools. Actually, what is sold on the market is represented by more than the fish itself. The product in reality consists of a series of elements which contribute to its sale (i.e. availability, volume, quality, packaging, image, price, etc.). In more and more globalised market, where trade

barriers are reduced due to liberalization policies, competition between enterprises become very strong for products that are not sufficiently characterized by specific attributes, as the fresh fish normally is. Consumer demand, on the contrary, is becoming more and more differentiated within a large range of specific products which change for origin, processing state, labelling or even packaging, while safety is the only common characteristic that has to be guaranteed. Therefore, product diversification, as introduced in the previous section, is often a strategy for adding value to the product. Another strategy to reduce transaction costs and increase the added value is direct sale to the consumer or to the retailer by-passing the intermediaries.

Food safety and quality cannot be bargained in order to offer lower prices. In all countries, the production of foodstuffs is regulated by a body of standards and legislation aimed at protecting consumer; in EU, basic regulation is known as the hygiene package (Reg. 178/2002, 852/2004, 853/2004, 854/2004). Regulation (EC) 852/2004 mentions that food businesses (except the primary producer) must set up a permanent procedure based on the Hazard Analysis and Critical Control Points (HACCP) principles, which is a method of identifying, evaluating and controlling health risks. Although, in some circumstances, in small food businesses a certain degree of flexibility is allowed, these procedures are generally very problematic, expensive and time demanding for single fishermen.

### ***Product differentiation***

Several methods are available to differentiate a product in order to satisfy specific needs of the consumers: innovation and processing, improving the appearance and packaging of products, and labelling.

Innovation and processing is something very easy to understand but it can mean many different things such as improvement of existing products, development of new products and exploitation of by-products (as seen in the previous section). This process can entail the development of a processing step which was previously not realized by producers who were simple sellers of fresh products. In this case, in addition to innovation, there is the advantage (but also the burden) of shortening the supply chain (if processing was previously realized by other economic operators).

Several examples of this kind can be found around Europe: ‘Le Brin d’Océan’ is an artisanal cannery launched by the wife of a French fisherman, where traditional products such as fish soup and patés are realized, as well as new tastes such as a paté-like preparation from the liver of monkfish, or curried cuttlefish in its own ink and in a tomato sauce. In this specific case, direct sales account for 10 percent of her revenue, while the bulk of the production is sold to around 100 specialized shops (delicatessens, wine stores, etc.) (FARNET, 2011b). In Galicia, 27 barnacle gatherers created a company called Mar de Silleiro LTD, developing the idea of preserving barnacles by introducing new processed products to the market, mainly using the smaller and less valuable ones. They created a partnership with a local cannery hiring the cannery’s production line for one day per week; sale is realized through a website with an on-line shop. As the first years for the new enterprise are critical in terms of ensuring a successful introduction of the product to the market, the company has actively participated in key exhibitions, such as the Forum Gastronómico in Girona, the Salón Internacional de Gourmets in Madrid and the Feria Internacional de Galicia 2011 in Silleda (FARNET, 2011b).

A simple change in the packaging of products can be a winning strategy too, like the vacuum-packing of mussels in pure, salt water, which allows (compared with traditional vacuum systems) that mussels remain closed, do not lose their moisture or proteins, and be less sensitive to variations in temperature.

Investment in a plant or workspace that complies with the legal standards is expensive for a single fisherman, thus producers could decide to share the workplace, but where each business is still responsible for its own production. One step forward, the activity could be managed by a cooperative of fishermen.

### ***Labelling***

Among the possible viable strategies for differentiation and enhancement of fish production there is the implementation of brand policies. This is a marketing tool for the qualification and differentiation of businesses and products, as well as a communication means between businesses and consumers.

The realization of a brand involves a series of benefits. A first set of expected benefits regards the trade mark as a tool for the organization of the supply chain and the management of relations between operators (e.g. security of supply, quality assurance of incoming goods, development of direct vertical relationships, greater transparency of information, etc.). The brand is also an instrument of differentiation (i.e. competitive advantage, ease of market access, greater remuneration); in particular, the commitments undertaken by the operators allow a collective reputation and benefit (at least theoretically) a price premium. The collective reputation is the result of the quality procedures of each operator participating in the collective mark.

On the other hand, adherence to the label entails a series of commitments, specificities rules, and compliance with constraining procedures for traceability and certification. Actually, this could result problematic, expensive and time consuming for small-scale fisheries, especially when adequate education is missing.

Four major forms of labelling can be discerned:

Official quality marks, linked to origin or organoleptic properties.

Collective brands.

Private, independent brands.

Environmental labels.

The EU acknowledges three official quality marks: Protected Designation of Origin (PDO), Protected Geographical Indication (PGI) and Traditional Specialty Guaranteed (TSG). Aquaculture production, for which the link to the territory is easy to verify, and traditional processed products are better suited to these quality markings than fresh fish products. Unfortunately, labelling procedures are often undertaken in a top-down approach, without involving producers in setting them up, or ensuring that they really correspond to a motivation on the part of producers or a market opportunity; the result of these processes is that the level of production of the existing PDOs and PGIs is low, or even zero (FARNET, 2011b).

The “Cornish Sardines” is an example of PGI label developing common standards for catching, processing and marketing Cornish Sardines. Fish are essentially ‘caught to order’, with the fishermen speaking to the processor before going to sea. In this way, supply is matched to demand and prices fluctuate less and stay within levels that are viable for both the fishermen and the processors (FARNET, 2011b).

Collective brands are regional brands, which rely on a commitment to enhancing the value of local products. Compared to official quality marks, collective brands are less known and appreciated by consumers but are easier to obtain and with more elastic procedures. However, as in the previous case, it is important that the initiative follow a bottom-up approach, otherwise it is probably destined

to fail considering that costs, and logistic and bureaucratic burdens are not insignificant for small producers and small organizations.

Association of Handline Fishermen from the tip of Brittany (France) experienced heavy losses when the value of the European seabass (*Dicentrarchus labrax*) dwindled by 30 percent in the early nineties, mainly because of the sudden growth of competition from farmed seabass. A collective process was developed to communicate the value and quality of the catch setting up of a traceability scheme. In 1993, 120 skipper-owners from four local fisheries committees teamed up to launch a collective brand, based around the tagging of line caught seabass with a “fish ID tag”. This unique ID tag enabled customers to identify the origin of the fish, how it was caught and, through a system of searchable database, even the fishermen who caught it. Within a few months, the product differentiation had triggered an increase in the market value of line caught seabass, doubling its sale price and repositioning it as a “high end” product (FARNET, 2011b).

Independent brands are a simple way to identify a specific producer, building a quality reputation, without external standards to satisfy and difficult collaboration with other producers. However, this reputation is usually difficult to create. Fresh fish is difficult to sell under a specific brand name because some sort of differentiation is necessary; branded processed products, on the other hand, can be successfully traded. Traditional and high quality products can be distributed through specialized shops (e.g. wine cellars, local/rural products shops, etc.) and delicatessen outlets.

Finally, fishermen can apply for eco-labels certifying the sustainability of the fishery, based on the FAO guidelines. The most widely-known labels are Marine Stewardship Council (MSC) and Friends of the Sea (FOS). Actually, these labels are not very widespread in the Mediterranean, but interesting examples do exist. Several Italian firms, for example Zarotti, Delicious Rizzoli, COOP, Vanelli, got the FOS label for anchovies and sardines caught in Croatia and Morocco. These products are then processed and sold in cans or jars. Cooperative Merja Zerga, Morocco, got the same label for fresh hake. Striped venus clams (*Chamelea gallina*) harvested in Turkey also have a FOS certification.

In front of the many options available for fishermen, some interesting differences have to be noted between northern and southern countries of the EU. In the Nordic countries, in fact, the tendency is more to the development of eco-labels of international origin, often regarded as "seals" of quality. In country like France and Spain, on the other hand, the local initiatives for the adoption of labels in cooperation between different actors are particularly numerous and varied, because of the importance of the areas of production and consumption which coexist and because of a consumption culture strongly attached to the "local" character of production. Probably, this last option is also the most indicated for small-scale fisheries, considering that international labels may entail high costs and long, inflexible procedures; on the other hand, collective brands are ideal to value local products and create synergies between small enterprises.

On an international framework, states should work together to introduce border procedures and trade regulations that support regional trade in products from small-scale fisheries and which are consistent with the rules and mandate of the World Trade Organization (WTO), and all parties should recognize that small-scale fisheries should not be marginalized in markets as a result of eco-labelling and certification schemes. An enabling environment for small-scale fishing communities to develop their own area-specific labelling schemes should be provided (FAO, 2013).

### ***Distribution channel***

Classification of distribution methods can be based on the length of the supply chain.

The shortest form is obviously direct sale. This includes sales at the place of production or landing, as well as sales at markets, mobile sales or sales in the producer's shop. Sale can be realized in the same town of landing or in close inland towns, where prices are probably higher. Products of small-scale fisheries should be particularly appreciated by consumers if they are duly informed of the freshness of the product (i.e. nutritional value) and of the traditional and non-intensive fishing technique (i.e. ethical value). This activity can be associated to a processing step, such as smoking or cooking, but in this case safety and hygiene legislative limitations may be higher. Canned products are also particularly suitable for long distance selling, either by e-mails, or via an internet site. While direct sales cut out the middleman between the producer and final consumer, it requires a sizeable investment in manpower, particularly in terms of time spent selling. In the fisheries sector, this activity is traditionally undertaken by the wives of the producers (FARNET, 2011b). Direct selling by fishermen at ports often increases the tourist appeal of these areas (a case of multifunctionality, or positive externality), and can be part of a wider integrated territorial development initiative.

A little longer supply chains include the sale to a retailer (e.g. fishmonger, specialized shop or supermarket) or a tourist operator (e.g. restaurant, hotel). Both in the case of direct sale and of a short chain, sale of products in the same area where they have been produced (the "KM 0" concept) is becoming more and more appreciated by consumers. This concept gathers the ideas of freshness and tradition to an ecologic feeling, linked to the awareness that without transport there is less emission of greenhouse gases. Seasonality of products, which is normally a problem for distribution through large retailers, as well as the presence of small quantities of many different species, should be converted into a strength, as a basic characteristic of freshness, tradition, quality and sustainable fishery. In the MinhoLima area (Portugal) a "KM 0" branding initiative has been launched strengthening links between restaurants, chefs, fishermen and other primary producers in the area, and enhancing their market opportunities<sup>7</sup> (FARNET good practices).

Present-day means of communication enable small boats to communicate their catch before they actually return to port, allowing downstream players to anticipate the availability of fish. This requires the boats to be equipped with the appropriate technology. In Germany (Baltic Sea Coast Active Region), fishermen send details of their catch and their estimated landing time using their mobile phones via SMS to a specific website while at sea; customers (consumers and restaurants) can then see where, when and what fish will be available for sale directly from the boat when it comes to port, and prices achieved are higher compared to wholesale (FARNET good practices). Lonxanet Directo SL is a direct sales company focusing on the marketing of Galician seafood coming from artisanal fisheries, partially owned by six "Cofradías", entities which are thus both shareholders of the company and providers of the seafood it markets. The tool developed by Lonxanet is a web and phone based marketplace, integrating marketing and logistic services, and enabling the Cofradías to sell directly to restaurants (more than 360) and other final consumers (FARNET, 2011b).

In summary, as previously noted, short distribution channels should be considered the best option to value small-scale fisheries products. Exceptions can exist in the case of resources that are both abundant and high valued by international markets (export is therefore the final destination). However, in most of the cases, productions of small-scale fisheries are either scarce (thus large wholesalers and retailers are not interested) or low valued (thus margins for fishermen are very small). This situation should lead fishermen to focus on niche (in the case of scarce productions) or traditional (for larger productions) consumers, which, in both cases, are able to appreciate the local character of production.

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<sup>7</sup> To attract the initial interest of the public and other regions, a launch event was organized, bringing together local producers and famous chefs as well as Spanish and French delegations of catering professionals to discover the products and learn how to prepare them. Six other events of this kind, two gourmet itineraries and a presence in the local and online media are amongst the tools being developed by the project to attract visitors and professionals.

#### **D. INNOVATIVE MEASURES TO ENHANCE PRODUCTION AND MARKET: CAPACITY-BUILDING AND INSTITUTIONAL STRENGTHENING**

Enhance of production and market can be individual or collective strategies, as also seen in the examples of previous sections. In many cases individual strategies are non-feasible. Rational and sustainable management of fish stocks cannot be an individual strategy. At the same time, pooling the supply is the only way of increasing clout in negotiation with buyers. This is quite necessary in the fishing industry, particularly for small-scale enterprises, where the production flow of each boat is generally low and discontinuous, where the product is highly perishable and cannot be either standardized or differentiated. Aggregation and cooperation are then required to reach an adequate volume and an adequate control on supply, allowing cost reduction, supply chain synergies, product differentiation and sales policy that will ensure a more profitable placement of local products.

Different forms of cooperation can be strategic for fishermen to address management and marketing issues, but also enhance quality of life. Here we can consider forms of horizontal and vertical cooperation, and broader partnerships with public authorities, civic society and enterprises.

Business cooperation is collaboration between juridically and economically independent companies to raise the common competitiveness. As general objective, such strategies can lead to lower costs and higher efficiency; customer expectations can be met more easily; synergies are generated in order to pool resources, and to share strength and know-how; stability and sustainability of market is gained. From a juridical and technical perspective, forms of cooperation include: joint ventures, cooperatives, consortia, service agreements, etc. Each of these forms has its own typical characteristics with pros and cons, and should be considered carefully depending on business elements. Furthermore, these cooperation forms can be characterized by differences in the geographical extension, in the duration and in the field of cooperation (i.e. R&D, distribution, purchasing, marketing, production).

##### ***Horizontal cooperation***

Horizontal integration is generally the term used when an enterprise increases its market share by taking over a similar company. On the other hand, horizontal cooperation entails that partners having the same position gather their strength to gain benefits. In fisheries there are very traditional and sometimes historical forms of cooperation, such as Cofradias in Spain. Sometimes in one country, there coexist different structures, networks, and juridical forms of cooperation, including cooperatives, associations, federations, where new forms, born under national and international proposals, overlap traditional forms creating, in some circumstances, duplications and conflicts. This is the case of Producer Organizations, a form required by the EU in his market organization framework, which, in some countries (especially in the Mediterranean), has not been well inserted in the previous cooperation structure. Actually, a map of the cooperation forms existing in the Mediterranean and Black Sea is required.

As said, cooperation in fisheries should be essential for an efficient allocation of the production: this would permit optimal management of resources and, at the same time, optimal negotiation with buyers. Unfortunately, this is rarely the case, due to several causes such as uncertainty in resource potential, difficult relations in the management of free access resources (i.e. different objectives of the members, different discounting preferences, and free-rider behaviours), lack of control, and high coordination costs. Italian cooperatives, for example, has mainly the objective of managing auctions, and provision of services such as aid for fiscal and administrative practices, warehousing, fuel supply; where clams are fished, purification procedures are also a

cooperative task. Theoretically, a member of a cooperative should give his catches to the cooperative which is responsible for commercializing and selling the fish and sharing the total income between all members. Actually, every fisherman sells his product directly without receiving any facility from the cooperative.

With the exception of clam consortia, Italian associations have not any management role on resources, and very limited control on distribution channels. It is to be hoped that associations/cooperatives have, at least, a role in finding new market opportunities for its members, informing them of alternatives, advising them on quality procedures, certifications and labelling strategies.

The Italian example seems to indicate that responsibilities of resource self-management or co-management can be easier committed to fishermen associations if these also entail some sort of property rights. In the case of clams these are Territorial User Rights in Fisheries (TURFs). Other examples that should be better analyzed and could provide a framework for the development of territorial rights and self/co-management initiatives in the Mediterranean and Black Sea are given by Cofradias in Spain and Prud'homies in France. Both Cofradias and Prud'homies are management authorities concerning small-scale fisheries, which must coexist with other sets of association networks and management regimes dealing with large-scale fisheries (Spagnolo, 2012). Several worldwide studies indicate that traditional communities have been able to self-manage efficiently common resources, including fisheries, through historical and accepted institutions (Ostrom, 1990; Ostrom et al, 1994). On the other hand, efficiency of these institutions decreases or collapses when new external users (e.g. industrial fleets) profit from resources, i.e. when traditional (communal) property rights are not recognized by national authorities. In this case, restoring original rights and institutions can be difficult, and a new co-management approach must be developed.

### ***Vertical cooperation in the supply chain***

Vertical integration is the process in which several steps in the production and/or distribution of a product or service are controlled by a single company or entity. As previously seen in some of the examples, this can actually be one solution for fishermen who intend to process and/or sale their product directly to final consumers. On the other hand, vertical cooperation is a strategy where companies from different supply stages work together to gain benefit. This can be advantageous, because cost reduction and efficiency potential are stronger in processes than in products. Compared to an integration strategy, vertical cooperation requires no capital investments, and permits easy exit options; however fishermen can fall in a dependency relationship if associated to a strong partner. Large supermarkets, for examples, impose many terms and conditions: there are precise specifications to be followed concerning the quality and traceability of products; and deliveries have to be regular, whether in terms of quantity or quality for each species. Moreover, the payment arrangements are complex, the profit margins for suppliers are low, and the payment periods long. At the same time, producers are required to contribute to promotional campaigns for their products.

Because of these reasons, it is difficult for small-scale fishermen to have equilibrated vertical agreements without a previous horizontal cooperation strategy. The collaboration between fishermen associations, processors and/or distributors can allow the achievement of supply quantities and quality standards needed for a brand or label strategy, which should be profitable for all partners. It is important that objectives are clearly shared by all partners and a participative action plan be prepared to have stable and transparent relations.

In these initiatives, traceability is essential to guarantee the quality and the origin of the product (at both geographic and enterprise level). Thus, it is important to establish control procedures in all stages of the supply chain and sanctions for trespassers.

There are countries where large vertical cooperation initiatives can benefit of specific public aids (for example “contratti di filiera” in Italy): these opportunities are important for building large networks at regional or national level, thanks to investments in the production, transformation and distribution stages, including quality control procedures, promotion, technical assistance, R&D. These frameworks allow preparing large development strategies, which can have stronger impacts on fisheries compared to small and local initiatives.

Inter-branch organizations (IBOs) are also an EU initiative to promote vertical collaboration throughout the fisheries sector. These IBOs are established under Regulation (EC) 104/2000 on the common organization of the markets. These organizations must represent a significant share of the production and trade, but must not be themselves engaged in activities relating to the production, processing or marketing of fishery products. Their objectives should be: improving knowledge and the transparency of production and the market; helping to better coordinate the way fishery products are placed on the market (market studies); study and develop techniques to optimize the operation of the market; drawing up standard contracts which are compatible with Community rules; developing methods and instruments and organizing training schemes to improve product quality; promoting fishery products. Actually, the functioning and activity degree of these relatively new inter-branch organizations is not well known.

A form of vertical integration to be mentioned concerns the chain Ristorazione Self Service "Al Pesce Azzurro" of Fano (Italy). This comes as an initiative of the Fishermen Cooperative aimed at improving and enhancing all the activities of the fishing fleet of Fano by promoting knowledge, gastronomic and commercial small pelagic species. It is a form of coordination of success managed by fishermen linking the production phase and the direct consumption through the catch, preparation and processing of dishes according to local tradition.

### ***Other forms of partnership***

Probably, one of the most interesting initiatives of the last European Fisheries Fund (EFF) has been Priority Axis 4 focusing on the sustainable development of fisheries areas, similar to the Leader area-based approach for the development of rural areas. The central principles of this approach are driven by the diversity of fisheries areas and situations that exist throughout the EU and the principle of subsidiarity, empowering local people to become the drivers of local development (FARNET, 2010). Its design and implementation has been thought to be as decentralized as possible, preferably coordinated by a partnership of local actors from the public, private and community sectors that have come together to form a Fisheries Local Action Group (FLAG).

In other words, local actors interested in Axis 4 of EFF are required to create a local group to deliver the measures, i.e. a local partnership involving “public and private partners from the various local relevant socio-economic sectors”, named FLAG. FLAGs are charged with developing and implementing an integrated local development strategy for a coherent territory, based on a bottom-up approach. Such partnership should involve sharing ownership, developing a shared sense of place, and finding common ground through which to find solutions, addressing not only one sector but the entire area and its needs by acting in an integrated way. Depending on territorial situation, partnerships may be led by the private sector (e.g. fishing), the public sector or the civic society. Every form has its own pros and cons, and actions are clearly driven by the objectives of the leader entity. Strategies can then be addressed not only to improve the competitiveness of the private sector, but can also entail investments in infrastructures, animation, training, culture, as well as local jobs, the environment and community facilities. We have, in other word, turned back to talk about quality of life of fishermen communities.

## E. CONCLUSIONS

In the Mediterranean Basin, coastal areas appear very different in terms of history, culture, natural conditions, population density, settlements, economic structure and human resources within which specific interventions and adaptations are required, united, however, by the creation of new foundations for economic and social life. We can identify areas where there are part-time small-scale fisheries and the possibility of integration of income, marginal areas with difficult production conditions but with an interesting and undervalued natural and cultural heritage, and finally depopulated areas in decline and incapable of regeneration of the social fabric and the reorganization of production. Anyway, in some Mediterranean areas, the spread of the culture and fishing tradition is considered strategic to enhance the quality of life of the local communities, and to create the professional and economic opportunities capitalizing on the specificities of the coastal area. For the development of coastal areas it is necessary to think to an integrated plan which supports the establishment of networks including the economic actors of all marine and maritime activities. In this framework, small-scale fisheries may play, included in areas where their direct contribution to economy is weak, a crucial role for the indirect linkages to the socio-economic environment.

Firstly, these fisheries represent the predominant, or exclusive, possibility of employment for marginalized sectors of the population. Secondly, small-scale fisheries have important (often neglected) connections with other pre-harvest and post-harvest activities, including building and repairing of boats and gear, port services, trade, wholesale, retail, processing and restaurants. Touristic services are, in particular directly and indirectly linked to small-scale fisheries, for the direct supply of fish products and for the indirect attraction on visitors. Thus, small-scale fisheries may represent a key node for the creation of added value in coastal areas and, as seen, the same fishermen can take advantage of a larger share of this value chain through diversification, transformation, direct sale, and cooperation.

Of particular importance it is the role of information sharing and knowledge transfer: the availability of correct and consistent information is a key element to define the policies of development needed to ensure economic viability and sustainability of natural resources. An effective system of information and acquisition of data and activities is necessary for the development of rational and sustainable small-scale fisheries in an integrated approach around the Mediterranean and Black Sea. A lot of information on various aspects of small-scale fisheries often escape or are difficult to obtain, or are dispersed among different institutions and organizations at the regional, provincial or local level. Actually, if structural and technical attributes of the small-scale fisheries are difficult to census due to the high variability linked to multi-specificity and multi-gear characteristics, elements associated to distribution channels, marketing tools, value chain, cooperation and quality of life issues are even harder to survey. A better understanding of what is currently happening in the basin is fundamental for an efficient and coherent development policy in a multilevel governance and interregional coordination.

We believe that increased responsibility of fishermen organizations in co-management objectives (also through new forms of territorial rights) is an important step for a sustainable development of small-scale fisheries. However, this technical-productive approach will be probably insufficient to guarantee economic competitiveness of small enterprises without common marketing strategies, and forms of vertical and horizontal cooperation.

Given the fragmentation of the upstream and the imbalance of bargaining power between large marketing firms and downstream fisheries operators, the role of cooperatives and fishermen's associations assumes a greater importance not only as a form of concentration of supply, but rather as an institution that can support individual producers in the process of adaptation and promotion of

fishery products and process through the mechanisms of coordination of supply chain, implementation of the quality system and labelling.

Finally, local strategies for an integrated development of coastal areas should imply the active participation of partnerships including public and private actors. Fishermen must be key actors in this process, and an empowering strategy is necessary to develop their propositional potential in economic and social themes. Bottom-up approach takes the needs of both men and women into consideration and is participatory with regard to needs assessments, design, implementation and monitoring. But, on the other hand, development of coastal areas cannot be exclusively left to local initiatives.

In fact, on a broader perspective (FAO, 2013), small-scale fishing communities need access to the full spectrum of financial, social and institutional services and resources to sustain their livelihoods, and public organizations should support investment in human resource development such as health, education, literacy and other skills training. The scale and the priorities of this state intervention may clearly change considerably depending on location (i.e. Northern vs. Southern coast of Mediterranean, urban vs. marginalized areas), but public institutions should ensure that small-scale fishing communities have access to essential public services, starting from decent housing, sanitation, potable water and electricity. It should also be guaranteed that small-scale fishers and fish workers are covered by unemployment insurance and social security schemes with benefits equal to other professional groups in the country.

Along the two shores of the Mediterranean, the activity of small-scale fisheries and issues faced are quite similar, but at the same time takes on weight and different functions within the political and economic development of fisheries in the Mediterranean countries.

In order to coordinate institutional (i.e. national and international) development strategies and local initiatives, public interventions should provide adequate extension and advisory services for supporting small-scale fisheries governance and development.

Therefore the development and support of small-scale fisheries, even if following different legislative paths and conceptual frameworks along the Mediterranean and Black Sea coasts, should follow a common operational approach to converge towards goals and shared solutions to guarantee successful local strategies in the coastal areas of the Mediterranean and Black Sea.

A common development policy for small-scale fisheries that sees the participation of all countries in the Mediterranean Basin would surely and concretely facilitate overcoming difficulties and would strengthen the support tools within the different coastal areas of the Mediterranean.

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