European Commission

Fish / 2006 / 09

Assessment of the status, development and diversification of fisheries-dependent communities

Peniche, Portugal - Case study report

September 2010

Oceanic Developpement — MRAG — IFM — Lamans s.a. Management Services — Institute for European Environmental Policy — Poseidon Aquatic Resource Management Ltd

Acronyms

CFP	Common Fisheries Policy
EEC	European Economic Community
EEZ	Exclusive Economic Zone
ENACW	Eastern North Atlantic Central Water
EU	European Union
FLAG	Fisheries Local Action Group
FTE	Full Time Equivalent
GAC	Grupo de Acção Costeira do Oeste
GT	Gross Tons
INE	Instituto Nacional de Estatística
IUU	Illegal Unreported and Unregulated (fishing)
kW	Kilo Watts
MSC	Marine Stewardship Council
NUTS	Nomenclature of Territorial Units for Statistics
SSB	Spawning Stock Biomass
TAC	Total Allowable Catch
USA	United States of America

This report has been prepared by MRAG by Sergio Abreu, Francisco Leotte and Robert Arthur in collaboration with Mr Humberto Jorge and Mr Francisco Zaragoza (OPCentro), Mr Jeronimo Rato (APARA) and Mr Rogerio Cacao (GAC), together with the active support of community stakeholders. The authors acknowledge the important role played by local stakeholders in providing both the quantitative data and the qualitative information presented in this report.

Citation: Abreu, S., Leotte, F., Arthur, R. (2010). Assessment of the status, development and diversification of fisheries-dependent communities: Peniche, Case Study Report.

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Introduction

1.1 General description of the location

Peniche lies on a peninsula with a perimeter of approximately six miles with Cabo Carvoeiro being the western most part of it. The Berlengas Islands, a group of very small islands at 5.7 miles off the coast of Peniche, are also part of the municipality, and were one of the world's first marine protected areas, the Berlengas nature reserve. In the city of Peniche, sea related activities have always played a pivotal role in economic and social terms. Peniche is distinguished as one of the most representative cities in Portugal due to its sea related history. With one of the nationally most important fishing ports, Peniche also has a significant processing industry sector, and the importance of the fishing industry to the region is clear. Indeed, throughout the years, Peniche, and the nearby city of Nazaré, functioned as fisheries hubs in the area, attracting manpower, investments, enterprises, equipment, infrastructures and population, all related to fishing activities. Peniche is one of Portugal's most important fishing ports whether measured in terms of the volume or value of landings, or the total numbers of fishermen or vessels. Peniche also has one of the highest levels of fisheries dependence of all coastal municipalities in Portugal. The region is characterised, in geological terms, as a rocky shore with steep cliffs mainly composed by limestone and occasionally interrupted by areas of sandy beaches. These sandy beaches are the main attraction of the region, contributing to a significant seasonal increase in population, more pronounced during the warmer months, due to tourism. Weather conditions and coastline favour numerous nautical activities such as surfing, boating, sport fishing and diving, and so the waters surrounding the peninsula attract many tourists throughout the year. Peniche is now considered as one of Europe's best surfing destinations.

1.2 Location

The city of Peniche is the fifth largest city in the Oeste sub-region (NUTS III) which is integrated within the Portuguese Centro Region (NUTS II). Torres Vedras, Alcobaça and Caldas da Rainha are other sub-regional major cities. The Oeste sub-region (NUTS III) is contiguous with the NUTS III Pinhal Litoral, Lezíria do Tejo e Grande Lisboa, covers an area of 2,215 km^2, and has a total population of 356,296 inhabitants (2005 census) with an overall density of approximately 160 inhabitants/km^2.

The municipality of Peniche has a total population of 28,656 inhabitants (Instituto Nacional de Estatística - INE 2009). The municipality has a total area of 77.4 km^2 and the biggest part is located in the mainland, the peninsula where the city is located has a much smaller area. The municipality includes the Berlengas Archipelago which comprises of 3 the islands, Berlenga Grande, Estela and Farilhões. Peniche is located 74km from Lisbon, the capital of Portugal and largest Portuguese city, and 30km from Torres Vedras, the most populated city of the Oeste sub-region (NUTS III).

1.3 Key geographical characteristics of the community

Peniche greatly benefits from its strategic geographic position by being located on a peninsula, with a perimeter of approximately 10 km. At the western end of the peninsula is

Cape Carvoeiro, and further to the northwest of the peninsula into the Atlantic is the Berlengas archipelago (Figure 1).

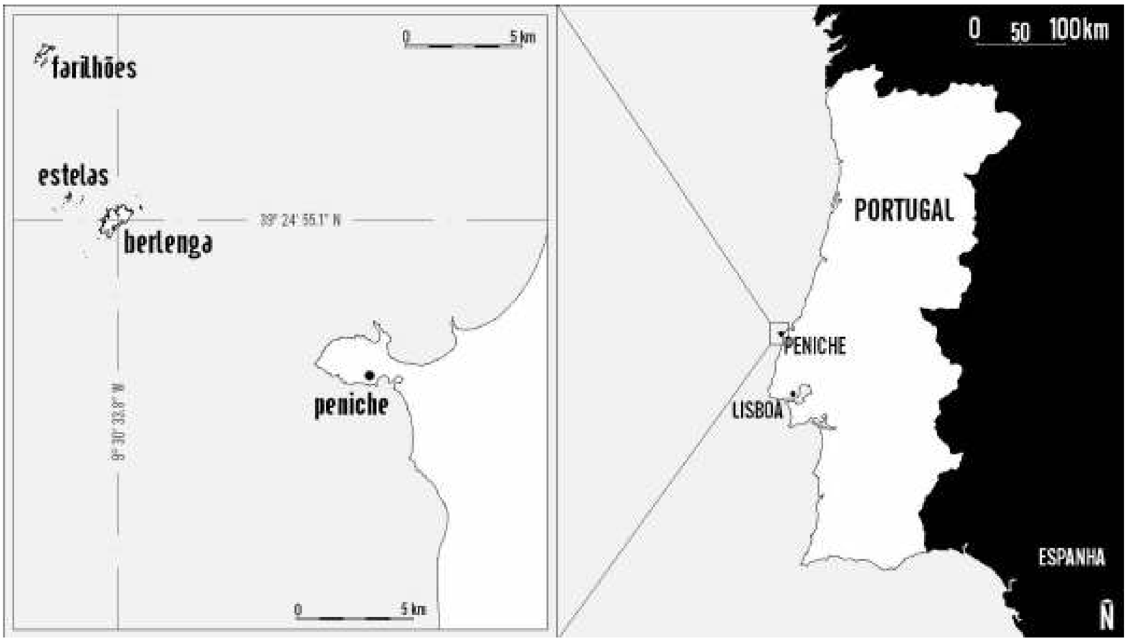

Figure 1 Peniche peninsula and Berlengas archipelago location (left) and location of Peniche in Portugal (right)

Peniche's climate is characterised by cool summers, with monthly average temperatures below 20ºC and daily maximum temperatures that rarely exceed 32ºC. Winters are warm, with monthly average temperatures above 10ºC and daily minimum temperatures above 1° C. The temperature variations throughout the year are moderate mainly due to the proximity to the sea. The annual average rainfall is 591.3 mm and during the summer foggy mornings are very common.

Winds are generally from the north during late spring and summer, blowing from southwest and west during the remainder of the year. As with the entire west coast of the Iberian Peninsula, seasonal upwelling occurs with greater intensity during the months of May to September, although episodes of upwelling may occur at any time of the year (Haynes *et al*., 1993) as a response to only a few days with northerly winds (Queiroga *et al*., 2009).

Peniche is characterised geologically as a rocky shore with steep cliffs composed of limestone which are occasionally interrupted by areas of sandy beaches. The Berlengas archipelago is formed by granitic and metamorphic rocks. As a consequence of the geodynamics, the islands and islets have a rugged topography with caves and crevices being very common both inland and underwater.

The geographic location makes this region unique, since it benefits from two distinct types of climatic influences: the Atlantic and Mediterranean Temperate climates (Maranhão *et al*., 2006). The confluence of these two climatic influences, associated with the intense seasonal upwelling described above, is the basis of a high biological productivity of this area (Maranhão *et al*., 2006, Haynes *et al*., 1993). Amongst the various geomorphologic features that characterise the region are the submarine canyons. The Nazaré Canyon is of particular note as it may be an important factor in the oceanographic dynamics of the region causing an intensification of upwelling in the surface (Queiroga *et al*., 2009).

Both areas (Peniche and Berlengas) are characterised by a mixed underwater substrate: irregular rocky areas, wholly sandy areas and areas with differing proportions of rocks and sand. The clear waters surrounding the Archipelago, marked by a very high biological diversity (Queiroga *et al*., 2009), make it appealing for sport fishing and diving. Several companies focus on these activities, choosing the waters surrounding the archipelago to operate throughout the year, weather conditions allowing.

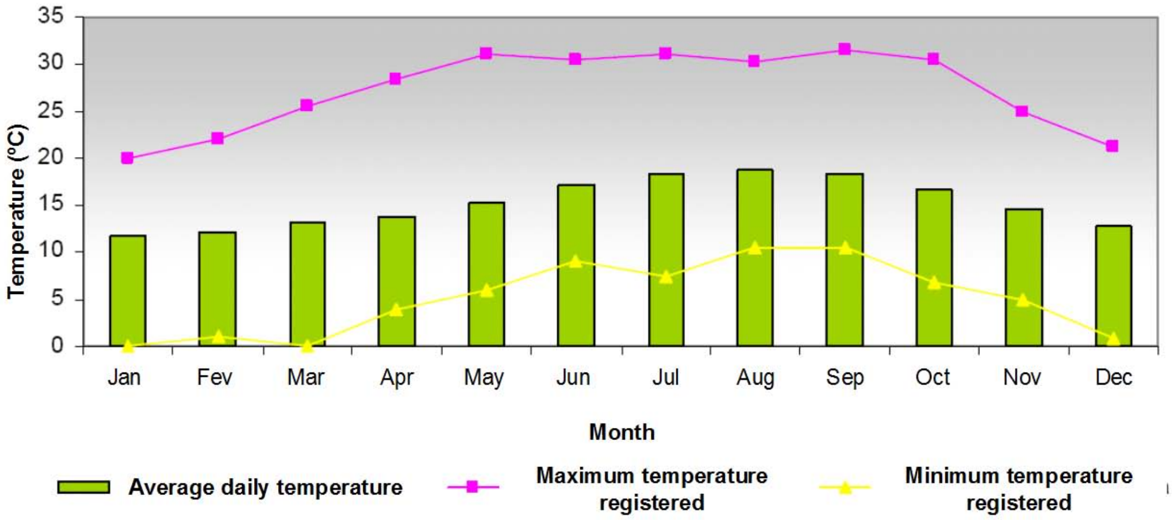

Figure 2 Air temperature data from the meteorological station of Cabo Carvoeiro, from 1971 to 2000 (source: Instituto de Metereologia).

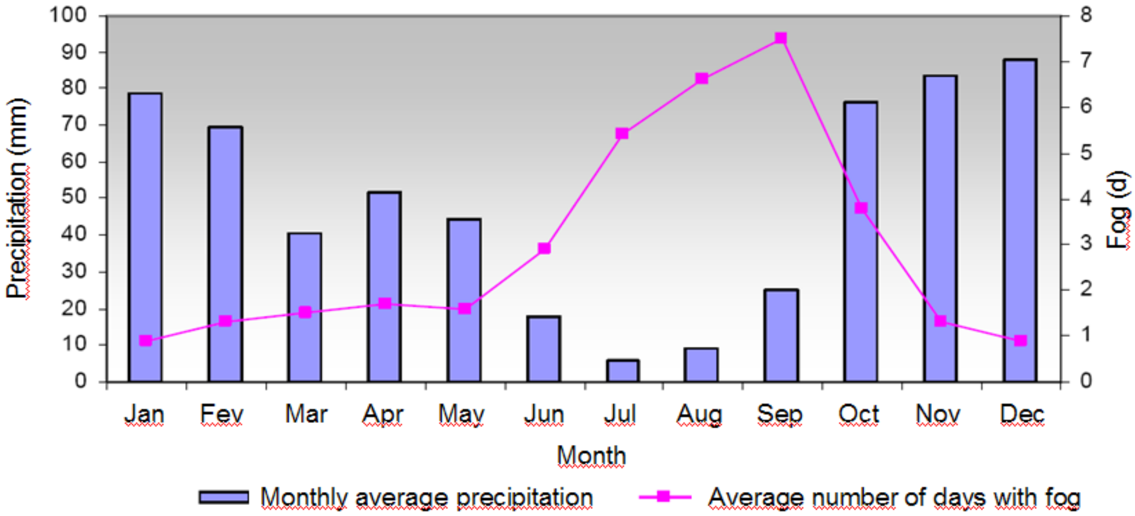

Figure 3 Precipitation and fog data from the meteorological station of Cabo Carvoeiro, from 1971 to 2000 (source: Instituto de Metereologia).

The mass of water in the region of the continental shelf adjacent to the Peniche region is the Eastern North Atlantic Central Water (ENACW) which is characterised by salinities between 35.5ppm and 36.1ppm and temperatures between 12-13ºC.

Deep water masses are modified near the surface where temperatures may occasionally reach 22ºC in the summer when in the presence of a strong thermocline at depths of 10-20m which develops between the late spring and autumn. This thermocline can be heavily modified and destroyed by the phenomenon of upwelling giving rise to the formation of fronts and current systems passing through the archipelago of Berlengas (Queiroga *et al*., 2009). These oceanographic features are crucial as they play an important role in bringing nutrient rich waters to the surface, greatly contributing the productivity of coast the coastal waters.

Demographic aspects

2.1 Population and population age structure

The Oeste sub-region (NUTS III) has an urbanisation rate lower than the national average. 34% of its population dwell in locations that have 2,000+ inhabitants. According to the National Statistics Institute - Instituto Nacional de Estatística or INE - in 2005, the 356,296 inhabitants residing within the territorial limits of Oeste sub-region (NUTS III) accounted for 3.4% of the national population. In 2007 there was an increase in population to 361,868, which demonstrates a sustained and continuous trend of increasing population in some major urban areas of the Oeste sub-region. Peniche is one of the municipalities of the Oeste sub-region with a greater number of residents living in an urban environment than the national average: in total 86.3% of the population.

The numbers of people under the age of 25 residing in Peniche is also larger than the national average, countering the downturn in overall terms for the Oeste sub-region. The population of Peniche has been growing since the 1970's. The rapid growth that occurred in the 1970's (21,555 in 1970 to 25,627 in 1981) mainly due to the large number of people joining the fisheries sector, and eased during the following decade. However, during the 1990's population increase again. After the year 2000 the population grew once more, returning to the numbers recorded during the 1970's. According to the latest estimates made by INE, the population growth will continue to increase in the coming years.

Despite the population growth in recent years there is a clear trend of an aging population. This follows the overall trend for the Oeste sub-region, as birth rate has also decreased. The 2001 census revealed that the parishes of Peniche and Atouguia da Baleia together represented approximately 60% of the total population of the municipality.

It is noteworthy that the trend observed in the Oeste sub-region and in particular in Peniche, reflects the current increase of the population at a national level, although this rate had decelerated in the last three years.

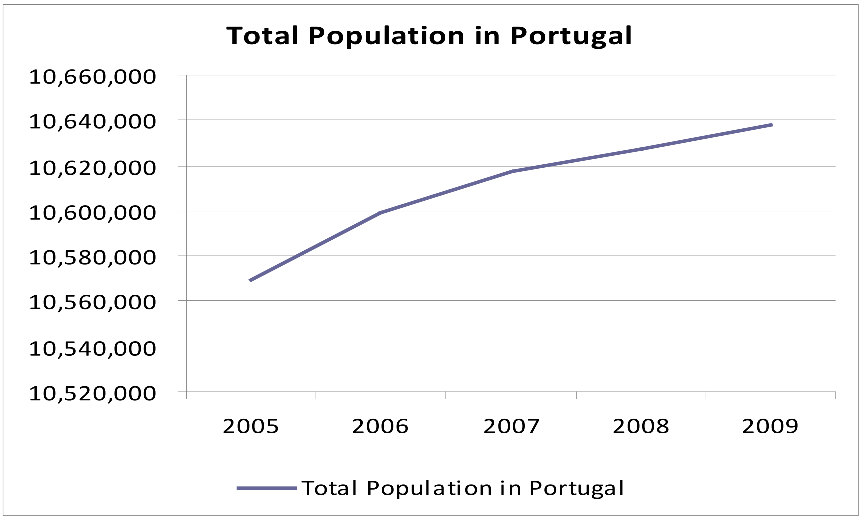

Figure 4 Total population in Portugal from 2005 to 2009 (INE, 2009).

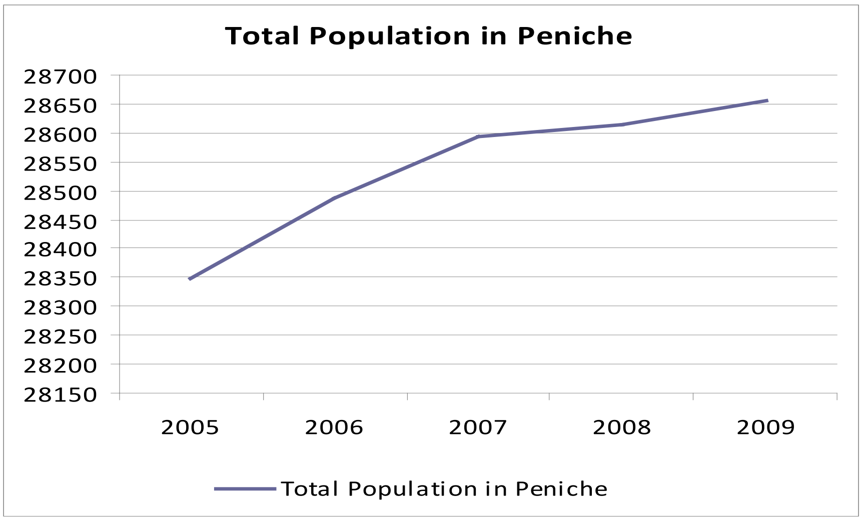

Figure 5 Total population in Peniche from 2005 to 2009 (INE, 2009).

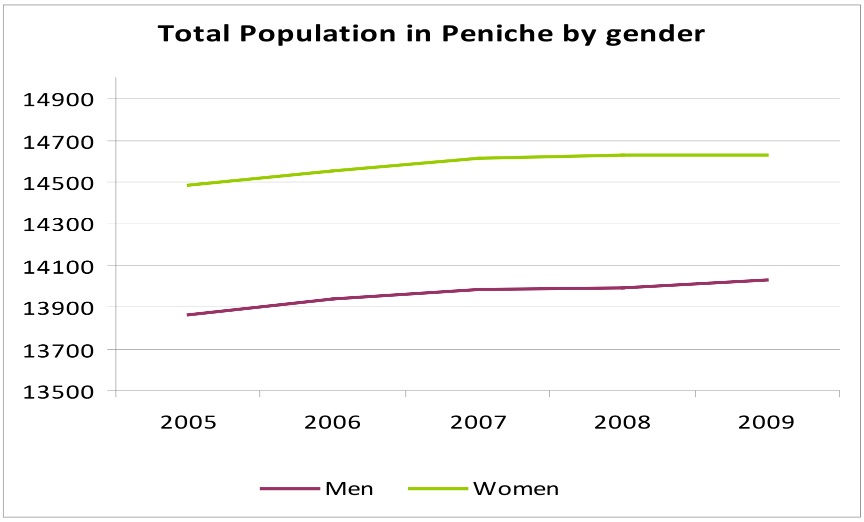

Figure 6 Total population in Peniche by gender from 2005 to 2009 (INE, 2009).

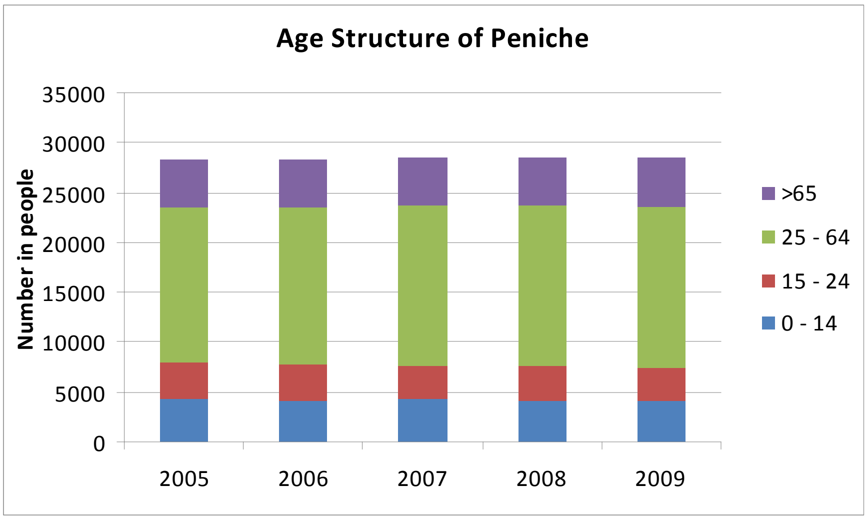

Figure 7 Age-structure of the population of Peniche, 2005 to 2009 (INE, 2010).

2.2 Ethnicity and migration

Since ancient times the municipality of Peniche has seen the territory occupied by populations that have exploited the available natural resources and have regarded fisheries and agriculture their main economic activities. The ethnic composition of the community resembles that of the nation.

Analysing the data from the INE (2001 Census) of the total of 27,315 inhabitants in the municipality of Peniche the immigrant population accounts for less than 5% of the total population, i.e. 1,423 inhabitants, of which 51% are women.

The increase in the population numbers observed in Peniche between 1991 and 2001 was mainly due to two migratory phenomena: first, the arrival of people coming from other municipalities, seeking better living conditions, i.e. aiming to live away from the big cities, with better environmental quality, but relatively close to the urban centres (short distance/travel time to Lisbon); and secondly, the gradual increase of immigrants from countries of Eastern Europe and Brazil. Those coming to the region from Brazil in general possess little or no professional qualifications, while immigrants from Eastern Europe are generally more qualified, but tend not to work in the fisheries industry or the maritime sector. The last survey of 2004 showed that only 7.5% of immigrants worked as fishermen, all of them African immigrants, and only 0.8% worked in shipyards.

In recent years, Eastern Europeans have represented the biggest proportion of immigration to Peniche. The primary motives for coming to Peniche are the economic difficulties in their home countries or the search for better living conditions. Since late 1980’s, as with the national situation, the prevailing immigration is of temporary character, with the majority of immigrants staying two to four years. More recently migrants from Eastern Europe have been employed in the fisheries ancillary sub-sector, mainly in shipyards. It has been noted that these people posses more qualifications than their counter parts originating from Africa or Brazil. (População imigrante no concelho de Peniche, Camara Municipal de Peniche, 2004).

Economic aspects

Peniche’s economic activity is traditionally based on the exploitation of renewable natural resources, mainly fisheries and agriculture. The importance of sea related activities and agriculture is still very high, although the services sector has been increasing and becoming an important contributor to the local economy. In the more recent decades the various productive sector have undergone a major reorganisation in that there is a greater interconnectivity between all sectors within the municipality. This has contributed to increase the level of efficiency of the economic fabric of Peniche.

3.1 Importance of economic activities

The Oeste sub-region reveals a structure of employment by economic sector that differs from the national outline, in particular, greater representation of the primary sector (9.2% for the Oeste sub-region as opposed to 5% nationally) and lower representation of the tertiary sector (54.1% in the Oeste sub-region as opposed to 59.9% nationally). The industrial sector reveals its traditional characteristics, dependent on exploitation of natural resources, based on manpower that requires further qualifications and skills, both technical and academic. Consequently there is a production base mainly composed of micro-, small- and medium-enterprises, as 70% of all existing companies have fewer than 20 employees.

Peniche emerges as one of Portugal’s most important fishing ports whether measured in terms of the volume of landings or the total numbers of fishermen. It also has one of the highest levels of fisheries dependence of all coastal municipalities in Portugal.

The main economic activities in Peniche include agriculture, fishing, fish processing, fish trade and more recently, tourist related activities (surfing, recreational fishing, etc.). The broad evolution of Peniche’s working population has shown a decline in the importance of primary activities (agriculture and fisheries) and a growth in industrial employment, most notably in the tourism and food sectors, commerce and public administration.

Throughout the 1970’s and 1980’s Peniche was progressively developing as an urban centre. The evolution of Peniche’s economy moved from a situation in 70’s, when there was a very marked concentration of economic activity in the primary sector, through the diversification of the employment base into both manufacturing and services in the 1980’s, to the emergence of a more balanced economic profile in 1990’s.

3.2 Employment and unemployment

Until the mid 80’s, the economic structure of Peniche was mainly in the primary sector yet, as mentioned above, its relevance has been gradually reduced in the context of the local economy. Employment in the municipality of Peniche within the three economic sectors is comparatively different when compared to national figures. The current employment figures per sector are: 13.1% in the primary sector, 33.2% in the secondary sector and 53.8% in the tertiary sector.

In 2001 a large share of Peniche’s population worked in the wholesale and retail, in the processing industry and in the construction sectors. These areas of the economy are more labour-intensive and resemble more closely the employment patterns of the Oeste sub-region as a whole. It should be noted, though, that employment in other sectors such as public administration, defence and social security, hotels and restaurants, education, agriculture, livestock, hunting and forestry, and fisheries is also extremely important and is becoming more relevant as the tourism industry increases in significance (Instituto Nacional de Estatistica - XIV Recenseamento Geral da Populacao e Habitacao, 2001).

The fisheries sector is of paramount importance in the socio-economic profile of Peniche, since a series of economic activities (secondary and tertiary sectors) ranging from shipbuilding to processing, storage, marketing and distribution of fish - fresh, frozen or preserved - are based on the fishing industry. This emphasises the importance of this particular industry to these two sectors of the local economy.

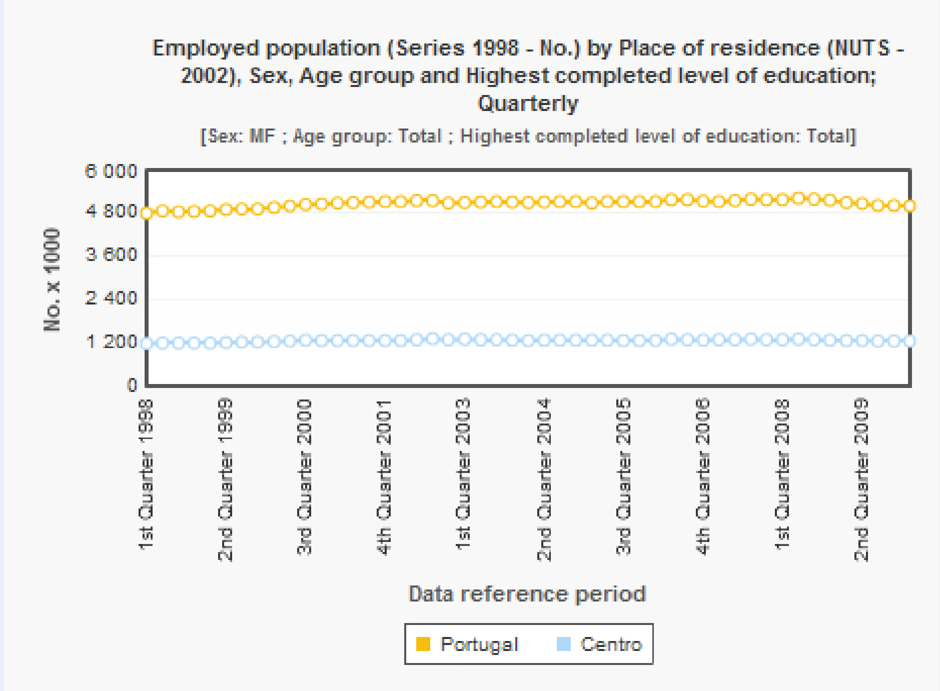

Figure 6 Employed population of Centro region (NUTS II) and Portugal, 1998 to 2009 (INE, 2010).

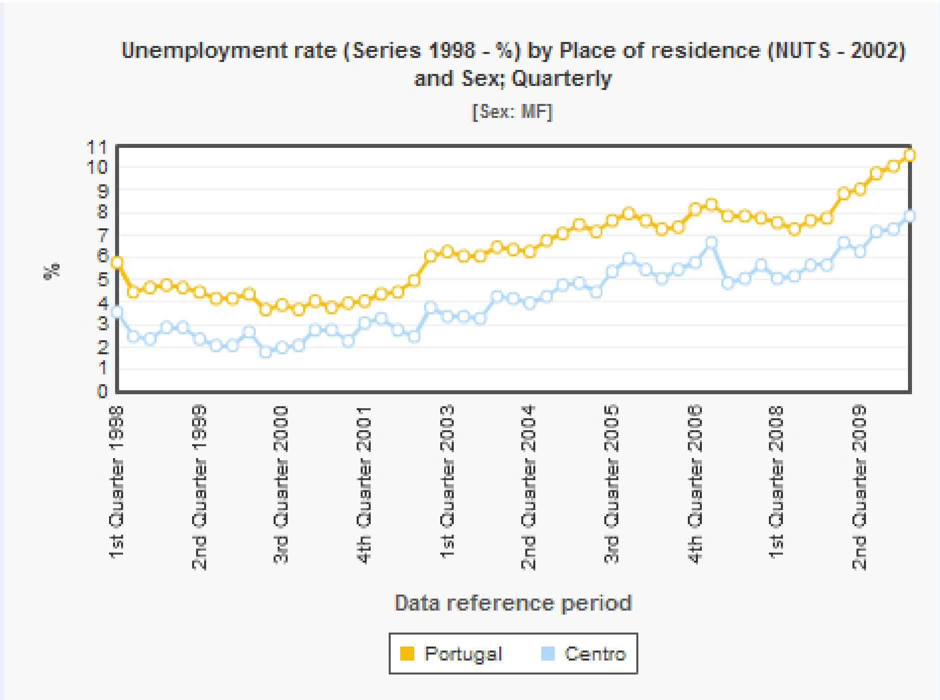

Figure 7 Unemployment rate of Centro region (NUTS II) and Portugal, 1998 to 2009 (INE, 2010).

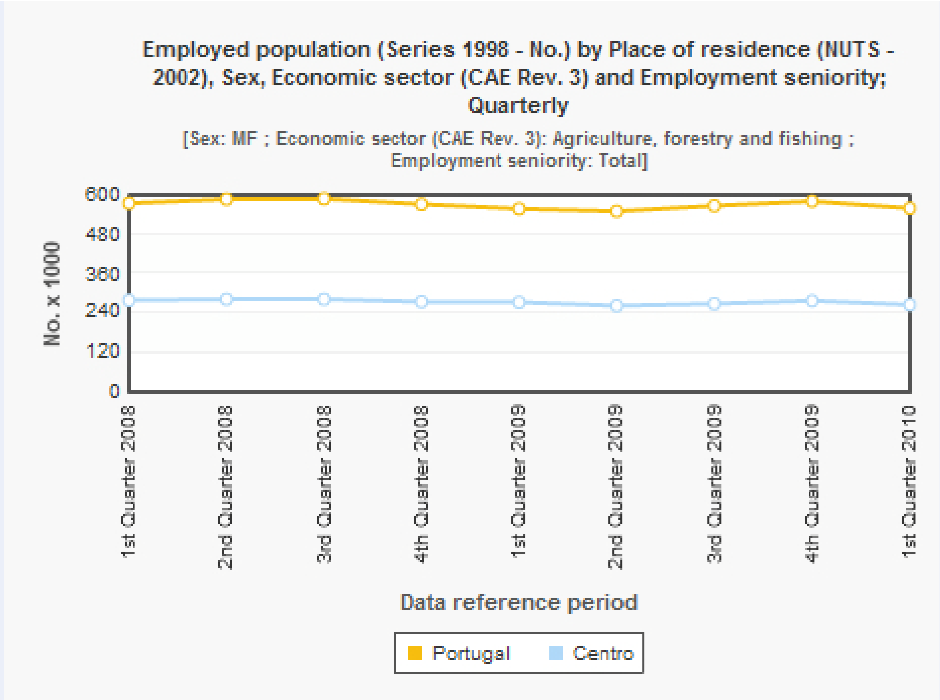

Figure 8 Employed population in the primary sector of Centro region (NUTS II) and Portugal, 1998 to 2009 (INE, 2010).

3.3 Infrastructure

The development of the Oeste sub-region (NUTS III) has greatly benefited from its proximity to Lisbon (74km) and to other major urban centres. Access to the Oeste region is now fast and straightforward, via the A8 motorway (Lisboa/Leiria), A17/A29 connecting to Porto, the A15 motorway (Óbidos/Santarém), and the IP6, A1 and A23 (the latter connecting to Spain). The easy access to Lisbon and Porto International Airports also facilitates connections between the region and the main urban centres in Portugal. There is no rail network to Peniche.

The port of Peniche lies in the southern part of the isthmus of the peninsula of Peniche. The protection provided by the Peninsula provides excellent sheltering conditions from the stormy weather felt during the winter months. It is also one of the most important ports in the country, in terms of value of fish landed and the second largest in terms of landed volume. The region has good conditions in terms of maritime transportation mainly due to its location and to the proximity of the commercial ports of Lisbon and Figueira da Foz.

The Oeste sub-region offers various types of education and training, both public and private. The facilities available include primary and secondary schools (3 primary schools and 1 secondary school within Peniche), professional schools (such as FOR-MAR), special needs schools (such as Cercipeniche) and two campuses providing higher education belonging to the Instituto Politécnico de Leiria (IPL - Polytechnic Institute of Leiria): the Escola Superior de Tecnologias do Mar (ESTM - School of Tourism and Technology of the Sea) in Peniche and the FOR-CET in Nazaré.

The most relevant vocational schools in Peniche are FOR-MAR (technical training in fisheries), Cercipeniche – CREAP (centre for the social-professional insertion of people with special needs), CENFIM (provides courses related to the metallurgical and mechanical industry), ADEPE, AJAL (provides courses related to agriculture), ACISP (provides courses with the objective of qualification/requalification of human resources).

In the case of FOR-MAR Peniche, the majority of training has centred on fisheries activities. All the courses listed in the Regulamento de Inscrição Marítima (Rules of Maritime Registration - R.I.M.) provide adequate training and access to a career in the fishing industry, either as a fisher or as a maritime engine mechanic. 2008 courses had a total of 467 trainees, of which 338 attended the courses in Peniche, while the remaining 129 attended in Nazaré.

The importance of the School of Tourism and Technology of the Sea (ESTM) of the Polytechnic Institute of Leiria (IPL) must be emphasised. Located in the city of Peniche, the ESTM trained nearly 1200 students in the 2008/2009 academic year, of which 40% came from the Oeste sub-region. The mission of the ESTM is to contribute to the economic and social development of the region, effectively being an important instrument to incentivise regional development. The core competencies have a maritime connection, whether it by degrees in Tourism, or degrees in Marine Biology, Biotechnology and Food Engineering.

Additionally, Master's courses in Aquaculture and Marine Biotechnology have extended the training offered in the scientific and technological sectors; these are considered key pillars for the integrated development of the Oeste sub-region. Besides these courses, the ESTM also offers a Master of Integrated Studies of the Oceans in partnership with the Azores University.

3.4 Local development plans

The second phase of construction of the port of Peniche has been completed. The harbour basin was expanded to encompass an area of 12ha which include adjacent terrains. According to the report "*Memória descritiva e justificativa dos objectivos do projecto de investimento/análise dos custos e benefícios socio-económicos*" which presents the main objectives of the expansion work as well as the cost-benefit analysis relating to the development of the port facilities, the port of Peniche is now able to cater for all requirements related to the handling of fish products. The port has been fully adapted to respond to the recent changes observed in the fishing fleet, namely by improving the logistic capacity of the port and the provision of more moorings.

At present there are no plans or need for further expanding the port facilities or any other facilities supporting the fisheries sector/sub-sector. It is believed that fisheries are now operating at their full potential and little else is needed in terms of supporting infrastructures.

It is nevertheless necessary to encourage business developers to invest in this region, mainly in the fish processing sub-sector. It is thought that there is scope for further growth in the fish processing sector. It is equally important to create a good working environment in order to attract more young and quality people to the sector.

The state of the national economy strongly determines the local economic development and private investment in the fisheries sector, yet the outlook for major investments in this sector is not promising given the current national economic crises. In addition to this there have been major spending cuts and break of transfers of government funds to municipalities which are needed to manage, promote and organise the activity at a local level. It is believed that the lack of these funds will undermine some of the work that has already been developed and will subsequently affect the capacity of the sector to attract qualified and dynamic young people.

Despite the unfavourable conditions, the Municipality of Peniche will maintain its efforts to implement projects to increase the overall attractiveness of the municipality. This will include some initiatives in the fishing sector as well as other including, the rehabilitation of the cities fortress wall, construction of new schools, the creation of the centre for high performance surfing and the rehabilitation of social housing facilities.

In terms of fisheries, the constitution of the Coastal Action Group - *Grupo de Acção Costeira do Oeste* (GAC) - will provide the part of the financial mechanisms for the development of several projects aimed at contributing to the sustainability of the fishing industry and of the fisheries dependent communities.

Around the brand "*Peniche - Capital da Onda*" (Peniche – Capital of the Waves), projects are being developed that take advantage of an important resource of the region: the waves. There are two pillars which are being developed: i) surfing and ii) renewable energy.

In the coming years Peniche will continue to feature as a stage of the WSC (World Surfing Championship), and being considered one of the world's top surfing destinations. Besides sports, energy production from waves has been attracting interest and investors. Initiated in 2009, project SURGE (Simple Generation of Renewable Underwater Electricity), aims to optimise the available technology of producing electricity from wave energy. It is expected to reach completion towards the end of 2012. It's intended that the final version of the project will have a commercial application. This project, with funding of 3 million euros by the European Union, involves an international consortium led by AW Energy (Finland), of which the Municipality of Peniche is also part together with some other companies in the region (the shipyards and Eneólica).

Despite the small size of territory, the municipality of Peniche has excellent conditions for developing a wide variety of projects related to the sea. The cluster of "Knowledge and Economy of the Sea" serves as a guideline to materialising many of the concepts it develops within its content in a medium to long term period providing the national economic outlook improves in the near future. One of the flagship projects that are part of the collective strategy of the cluster is the "Maritime Tourism and Nature". Peniche has already started projects aiming at identifying the existing potential for the development of tourism activities which are linked to the local natural environment (Grandes Opções do Plano e Orçamento - Câmara municipal de Peniche, 2010).

Fisheries and aquaculture sector

4.1 Details of the fishing fleets

The Peniche fleet can be characterised as being made up of three main segments: small-scale fleet – less than 12m length; fishing locally; short range; variety of species and gear (i.e. long line, pots, trammel nets); Coastal - the smaller boats fish locally with the same gear as local fleet yet in greater numbers. Larger coastal vessels have polyvalent fishing licenses and use a variety of gear including trammel nets, pots, long lines, trawl. Also coastal are the purse-seiners. All these have a greater operational range than the smaller vessels yet, with exception of small pelagic, they catch the same range of species. Finally there is a small offshore segment that operates in Newfoundland, the North Sea and in the eastern Atlantic.

Table 1 Breakdown of the Peniche fleet by segment

Port of registration	Fleet	Vessel length	No. of vessels	GT	Power (KW)
PENICHE	Coastal	12 a 14,99m	27	421,17	3041,55
		15 a 23,44m	29	1605,2	6369,06
		24 a 39,99m	11	1728,57	4348,76
		9 a 11,99m	32	246,89	2229,12
	Total Coastal		99	4001,83	15988,49
	Offshore	24 a 39,99m	3	942	1877,13
	Total offshore		3	942	1877,13
	Small-scale	0 a 6,99m	640	399,92	2868,41
		7 a 8,99m	63	165,82	1653,27
		9 a 11,99m	1	4,01	63
	Total small-scale		704	569,75	4584,68
PENICHE Total			**806**	**5513,58**	**22450,3**

The "*traineiras*" or purse-seiners deployed in the capture of small pelagic species, most notably the sardine but also horse mackerel, mackerel and occasionally anchovy, operate at an average distance of 12 miles from the coast. This type of fishing gained prominence between 1977 and 1982, due to the development of a strong cooperative movement. Since then, the number of vessels has declined and the fleet still in existence is somewhat old with low fuel efficiency engines and some without adequate means of preserving fish on board. Typically, the revenue from the vessel is divided, with half going to the owner of the vessel and the remainder allocated as shares to the crew according to their status.

The number of purse-seiners operating from Peniche declined from 53 in 1986 to only 20 in 1997. Currently the local purse-seine fleet comprises of 14 boats, 80% of which have undergone some sort of renovation work to accommodate the new working regulations. Some have improved the on board equipment for the preservation of the catch. Consequently the number of registered fishermen in this fishery has also declined throughout the years.

The coastal fleet, which in 2009 comprised of around 100 vessels varying in size, targets mainly demersal species of high commercial value such as snapper, skate, sea bass, scabbard fish, conger, sea bream, octopus, squid, cuttlefish, monkfish, crabs and lobsters. The vessels operate from location close to the harbour (adjacent to Peniche port) to fishing grounds off the Portuguese Exclusive Economic Zone (EEZ). These vessels are crewed by anywhere between one and eighteen men and deploy a variety of fishing gears on a range of demersal species occurring in the local inshore waters. Bottom trawlers mainly target demersal resources can be subdivided into two subgroups, fish trawlers and crustaceans trawlers. According to the available data (INE, 2008), catches of both fish and crustacean trawlers have declined in recent years. It is important to note, however, that the number of trawlers also decreased.

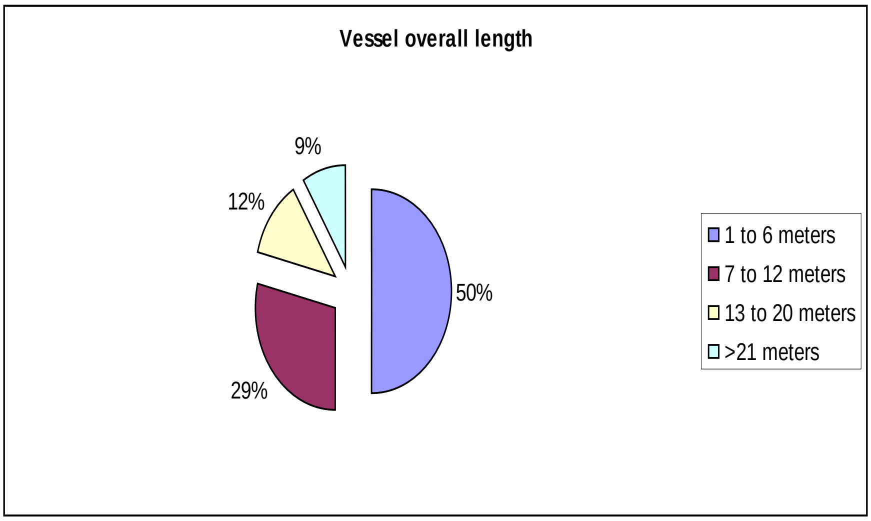

Figure 9 Vessel overall length (source: CAPA and OPCentro).

According to local data (CAPA and OPCentro 2005, the average overall length of these vessels was 12 m (Nazare and Peniche combined). Around 50% of the vessels have a length ranging between 1 and 6 meters and only 9% of the vessels have an average length greater than 21 meters. So the average length of vessels in these two ports falls short of the average length registered at national level: 91% of national vessels have an overall length of less than 12 meters in contrast with 80% as observed in the Peniche-Nazare ports.

When analysing the average age of the vessels from the ports in the Oeste sub-region, it is noted that more than 60% of vessels are under 17 years old and the oldest boat was built in 1932 (78 years ago). Comparing the local fleet with the national fleet (average age = 26) it appears that there have been efforts for renewing the vessels registered in the ports of the Oeste sub-region.

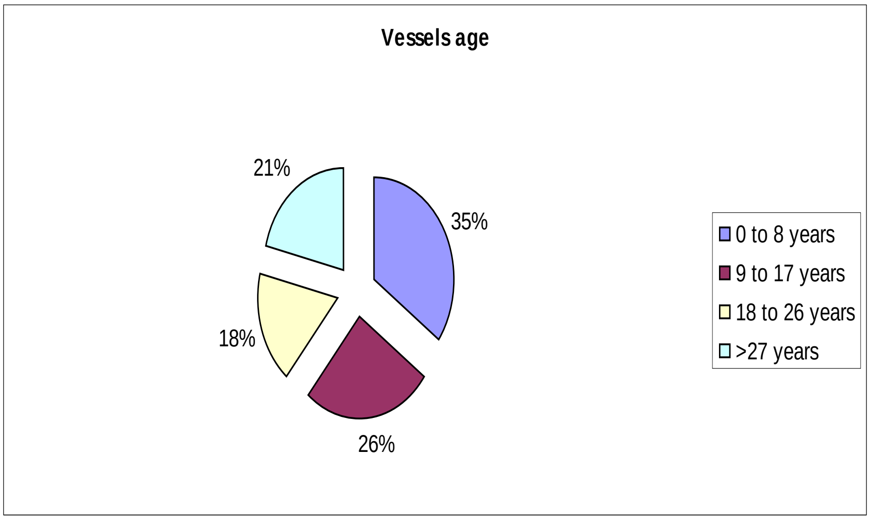

Figure 10 Vessel age (source: CAPA and OPCentro).

The reduction of the fishing fleet, observed over the years, is the result of scrapping scheme which are integrated and applied under the scope of both the Common Fisheries Policy and national policies in order to promote the reduction of fishing effort. These programmes have been implemented since the adhesion of the country to the European Economic Community (EEC) in 1986.

Trends in fleet segment numbers show a decline in the numbers of the local fleet, and a stabilisation in the numbers of the offshore and coastal fleet. Regarding the trends in fleet segment power and tonnage, the coastal fleet has show to be declining, whereas the local fleet has registered a small increase. The offshore fleet has remained stable in terms of fleet tonnage, power and number in the last five years.

Comparing the fleet segment tonnage trends (see Figures 12-14), the pattern of decline in the coastal fleet is clear (ranging from 4,002 tons in 2005 to 3,671 tons in 2009) as well as some small increases in the local fleet (increasing from 570 tons in 2005 to 588 tons in 2010). These trends are also visible when analysing the coastal and local fleet segment power (see Figures 12-14). In 2005, the coastal fleet had 15,989 kW and in 2009, 14,798 kW.

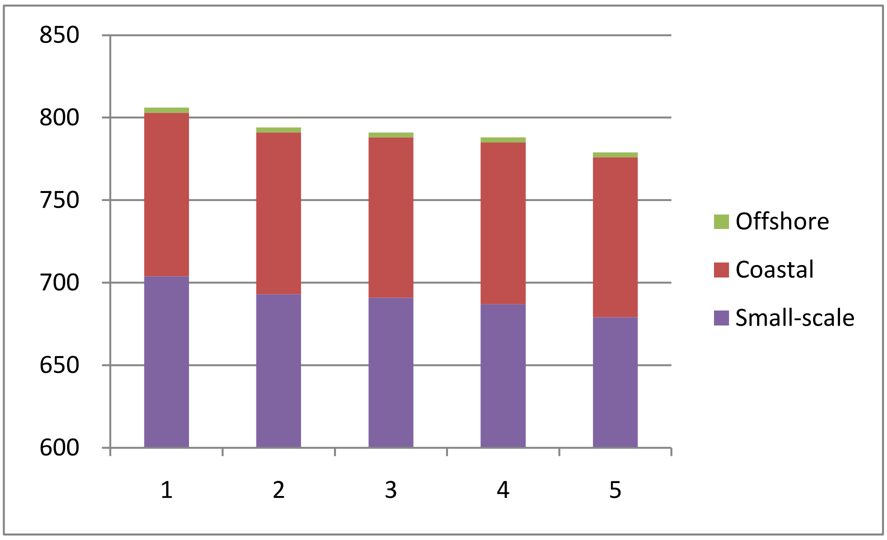

Figure 11 Trends in Peniche fleet segment numbers, 2005 to 2009.

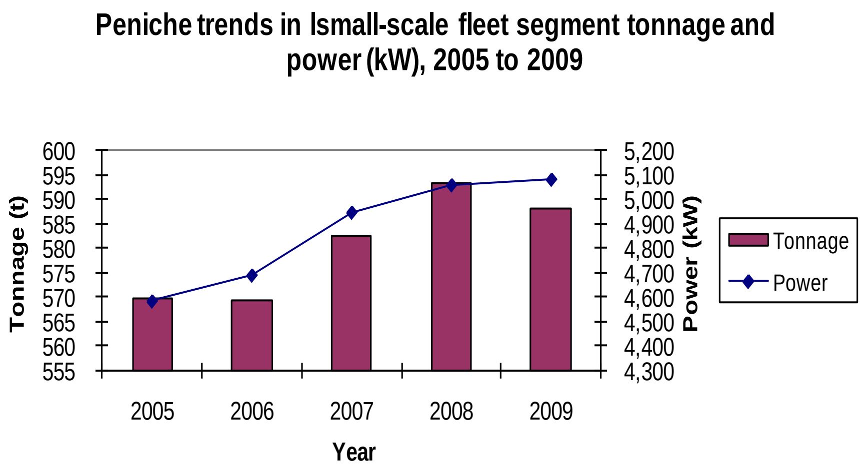

Figure 12 Trend in Peniche small-scale fleet segment tonnage and power

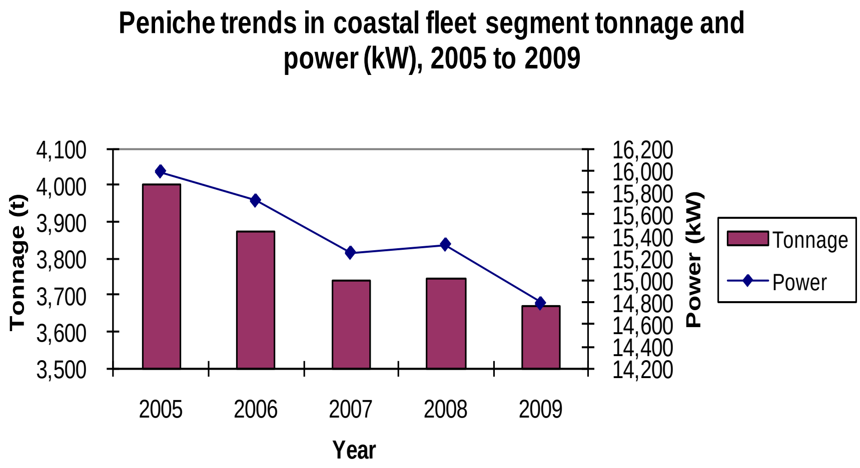

Figure 13 Trend in Peniche coastal fleet segment tonnage and power

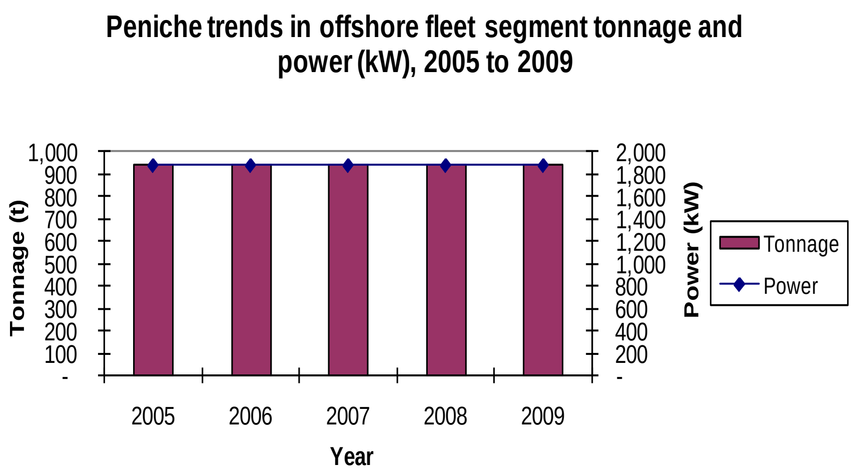

Figure 14 Trend in Peniche offshore fleet segment tonnage and power

4.2 Fish stock status

The fishing fleets in Peniche exploit a wide variety of different species and stocks. In general terms, the state of the majority of the stocks is unknown (e.g. octopus, sea bass, etc.), yet for some species there are indicators which provide evidence into whether they effectively represent a fishing opportunity (i.e. their estimated abundance). This is the case for two commercially important small pelagic species. An account into the state of the stocks of these two species is provided below.

The state of the sardine stock cannot be evaluated with regard to biological reference points as they have not been defined. Yet the abundance of sardine in some areas continues to be lower when compared to the levels observed during the mid 80's. Based on the most recent assessment, the spawning stock biomass (SSB) increased in 2006 and 2007, and fishing mortality has shown a decreasing trend since 1998. The 2004 year class is the second highest of the historical series, while the 2005 year class is confirmed to be low and the 2006 year class is estimated as the lowest in the historical series. There are no management objectives for this stock and there is no TAC. Almost all catches are taken by Portuguese and Spanish purse-seiners in a directed fishery for human consumption. The stock is managed by Portugal and Spain through minimum landing size, maximum daily catch, days fishing limitations, and closed areas. Daily catch limitations were imposed for the first time in 1999. The fishery has however been recently certified by the MSC which points towards the sustainability of its exploitation.

It is important to note that the producer's organisations have had a crucial role in the management of this important resource as they have been limiting catches mainly to meet economic requirements, i.e. they are not interested in flooding the market with fish as it effectively drives the price down due increasing the supply.

Figure 15, clearly shows the importance of this fishery in Peniche. It shows the proportion of sardine landings relative to all other landed species. The highest volume of sardine landings was registered in 1998, with approximately 16,000 tons, and the lowest value was registered in 1999, with approximately 10,000 tons.

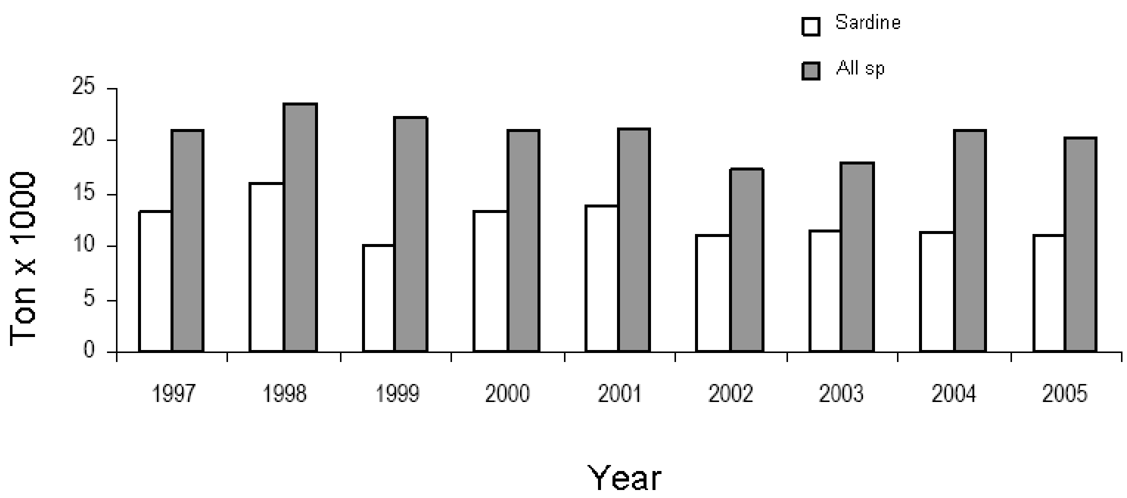

Figure 15 Landings in weight (t) of sardine and other species, between 1997 and 2005, in the port of Peniche – Source: Recursos de Pesca 1997-2005.

The state of the stock of horse mackerel (*Trachurus* sp.) is unknown. Available information has shown to be inadequate to evaluate the spawning stock biomass (SSB) or fishing mortality for that matter. The southern horse mackerel stock delimitation has been revised recently according to the conclusions of the HOMSIR project. This revision resulted in data aggregation from Portugal and Spain that differed from previous years.

Division VIIIc is now defined as part of the distribution area of the western horse mackerel stock. Catches decreased from the early 60's but have been relatively stable since the early 90's. The age composition appears to be stable over the past 10 years. The level of catches during the period of 2000 to 2004 averaged 25,000t. This reference period excludes 2003 because of the reduced effort due to fishing ban that was imposed as a result Prestige tanker oil spill. There were signals that the recruitment in 2004 and 2005 could have been well above average. This stock has supported a stable exploitation level for long time periods which lead to the advice of maintaining recent catch levels. Other species of horse mackerel are caught together with *T. trachurus* in Division IXa, in particular *Trachurus picturatus* of which 300 to 800t have been caught annually since 2000.

4.3 Fisheries infrastructure

The Peniche port lies on the southern coast of the peninsula of Peniche, with the basin of the port protected by the west pier (about 700m long) and the east pier (about 600m in length). Within the port are located infrastructures to support fishing activity:

- Pier supply of ice, fuel and supplies;
- Slipways;
- Mooring berths;
- Landing pier;
- Repair quays;
- Shipyards;
- Ice factory;
- Recreational marina with 6 floating piers - Marina da Ribeira
- Auction hall building (warehouses of merchants, nautical equipment stores)

Figure 16 Aerial View of the Peniche peninsula and port.

The *Estaleiros Navais de Peniche* (Peniche shipyards), involved in the construction and repair of vessels, are based near the fishing port and have excellent operational conditions to carry out work in a variety of types of vessels. It is noteworthy that these shipyards note only carry out work for the fisheries sector but also for other sector such maritime transportation, wave energy and other heavy metalwork construction.

4.4 Details of the local catching sub-sector

Total overall landed volume in Peniche has been declining since 2000. Total landings in 2009 represented around 10% of national landings by weight, while in 2005 the proportion was even higher at over 14%.

Even though from 2006 to 2008 there was a slight increase in landings at a national level, the same was not observed in the port of the Peniche. The increasing landings in mainland Portugal are mainly due to a significant increase in sardine landings by purse-seiners operating off the ports of Matosinhos and Figueira da Foz.

The overall decrease in landed weight in Peniche is likely to result high fishing effort coupled with natural fluctuations in abundance and/or catchability of each species. Natural fluctuations in the abundance of many fish species, including sardine, also result from changes in weather conditions, especially during the spawning months.

There are other factors, namely globalisation and market competitiveness, trade liberalisation, changes in marketing and supply chains and distribution channels, etc. All these factors lead to an increasing over-capacity of the fleets and a potential over-exploitation of many fisheries resources.

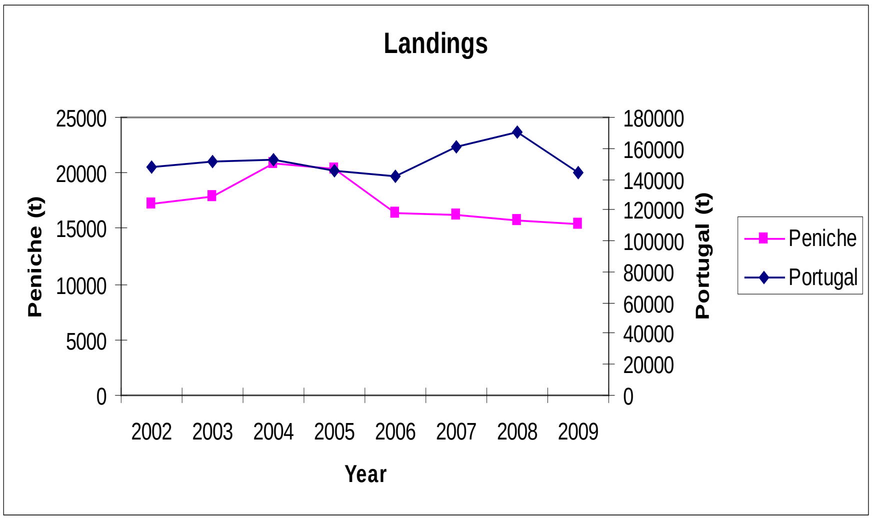

Figure 17 Total landings in Peniche and Portugal, (source: DGPA - Lisbon).

Comparing the relevance of different types of fishing, it is clear that seine nets assume greater importance in terms of quantities landed, registering 76% of all landings in the port of Peniche. This can also be noted in the volume and value of landings of sardine and horse mackerel, species captured by purse-seiners.

There are very significant differences in mean values of fish landed between Peniche and Portugal. The trends show that Peniche prices appear to have been increasing over the years since 2005 (and generally continued to do so during the economic crisis except for a slight decline in 2008), whereas Portugal shows a decreasing trend in prices for most species up to 2007, and then increases slightly in the last couple of years.

One of the reasons why the value of landings is slightly higher in Peniche is likely to be related to 2 factors, the adequate handling of the fish throughout the landing process, together with its quality. These factors seem *per se* able to attract greater interest hence leading to better prices. Also the fact that sardine is now MSC certified may also be contributing for this price difference relative to catches in other locations. The fact that the sardine fishery is now certified means that local companies are able to supply clients who have the financial capability to pay a premium price for products carrying sustainability eco-labels, such as Germany and other northern European countries.

The value and weight of species landed in Peniche are shown below. Sardine, tuna, octopus, horse mackerel and sea bass are the most valuable landed species. Sardine and horse mackerel are mainly caught by the coastal fleet whereas octopus is caught by both fleets.

There are many boats, not locally registered that land their catch at the commercial port in Peniche. These landings contribute significantly to the overall employment in the sector as part of this raw material is feeding the local processing industry.

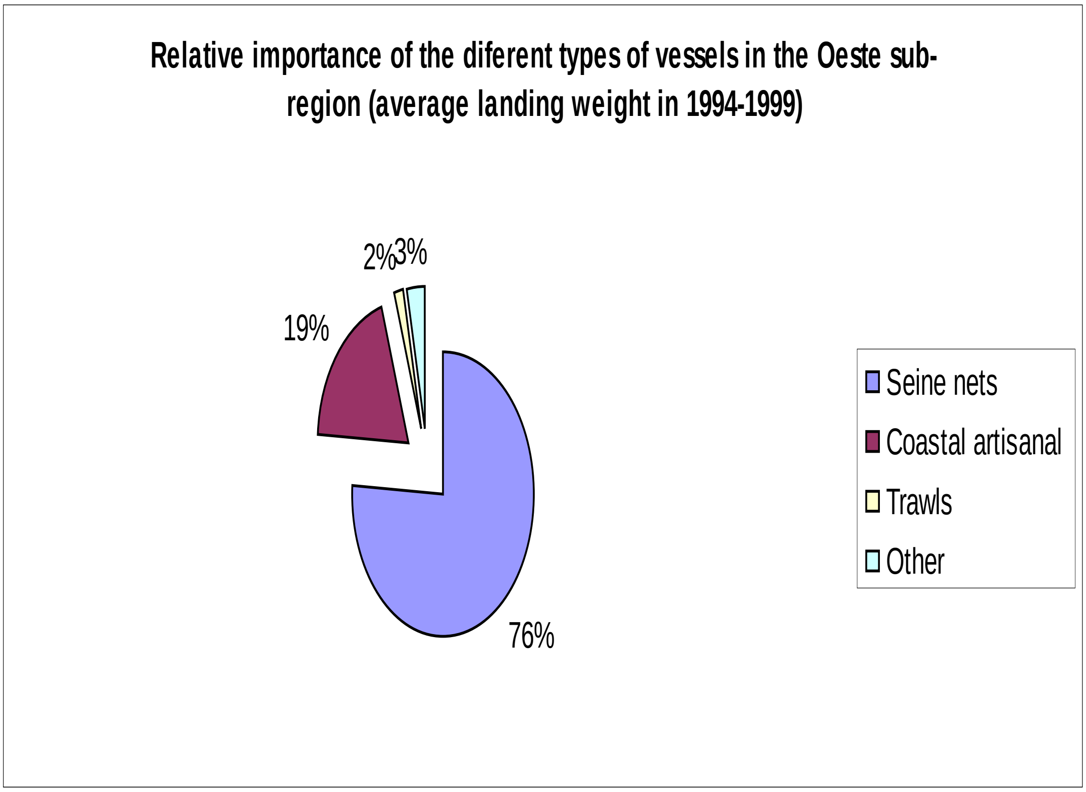

Figure 18 Relative importance of the different types of vessels in the Oeste sub-region.

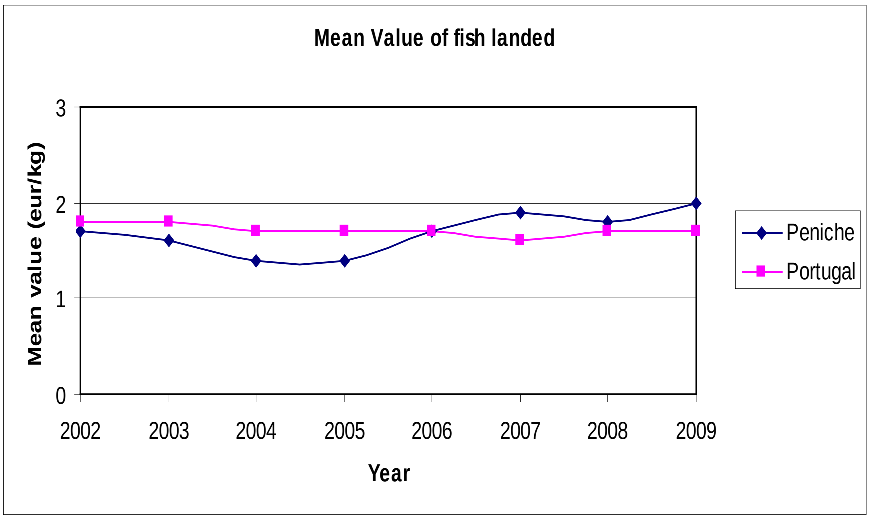

Figure 19 Mean value of fish landed in Peniche and Portugal (source: INE).

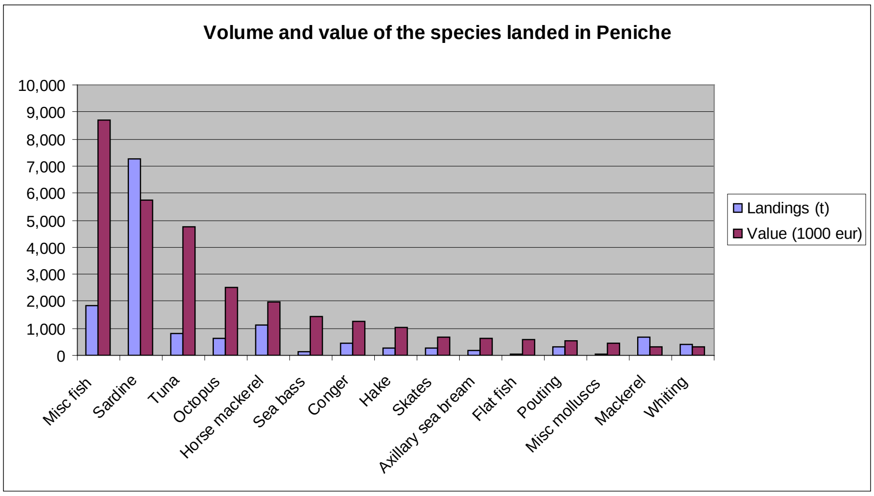

Figure 20 Value and weight of species landed in Peniche (INE, 2009).

4.5 Details of the local processing sub-sector

At the beginning of the last century when the fish processing companies were established in Peniche the local economy expanded dramatically and created a large number of jobs, especially jobs for women at the canneries. The fish processing units in Peniche have, since then, played a major role in the development of the local economy and have been crucial in supporting the development of other industries and sectors. The current aim of the municipality is to diversify the economic activities in order to maximise all the potential provided by its natural resources or resulting from its privileged geographic location.

In 2005, there were 184 fish processing units in Portugal, employing a total of 6,500 people. Most of these units employed less than 50 people. The industry has experienced difficulties resulting from increased competition from the Far East, notably Thailand, South America, and North Africa, with catches destined for markets in Germany, Britain and some Nordic countries.

Table 2 Number of employees working in the major fish processing companies of the Oeste sub-region (2007 survey – Municipality of Peniche).

	António Ramos & Costa, LDA	FILMAR	IDAL	Luís Silvério & Filhos, SA.	NIGEL	Rarmirez & Ca
Administration	34	7	12	3	22	3
Graduates		1	5	2	7	1
Operators	136	35	194	21	194	53
Total	**170**	**43**	**211**	**26**	**211**	**57**

In 1998, 17% of the of the fish processing industry operating in Portugal was located in the Oeste sub-region. 51% of these units belong to locally based companies which are based in the Oeste sub-region, and of the 32 existing units, 23 units were dedicated to preparation and processing of fresh and frozen fish products.

Only the major fish freezing and processing companies are included in Table 1 and were selected according to their socio-economic relevance at sub-regional level.

Two important local processors are:

Nigel, Ltd. – Founded in 1958, Nigel is a modern enterprise dedicated to the sale, in the domestic and the international market, of frozen fish and seafood. With various ISO certifications, the company received during the last years several excellence management awards. In 2007 showed a turnover of €14,732,332.51 in sales, €25,642.99 in services, representing a total of €14,757,975.50. The enterprise accounts now over 100 employees in its service.

Luís Silvério e Filhos S.A. - The Luís Silvério & Filhos, S.A is a family business that was founded by Luis Silverio and Odilia Silverio in 1987 and currently has 26 employees. Devoted to the import and export of fresh and frozen fish, has since 1991, a factory for freezing sardines and octopus. As a result of a policy of innovative and effective management, Luis Silvério & Filhos S.A, is the only company in the municipality of Nazaré to be included in top 250 of Leiria. In 2000 had increased by over 20% their turnover in the previous year. Currently have two offices: one in Peniche, which is dedicated exclusively to the preparation and marketing of fresh fish, and one in Nazaré.

Two new fish processing operations have been implemented in the city. The main role of these units is to prepare the fish products to be sold in the various supermarket chains throughout the country, mainly fresh but also sliced in frozen packs. These units employ to their full capacity around 70 people each.

Also very important in terms of employment are the canneries which employ a much greater number of people and represent an important export at a regional scale. Currently there are four large canneries and the biggest one, employing over 350 people, exports the large majority of the production to the USA.

The overall trend in employment terms this sector is negative, a result of the restructuring, modernisation of processes and adaptation to the new reality of the sector and to an increasingly global market. Despite efforts that have been made, there seems to an increasing number of obstacles. Entrepreneurs complain of unfair competition from other Member States and foreign countries, as there is an unequal application of standards and concepts handed down by the EC directives, which results in a strong discrepancy in the application of state subsidies. It should also be noted that government often has a limited view regarding the application of resource management measures, not adequately protecting the resources that constitute the primary material of this sector. This is particularly important as nearly all of the raw material is sourced along the coast of Peniche.

Another obstacle relates to the resistance that the younger population has to working in this industry. This shortage of manpower promotes strong employee turnover, driven by the lack of attractiveness of these professions, with implications on productivity and need for an ongoing effort in training employees.

The fact that most companies have a familiar character can be both a strength and a weakness because, on the one hand the family business may show weaknesses regarding its management and greater resistance to innovation and introduction of new technologies, but they are based on strong family relationships, in a culture of enterprise with close ties to the community and employees. This factor is important in that company owners do not feel tempted to shift the company to other locations, in order to reduce production costs.

4.6 Details of the local aquaculture sub-sector

At present there are no aquaculture production units in Peniche. There were however small investments in this industry in the region yet they have not yielded positive results and the companies have drawn to a close. Peniche does have interesting conditions for the aquaculture industry yet all potential initiatives will require large investments which will in the initial years of productions very capital intensive.

The local processing industry does not source products originating from aquaculture. The raw material is sourced exclusively from the catching sub-sector and is used for canning (mainly sardine and mackerel) and freezing (octopus).

4.7 Details of the local ancillary sub-sector

The Peniche Shipyards (Estaleiros Navais de Peniche - ENP), are involved in the construction and repair of fishing vessels. The shipyard does not only repair and construct fishing vessels but also provides services to other industries such as the maritime transport. Besides the local and national markets, markets like Cape Verde and Angola are strong for the shipyards of Peniche.

The demand for tourist boats has also been growing, with particular attention to the vessels sailing in the Douro River and in the Sado estuary. The primary working material is fibreglass and the biggest shipyard in Peniche now employs a total of 96 workers. From 2006 the ENP has been increasing its turnover as a result of the construction of 10 steel seiners for Angola, an intensification of the repair work for domestic fishing vessels, and the assembly of the first three machines manufactured in Scotland for energy exploitation of sea waves (Pelamis technology). In 2007, the turnover had doubled over the previous year to around €20 million, much of it from exports.

Governance

5.1 Key local institutions

Governance in Peniche is good and there are good communication channels between all stakeholders and the national fisheries administration bodies. For this matter the fisheries organisations and associations have played a very important role in promoting this communication. In terms of communication between stakeholders it was observed that there are also good mechanisms currently in place that contribute greatly to the resolution of conflicts of interest as well as helping fishermen to obtain the best value for their catch. This has worked particularly well for the sardine fisheries.

It was possible to confirm that the stakeholders participating in this particular fishery meet regularly to discuss important issues relating to their activities and that the majority of the time consensus is reached by unanimity. The same is however not true for the small-scale fisheries as a far greater number of people are involved in this sector and thus consensus is inherently more difficult to attain.

It is however important to emphasise the role of the producer's organisations in the sardine fishery in particular. Their role is not only to deal with general problems related to the activity but also to actively contribute to maintaining the price of fish high by controlling the effort and therefore supply. These organisations receive information from other organisations around the country regarding the volume of catches in other areas. This information is then passed on to the ship owners and then they decide on the level of effort they will put into the fishing trip to avoid catching more sardine than the market can absorb.

Despite this being highly positive for the ship owners, as they optimise their revenue, these arrangements may not be ideal for the crew, who receive remuneration according to the amount of sardine caught. Some changes have however been introduced in order to minimise the crew's potential losses.

With respect to the bottom trawl and small-scale fleets it has not been possible to achieve such an efficient mechanism and there are still several issues that need being addressed to in the coming future, namely the fact that they cannot agree in the coordination of fishing effort between all stakeholders. Another issue is that it has not been possible to get fishermen to sell their catch to one exclusive buyer even after the signing of a MoU which objective is that fishermen sell their catch at a pre-arranged price throughout the year.

What has happened is that when fishermen obtain better prices for the catch at the traditional auction hall, they end up ignoring the agreement they have with the producer's organisations (and client) and choose to the sell their production at the auction. This has represented a problem for the organisations with which the POs have signed a MoU as they cannot maintain the volume of supply of fresh fish throughout the year at the agreed price. The opposite is true, i.e. when the prices agreed with the producer's organisation are higher than those they can obtain at the auction hall, they then sell their production at the price agreed under the MoU.

The fact that fishermen have not been able to abide to set agreements has highlighted several issues amongst the fishermen themselves and subsequently given rise to their segregation into groups. Two main groups can be distinctly identified, one that agrees with the functioning of the POs and wants to abide to the commitments agreed with large distributors, and other, generally comprised of fishermen who own smaller fishing boats or target more valuable but less abundant species (e.g. lobster), who are generally only interested in attaining the best possible price for their production and who do not see any advantages of being tied to agreements with major distributors. It is important to note however that these fishermen hardly ever have problems in selling their catch; firstly because they catch small quantities and secondly because of the high value of the species they catch.

There are also s issues with respect to attempts to control fishing effort for some species, yet this has not been easy and small steps in this direction are being given. It is thought that an important factor which hampers the implementation of a more robust agreement between the stakeholders is the lack of quality of the workforce employed by the sector. It was said that the majority of the young people available to work in the sector does it as a last resort in response to the lack of other job opportunities. Often people that end up working in fisheries lack specific professional skills and it is not uncommon to find young people who have had a history of drug abuse. The lack of attractiveness of the sector is thought to significantly undermine its sustainable development. In fact, one of the comments heard during the interviews was that the majority of the ship owners do not wish any of the members of their families to join the activity, preferring instead that the follow their studies, university level if possible, and work had to get job where they can have a regular paid job.

The key institutions of relevance to the fishing sector in Peniche are the following:

Municipality of Peniche - José António Correia Santos, Mayor – The Municipal Council provides local governance. The main aim of its activities is the economic and social development of the Municipality in order to provide the improvement of general living conditions, work and recreation of its inhabitants, while respecting the environment, built heritage and legitimate interests of minorities. The Municipality is composed of a president and council, one of whom appointed vice president, is the executive organ of the council, elected by registered electors in the area. The Municipality of Peniche has a rich heritage, technical and financial capacity of its own and now has over 600 employees, including managers, technical staff, workers and auxiliary staff. This institution submitted a 2007 turnover of about €30 million.

Associação para o Desenvolvimento de Peniche ADEPE (Association for the Development of Peniche) - Incorporated since 1997 ADEPE has had a significant involvement with the local community and regional levels in different areas of economic and social intervention. The associative structure of ADEPE currently consists of 53 associated with different legal status, including businesses, municipalities, organisations, producers, local government entities, unions, cooperatives, among others. ADEPE employs eleven professionals and dozens of temporary employees.

Associação Mútua Financeira Livre dos Armadores de Pesca Geral do Centro AMAP (Association of Ship-owners from the Centre region) - Humberto Jorge Manuel Baptista, Chairman - The AMAP was established in 1982 and has 105 vessels associated, including the port of Peniche and Nazaré. The AMAP is an association and its objectives are to defend first, the interests of ship-owners his business associates, secondly, to defend and promote all fishing activity. This Association has provided their services to the fishing industry, ensuring employment necessary to the development of the activities of its members and promoting their business development and technology. The AMAP has its own facilities, currently has six employees and the turnover in 2007 was €587,471.80.

OPCentro - Cooperativa da Pesca Geral do Centro, CRL (Centro Region General Cooperative) - The OPCENTRO was established in 1987, with headquarters in Peniche, has 105 vessels associated, covering various ports. The OPCENTRO is an organisation of fish producers whose objective is to take their own measures to ensure the improvement of conditions for fishing, improve the conditions of sale or valorisation of the fish caught by their cooperative and, in general, take all appropriate measures to improve the income of its members. There currently are serving the OPCentro, 12 employees and the volume of business in 2007 amounted to €2,356,102.00.

Cooperativa dos Armadores da Pesca Artesanal CAPA (Cooperative of Ship-owners of Artisanal Fisheries) - The CAPA is a cooperative that is dedicated to providing support services to its members, providing diesel fuel to the members vessels. It is a solid cooperative that counts with 157 members, mainly owners of artisanal fishing, six employees and a turnover which reached €1,042,648.00 in 2007.

Mútua dos Pescadores, Mútua de Seguros, CRL (Fisherman's Mutual, Mutual Insurance) - The Mútua dos Pescadores is an non-profit insurer formed in 1942. Since 2004, is the first Portuguese insurance cooperative. It is a small-medium enterprise with 50 employees. It has 15 delegations (two of them in Peniche and Nazaré) and about 200 employees on the continent and autonomous regions. It is the largest association of the Portuguese maritime sector with about 16,000 members.

FOR-MAR / Centro de formação profissional das pescas e do mar (Vocational training centre for sea and fisheries) – In the case of the Unit of Peniche, the majority of lectured training has been centred in the fisheries sector with actions of Initiation, Recycling, Improvement and Career Development. Other areas of formation are, as example: cold and heating; processing and preservation of food; management and administration, naval construction & repair, health and safety at work and HACCP. Many of these actions contemplated further progression at school since the 4th grade to 12th grade. Currently and in summary the main tasks of FOR-MAR are: the valorisation of the human resources of fisheries, maritime and port activities, including marine tourism and nautical recreation and related activities upstream and downstream of the sector, as well as increasing maritime safety.

Instituto Politécnico de Leiria IPL (Polytechnic Institute of Leiria) - The Instituto Politécnico de Leiria (IPL) is a public institution of higher education, at the service of society, for the production and dissemination of knowledge, creation, transmission and dissemination of culture, science, technology, arts, targeted research and experimental development. The IPL has about a thousand employees, teachers and not teachers, distributed by its various units and services. As mentioned earlier, one of the Schools of IPL is the School of Tourism and Technology of the Sea (ESTM). Located in Peniche, the ESTM started to operate in the academic year 1999/2000. At the ESTM are taught various courses in undergraduate, masters and technological expertise, among which a degree in Marine Biology and Biotechnology and the Masters in Integrated Studies of the Oceans (with the University of the Azores), Aquaculture and Marine Biotechnology.

5.2 Public intervention

The Table below highlights what has been the value of public support to the fisheries sector/sub-sector. Equally shown are the investments that have been made in other areas which main aim is to attract more tourism into the area. These investments aim to consolidate the image of Peniche and its direct links to the sea and fishing industry. They have also contributed to create and strengthen the brand that links Peniche to high quality waves for the practice of surfing.

It is thought that these investments will trickle down to the fishing industry through the increasing number of visitors in the city who will contribute to the increase in the consumption of high value added fisheries products and thus have a heavy contribution towards the local economy.

The direct investments in the fisheries sector will come through the GACs. These investments are believed to play a crucial role in contributing to the sustainability of the fisheries sector. There are indications that new approaches to common problems relating to the fisheries sustainability will provide solutions which will be incorporated in the fisheries management at a local level. These solutions can range from encouraging the implementation of co-management schemes to the conversion of fishing boats into tourist operators, for recreational fishing, diving or just for experiencing the marine natural environment and exploration of the Berlengas natural reserve.

Table 3 Public investment in fisheries sector

Public investment	Source of funding	Investment cost	What was the investment intended to achieve?	What were the outcomes (or expected outcomes)
Project for the restoration of the Fosso da Muralha and adjacent areas (Frente Ribeirinha	CMP; ADEPE; Fábrica da Igreja de São Pedro de Peniche; Irmandade do	€9.995.000 (of which € 5,475,000 are by the municipality	Restoration of the Fosso da Muralha (pit near the fortress wall) and adjacent	In progress

and Peniche's historical centre)	Santíssimo Sacramento da Freguesia de São Pedro de Peniche; CNP; CERCIP; Acompanha; ACISCP Project co-funded by QREN (Operational Programme for Valorisation of Territory) through the European Regional Development Fund	of Peniche)	areas – Frente Ribeirinha and Peniche's historical centre	
High Performance Surf Center	Municipality of Peniche Project co-funded by QREN Others	€1,263,899 (of which €1,063,899 are by the municipality of Peniche)	Construction of a High Performance Surf Center building	In progress
Requalification of the beaches of Molhe Leste e Medão/Supertubos	Municipality of Peniche Project co-funded by QREN	€1,100,254 (majority by the municipality of Peniche)	Contribute to resource conservation and preservation of natural heritage and landscape, strengthening and promoting the qualification of the coastal zone.	In progress
Expansion and remodelling of the network of domestic wastewater and storm water of Ferrel	Municipality of Peniche Project co-funded by QREN	€661,500 (majority by the municipality of Peniche)	Expand the network of domestic wastewater	In progress
Municipal Plan for the Promotion of Accessibility	Municipality of Peniche Project co-funded by QREN	€191,834 (majority by the municipality of Peniche)	Promote accessibility in the municipality	In progress

Natura 2000 network	Municipality of Peniche Project co-funded by QREN Others	€111,514.1 (of which €30,684.2 are by the municipality of Peniche)	Implementation of a pedestrian route properly defined, marked and approved along more than 60 miles from the coastline of three counties, set mostly in the space classified as Natura 2000	In progress
Grupo de Acção Costeira do Oeste (West Coastal Action Group)	Municipality of Peniche; ADEPE; AMAP; OPCentro; CAPA; Sindicato de Trabalhadores da Pesca do Centro; Mútua dos Pescadores; FOR-MAR; Instituto Politécnico de Leiria; among others Project co-funded by QREN	Total investment unkown, but €3,200,000 is from the municipality of Peniche)	Designing and implementing a strategy for sustainable development within its area of intervention to support the fisheries-dependent communities in the economic, environmental and social components as a way to cope with declining resources, low income from the activity, the weak competitiveness of the sector and the low added value of their products.	Expected outcomes until the year 2013
Rede Ecos (Ecos network)	Municipality of Peniche Project co-funded by QREN	€9,942,857 (of which €1,249,973 are by the municipality of Peniche)	Projects submitted include the research, experimentation and production of energy from renewable sources, the application of solutions of micro-power generation and sustainable	In progress

			construction.	
Rede de Cidades com Marina (Cities with marinas network)	Municipality of Peniche Project co-funded by QREN Others	€116,100,000 (of which €2,750,000 are by the municipality of Peniche)	Promotion and improvement of the physical conditions and the services related to recreational marinas.	In progress
Cluster "Conhecimento e Economia do Mar"	Several municipalities, private companies, institutions of higher education, research laboratories, business associations, producers associations Project co-funded by QREN	Unknown	Creation of synergies, of an integrated vision and common objectives through the coordination of dozens of projects (planned or under development), subject to the theme "Sea economy and knowledge", that may be applied in areas as diverse as fishing, aquaculture, shipbuilding and repair industry, biotechnology, transport, tourism, sport, renewable energy, education or heritage.	Expected outcomes until the year 2013

Stakeholder analysis

Provided in the table below are some key contacts in the Peniche community.

Table 4 Stakeholder details and contacts

Name	Organisation	Email	Contact details
Rogério Cação	ADEPE	geral@adepe.pt	+351 262787959
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Qualitative interpretation and analysis

7.1 Key events and drivers of change

The size of the population in Peniche has increased slightly during the last ten years mainly as a result of the overall economic development in the region. The sectors which have grown more significantly were agriculture, tourism and services sectors. In addition to these, education institutes have also attracted many young people to the city. The Peniche Polytechnic currently teaches around 1200 students which live in the centre of the town.

The number of incoming young people from other regions of the country into Peniche has outweighed the total number of local people who have left the city in search of new job opportunities elsewhere. This applies mostly to young people with little academic qualifications who do not find jobs in any of the highest growing sectors and are not attracted to work in the fisheries sector.

At present the local fisheries sector is stagnant after registering a decrease in its overall importance in the recent years. There was a reduction in the local fleet mostly as a result of scraping schemes or the sale of the vessels to ship owners operating in other ports.

One of the main reasons why the local fisheries sector has not increased is because the recruitment of new crew members has been very weak. The sector has strongly failed to attract younger generations despite efforts from the municipality to encourage young people to do so. An example of this was the programme "*Pescar e fixe*" which yielded very poor results and no sustainable follow up was planned.

The average age of the people in the fisheries sector is very high, estimated at 52+, and has increased in the latest years (Henrique Bertino). It was believed that the increase in the average age of crew members has not led to a decrease in safety at sea. On the contrary, the consultant was informed that safety at sea has in fact improved significantly in the more recent years mainly as a result of the implementation of better safety regulations.

The current majority of the locally registered fishing boats operate with crew members who are already legally retired (offshore work retirement age is 55). Estimates indicate that over 60% of all boat's crew members are retired, which is technically illegal (retired fishermen cannot conduct fishing activities on board fishing vessels; they can work yet only on shore). The reality is nevertheless that if it weren't for these people, boats would not have sufficient crew to operate.

Ship owners, who cannot overcome the problem of an aging crew or are unable to encourage new people to join the fishing operation, end up selling their vessels to other operators or scrapping them altogether under EU scrapping schemes. This generally happens with older vessels which have not gone through a renovation process and have poor working conditions relative to other boats from the local fleet.

A significant number of boats have already been sold on to fishing companies based in the north of the country; more specifically Matosinhos and Viana do Castelo. The remaining fleet of 14 purse-seiners is therefore relatively modern with comparatively good working conditions.

Agriculture has gained ground within the economic fabric of the region with the production of biologically or organically grown projects leading in terms of growth. This growth has also attained more emphasis with the decreases in the fisheries sector.

Besides agriculture, industrial activities such as shipbuilding have also increased in recent years. The number of small shipyards has decreased dramatically and there is concern amongst people within the fishing community that some of the skills for both the manufacturing and maintenance of traditional boats may be lost and that part of the small scale fleet may cease to exist. Two factors greatly contribute for this, (i) most of the old traditional boats are owned by older fishermen that do not have interest in making a large investment in replacing the boats with newer fibre glass and more expensive ones and (ii) there are no younger people joining the activity therefore no addition of new boats to the local small scale fleet.

Major investments have been made in the local shipyards through mergers to form a larger facility capable of carrying out maintenance and construction of vessels larger than those of the local fishing fleet. The investment strategy behind this is to enable local shipyards to handle all types of vessels, fishing and non-fishing. These developments have created some employment yet a significant share of the workforce orginates from Eastern European countries. These immigrants tend to have better skills than the locally available workforce. Eastern European immigrants are generally not interested in the fishing activities, but in the more technical jobs such as shipbuilding.

Some immigrants such as those originating from Cape Verde tend to be chosen to be part of the crew. Not only they are used to the activity but they already speak Portuguese.

One of the most relevant roles of the canning factories is to provide employment to women. This became extremely important since the revenues from fisheries alone decreased drastically after a great boom in the early 80s. Fishing activities have become more regulated coupled and the abundance of a large number of species has decreased drastically during the last couple of decades. Revenue from this activity alone was not enough to maintain household income levels. In light of this, some women who previously did not have to work had to help supporting the household income. The most logical place for them to work was the canneries which were expanding during the boom years. Nowadays another important source of employment for women is the agriculture sector.

Entrepreneurship in the fisheries industry especially in the capture sector is reduced, mainly due to the lack of available workforce. In 2007 the municipality of Peniche carried out a project called ISTMO which objective was to mobilise the community to discuss fisheries related issues and incentivise more people to join the activity. Some of these results have been published and distributed locally. For the purpose of the project a selected group of journalists together with local people associated to the sector were invited to visit other European villages where fisheries have a great importance.

Coupled with this project there was another project called “*Pescar e Fixe*” during which fishermen were taken to schools and actively participated in presentations about the fishing activities to show the students that it is a good way of life and represents a real job opportunity for people that want to remain in Peniche. The main aim of this project was to incentive young people to join the sector. There were plans for disseminating the results of this particular project throughout the country and replicate it in other important fishing villages yet this did not happen due to the lack of budget. Earlier projects funded under the MARE programme helped the municipality to collect important local information about the local fishing industry.

More recently there has been a lot of emigration as experienced crew members have been accepting jobs in foreign European boats, and some national vessels that undertake fishing operations in Africa.

Retired fishermen who no longer take part in fishing operations could be a good vehicle to inform younger generations about the fishing activity and contribute to encouraging them to joining the activity.

Tourism has grown considerably in recent years and is now becoming an important source of revenue to the region and to the municipality of Peniche in particular. The number of second homes has increased significantly. These holiday or second homes are owned not only by Portuguese but by an increasing number of Spanish people too. In terms of tourist attractions, Peniche has to offer a wide variety of activities related to the sea, namely beaches, surfing, recreational fishing and diving. Recreational fishing has gained a large importance in the last 5 years as a great number of fishermen have now converted their activity into touristic operators. At present there are around 20 boats ranging from 6 to 12 m. The necessary investment to set up a recreational fishing company is around 75,000 Euros The clients are 70% Portuguese, around 15% are Spanish and the remainder all other nationalities.

The purchasing power of people working in the fisheries sector has been decreasing throughout the years. In the years after 1974 there were many people joining the fishing industry mainly because there were no other job alternatives. During this time many of the fishermen were able to make very large profits as there were little regulations and their enforcement was very poor. Has the regulations tightened with time and enforcement improved, together with the fact that there was a decrease in the abundance of a large number of species, many fishermen saw their profits drastically reduced. This has contributed to a significant number of people leaving the industry altogether once they reached the age of retirement. The clear contrast between what were the earnings when they started the activity and the current earnings, and the fact that this is known by younger generation hampers the recruitment of new people into the sector. This has fuelled the perception that it is no longer possible to make a good living out the fishing activity and that the potential earnings do not compensate for the harshness of the life at sea. This has contributed to the overall unattractiveness of the sector

With changes in the dynamics of the sardine fisheries in recent times (such as a better control of supply and demand by the producers organisations) coupled with the loss of competitiveness to other countries (e.g. Morocco) some of the factories have closed or reduced their output. This has also lead to a reduction in the employment in this sub-sector. The municipality has made a considerable effort to organise a number of professional courses to allow unemployed people to acquire further qualifications in order to seek other types of jobs. The success of the training initiatives was limited as the municipality has little capacity to absorb that level of unemployment. It is thought that new opportunities will arise in the tourism sector in the coming years.

A very positive note is that the sardine fishery has been awarded the MSC certification which contributed (only slightly so far) to improving the first sale price of sardine. It is expected that the local processing industry will also benefit from this certification.

One of the issues pointed out during the consultation meetings was that there is a low level of entrepreneurship in Peniche and little or no incentives to develop new business ideas. At present there is little local investment in innovation, more needs to be done in this field.

Equally, the municipality has not been able to cater for many of the local community's needs, especially concerning people retired from the fishing activity. Many of the older fishermen keep going at sea to fish on a regular basis as they need to complement their retirement pensions with the revenue from fishing. The average age of these retired fishermen mentioned in this example is around 70 years old.

Some solutions to facilitate the sale of the fish caught by retired fishermen were put into practice (to register the catches made by retired fishermen to a single boat, sell the landings in the auction hall and share proceeds proportionally) yet they were considered illegal by the authorities mainly due to complications with tax collection. Since this solution was found to be illegal, retired fishermen keep selling the fish illegally as no mechanism has yet been found to tackle this problem.

The aquaculture sub-sector is not currently important in Peniche. There has been no investment in this sector despite the region's great potential.

In terms of the local fisheries there has been no change to the status of the stocks which the local sector depends on. The status of the sardine stocks (the most important fishery), according to the 2002 data published by the EU, slightly improved as a result of an evolution in the self-regulation of fishing effort initiated by the organisations of local producers, as part of a national plan implemented with the support of the EU and DGPA.

The most important are the small pelagics such as sardine, mackerel and horse mackerel. There are many other species regularly landed in Peniche which are caught by the local small scale sector. The decrease in the size of the fleets is thought to have contributed to the healthy status of the most important stock, sardine. In fact it has recently been awarded a MSC certification.

In terms of governance, the relationship between all stakeholders is generally good and there is pro-active collaboration between all of them. All existing structures are providing an adequate support to the sector with particular emphasis to the support the Producers' Organisations provide to their associates.

There are apparently no corruption problems. The only friction point between the authorities and the fishermen is the fact that some of the bureaucratic inspections are made at sea whilst they could easily and more effectively be made during the period when the boats are at port. This has been widely criticised as these inspections hamper the fishing operations.

Almost 100% of the fleet is now part of a PO. These organisations work better for the purse-seine fleet and are to a certain extent less efficient for the small scale fleet as they have to deal with a larger number of species and many different types of gear. Consensus it is not always easy to address multiple issues ranging from price setting agreements to quotas for certain landed species. With respect to pricing agreements they are particularly difficult to negotiate, especially during times when the price of first sale at the auction hall exceeds that of the contract with the PO for major distribution chains. Because the individual quantities are relatively small it is easy for them to consider that their catch is not important for the distributors, thus opting out to sell their catch directly at the auction hall instead of the agreed client. This sort of behaviour has contributed to putting large distributors off from establishing these types of agreements which in the long term are beneficial for the fishermen who have access to a more or less fixed income by always selling their products to these large operators.

With respect to governance within the Producer Organisations, for the one that deals with small pelagics (mainly sardine) the standard is very high. The decisions resulting from the meetings with the associates are always implemented unreservedly. All discussions take place in an appropriate forum, usually the POs head office. Often there is unanimous agreement from all associates regarding fisheries-related decisions.

All organisations involved in the fisheries sector will participate in future projects developed by the Coastal Action Group (GAC). Organisations such as ship owners associations, local development associations, municipalities, fishers union, the national fish auction company Docapesca, insurance companies (*Mutua dos Pescadores*). An example of the projects planned for the near future is the survey and analysis of the coastal and fisheries culture of the region.

7.2 Adaptation

Local agents working in the fisheries sector should talk more to each other in order to define the plans for the future of this industry. Roadmaps and key aspects should be further discussed. The municipality should encourage and provide a common forum for these discussions. The debate into these matters should be an outward and shared exercise and not a one sided discussion.

Due to the fact that there are less people keen on joining the crew of the fishing vessels there should be more mechanisms to encourage younger generations to join the sector. Alternatively conditions should be provided to immigrants wanting to come and live in Peniche to join the crew in fishing vessels.

Tourism has increased drastically during the last 6 years. The flux of tourists spreads throughout the year yet peaking in the summer and Easter. This flow of tourists in the area has been fuelled not only due to the improvements in the accesses to Peniche but also due to a number of golf courses and increased tourist offerings in the surrounding areas, with great emphasis in Obidos which is only a few kilometres away.

There are two activities in particular that have contributed for the increase in youth tourism in the area these are diving and surfing, with the latter being the most important one. The organisation of one the world surfing championship stages in *Supertubos* has greatly contributed to publicise Peniche's surfing potential.

Another sector which is thought to be important for the growth of the local economy is renewable energies such, including wind, wave and tide power. Prospecting by renewable energy companies has been carried out in the more recent years and all have expressed a certain degree of interest to carry out investments in the region.

Agriculture is another sector which has grown considerably and has been an important source of employment in the region. In the littoral coast of Peniche the economy is based on fishing and associated industries yet in the rural Peniche, agriculture is predominant. The presence of water courses, as the river S. Domingos or Ribeira de Ferrel, gave over the years fertility required for the development of a major fruit and vegetable production, for the local and regional markets. In addition to these productions stands also the presence of dry land monoculture based on vineyard cultivation and production of cereals, mainly wheat and maize. However, also in the peninsula of Peniche there are cultivated fields. Despite the presence of several elements potentially productive constraints of a farming practice, as the salinity of sea breeze and the high percentage of uncultivated land, on the peninsula of Peniche developed a profitable wine production, particularly white wine.

Services have also grown substantially especially those that support the tourism industry. During the consultation various people voiced the opinion that within a few years the tourism industry will become of far greater importance than fisheries there are however important challenges to overtake, including training of local people.

For a better valorisation of the sector it is necessary to improve coordination between all stakeholders as well as improving the strategy for its development. There should be a greater investment to search ways of adding value to fisheries products. This should include more investment in innovation. EU funding will be important to provide support to these actions.

The recent MSC certification of the sardine fishery was supported by an American organisation and it is expected that the certification will result in an effective increase in the first sale value, ultimately representing an improvement to fishermen's income.

More training in the sector should be provided if fisheries are to remain a relevant sector in the region.

In terms of infrastructure, there is no need for adaptation and/or further investment, as the present structure is big enough to deal with the current volume of landed fish as well as a potential increase in the near future.

The development of the local fleet is restrained mainly by the restricted availability of work force. Restrictions are greater during the summer months as the crew is legally entitled to take holidays.

Part of the small scale fleet is adapting to new business, i.e. taking fishing enthusiasts out at sea for all day long fishing trips. Some fishermen quit the fishing activity altogether and convert their own boats to be able to carry out a purely tourist operations. Other fishermen end up buying new more comfortable boats for this purpose.

Recent adaptations were carried out especially concerning the improvement of the quality of fish whilst on board the fishing vessels. These adaptations have contributed greatly to the good quality of the fish that is landed at the port.

In terms of fisheries management, more specifically the implementation of the quota system, has been successful and the available quota for sardine never exceeded. The main driver for this fact is of course the price as dictated by the day to day supply and demand. Quota for the sardine is distributed throughout all producer organisations at a national level. With respect to other species the mainly those caught by the small scale fleet the case is different with the vast majority of the species not been managed under a quota system.

In summary, at present there are no great incentives to invest in the fisheries sector given the shortage of people available to join the sector coupled with the fact that the people that do so are in general very poorly qualified and bring little additionality to the industry. Estimates indicate that around 20% of the crews in fishing vessels comprise of non-maritime people, i.e. people with no fisheries training or background. The age of these non-maritime people ranges from 20 to 35 years old and many have problems with drug use. This factor has per se contributed to imprinting a bad connotation to the activity.

In terms of adaptation for governance issues it is crucial that communication and dialog between all stakeholders is promoted further. It is necessary that interaction between all sectors is duly coordinated and optimised in order to attain the highest possible revenues in a way that all sectors can benefit.

The president of one of the Producers Organisations suggested that all bureaucratic inspections, usually carried out by the navy should be done whilst the boats are at port instead of doing them whilst at sea when the boats are operating.

7.3 Future development of the community

The development of the local community is expected to occur slightly faster than the average of the country, mainly due of the development of the tourism industry. It has been anticipated that the commercial fisheries sector won’t be the main driving force behind this change.

Local authorities acknowledge that they do not expect major transformations in the local sector, especially taking into account the following:

1. The development of the tourism industry will employ people earning roughly the same salary they would earn should they be working in a fish processing industry. Moreover, a job in tourism is generally more attractive than working in a fish processing unit;

2. The fishing opportunities are not expected to increase significantly relative to current existing opportunities, firstly because the commercial fishing effort is not expected to

decrease at a high enough rate that would allow some of the commercial fish stocks to recover to abundances similar to those observed in the early 80s and secondly because the sector has had difficulties in recruiting new crew members, again the fishing activity has not been efficiently promoted to young people.

It is worth noting why it is not easy to attract new people to come and work in the sector. One of the main reasons is of course the uncertainty related to the level of salary, many of the crew members earn their salaries in accordance to the volume of the catch and this is *per se* a very unattractive proposal, especially for young people who are starting their professional lives and to whom the security of having a fixed income is crucial; even if this salary is lower than the one they could earn for being part of the crew of a fishing boat.

Another reason is mainly an historical reason. After the fall of the dictatorship many people became unemployed and a significant number of them turned to fisheries as a viable alternative as a source of income. During the this period (1974 to the early 80s) it was easy to get a fishing license and people who joined the sector were able to make very high profits, as there were little regulations in place and enforcement was scarce. Astonishing profits were made in the years following 1974. This has in effect contributed to an accentuated decline in the abundance of many important commercial species.

Once it became no longer possible to attain such profits, many of the people “campaigned” about how bad the sector was and how little profit they were able to make relative to the level of profits they were making years earlier. This fact became known and many people lost interest in and quit the sector. It has been proven that the level of exploitation observed during those years was unsustainable reason why the same level of profits has not been observed. In light of this image it is easy to understand why young very reluctant to join a sector which was not able to provide an acceptable level of earnings.

The fishermen’s sons (who generally take over the family’s fishing business), instead of joining the fisheries were encouraged to find jobs elsewhere, therefore losing the contact with the reality of the industry. They did so, especially because they were told by their own family members (generally a father or uncle who managed the boat) that the sector was facing difficult times and it would be difficult to make a good living from this activity alone.

The perception that something was not right together with the observation that their profits were declining did discourage a lot of people to find alternative jobs. As a result a large proportion of the people who remained in business was because they either owned the boats or had no other clear alternatives especially those with ages between 40 and 55 years old. Younger people stayed on as they were very poorly qualified and lack the skills to do anything else.

The proof that this was the case is clearly visible as many of the fishing boats rely on already retired crew members whom have a crucial role in the sector. They have both the knowledge and the will to go out to sea and little wish to stay in land. The other part of the crew is often comprised of young people who have not found other types of jobs. It was said during the consultation that these young people are highly unreliable and are only part of the crew of the fishing boat as a last resort. The unreliability of the young people tend to increase during the summer months when local restaurants need extra employees to face the increasing number of tourist/clients visiting the city during that period. Ship owners have also added that it is not possible to reprimand them for showing for work by dismissing them as in reality they do not have any other alternative to hiring the same person again. They have also mentioned that the possibility of anyone being part of the crew of a fishing boat just by depositing the ID at the local Maritime Authority Office eased the problem of lack of workforce yet it is clearly not enough and gives rise to a lot of people coming into the sector only as a last resource.

In summary it is likely that the local GAC (FLAG) office will play a crucial role in steering the development of the city and how it will make use of the coastal areas, contributing to the sustainability of all developments and its interaction with the sea and the seafront areas.

7.4 The role of public intervention in the past and in the future

Since joining the EU, Portugal has received large sums of money originating from various structural funds. The fishing industry was one of the economic sectors that greatly benefited from these funds. From fleet renovation to scrapping schemes, the sector has been able to grow and fishing companies able to reach a higher level of consolidation. In order to contribute to the development of the sector it was necessary to invest in several types of fisheries related infrastructures.

A significant share of the available funding was indeed spent in port renovation and improvement and updating of existing facilities. Peniche was no exception and its port has benefited from funding for these improvements. They have allowed fleets to grow and also contributed to increasing the capacity of the port to land, handle and store larger amounts and greater variety of fish species. Indeed, people enquired at the port agree that the existing infrastructures have a capacity larger than actually needed. All these investments have been welcomed by the fishermen, fishing companies and port staff, and the general consensus is that it was good that these improvements have been carried out, giving room for the future expansion of the fishing activities/industry. It is worth noting, however, that no expansion is expected in the coming years, as explained above.

In light of this, the overall objectives of the public intervention have shifted relative to the goals set a few years ago. The current objectives for the public intervention are now related more to the social components of the sector. This is to say that the funds will now be channelled to projects aiming at incentivising cohesion amongst the fishing communities as well as promoting a more extensive involvement of other stakeholders. These objectives will be fulfilled by the recently created Fisheries Local Action Group which task is to organise and launch projects under this scope.

In Portugal, and in Peniche in particular, it was observed that the FLAGs are operated in strong connection with local government (the municipalities). In fact, in areas where FLAGs have been established, they commonly operate from facilities made available by the town hall or other local governmental body. Moreover, staff in charge of the FLAG often originates from the local council and therefore, it is possible to assume that there is an underlying political agenda. An observation worth noting with this respect is that many stakeholders feel they should be more involved in the activities developed by the FLAGs. It was also found that some of the stakeholders are not fully aware and do not fully understand the functioning of this organisation and are ill advised as to what tools they have available to contribute to improving their activity and economic performance.

In light of this, it has been suggested that the first step regarding the development of FLAG promoted projects should be the creation of a communication platform or structure to inform all stakeholders about the overall objectives of the FLAGs together with information on all mechanisms available to the stakeholders for the purpose presenting projects in related areas. During a general enquiry at the fishing port it was observed that fishermen, ship owners and people working at the producer's organisations knew very little about the FLAGs, its objectives and operation.

In summary it is possible to say that the general feeling of the fishing community is that more needs to be done in terms of publicising the creation of the FLAGs, as well as making sure that the objectives are communicated to the industry and related stakeholders in a efficient manner. This will allow them to optimize the benefits that can derive from the development and implementation of the projects carried out under the scope of the FARNETs. Moreover, it has also been generally agreed that the greatest current need in the fisheries sector is indeed the development of projects that contribute to the consolidation of the social components of the industry, and in particular the promotion of the fishing activities as an alternative career path. Emphasis should however be given to the fact that a project of this nature has been previously carried out yet it yielded poor results mainly due to budgetary restraints which did not permit carrying out the planned follow up stages of the project. This resulted in the project objectives falling short of the expectations. This particular project was viewed with interest by the fishing community and in particular by the ship owners who currently struggle to find adequate, motivated and well trained workforce.

It is believed that the future developments and success of these interventions will shape the industry in the years to come. Very high expectations are laying on the good articulation of all FLAG projects, with a great emphasis on the dynamics of the workforce in the sector at several levels, directly and indirectly.

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