

**COMMISSION OF THE EUROPEAN COMMUNITIES**  
Directorate-General for Fisheries

**Regional, Socio-Economic Study  
in the Fisheries Sector**

**PORTUGAL**

Continente

**Document**  
**1992**

**COMMISSION OF THE EUROPEAN COMMUNITIES**  
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in the Fisheries Sector**

**PORTUGAL**

**Continente**

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## **A B S T R A C T**

O Continente é a região pesqueira mais importante de Portugal, representando, em relação à totalidade do país, 89% da tonelagem total dos navios registados e 85% do número total de pescadores contratados.

No início de 1991, a frota pesqueira continental contava com 13.302 navios, o que corresponde a uma tonelagem total de 165.447 TAB, sendo o número de pescadores contratados de 34.561.

Se se considerar os empregos no subsector das capturas e a mão-de-obra das indústrias de transformação do pescado e da primeira venda de peixe fresco e refrigerado (lotas), o emprego total corresponde aproximadamente a 48.000 trabalhadores.

Uma análise pormenorizada da estrutura do emprego nos concelhos situados ao longo da costa permitiu identificar 30 concelhos especialmente dependentes das pescas. Os concelhos foram agrupados em cinco sub-regiões geográficas: Norte, Centro, Lisboa e Vale do Tejo, Alentejo e Algarve.

Estima-se que os navios regularmente em actividade representem cerca de 70% da capacidade total registada. Assim, pode concluir-se que a frota registada no Continente pode sofrer uma adaptação da sua capacidade em cerca de 30%, sem que tal venha a ter repercussões sociais importantes.

Contudo, a situação não é homogénea nos diferentes segmentos da frota. Os principais problemas surgem relativamente a navios que operam em águas exteriores e que encontram dificuldades crescentes de acesso aos pesqueiros tradicionais.

Esta situação sugere a possibilidade de uma redução da frota que opera actualmente em águas exteriores, que pode vir a afectar aproximadamente 1/3 dos navios em causa e cujas repercussões a nível da mão-de-obra directa se podem cifrar em cerca de 1.500 pescadores ou seja 4,5% da totalidade dos pescadores contratados no Continente.

## ABSTRACT

The Mainland is the most important fisheries region in Portugal, representing relative to the country as a whole 89% of the total tonnage of vessels registered and 85% of the total number of contracted fishermen.

At the beginning of 1991 the Mainland fishing fleet involved 13,302 vessels, corresponding to a total tonnage of 165,447 GRT, while the total number of contracted fishermen was 34,561.

Considering employment in the catches subsector together with labour employed in the fish processing industries and the first sale of fresh and refrigerated fish (auctions), total employment corresponds to approximately 48,000 workers.

On the basis of a detailed analysis of the structure of employment in the municipalities along the coast, 30 municipalities most dependent on fishing were identified. These municipalities were then grouped into five geographical subregions - North, Centre, Lisbon and Tagus Valley, Alentejo and Algarve.

It is estimated that the vessels operating regularly correspond to around 70% of total registered capacity. This leads to the conclusion that the fleet registered on the Mainland could undergo an adjustment in capacity of around 30%, without drastic social repercussions.

However, the situation is not homogeneous in the different segments of the fleet. The basic problems occur in the vessels operating in external waters, which face increasing difficulties in access to traditional fishing grounds.

This situation suggests a possible reduction in the fleet actually operating in external waters that could affect approximately 1/3 of the respective vessels, with repercussions in terms of direct labour of around 1,500 fishermen, i.e., 4.5% of total contracted fishermen on the Mainland.

## **A B S T R A C T**

Le Portugal continental est la principale région de pêche du pays puisqu'il représente 89 % du tonnage total des bateaux enregistrés et 85 % du nombre total de pêcheurs sous contrat.

Au début de 1991, la flotte de pêche continentale comprenait 13.302 bateaux, soit un tonnage total de 165.447 TJB, correspondant à un nombre total de pêcheurs sous contrat de 34.561.

Si l'on tient compte de l'emploi dans le sous-secteur des captures ainsi que dans les industries de la transformation du poisson et la première vente de poisson frais et réfrigéré (ventes à la criée), le nombre total d'emplois est d'environ 48.000.

D'après une analyse détaillée de la structure de l'emploi dans les communes du littoral, on a identifié 30 communes dépendant essentiellement de la pêche. Ces communes ont été regroupées en cinq sous-régions géographiques : le nord, le centre, Lisbonne et la vallée du Tage, l'Alentejo et l'Algarve.

On estime que 70 % environ de la capacité totale enregistrée se compose de bateaux qui pêchent régulièrement. Il s'ensuit que la capacité de la flotte enregistrée sur le continent pourrait être réduite de 30 % environ sans graves répercussions sur le plan social.

Toutefois, la situation n'est pas la même dans les différents segments de la flotte. Les principaux problèmes sont ceux des bateaux qui pêchent dans les eaux extérieures et qui ont de plus en plus de difficultés d'accès aux lieux de pêche traditionnelle.

Il pourrait donc être envisagé de réduire la flotte opérant actuellement dans les eaux extérieures; cette réduction pourrait concerner un tiers environ de ces bateaux, soit 1.500 pêcheurs environ en termes de main-d'oeuvre directe ou 4,5 % de tous les pêcheurs sous contrat sur le continent.

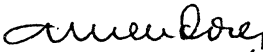
**REGIONAL SOCIO-ECONOMIC STUDIES IN THE  
FISHERY AND AQUACULTURE SECTOR**

**REGION P1 - MAINLAND**

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Lisbon, 22nd June, 1992

  
Alexandra Mendonça  
Project Manager

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## REGIONAL SOCIO-ECONOMIC STUDIES IN THE FISHERY AND AQUACULTURE SECTOR

### REGION P1 - MAINLAND

#### 1. CHARACTERIZATION AND GLOBAL ANALYSIS OF THE FISHERY AND AQUACULTURE SECTOR

##### 1.1. Summary of physical conditions of the Mainland

The Mainland has an area of some 89,000 Km<sup>2</sup>, bordered to the north and east by Spain and to the south and west by the Atlantic ocean.

The coast extends over a total length of some 760 Km, comprising the north-south western coast (600 Km) and the east-west Algarve coast (160 Km).

The Mainland maritime area under Portuguese jurisdiction covers an extensive area of the Atlantic (319,000 Km<sup>2</sup>) and forms part of a heterogeneous transition zone in terms of productivity.

The richest Mainland waters are located close to the coast (the continental shelf is not very wide), while significant areas stretch over great depths with limited levels of productivity.

Fishing is concentrated on a relatively limited group of species; particularly important for their relative weight in catches are sardine, horse mackerel, chub mackerel, blue whiting, Atlantic mackerel, hake, european anchovy, pouting, scabbard fish, seabream, monkfish, octopus and clams.

Limitations on catches through the imposition of TACs (Total Allowable Catch) and annual quotas were introduced in Portugal in 1986 with admission to the EEC, but catches have generally been kept significantly below exploitable potential. On average catches represented only 59% of the quotas granted in 1990. Landings of species submitted to quotas were around 36 000 tonnes in 1990, representing less than 1/5 of catches in national waters.

Sardine, a species not subject to quotas and the most important resource in regional waters (43% of catches in Mainland waters in 1990), is considered to be stable in terms of exploitable stocks.





This situation, associated to the fact that a considerable part of TACs and quotas established are designed to prevent over-fishing, suggests there might be a moderate expansion in catches in the future, according to species.

##### 1.2. Principal fishing ports

The characteristics of the coastline and proximity of the principal fishing grounds (due to the narrowness of the continental shelf) has for many decades led to significant fishing activity along the coast of the region.

There are currently 90 fishing communities of some importance and 135 fishing ports with very diversified conditions and different levels of economic importance.

FIGURE 1  
MAINLAND  
WATERS UNDER PORTUGUESE  
JURISDICTION (EEZ)

-  TUNA
-  CONCENTRATION OF FISHING ACTIVITIES
-  GREATER TRADITIONAL OCCURRENCE OF FISHING ACTIVITY
-  EEZ

SCALE: 1/9,900.00

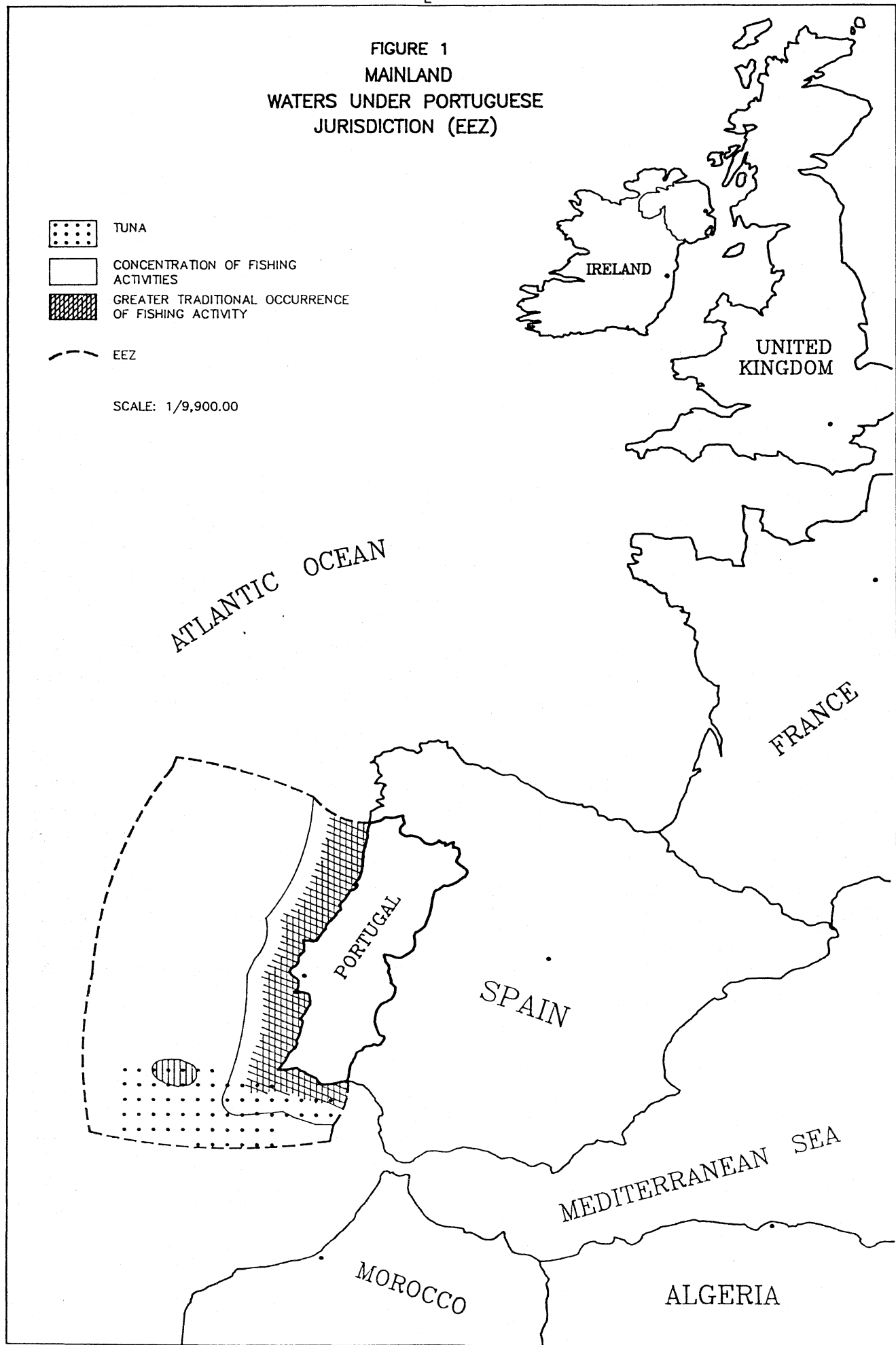


FIGURE 2  
 MAIN FISHING PORTS  
 Landings of Fresh and  
 Refrigerated Fish over 1000 tons, in 1990

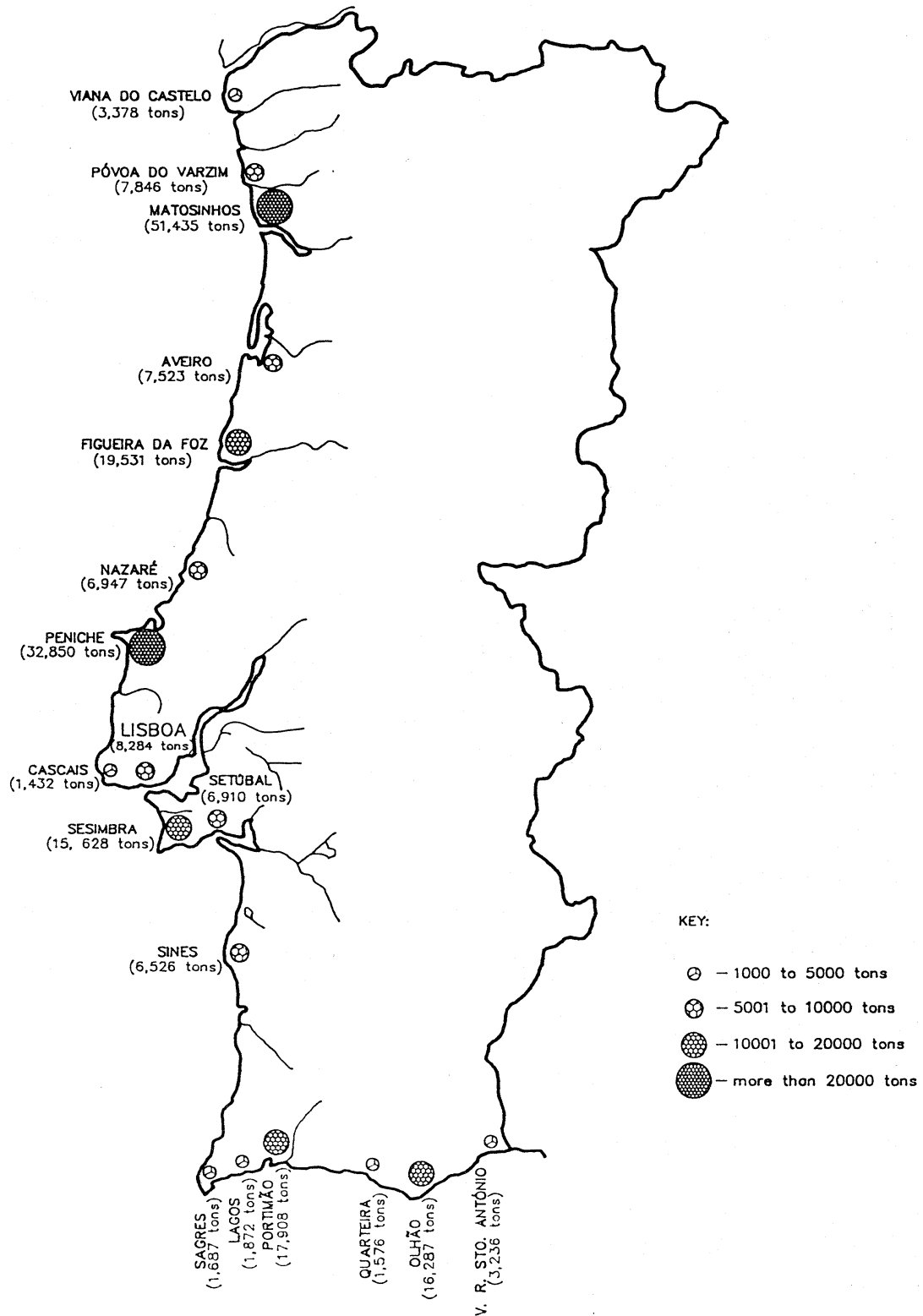


Figure 2 shows the most representative ports in terms of catches in the region, particularly important being Matosinhos, Peniche, Figueira da Foz, Portimão, Olhão and Sesimbra, which together represent around 70% of landings of fresh and refrigerated fish on the Mainland.

As regards frozen fish landed, Aveiro (registration port of most long-distance fishing vessels) is the most important port.

### 1.3. Fishing fleet of the Mainland and its links downstream

In early 1991 the Portuguese fishing fleet involved some 16,000 vessels, around 84 % of which were registered on the Mainland, corresponding to approximately 89 % of total tonnage in the country.

The Mainland fishing fleet is very diversified and involves different situations according to the characteristics of vessels, the fishing zones in which they operate, fish stocks exploited and fishing equipment used.

The following segmentation has been adopted to identify specific characteristics and common problems:

**Table I - Mainland Fishing Fleet  
Situation on 1.1.91**

SEGMENTS OF FLEET	Nº	GRT	KW
Long-distance	100	83,136	111,941
Purse-seiners	274	12,238	54,334
Trawlers	151	21,114	74,359
Multi-purpose	12,777	48,959	192,915
TOTAL	13,302	165,447	433,549

Source: Gabinete de Estudos e Planeamento das Pescas

In 1990 the fleet registered on the Mainland produced around 300 thousand tonnes of fish (weight on leaving water), 199,000 tonnes of which were caught in national waters, as show in Table II. Landings of fresh and refrigerated fish by fleet segments are depicted in Table III, totalizing 218 thousand tonnes.

#### Long-distance fleet

This fleet consists of 100 vessels of medium and large size - 830 GRT and 1,100 kW average power per vessel - averaging 27 years of age.

The long-distance fleet is traditionally geared to operating in the North Atlantic (cod, rockfish, ray, plaice) and South Atlantic (hake, squid, scabbard fish, etc.), and it is the segment that has been most affected by successive restrictive measures.

The most recent factors affecting the activity of the long-distance fleet are essentially related to:

- increased difficulties in access to international waters in the North Atlantic, particularly those under the jurisdiction of NAFO;

**Table II - Development of Mainland Fish Production  
(weight on leaving water)**

(thousand tonnes)

	1986	1990
National waters	219	199
External waters	159	99
. Spain	0	3
. Central Atlantic	20	19
. North Atlantic	103	69
. South Atlantic	36	7
<b>MAINLAND TOTAL</b>	<b>378</b>	<b>298</b>

Source: Gabinete de Estudos e Planeamento das Pescas

**Table III - Landings of Fresh and Refrigerated Fish  
by Fleet Segments - 1990**

FLEET SEGMENTS	VOLUME		VALUE		
	10 <sup>3</sup> tonnes	%	10 <sup>6</sup> PTE	%	PTE/kg
National waters					
Coastal trawlers	32.5	14.9	11 698	23.5	359.6
Multi-purpose vessels	54.5	25.0	21 676	43.6	399.0
Purse-seiners	111.2	51.0	7 806	15.7	70.2
External waters					
Mixed companies	7.2	3.3	2 560	5.1	355.5
Agreements Morocco/Mauritania	9.4	4.3	5 386	10.8	573.6
Fishing in Spain	3.3	1.5	633	1.3	192.9
<b>TOTAL LANDINGS</b>	<b>218.1</b>	<b>100.0</b>	<b>49 759</b>	<b>100.0</b>	<b>228.2</b>

Source: Gabinete de Estudos e Planeamento das Pescas

- . sudden termination of fishing in waters coming under Namibian jurisdiction following independence.

These two factors have combined to produce increasingly adverse conditions for the activity of the long-distance fleet, reflected in:

- . drastic reductions in catches in external waters of fish frozen or salted on board, which fell from 139,000 tonnes in 1986 to 76,000 tonnes in 1990 (weight on leaving water);
- . profound alteration in the structure of species caught, exacerbating the dependence of the frozen fish industry and dried and salted fish industry on imported raw material;
- . average catches per vessel in 1990 of around 760 tonnes/year (weight on leaving water), while available indicators suggest production requirements of around 2,000 tonnes/vessel/year as a minimum to ensure adequate yields.

**Table IV - Catches by the Long-Distance Fishing Fleet. Frozen and Salted Species (weight on leaving water)**

(thousand tonnes)		
SPECIES	1986	1990
Rock-fish	34.0	18.6
Plain Bonito	4.2	11.2
Frozen cod	8.0	15.6
Salted cod	38.0	1.0
Hake	31.0	2.9
Squid	1.0	4.9
Ray	1.0	13.6
Sole	17.0	2.0
Other species	4.8	6.2
<b>TOTAL</b>	<b>139.0</b>	<b>76.0</b>

Source: Gabinete de Estudos e Planeamento das Pescas

Against this background it is patently impossible to make the operations of a **clearly over-sized** long-distance fishing fleet viable.

The irregular nature of operations arising from the lack of stable fishing grounds has for most long-distance vessels led to longer or shorter periods of inactivity with a negative impact on the occupation of labour.

Bearing in mind the levels of activity/inactivity of vessels in the long-distance fleet, it is accepted that in 1991 only around 2,000 fishermen worked on a permanent basis, although it is estimated that the total number of fishermen registered in this segment of the fleet was approximately 2,400.

### Purse-seine fleet

This segment of the fleet consists of traditional purse-seiners, which numbered 274 at the beginning of 1991.

The average age of vessels is 22 years, the average tonnage and power per vessel being 45 GRT and 198 kW respectively.

The purse-seine fleet represents around 7% of the Mainland fleet in terms of capacity (GRT) and 13% in terms of installed engine power, though it is responsible for over 50% of the total volume of fresh and refrigerated fish landed.

The significant weight of the purse-seine fleet in total Mainland catches is due to the importance of catches of sardine, the principal target species of this fishing segment.

However, because of the average sales price of sardine, which is relatively low compared to other species, the total value of fish attributable to the purse-seine fleet represented only around 16% of the Mainland total of fresh and refrigerated fish landed.

The greatest concentration of purse-seiners is recorded in the Lisbon and Tagus Valley region (Peniche and Setúbal) and in the Northern Region, where Matosinhos, the largest sardine port of the entire European Community, is particularly important.

Sardine catches have fallen by around 11% in the last five years, from 104,000 tonnes in 1986 to 93,000 tonnes in 1990.

This would have caused negative repercussions in terms of the income of ship owners and fishermen in this segment had there not been a significant increase in the average price of the first sale of sardine.

The average price of the first sale of sardine in fact rose from PTE 32/Kg in 1986 to PTE 56/Kg in 1990, a growth of over 75%, leading to an increase in average earnings from sardine fishing significantly above average inflation recorded in the same period.

**It is estimated that the purse-seine fleet regularly employs around 4,000 fishermen**

### Coastal trawler fleet

This segment involves 151 vessels with an average age of 19 years, operating along the entire Mainland coast and in the north of Spain, in addition to some vessels operating off the coast of Africa as part of mixed companies or through agreements with countries in Central and North Africa.

With an average capacity of some 140 GRT and an average power of 490 kW per vessel, this segment represents approximately 13% of the tonnage of the Mainland fleet and 17% of the engine power.

Catches associated to the coastal trawler fleet represented 15% in quantity and 23% in value of total fresh and refrigerated fish landed on the Mainland in 1990, contributing decisively to national production of species such as Atlantic horse mackerel, mackerel, blue whiting, pouting, octopus, squid and crustaceans.

The greatest concentration of trawlers occurs in the Algarve (particularly Olhão), the Lisbon and Tagus Valley region and the Central Region (particularly Aveiro and Figueira da Foz).

The coastal trawler fleet includes some relatively large-scale ship owners, together with a vast group of small businessmen, regularly employing a total of around 2,000 fishermen.



## Multi-purpose vessels

This is the most numerous segment of the Mainland fishing fleet and includes a mixture of vessels of very diversified size, characteristics and areas of operation, the common denominator being that they are very flexible with respect to the type of fish caught and fishing gears used.

These vessels are used in multi-purpose fishing activity, which means they are not systematically geared to the same target species.

### Multi-purpose vessels over 9 meters in length

This subsegment involves around 1,000 vessels with an average age of 22 years, which together represent 16% of the total tonnage of the Mainland fleet and 24% of the respective engine power.

Geared towards various commercially very valuable species such as hake, octopus, monkfish, swordfish, etc., the vessels in this segment of the fleet catch around 1/5 of the total volume and some 30% of the total value of the fresh and refrigerated fish landed on the Mainland.

This group of vessels is estimated to regularly employ around 6,000 fishermen.

### Multi-purpose vessels under 9 meters in length

This is the largest subsegment of the Mainland fishing fleet, with 11,809 vessels registered at the beginning of 1991 (90% of the Mainland total), only around half of which have engines.

This low mechanized group of vessels, which are often not equipped with any on-board equipment, as a whole represent only 10% of the total tonnage of the Mainland fleet and 14% of the respective engine power.

Estimated catches in 1990 reached some 13,000 tonnes, with a global value of 6 billion escudos relating to highly valued species.

These figures suggest an average output per vessel of around 1 tonne per year, representing a yield of less than 500,000 escudos/year/vessel, i.e., **an average yield below the Portuguese minimum national wage**.

Even taking into account avoidance of sale in official auctions where vessels are legally obliged to sell catches, the low average productivity of the subsegment hides a real situation essentially reflected in the following:

- . a substantial proportion of vessels are totally or partially inactive;
- . a relatively more limited group of vessels operate on a regular basis, obtaining more significant catches and yields.

## 1.4. Employment associated to the fishing fleet

Data and information on employment in the fishing fleet does not always coincide and reveals various shortcomings in terms of the availability of up-to-date data or the respective disaggregation.

The expression "fishermen" is generally applied in the widest sense of the term, i.e., in the sense of maritime professionals. When the expression "fishermen" is applied in the restricted sense, i.e., one of the professional categories of deck personnel, this is clearly stated.

The concepts regarding the situation of maritime professionals in performing fishing activity are also important:

- . **Registered fishermen** - to be able to pursue fishing activity, maritime professionals must be registered with the Harbour Master's Offices or Harbour Master's Departments; however, not all "registered fishermen" actually pursue fishing activity, since they may have changed activity without cancelling their registration as maritime professionals;
- . **Contracted fishermen** - to be able to pursue activity on a specific vessel "contracted fishermen" must establish a "matriculation contract", which may be for a specific number of days, for a specific number of voyages, for a year, for a season, etc..

The concept of "registered fishermen" involves a clearly excessive whole compared to the number of professionals who actually pursue fishing activity. On the basis of preliminary data from the Census of Fishermen, carried out by the Direcção-Geral das Pescas, it is estimated that the number of fishermen currently registered on the Mainland was 47,224, in 1991.

The concept of "contracted fishermen" is more appropriate to the number of professionals who pursue fishing activity. This concept relates to a specific date in the year (e.g., 31 July or 31 December), covering all personnel contracted on that date, although they may only work for a limited number of days.

The total number of fishermen matriculated on the Mainland at the end of 1990 was 34,561, representing 85% of the total number of professionals contracted in the country.

It must, however, be noted that of the total number of fishermen contracted on 31/12/1990, not all performed fishing activity on a permanent basis. According to data from the Instituto Nacional de Estatística the total number of fishermen contracted on 31 July of the same year was 28,853.

TECNINVEST estimates based on the structure of the fleet registered suggest the following distribution of labour by segment of activity in 1991:

. Long-distance fishing .....	7%
. Coastal fishing .....	54%
. Local fishing .....	39%

The preliminary results of the Census of Fishermen carried out by the Direcção-Geral das Pescas allows some conclusions to be established on the socio-economic characteristics of registered fishermen in 1991, although this whole is greater than that of "fishermen contracted"

Available data make it possible to establish a general characterization according to the following parameters:

#### . Age scales

Around 46% of professionals are over 45 years of age and around 28% are over 55 years of age, bearing witness to a rather aging labour force.

### . **Schooling**

Levels of schooling are generally low, with around 61 % of those registered having primary education (4 years of schooling), while 14 % only know how to read and write and 6 % are illiterate; 19 % have undergone preparatory or secondary education.

### . **Professional categories**

Fishermen (in the restricted sense) are naturally the dominant professional category, representing 66 % of total registered fishermen.

In the professional category of ratings the master category is the largest, representing 17 % of total registered fishermen.

### . **Vocational training**

Around 21 % of registered fishermen have specific vocational training in the area of fishing activities. Outstanding among these are training courses in the category of master, assistant engineer and engineer.

### . **Labour relations**

Around 31 % of registered fishermen are self-employed (compared to 69 % employed by others), a situation arising from the marked weight of small scale fishing in the structure of the fleet.

In addition, a Direcção-Geral das Pescas survey was done in 1985 based on a sample of 837 fishermen divided among different types of fishing and covering 25 fishing communities. Despite the time lag since this survey the social framework identified at the time still largely prevails, making it possible to supplement the most up-to-date data obtained from the Census of Fishermen.

This survey discloses the following indicators, which are particularly enlightening with respect to the relationship of those questioned with fishing activity and their respective communities:

- . 85 % of those questioned have never exercised any other activity apart from fishing;
- . 67 % have been fishermen for over 20 years and 32 % have been fishermen for over 30 years;
- . 92 % of those questioned are sons of fishermen and 83 % began their fishing activity when they were less than 15 years of age;
- . 90 % of those questioned have always lived in the place where they perform their activity;
- . among those questioned who emigrated, 45 % did so to pursue fishing activities;
- . only 2.5 % of fishermen claim that if they were unemployed it would be easy for them to find employment outside fishing activity.

The above indicators, together with the information obtained from the Census of Fishermen on age scales and levels of schooling produce a framework that is not very encouraging with respect to the potential capacity of fishermen who pursue fishing activity on a permanent basis to adapt to new activities.

## 1.5. Fish processing and ancillary industries

### 1.5.1. Fish processing industries

Fish processing industries in Portugal involve around 340 production units, close to 97% of which are located on the Mainland.

The canning, frozen, salted and drying industries have a decisive weight in the production structure, the importance of other segments being insignificant.

Levels of vertical integration (catches/processing) are limited, with only 6 vertically integrated industrial units.

Fish processing is generally characterized by a marked dependence on external markets, whether in terms of distribution of final production in the case of canning or with respect to the supply of raw materials for processing in the case of the frozen, salted and drying segments.

The fish processing industries employ some 12,000 workers with the following sectoral distribution of labour, outstanding among which is the great weight of the canned fish segment:

. Canned and semi-canned .....	47.5%
. Frozen .....	41.0%
. Salted and dried .....	8.0%
. Pre-cooked .....	2.5%
. Fish meals and oils .....	1.0%

Women largely dominate the structure of labour employed, and a significant proportion of the labour force does not work on a regular basis throughout the year, largely due to the seasonal nature of catches of sardine and tuna, the principal species processed in the canning industry.

### Canning Industry

This sector involves around 60 factories, with a strong concentration in the North of the Mainland, with levels of utilization of installed capacity of around 50%.

Canned sardines are traditionally the most important subsegment of the canning industry and depend essentially on external markets, which absorb around 85% of production.

This subsegment has been facing the difficulties common to all traditional industrial sectors, particularly greater competition from other countries in the international market.

Meanwhile the great increase in the average price of sardine in the last five years has posed additional problems for the subsegment, levels of production and exports of which fell significantly.

It must, however, be recognized that the investment directed towards technological re-equipping and modernization of the subsegment (supported by EEC structural funds), together with the desired increase in sardine catches, make it possible to view the future development of the sector with moderate optimism.

The production of canned tuna on the Mainland is almost exclusively aimed at the domestic market and is based on processing imported raw material. The development of this sector is therefore not directly associated to the situation of the catches segment in the Region.

The pickling and semi-canned products subsegment has centuries-old tradition in Portugal, although it is currently of residual importance, with around 10 small scale factories using traditional techniques.

### **Frozen fish industry**

This segment consists of around 230 production units, although only 81 were legally registered, with the IPCP, at the end of 1989 to commercialize frozen fish in their own packaging and brands.

The initial development of this industry was associated to the need to process fish caught by the long-distance fleet, in which up to the mid-80s, hake (the species traditionally most sought after in the frozen fish segment for domestic consumption) was the predominant variety.

Recent developments in zones of activity of the long-distance fleet have caused drastic repercussions on the present situation and prospects for the supply of raw materials to the frozen fish industry.

From a situation in which the national fleet supplied over half the frozen fish destined for industrial processing, changed to one in which over 80% of raw materials processed in the segment are imported.

Meanwhile the majority of catches made by the long-distance fleet are earmarked for export with no processing whatsoever on land.

Future development prospects for the segment of the frozen fish industry will therefore only marginally be dependent on the development and difficulties facing the fleet in the Region, particularly the long-distance fleet.

The challenges likely to be faced by the frozen fish industry in coming years are essentially concerned with two aspects:

- . prevalence of a large number of small industrial units performing not very sophisticated processing operations leading to weak levels of added value.
- . prevalence of production units with technological and corporate management shortcomings.

### **Fish salting and drying industry**

This segment has traditionally had a significant importance within fish processing industries and is associated to cod processing.

The initial development of this segment was closely linked to North Atlantic cod fishing by vessels that scaled and salted cod on board, which was then channeled towards drying units on land.

Increasing restrictions on the activity of the long-distance fleet led to a progressive change, and in 1990 only 0.5% of cod processed in drying units was caught by the national fleet.

On average around 80% of the salted cod consumed domestically, although of foreign origin, is subject to processing in drying units on the Mainland, the over-sized nature of which - 37 units - explains the low level of utilization of the respective production capacity.

Development prospects for this segment have no direct link to the situation of the fleet, since it does not seem probable or desirable for the long-distance fleet to be reoriented towards salted cod, which would involve new vessels equipped to perform salting operations on board, in addition to the two existing units that operate on a limited scale.

### **Other fish processing industries**

The remaining segments of the fish processing industry are limited in importance:

- . smoked fish industry - an activity with no particular history in Portugal, with traditional characteristics and production concentrated on trout and swordfish;
- . pre-cooked products - processing (e.g., hake, cod and shrimp) is carried out in multi-purpose industrial units (also producing pre-cooked products of other types), generally associated to frozen fish production;
- . fish meal and oils - 6 factories operating in 1989, mainly processing waste and remains from the canning industry, which represent over 90% of the raw material processed.

### **1.5.2. Ancillary activities**

#### **Structures of first sale of fresh and refrigerated fish**

Legislation in force in Portugal makes it obligatory for the first sale of fresh and refrigerated fish (except for rare exceptions) to be carried out in a system of auctions in fish markets.

On the Mainland these infrastructures involve a large network of around 60 auctions and sales outlets ensuring adequate coverage along the entire coast.

The system is run by a state-owned company (Docapesca) that employed approximately 1,270 employees at the end of 1991.

#### **Ship building and repairs**

The shipbuilding and repairs sector geared towards fishing vessels only involves one company of significance, which is located in Aveiro.

There is, however, a group of companies with a more limited scale, but of some regional importance, the largest shipyards being located in Viana do Castelo, Vila do Conde, Aveiro, Figueira da Foz and Vila Real de Sto. António.

#### **Manufacture of fishing nets**

Of the vast range of materials used and consumed in fishing operations nets must be given special emphasis.

Fishing nets are manufactured industrially in a limited number of factories, of which three deserve particular mention because of their size.

Gillnets, purse-seines and trawl nets are the principal products of these companies, which together employ around 150 workers.

In the Northern region a small group of traditional companies produces nets to satisfy local demand.

## 1.6. Aquaculture

The aquaculture sector in the Mainland as an industrial activity is only a few years old, except for trout breeding established in the North for around 20 years.

Only with Portuguese admission to the EEC in 1986, in fact, did fish breeding units appear with more intensive systems and more sophisticated technologies, the development of which was stimulated by Community and national financial incentives.

Despite this development, aquaculture units with improved semi-intensive or extensive systems still prevail, generally originating from converted salt beds.

In the Centre and South of the Mainland, aquaculture units are preferably distributed along the coast in estuary or lagoon zones, because such areas naturally have more appropriate conditions for establishing units for fattening the more common fish species, such as seabass, seabream, sole and eel.

In the North and Central interior of the Mainland the most significant units are fresh water - trout breeders - which are located on dams and/or take advantage of water courses in mountainous zones.

Official estimates on aquaculture production in the period 1986-1989 suggest levels between 9,000 and 11,000 tonnes per year.

Data relative to production in 1990, arising from a direct survey of aquaculture units recently carried out by the Direcção-Geral das Pescas, suggest figures of around 4,500 tonnes, with trout and clams being the most significant species.

Production occurs mainly in the North and the Algarve, the location of the longer-established undertakings applying the most convenient and tested technologies.

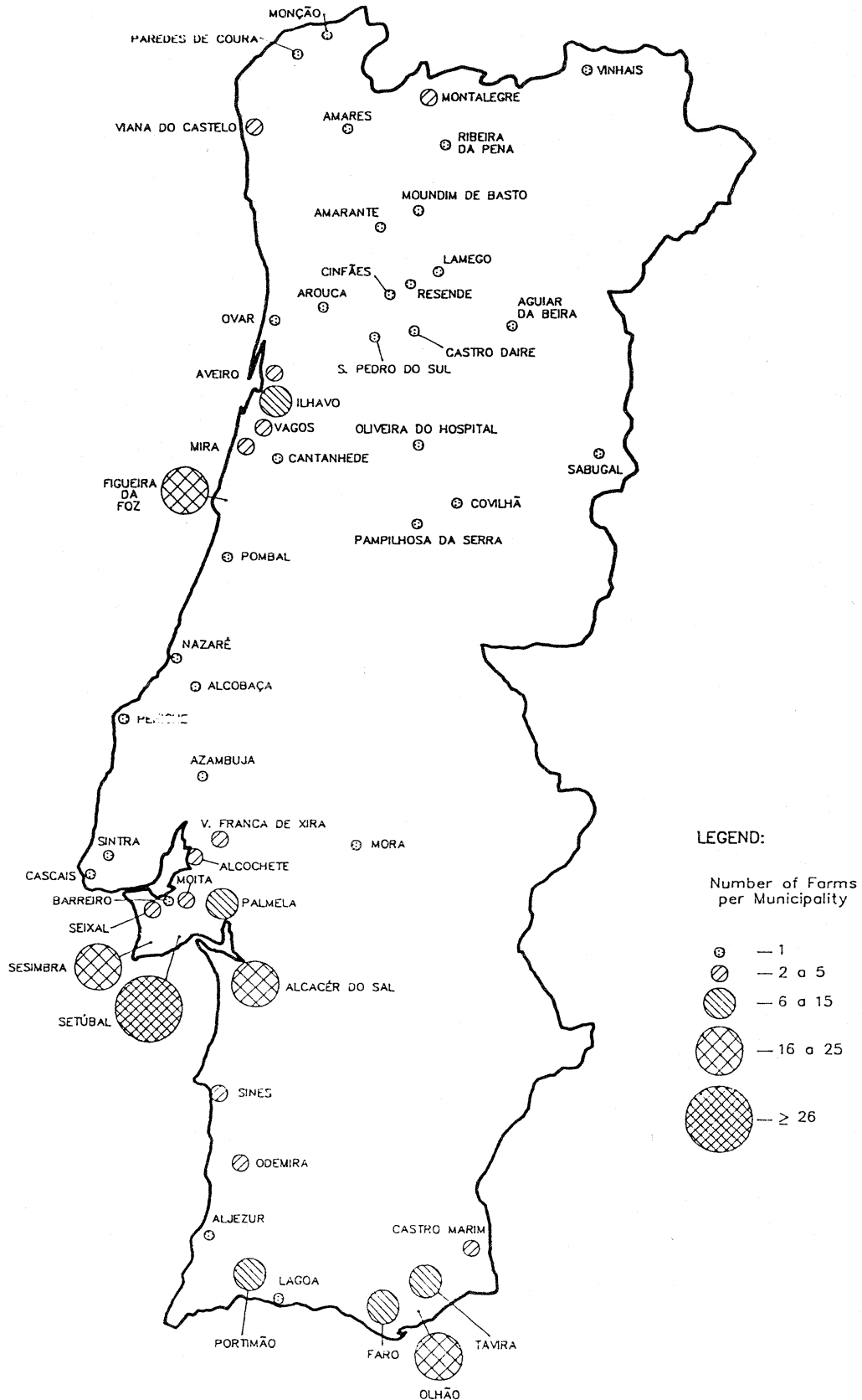
Bearing in mind the number of licensed pisciculture establishments (210, excluding concessions of clams in the Algarve), production is relatively low for the following reasons:

- . a large part of production units (around 50%) are in the introductory stage (construction of infrastructures) or in the first years of operation;
- . the most suitable breeding technologies were not implemented immediately, and output obtained from the improved extensive system and even the semi-intensive system fell below expectations, leading to reduced levels of profitability.

No data is available on the total number of permanent employees in aquaculture, although it is recognized that the numbers involved in the activity are relatively small because of the following:

- . a large number of units operate under a family system, particularly in the case of extensive production of clams;
- . frequent use of temporary workers, particularly at peak periods.

FIGURE 3  
LOCATION OF AQUACULTURE FARMS





## **2. IDENTIFICATION AND CHARACTERIZATION OF ZONES STRONGLY DEPENDENT ON FISHERIES**

### **2.1. Criteria adopted for selecting zones**

Considering that statistical socio-economic information should be available, the zones to be selected must be recognized administrative units (or groups of units).

The smallest administrative units in Portugal are the municipalities, but statistical information available at this level is usually poor, namely in what concerns employed population and gross value added.

All the municipalities along the Mainland coast were scrutinized, leading to the selection of 30 municipalities, which disclose an average weight of direct employment associated to the fleet higher than the Mainland average.

These municipalities were then grouped into five geographical regions, corresponding to NUTS level 2 (Figure 4). Therefore, the analysis will be conducted from two points of view:

- Sub-regional level, covering the five main regions - North, Centre, Lisbon and Tagus Valley, Alentejo and Algarve;
- Municipal level in each region, whenever statistical information is available.

### **2.2. Global assessment of the weight of the Fisheries and Aquaculture sector on the Mainland**

#### **2.2.1. General economic background**

According to the preliminary results of the 1991 Census, the resident population on the Mainland was 9.36 million, reflecting a growth of a mere 0.3% in the period 1981/91.

Although the various regions behave differently in terms of population growth, particularly outstanding factors are:

- strong concentration of population along the coast rather than the interior;
- strong relative weight of the large urban centres, particularly the metropolitan areas of Lisbon and Oporto.

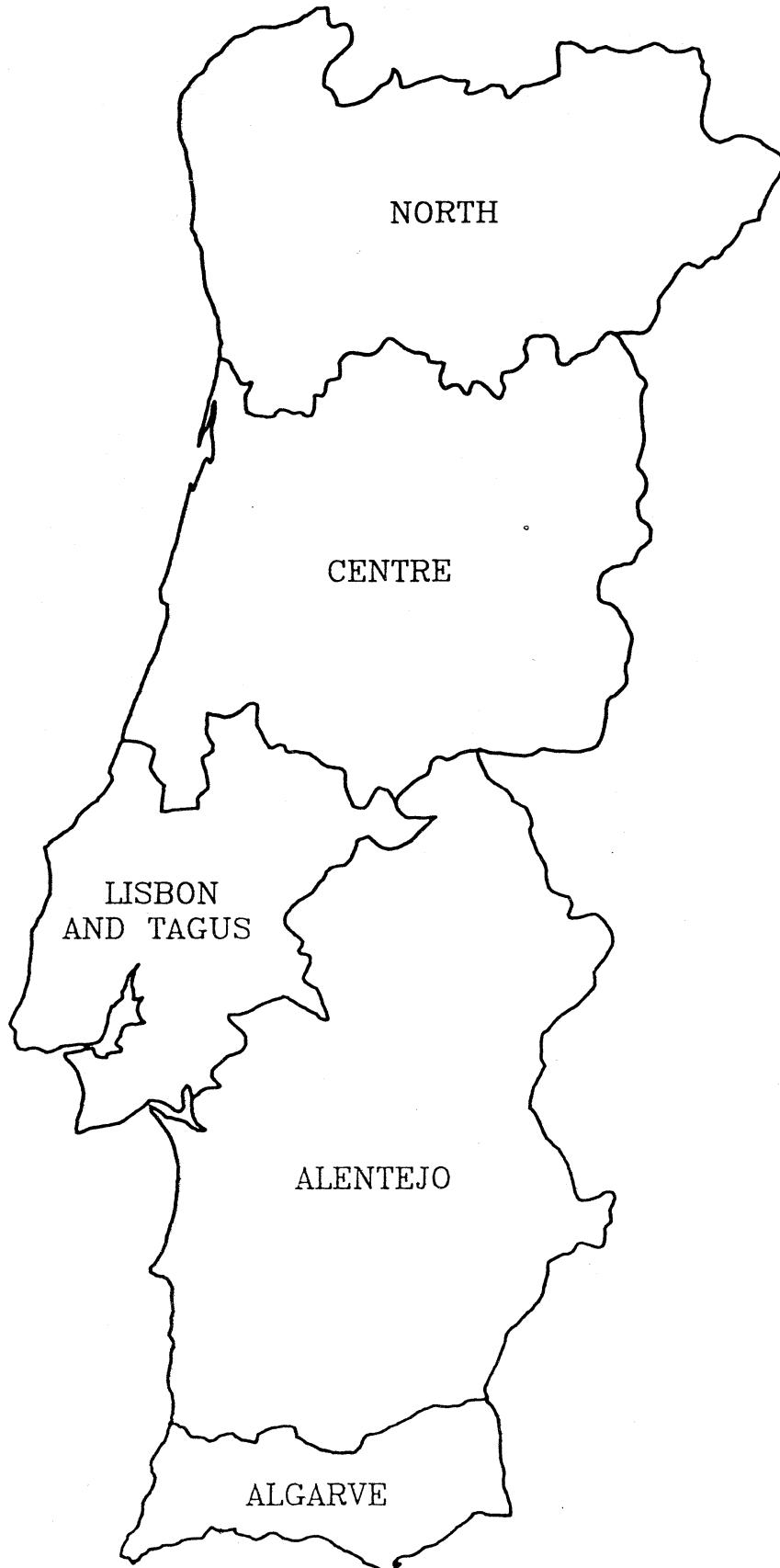
The Mainland working population was estimated to number some 4.8 million, with a rate of unemployment of 4.7%, which is below the average for the EC as a whole.

Sectoral distribution of employment and GVA shows a greater concentration in the tertiary sector (48% and 53% respectively), the relative weight of which has been increasing in recent years.

Although it has been decreasing, employment in the primary sector (agriculture, forestry and fisheries) has continued to be important (17%), particularly when the contribution of the sector to GVA (only 7%) is considered.

Finally, economic activities are more concentrated in the coastal regions, which are traditionally the most developed on the Mainland.

FIGURE 4  
GEOGRAPHICAL DELIMITATION OF REGIONS



### 2.2.2. Relative importance of the Fisheries Sector on the Mainland

The importance of the fisheries and aquaculture sector was assessed according to its contribution in terms of value added (GVA), and employment.

Quantification of employment and GVA <sup>(1)</sup> in the fisheries sector poses difficulties mainly related to shortcomings in terms of the availability of basic statistical information. It is thus possible to accurately quantify the situation in the catches sector and fish processing industry, though no data is available allowing the contribution of other segments to be assessed (e.g. retailing of fish products, ancillary activities).

The data presented below are therefore an approximation by default, although they ensure coverage of two sectors of crucial importance in the fisheries sector - catches and fish processing industries.

The contribution of the fisheries sector to the formation of GVA on the Mainland is relatively low (less than 1%), and has tended to decrease since 1986:

	Ratio GVA Fisheries Sector/Total GVA (%)	
	Catches	Catches and Fish Processing Industry
1986 .....	0.80 .....	0.92
1987 .....	0.67 .....	0.80
1988 .....	0.68 .....	0.86
1989 .....	0.60 .....	0.78

This decreasing tendency is essentially linked to the drop in production in terms of catches, which in the period concerned fell by around 20%.

However, the ratio GVA/GPV in the catches subsector has developed favourably (63.5% in 1989 compared to 61% in 1986), though this was insufficient to counter the falling trend in the relative importance of fisheries in the total GVA of the Mainland.

The contribution of the catches segment to the economic activity of the Mainland, assessed by means of the input/output pattern for the sector, shows that:

- . in terms of inputs the catches sector essentially depends on the "energy products" branch which represents around 65% of intermediate consumables;
- . in terms of outputs the principal destinations of the product of the segment are private consumption (60% of outputs) and fish processing industries (28% of outputs).

Taking as a reference the total number of contracted fishermen on 31.12.90, employment in the catches segment represents around 0.75% of the total working population employed on the Mainland.

Considering employment in the catches segment together with labour associated to the fish processing industries and the first sale of fresh and refrigerated fish (auctions), the global weight of fishing activities in total employment was around 1%, corresponding to approximately 48,000 workers.

It should, however, be noted that both in catches and processing industries part-time jobs and seasonal employment exist, though there is no reliable information on the number of workers under this situation. Therefore, it was decided to assume the total number of jobs as an indicator of

employment in the fisheries sector, considering the difficulty of producing a consistent estimate of part-time and seasonal jobs.

The contribution of fishing activities in terms of GVA and employment is low in the various regions of the Mainland except in the Algarve (7.7% of employment and 4.6% of GVA), as shown in Table V, which summarizes the main indicators regarding the five regions.

The low dependency rates result from the geographical configuration of the regions (including large inland areas where fishing activities are not significant), associated to the strong concentration of population and economic activities along the coast - the most developed Mainland strip - diluting the weight of the fisheries sector.

Although at the global level of the main regions the fisheries sector has a limited impact in macroeconomic terms, in certain municipalities it is very significant and makes a crucial contribution towards the economic and social balance of various communities along the coast.

In fact, at the level of some municipalities (and within these in the specific case of some fishing communities) the fisheries sector is at times very important, in all five regions.

The following chapters seek to assess the relative importance of the fisheries sector in more disaggregated form at the level of each region, analyzing situations of greater dependency.

The structure of employment in all the municipalities located on the Mainland coast will be analyzed from two points of view:

- . weight of fishermen resident in the municipality in the total employed working population resident in the municipality in 1981, according to data from the Population Census;
- . weight of fishermen employed in each municipality in total employment for other entities generated in the municipality in 1990, according to data from the INE - "Ficheiro Central de Empresas e Estabelecimentos".

Although the two concepts do not relate to totally comparable situations they make it possible to select with acceptable accuracy the municipalities most dependent on fishing activity in terms of employment in the catches sector.

It must be noticed, however, that information on employment in the municipalities in 1990 (fishing and non-fishing activities) does not include self-employed workers, sole proprietors and workers in central and local public administration. Self-employed workers and sole proprietors are estimated to have a significant weight in fishing (in particular in small-scale fishing). Therefore, 1990 data are to be considered with prudence, being an attempt to overcome limitations arising from the fact that more reliable data from the 1991 Population Census relative to employment are not yet available.

According to above two criteria the greatest dependency on fishing occurs in 30 municipalities, as depicted in Table V and in Figure 5.

Table V - Relative Dependence from Fisheries and Related Activities - 1990 (\*)

REGIONS/ /MUNICIPALITIES	GENERAL FEATURES					JOBS IN FISHERIES AND RELATED ACTIVITIES			ADDED VALUE IN FISHERIES AND RELATED ACTIVITIES			RELATIVE DEPENDENCE				QUOTA DEPENDENCE	
	POPULATION	POTENTIAL WORKING FORCE	TOTAL N. <sup>0</sup> OF JOBS	ADDED VALUE		FISHERMEN	OTHER JOBS	TOTAL	LANDINGS	OTHER ACTIV.	TOTAL	IN TERMS OF JOBS		IN TERMS OF ADDED VALUE		VOLUME	VALUE
	(10 <sup>3</sup> )	(15-65 YEARS)	(10 <sup>3</sup> )	TOTAL	PER CAPITA		(10 <sup>6</sup> ECU)	(ECU)	(10 <sup>6</sup> ECU)	(10 <sup>6</sup> ECU)	(10 <sup>6</sup> ECU)	%	%	%	%	%	%
	(a)	(10 <sup>3</sup> )	(b)	(c)		(d)	(e)	(f)=d+e	(g)	(h)	(i)=g+h	d/b	f/b	g/c	i/c		
<b>NORTH</b>	3 452	2 244	1 711	12 236	3 545	8 722	4 475	13 197	40.2	21.9	62.1	0.5	0.8	0.3	0.5	22.9	21.9
Most dependent municipalities	398	242	153.3			6 307						4.0					
. Caminha	16	10	6.5			418						6.5					
. V. Castelo	83	50	29.0			889						3.1					
. Esposende	30	17	10.5			205						2.0					
. P. Varzim	52	33	21.6			1 190						5.5					
. V. Conde	64	41	26.4			2 262						8.5					
. Matosinhos	153	91	59.3			1 343						2.3					
<b>CENTRE</b>	1 721	1 101	879	5 842	3 395	5 045	2 995	8 040	52.9	23.1	76.0	0.6	0.9	0.9	1.3	18.2	23.9
Most dependent municipalities	203	123	79.4			3981						5.0					
. Murtosa	10	6	3.3			580						17.5					
. Aveiro	66	40	25.8			252						1.0					
. Ilhavo	33	20	11.9			1 516						12.7					
. Vagos	19	11	9.5			109						1.1					
. Mira	13	8	6.3			439						7.0					
. Figueira da Foz	62	38	22.6			1 085						4.8					
<b>LISBON AND TAGUS</b>	3 309	2 217	1 619	17 384	5 254	9 495		13 198	79.9	22.5	102.4	0.6	0.8	0.5	0.6	21.4	23.7
Most dependent municipalities	206	129	76.6			6 489						8.5					
. Nazaré	15	10	5.9			677						11.5					
. Peniche	27	17	9.6			2 190						22.9					
. Lourinhã	22	14	7.6			632						8.4					
. Sesimbra	27	15	8.9			1 631						18.4					
. Setúbal	105	66	40.1			1 302						3.2					
. Alcochete	10	7	4.5			57											

Table V - Relative Dependence from Fisheries and Related Activities - 1990 (\*) (cont.)

REGIONS/ /MUNICIPALITIES	GENERAL FEATURES					JOBS IN FISHERIES AND RELATED ACTIVITIES			ADDED VALUE IN FISHERIES AND RELATED ACTIVITIES			RELATIVE DEPENDENCE				QUOTA DEPENDENCE	
	POPULATION	POTENTIAL WORKING FORCE	TOTAL N. <sup>o</sup> OF JOBS	ADDED VALUE		FISHERMEN	OTHER JOBS	TOTAL	LANDINGS	OTHER ACTIV.	TOTAL	IN TERMS OF JOBS		IN TERMS OF ADDED VALUE		VOLUME	VALUE
	(10 <sup>3</sup> )	(15-65 YEARS)	(10 <sup>3</sup> )	(10 <sup>6</sup> ECU)	(ECU)	(d)			(10 <sup>6</sup> ECU)	(10 <sup>6</sup> ECU)	(10 <sup>6</sup> ECU)	%	%	%	%	%	%
	(a)	(10 <sup>3</sup> )	(b)	(c)			(e)	(f)=d+e	(g)	(h)	(i)=g+h	d/b	f/b	g/c	i/c		
<b>ALENTEJO</b>	541	352	259	2 012	3 719	1 383	125	1 508	7.2	2.3	9.5	0.5	0.6	0.4	0.5	5.5	7.7
Most dependent municipalities	39	27	16.3			829						5.1					
. Sines	12	8	4.7			653						13.9					
. Odemira	27	19	11.6			176						1.5					
<b>ALGARVE</b>	340	214	157	1 240	3 647	9 916	2 153	12 069	51.3	5.2	56.5	6.3	7.7	4.1	4.6	8.3	24.8
Most dependent municipalities	277	166	97.5			6 856						7.0					
. Vila do Bispo	6	4	2.0			499						24.3					
. Lagos	21	13	7.7			392						5.1					
. Portimão	39	23	14.1			602						4.3					
. Lagoa	17	10	6.1			298						4.9					
. Albufeira	21	11	7.2			281						3.9					
. Loulé	47	28	14.9			701						4.7					
. Faro	50	29	18.6			394						2.1					
. Olhão	37	22	12.1			2 231						18.4					
. Tavira	25	16	8.7			906						10.4					
. V.R.S <sup>o</sup> António	14	10	6.1			552						9.1					
<b>MAINLAND</b>	9 363	6 128	4 625	38 714	4 135	34 561	13	48 012	231.5	75.0	306.5	0.8	1.0	0.6	0.8	18.2	23.0
Total most dependent municipalities	1 123	687	423.1			24 462						5.8					

Source: INE, Banco de Portugal, TECNINVEST estimates (distribution by region of: potential working force, total number of jobs, total added value and added value in fisheries and related activities; number and regional distribution of jobs in processing industries)

Related Activities include:

JOBS - processing industries and public auctions

ADDED VALUE - processing industries

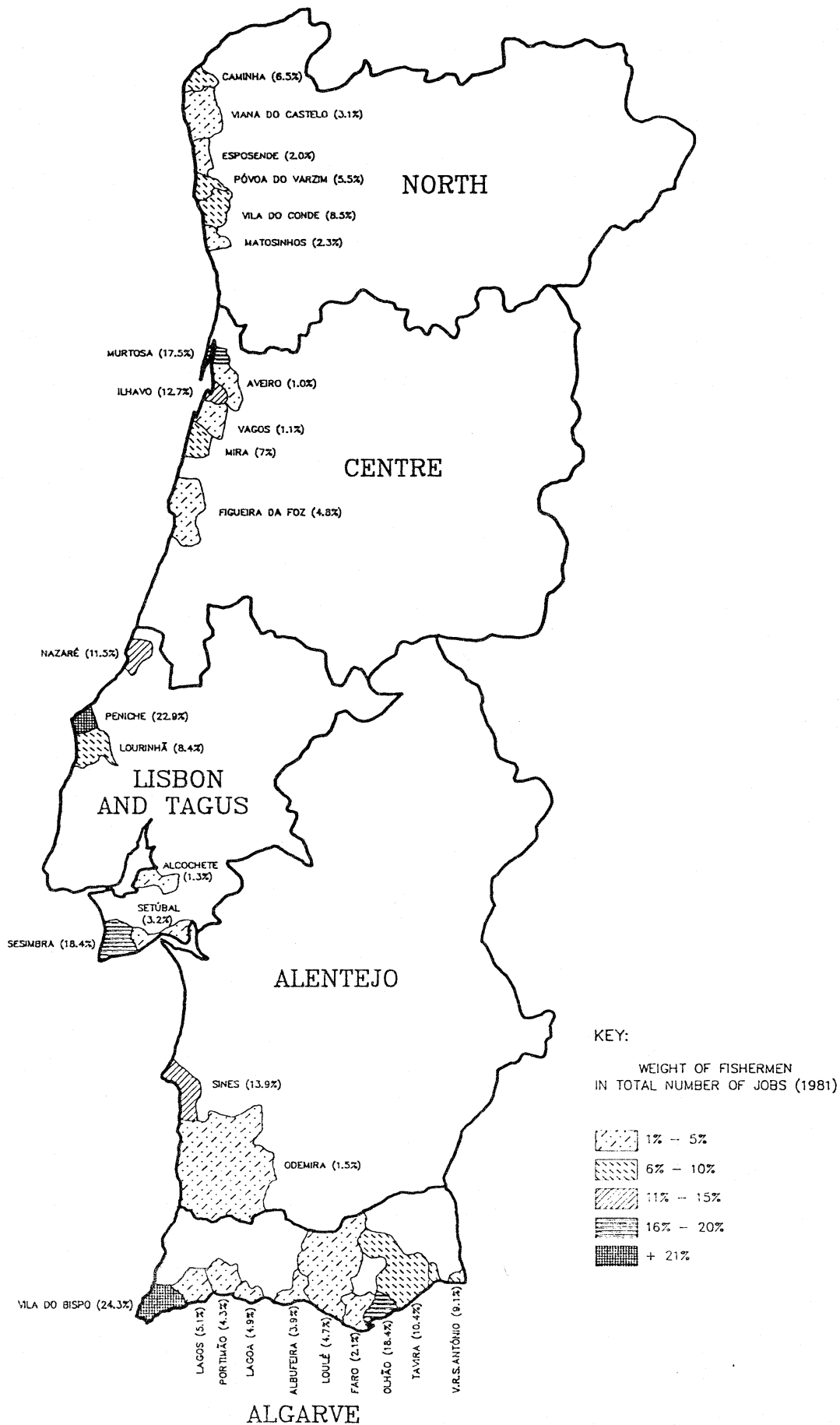
Quota dependence - weight of quota species in total landings from national waters

(\*) Population - 1991

Added value in other activities - 1989

Municipality data (potential working force, number of jobs, fishermen) - 1981

FIGURE 5  
MUNICIPALITIES MOST DEPENDENT ON FISHING ACTIVITIES



## 2.3. Assessment of the importance of the fisheries and aquaculture sector in each Region

### 2.3.1 Northern Region

The Northern region generates around 17% of the GVA of the catches sector and 29% of the GVA of the Mainland fish processing industries.

The fleet registered on the region involves 2,528 vessels, around 85% of which work in local fishing, the ports of Caminha, Douro and Viana do Castelo having the greatest proportion of this type of vessel.

Landings of fresh and refrigerated fish in the area reached approximately 63,800 tonnes in 1990, with sardine representing 57% of this total. This species plus horse mackerel, blue whiting and clams represent around 80% of the total production of the region. Species subject to quota are estimated to be around 23% of volume and value of landings of fresh and refrigerated fish from national waters, horse mackerel being the dominant quota species. Main characteristics of the fisheries (main species, fishing by fleet segments) are shown in Tables VI and VII.

The most important ports in the region are, in decreasing order of importance in terms of landings, Matosinhos (79% of the region total), Póvoa do Varzim (12%) and Viana do Castelo (5%).

The fishermen contracted in the region - around 8,700 - represent close to 25% of the Mainland total.

Taking as a reference preliminary data from the 1991 Fishermen's Census (which considers the total number of registered fishermen), labour associated to the fleet of the zone has the following dominant characteristics:

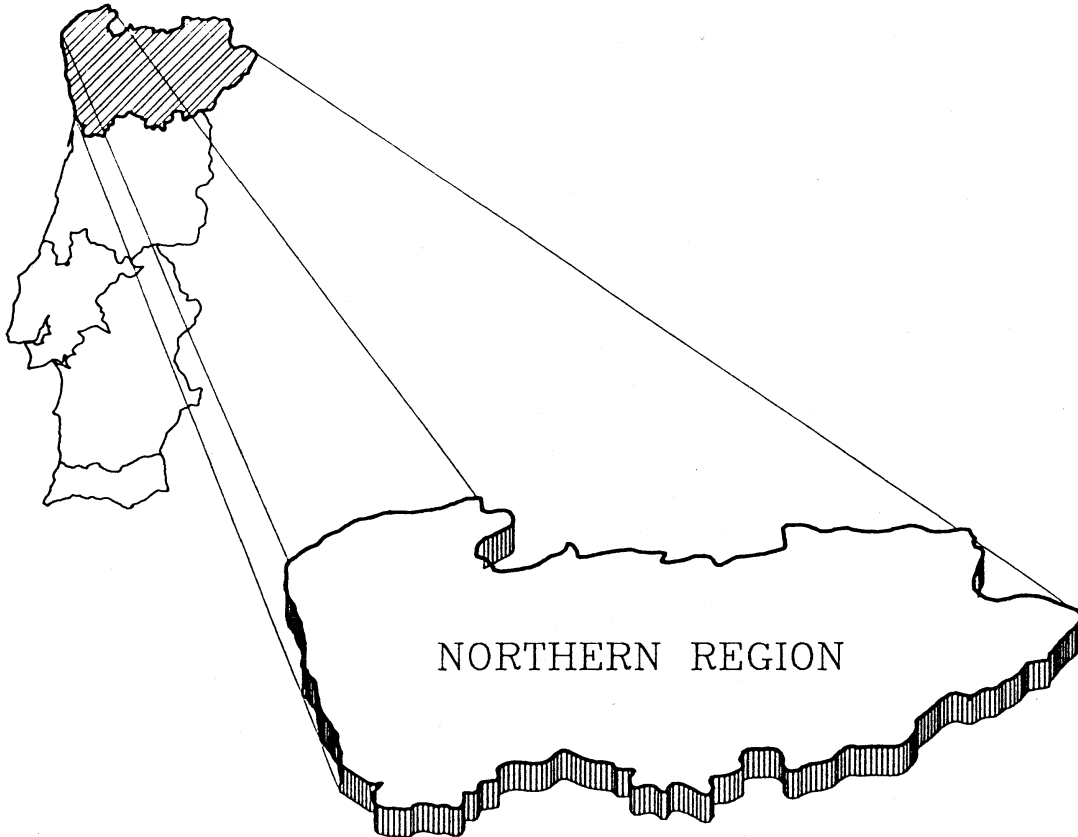
- . 38% of those registered are over 45 years of age, while 22% are over 55 years of age, disclosing an aging labour force;
- . 67% of those registered have undergone primary education (4 years), while 12% only know how to read and write and 4.5% are illiterate; 16.5% have preparatory or secondary education.

The relative importance of fishermen in the resident working population (1981) and in employment generated in all municipalities (1990) on the coast in the Northern region was analyzed.

According to these two criteria the greatest dependency on fishing occurs in 6 municipalities, where most employment associated to the fleet in the Northern region is concentrated, as shown in Table VIII.



FIGURE 6  
NORTHERN REGION  
ECONOMIC BACKGROUND



AREA: 21,194 Km<sup>2</sup>

POPULATION: 3.45 millions inhabitants

POPULATION DENSITY: 74 inhab/Km<sup>2</sup>

POTENTIAL WORKING FORCE: 2.24 million

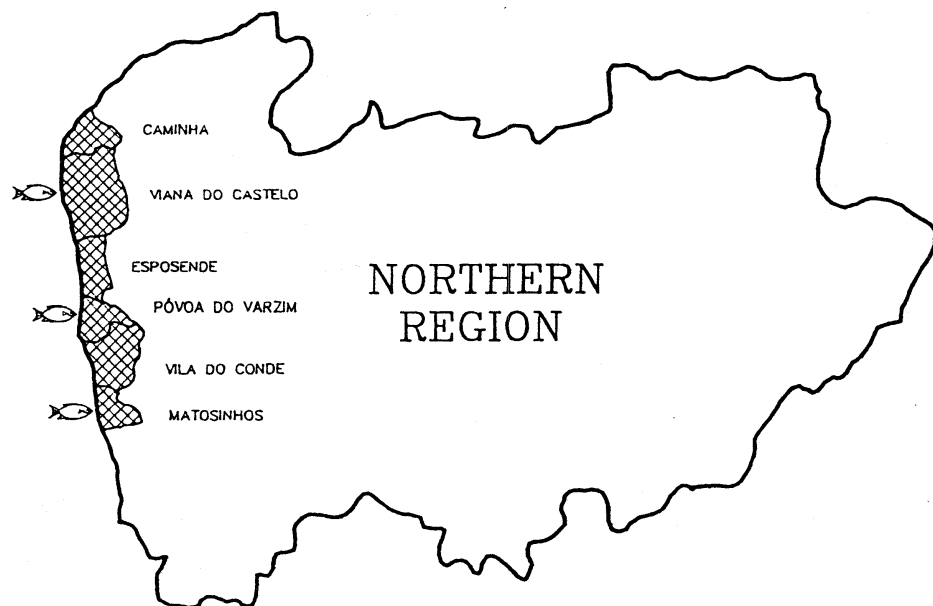
WORKING POPULATION: 1.71 million

CONTRIBUTION TO MAINLAND GVA: 32%

PRIMARY SECTOR	-----	25%
SECONDARY SECTOR	-----	39%
TERTIARY SECTOR	-----	27%

GVA PER CAPITA: 3,545 ECU

FIGURE 7  
NORTHERN REGION  
IMPORTANCE OF FISHERIES SECTOR



REGISTERED FLEET: 2,528 vessels

CONTRACTED FISHERMEN: 8,722


LANDINGS (Fresh and Refrigerated Fish): 63,762 tons

CONTRIBUTION TO MAINLAND FISHERIES GVA:

Catches ----- 17%

Processing Industries ----- 29%

MUNICIPALITIES ON THE COAST: 10

 MUNICIPALITIES MOST DEPENDENT ON FISHING ACTIVITY: 6

 MOST IMPORTANT FISHING PORTS: Matosinhos, Póvoa de Varzim, Viana do Castelo

**Table VI - Northern Region**  
**Landings of Fresh and Refrigerated Fish by Fleet Segments**

(tons)

FLEET SEGMENTS	1988	1989	1990
Trawlers	11 587.9	9 709.8	8 940.1
Multipurpose	13 470.8	14 659.0	16 181.4
Purse-Seiners	39 548.5	37 796.6	37 056.2
Mixed Companies	0.0	0.0	0.0
Agreements Morocco	0.0	0.0	0.0
Agreements Mauritania	0.0	0.0	0.0
Fishing in Spain	852.3	861.0	1 655.4
<b>TOTAL</b>	<b>65 459.5</b>	<b>63 026.4</b>	<b>63 833.1</b>

Source: Gabinete de Estudos e Planeamento das Pescas

**Table VII - Northern Region**  
**Landings of Fresh and Refrigerated Fish by Fleet Segments and by Main Species - 1990**

26

TRAWLERS			MULTI-PURPOSE			PURSE-SEINERS		
Species	Landings (tons)	Average Price (PTE/Kg)	Species	Landings (tons)	Average Price (PTE/Kg)	Species	Landings (tons)	Average Price (PTE/Kg)
Horse mackerel	4 932.2	120.90	Clam	3 130.4	93.90	Sardine	34 013.1	52.40
Blue whiting	1 670.6	38.50	Sardine	2 515.6	56.80	Horse mackerel	1 413.1	177.60
Atlantic mackerel	756.2	68.20	Octopus	1 891.0	551.10	Atlantic mackerel	527.8	50.60
Pouting	174.9	324.50	Horse mackerel	1 090.9	207.40	Anchovy	340.4	284.00
Sardine	168.5	42.20	Pouting	941.5	431.60	Com.mackerel	151.7	50.30
<b>SUB-TOTAL</b>	<b>7 702.4</b>	<b>100.80</b>	<b>SUB-TOTAL</b>	<b>9 569.4</b>	<b>220.70</b>	<b>SUB-TOTAL</b>	<b>36 446.1</b>	<b>59.40</b>
<b>% ABOVE SPECIES</b>	<b>86%</b>		<b>% ABOVE SPECIES</b>	<b>59%</b>		<b>% ABOVE SPECIES</b>	<b>98%</b>	
<b>TOTAL</b>	<b>8 940.1</b>	<b>134.90</b>	<b>TOTAL</b>	<b>16 181.4</b>	<b>293.80</b>	<b>TOTAL</b>	<b>37 056.2</b>	<b>61.00</b>

Source: Gabinete de Estudos e Planeamento das Pescas

**Table VIII - Municipalities Most Dependent on Fishing in the Northern Region**  
**Number of municipalities on the coast : 10**  
**Municipalities most dependent on fishing activity: 6**

MUNICIPALITIES	RESIDENT POPULATION		EMPLOYED WORKING POPULATION RESIDENT IN THE MUNICIPALITY - 1981		EMPLOYMENT IN THE MUNICIPALITY - 1990 (*)
	1981	1991	TOTAL	% FISHERMEN	% FISHERMEN
Caminha	15883	16085	6480	6.5	2.4
V. Castelo	81009	82755	29018	3.1	5.0
Esposende	28652	29589	10484	2.0	1.3
P. Varzim	54248	52365	21587	5.5	4.7
V. Conde	64402	64098	26494	8.5	8.3
Matosinhos	136498	153206	59264	2.3	1.5
<b>TOTAL</b>	<b>380692</b>	<b>398098</b>	<b>163811</b>	<b>4.0</b>	<b>3.8</b>

(\*) Does not include workers in Central and Local Public Administration, the self-employed, liberal professions, sole proprietors and their relatives who work in sole proprietorships.

Source: INE - Instituto Nacional de Estatística

### 2.3.2. Central Region

The participation of the region in the GVA of the Mainland catches segment is around 23%, due to the fact that the port of Aveiro is located in this region.

This port is responsible for most Mainland long-distance fishing production (frozen and salted), representing around 80% of long-distance fleet landings.

This has led to the development of frozen fish and salted and dried cod industries in the area, thus the region contributes around 31% to the formation of GVA associated to fish processing industries.

With regard to fresh and refrigerated fish, however, the area is only responsible for 13% of the Mainland output, the port of Figueira da Foz being responsible for 70% of this.

As shown in Tables IX and X, landings of fresh and refrigerated fish were around 27,700 tons in 1990, purse-seiners landings (57%) and trawlers landings (35%) being dominant. Sardine and horse mackerel represent approximately 63% of catches. Species submitted to quota represent less than 1/5 of volume of fresh and refrigerated fish landings on the region.

The fleet registered in the area at the beginning of 1990 included 1,514 vessels (11% of the Mainland total), 1,373 of which work in local fishing.

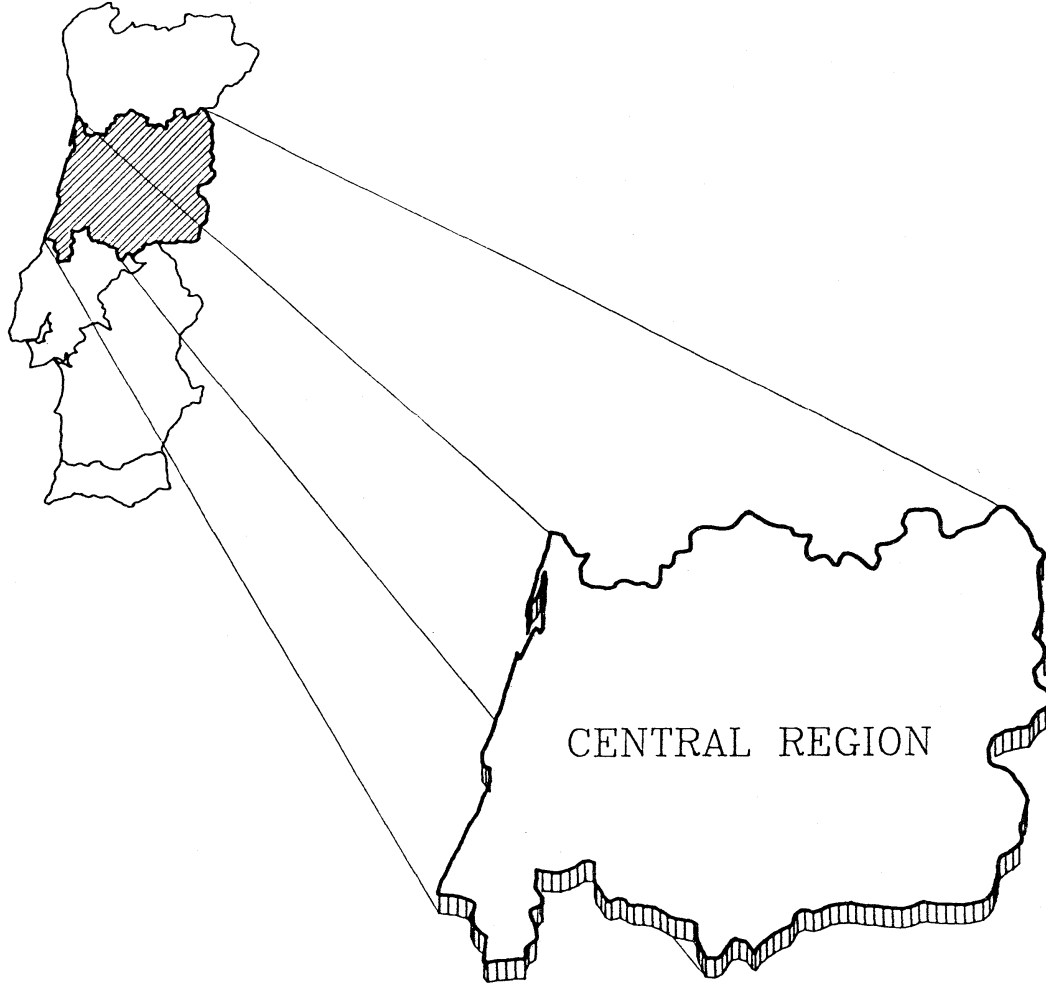
The number of contracted fishermen in the area is estimated to be around 5,000, representing 15% of the Mainland total.

According to preliminary data from the 1991 Fishermen's Census the dominant characteristics of employment associated to the fishing fleet of the area does not differ significantly from the general outlook for the Mainland, though:

- . around 50% of registered fishermen are over 45 years of age, a more aging labour force than the Mainland average;
- . 67% of those registered have minimum mandatory schooling (4 years), while 9% are illiterate and 2% only know how to read and write; 22% have undergone preparatory/secondary education, disclosing higher levels of schooling, comparatively to other Mainland regions.

Having analyzed the relative importance of fishermen in the employed working population and in employment generated in all the coastal municipalities of the region, 6 municipalities were identified that were particularly dependent on fishing activity in terms of employment directly associated to the fleet. Particularly outstanding among these municipalities because of their very high dependence are Murtoza and Ílhavo, as shown in Table XI.

FIGURE 8  
CENTRAL REGION  
ECONOMIC BACKGROUND



AREA: 23,270 Km<sup>2</sup>

POPULATION: 1,72 million inhabitants

POPULATION DENSITY: 74 inhab./Km<sup>2</sup>

POTENTIAL WORKING FORCE: 1.10 million

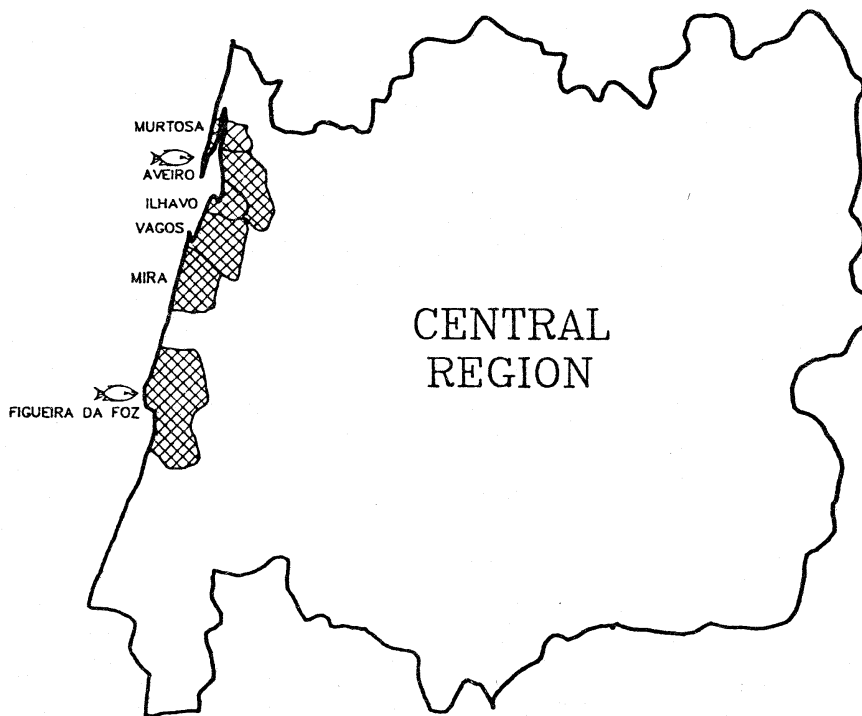
WORKING POPULATION: 879 thousand

CONTRIBUTION TO MAINLAND GVA: 15%

PRIMARY SECTOR ----- 26%  
SECONDARY SECTOR ----- 17%  
TERTIARY SECTOR ----- 12%

GVA PER CAPITA: 3,395 ECU

FIGURE 9  
CENTRAL REGION  
IMPORTANCE OF FISHERIES SECTOR



REGISTERED FLEET: 1,514 vessels

CONTRACTED FISHERMEN: 5,045

LANDINGS (Fresh and Refrigerated Fish): 27,203 tons


CONTRIBUTION TO MAINLAND FISHERIES GVA:

Catches ----- 23%

Processing Industries ----- 31%

MUNICIPALITIES ON THE COAST: 11

 MUNICIPALITIES MOST DEPENDENT ON FISHING ACTIVITY: 6

 MOST IMPORTANT FISHING PORTS: Aveiro, Figueira da Foz

**Table IX - Central Region**  
**Landings of Fresh and Refrigerated Fish by Fleet Segments**

(tons)

FLEET SEGMENTS	1988	1989	1990
Trawlers	6 647.7	8 488.7	9 668.0
Multipurpose	1 173.1	1 454.9	1 715.0
Purse-Seiners	12 633.9	13 057.1	15 692.5
Mixed Companies	370.8	189.4	89.1
Agreements Morocco	2.4	0.9	0.0
Agreements Mauritania	0.0	0.0	0.0
Fishing in Spain	1 123.4	1 062.3	555.7
<b>TOTAL</b>	<b>21 951.3</b>	<b>24 253.3</b>	<b>27 720.3</b>

Source: Gabinete de Estudos e Planeamento das Pescas

**Table X - Central Region**  
**Landings of Fresh and Refrigerated Fish by Fleet Segments and by Main Species - 1990**

31

TRAWLERS			MULTI-PURPOSE			PURSE-SEINERS		
Species	Landings (tons)	Average Price (PTE/Kg)	Species	Landings (tons)	Average Price (PTE/Kg)	Species	Landings (tons)	Average Price (PTE/Kg)
Horse mackerel	2 145.2	238.90	Horse mackerel	466.9	315.70	Sardine	15 205.5	55.60
Pouting	894.8	261.30	Wedge shell	368.2	73.40	Horse mackerel	215.1	229.00
Octopus	773.0	468.60	Octopus	130.2	548.40	Atlantic mackerel	209.2	33.30
Squid	693.8	581.90	Cuttlefish	86.0	331.60	Anchovy	27.6	407.70
Atlantic mackerel	516.9	64.70	Pouting	82.9	353.80	Comm.mackerel	11.9	48.20
<b>SUB-TOTAL</b>	<b>5 023.7</b>	<b>307.70</b>	<b>SUB-TOTAL</b>	<b>1 134.2</b>	<b>267.70</b>	<b>SUB-TOTAL</b>	<b>15 669.3</b>	<b>58.30</b>
<b>% ABOVE SPECIES</b>	<b>52%</b>		<b>% ABOVE SPECIES</b>	<b>66%</b>		<b>% ABOVE SPECIES</b>	<b>100%</b>	
<b>TOTAL</b>	<b>9 668.0</b>	<b>298.40</b>	<b>TOTAL</b>	<b>1 715.0</b>	<b>327.00</b>	<b>TOTAL</b>	<b>15 692.5</b>	<b>58.70</b>

Source: Gabinete de Estudos e Planeamento das Pescas



**Table XI - Municipalities Most Dependent on Fishing in the Central Region**

**Number of municipalities on the coast: 11**

**Municipalities most dependent on fishing activity: 6**

MUNICIPALITIES	RESIDENT POPULATION		EMPLOYED WORKING POPULATION RESIDENT IN THE MUNICIPALITY - 1981		EMPLOYMENT IN THE MUNICIPALITY -1990 (*)
	1981	1991	TOTAL	% FISHERMEN	% FISHERMEN
Murtosa	9816	9614	3308	17.5	8.7
Aveiro	60284	66356	25829	1.0	5.7
Ílhavo	31383	33034	11923	12.7	21.4
Vagos	18548	18896	9456	1.1	0.9
Mira	13299	13225	6275	7.0	2.6
Figueira da Foz	58559	61885	22578	4.8	5.1
<b>TOTAL</b>	<b>191889</b>	<b>203010</b>	<b>79369</b>	<b>5.0</b>	<b>8.2</b>

(\*) Does not include workers in Central and Local Public Administration, the self-employed, liberal professions, sole proprietors and their relations who are part of sole proprietorships.

Source: INE - Instituto Nacional de Estatística

### 2.3.3. Lisbon and Tagus Valley Region

Fishing activities in the region have an outstanding position in the Mainland total, contributing 35% to the formation of the GVA of the catches segment and 30% of the GVA of the fish processing industry.

Around 1/3 of Mainland vessels are registered in this region, totalling 4,382 units, of which around 87% operate in local fishing.

Local fishing vessels, of which approximately 60% do not have engines, are essentially concentrated in the ports of Setúbal, Peniche and Sesimbra.

The area generates 1/3 of the Mainland production of fresh and refrigerated fish, particularly outstanding being the ports of Peniche and Sesimbra, which occupy second and third positions in terms of the value of fish landed on the Mainland.

The principal species caught in the area reflect the traditional structure of catches on the Mainland, though special reference must be made to the production of black scabbard-fish, concentrated in Sesimbra (see Tables XII and XIII). Landings of species subject to quota are estimated to represent around 20% of the production of fresh and refrigerated fish in the region, horse mackerel having a dominant weight.

Contracted fishermen in the area are estimated to number some 9,500, of whom around 1/3 are associated to vessels below 9 meters in length.

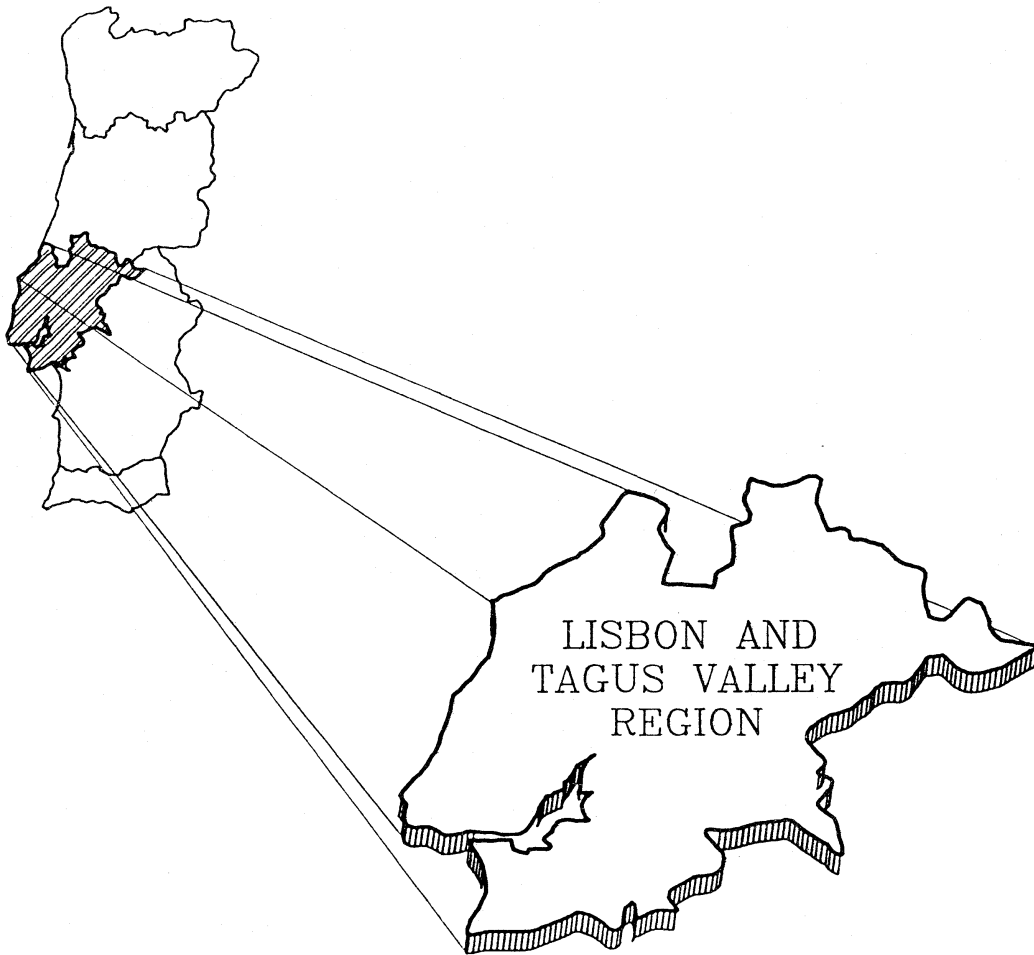
According to data from the 1991 Fishermen's Census the following characteristics of registered fishermen stand out in this region:

- . 20% of those registered are between 45 and 54 years of age, while around 23% are over 55 years of age;
- . 55% of those registered have undergone primary education (4 years), while 24% only know how to read and write or are illiterate; 21% have preparatory/secondary education.

The greatest concentration of labour associated to the fleet of the area occurs in the municipalities of Nazaré, Peniche and Lourinhã to the north of the Tagus and in the municipalities of Sesimbra and Setúbal to the south, as can be seen from Table XIV.

It must, however, also be pointed out that there are many small fishing settlements connected to the existence of many natural geographical accidents characterizing the coastline of the area, particularly the estuaries of the Tagus and Sado rivers and some lagoons.

FIGURE 10  
LISBON AND TAGUS VALLEY REGION  
ECONOMIC BACKGROUND



AREA: 13,194 Km<sup>2</sup>

POPULATION: 3.31 million inhabitants

POPULATION DENSITY: 251 inhab./Km<sup>2</sup>

POTENTIAL WORKING FORCE: 2.22 million

WORKING POPULATION: 1.62 million

CONTRIBUTION TO MAINLAND GVA: 45%

PRIMARY SECTOR ----- 24%  
SECONDARY SECTOR ----- 38%  
TERTIARY SECTOR ----- 53%

GVA PER CAPITA: 5,254 ECU

FIGURE 11

LISBON AND TAGUS VALLEY REGION  
IMPORTANCE OF FISHERIES SECTOR



REGISTERED FLEET: 4,382 vessels

CONTRACTED FISHERMEN: 9,495


LANDINGS (Fresh and Refrigerated Fish): 74,250 tons


CONTRIBUTION TO MAINLAND FISHERIES GVA:

Catches ----- 35%

Processing Industries ----- 30%

MUNICIPALITIES ON THE COAST: 24

 MUNICIPALITIES MOST DEPENDENT ON FISHING ACTIVITY: 6

 MOST IMPORTANT FISHING PORTS: Peniche, Sesimbra

**Table XII - Lisbon and Tagus Valley Region  
Landings of Fresh and Refrigerated Fish by Fleet Segments**

(tons)

FLEET SEGMENTS	1988	1989	1990
Trawlers	8 678.7	9 097.8	7 822.1
Multipurpose	28 179.6	24 726.9	23 733.8
Purse-Seiners	34 959.8	33 083.9	31 316.3
Mixed Companies	6 524.3	5 307.8	4 351.8
Agreements Morocco	2 083.4	4 195.5	5 197.1
Agreements Mauritania	454.9	1 533.0	1 845.1
Fishing in Spain	0.0	0.0	0.0
<b>TOTAL</b>	<b>80 880.7</b>	<b>77 944.9</b>	<b>74 266.2</b>

Source: Gabinete de Estudos e Planeamento das Pescas

**Table XIII - Lisbon and Tagus Valley Region  
Landings of Fresh and Refrigerated Fish by Fleet Segments and by Main Species - 1990**

36

TRAWLERS			MULTI- PURPOSE			PURSE-SEINERS		
Species	Landings (tons)	Average Price (PTE/Kg)	Species	Landings (tons)	Average Price (PTE/Kg)	Species	Landings (tons)	Average Price (PTE/Kg)
Horse mackerel	2 351.4	249.70	Black scabbard	3 300.4	210.90	Sardine	19 144.0	61.70
Blue whiting	645.9	64.80	Horse mackerel	1 921.6	319.50	Horse mackerel	4 240.3	243.80
Jack mackerel	452.1	65.00	Sardines	1 743.7	76.90	Com.mackerel	4 056.6	71.80
Atlantic mackerel	341.4	61.70	Octopus	1 608.8	583.90	Jack mackerel	1 170.2	66.20
Hake	313.1	757.70	Com.mackerel	1 112.5	46.30	Seabreams	1 048.6	63.60
<b>SUB-TOTAL</b>	<b>4 103.9</b>	<b>223.40</b>	<b>SUB-TOTAL</b>	<b>9 687.0</b>	<b>251.40</b>	<b>SUB-TOTAL</b>	<b>29 659.7</b>	<b>89.40</b>
<b>% ABOVE SPECIES</b>	<b>52%</b>		<b>% ABOVE SPECIES</b>	<b>41%</b>		<b>% ABOVE SPECIES</b>	<b>95%</b>	
<b>TOTAL</b>	<b>7 822.1</b>	<b>295.00</b>	<b>TOTAL</b>	<b>23 733.8</b>	<b>399.80</b>	<b>TOTAL</b>	<b>31 316.3</b>	<b>92.00</b>

Source: Gabinete de Estudos e Planeamento das Pescas

**Table XIV - Municipalities Most Dependent on Fishing in the Lisbon  
and Tagus Valley Region**

**Number of municipalities on the coast: 24**

**Municipalities most dependent on fishing activity: 6**

MUNICIPALITIES	RESIDENT POPULATION		EMPLOYED WORKING POPULATION RESIDENT IN THE MUNICIPALITY - 1981		EMPLOYMENT IN THE MUNICIPALITY -1990 (*)
	1981	1991	TOTAL	% FISHERMEN	% FISHERMEN
Nazaré	15436	15340	5882	11.5	9.9
Peniche	25627	26665	9580	22.9	28.8
Lourinhã	21245	21600	7563	8.4	12.3
Sesimbra	23103	27525	8873	18.4	21.9
Setúbal	98366	104689	40170	3.2	1.0
Alcochete	11246	10120	4559	1.3	n.a.
<b>TOTAL</b>	<b>195023</b>	<b>205939</b>	<b>76627</b>	<b>8.5</b>	<b>8.5</b>

(\*) Does not include workers in Central and Local Public Administration, the self-employed, liberal professions, sole proprietors and their relatives who work in sole proprietorships.

Source: INE - Instituto Nacional de Estatística

### 2.3.4. Alentejo Region

The contribution of the area to the fisheries sector is not very significant, and it is in fact the region where fishing activities have the most limited expression in the general Mainland framework:

- . 3% of the GVA of the Mainland catches segment and fish processing industries;
- . 3% of the Mainland production of fresh and refrigerated fish, corresponding to 7,000 tons, around 50% of which are catches of sardine; common mackerel and octopus are also important, as shown in Table XVI; quota species have a low weight in the structure of landings, corresponding to some 6% of catches of fresh and refrigerated fish;
- . 3% of the total number of vessels registered on the Mainland, corresponding to 418 units, 93% of which work in local fishing;
- . 4% of fishermen contracted on the Mainland, corresponding to 1,380 workers.

The most relevant characteristics of registered fishermen in the region are the following:

- . only 37% of those registered are over 45 years of age, the labour force therefore being less aging than the Mainland total;
- . around 60% of those registered have primary education (4 years), while 16% only know how to read and write and 6% are illiterate; 18% have preparatory/secondary education;
- . the dominant professional category is Master (61% of the total of those registered), a situation associated to the strong weight of local fishing in the area.

Sines is the most important port in the area and absorbs around 93% of total landings in the Alentejo. The municipality of Sines is also responsible for most employment associated to the fleet of the region, recording very significant levels of dependence on fishing activity in terms of the structure of employment. Apart from this municipality only Odemira has a weight in the catches segment above the Mainland average, as shown in Table XVII.

FIGURE 12  
ALENTEJO REGION  
ECONOMIC BACKGROUND



AREA: 26,682 Km<sup>2</sup>

POPULATION: 541 thousand inhabitants

POPULATION DENSITY: 20 inhab/Km<sup>2</sup>

POTENTIAL WORKING FORCE: 352 thousand

WORKING POPULATION: 259 thousand

CONTRIBUTION TO MAINLAND GVA: 5%

PRIMARY SECTOR	-----	19%
SECONDARY SECTOR	-----	4%
TERTIARY SECTOR	-----	4%

GVA PER CAPITA: 3,719 ECU



FIGURE 13  
**ALENTEJO REGION**  
**IMPORTANCE OF FISHERIES SECTOR**



REGISTERED FLEET: 418 vessels

CONTRACTED FISHERMEN: 1,383


LANDINGS (Fresh and Refrigerated Fish): 6,999 tons

CONTRIBUTION TO MAINLAND FISHERIES GVA:

Catches ----- 3%

Processing Industries ----- 3%

MUNICIPALITIES ON THE COAST: 5

 MUNICIPALITIES MOST DEPENDENT ON FISHERING ACTIVITY: 2

 MOST IMPORTANT FISHING PORTS: Sines

**Table XV - Alentejo Region**  
Landings of Fresh and Refrigerated Fish by Fleet Segments

(tons)

FLEET SEGMENTS	1988	1989	1990
Trawlers	55.4	3.0	37.9
Multipurpose	4 548.6	4 208.0	3 425.6
Purse-Seiners	3 382.3	3 704.4	3 730.8
Mixed Companies	0.0	0.9	3.6
Agreements Morocco	1.2	18.5	64.2
Agreements Mauritania	0.0	0.0	3.2
Fishing in Spain	0.0	0.0	0.0
<b>TOTAL</b>	<b>7 987.7</b>	<b>7 934.8</b>	<b>7 265.3</b>

Source: Gabinete de Estudos e Planeamento das Pescas

**Table XVI - Alentejo Region**  
Landings of Fresh and Refrigerated Fish by Fleet Segments and by Main Species - 1990

TRAWLERS			MULTI-PURPOSE			PURSE-SEINERS		
Species	Landings (tons)	Average Price (PTE/Kg)	Species	Landings (tons)	Average Price (PTE/Kg)	Species	Landings (tons)	Average Price (PTE/Kg)
			Com. mackerel	489.6	49.00	Sardine	3 699.0	50.40
			Octopus	340.9	562.80	Com. mackerel	14.6	55.00
			Horse mackerel	284.8	348.10	Seabreams	2.5	53.90
			Seabreams	267.4	193.90	Horse mackerel	1.3	374.80
			Conger	209.2	393.40	Axillary seab.	0.2	491.30
			SUB-TOTAL	1 591.9	282.10	SUB-TOTAL	3 717.6	50.60
			% ABOVE SPECIES	46%		% ABOVE SPECIES	100%	
<b>TOTAL</b>	<b>37,9</b>	<b>291.00</b>	<b>TOTAL</b>	<b>3 425.6</b>	<b>461.60</b>	<b>TOTAL</b>	<b>3 730.8</b>	<b>50.60</b>

Source: Gabinete de Estudos e Planeamento das Pescas

**Table XVII - Municipalities Most Dependent on Fishing in the Alentejo**  
**Number of municipalities on the coast: 5**  
**Municipalities most dependent on fishing activity: 2**

MUNICIPALITIES	RESIDENT POPULATION		EMPLOYED WORKING POPULATION RESIDENT IN THE MUNICIPALITY		EMPLOYMENT GENERATED IN THE MUNICIPALITY IN 1990 (*)
	1981	1991	TOTAL	% FISHERMEN	% FISHERMEN
Sines	12075	12322	4704	13.9	9.7
Odemira	29463	26646	11546	1.5	n.a.
<b>TOTAL</b>	<b>41538</b>	<b>38968</b>	<b>16250</b>	<b>5.1</b>	<b>n.a.</b>

(\*) Does not include workers in Central and Local Public Administration, the self-employed, liberal professions, sole proprietors and their relations who are part of sole proprietorships.

Source: INE - Instituto Nacional de Estatística

### 2.3.5. Algarve Region

Fishing activities have traditionally had a marked weight in the area, representing over 1/5 of the GVA of the Mainland catches, with around 45,000 tons of fresh and refrigerated fish being landed in 1990. The structure of landings by fleet segments and by main species is depicted in Tables XVIII and XIX. Species subject to quota represent only 8% of the volume of fresh and refrigerated fish landings on the region, but are estimated to represent around 20% of value of production, which results from the importance of high valued species, such as lobster and hake.

The ports of Portimão and Olhão are the principal centres for the registration of vessels and fish landings, and together absorb around 76% of total fresh and refrigerated fish landed on the region.

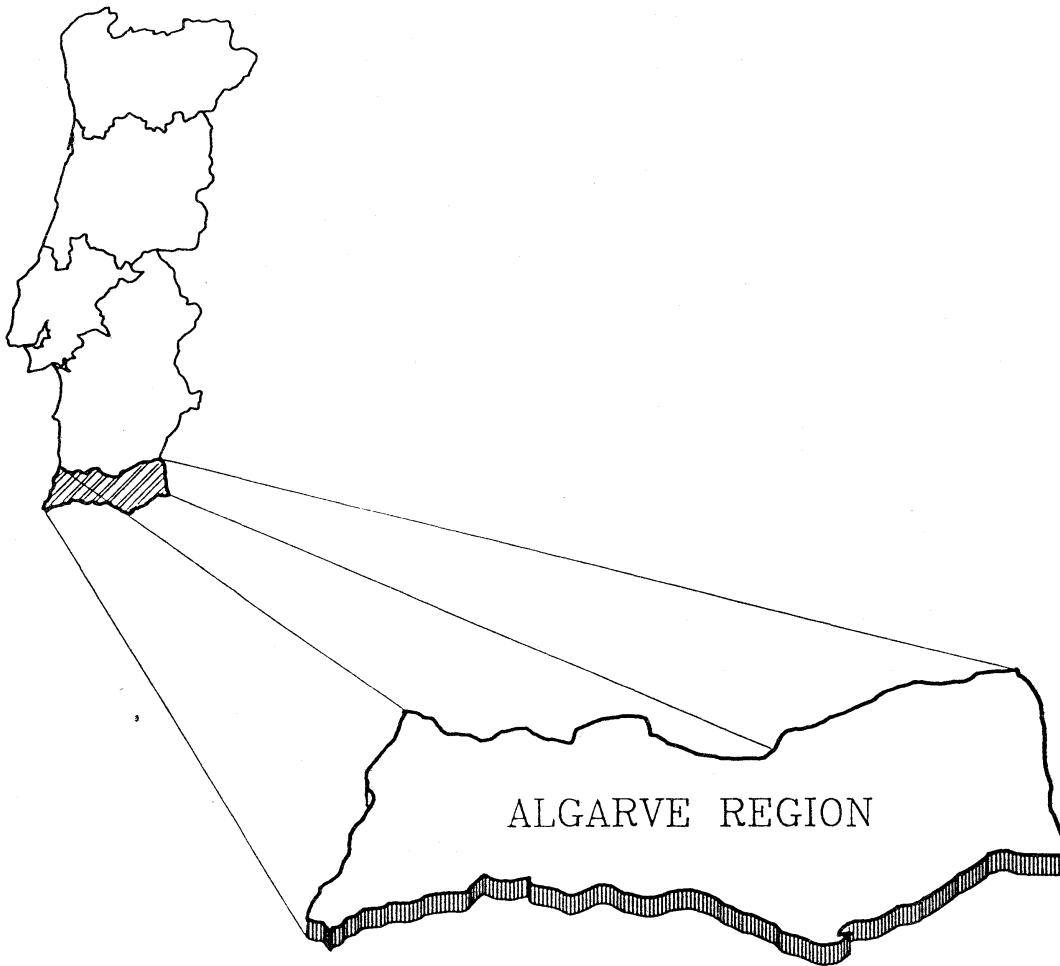
Around 4,400 vessels are registered in the area (33% of the Mainland total), of which around 4,000 are below 9 meters in length and around half do not have engines.

Contracted fishermen in the area total 9,916. Registered fishermen have the following prevailing characteristics, according to preliminary data from the Census of Fishermen:

- . 60% of registered fishermen have primary education (4 years of schooling), while 17% only know how to read and write and 6.5% are illiterate; 16,5% have undergone preparatory or secondary education;
- . 40% of those registered are over 55 years of age and 60% are over 45 years of age, a very aging labour force;
- . the category of masters has a significant weight (32% of those registered), compared to 42% of fishermen, a situation associated to the strong weight of local fishing in the Algarve.

Fishing activities have a significant weight in employment in almost all coastal municipalities in the area, particularly outstanding being Vila do Bispo and Olhão, as shown in Table XX.

FIGURE 14  
ALGARVE REGION  
ECONOMIC BACKGROUND



AREA: 4,960 Km<sup>2</sup>

POPULATION: 340 thousand inhabitants

POPULATION DENSITY: 69 inhab./Km<sup>2</sup>

POTENTIAL WORKING FORCE: 214 thousand

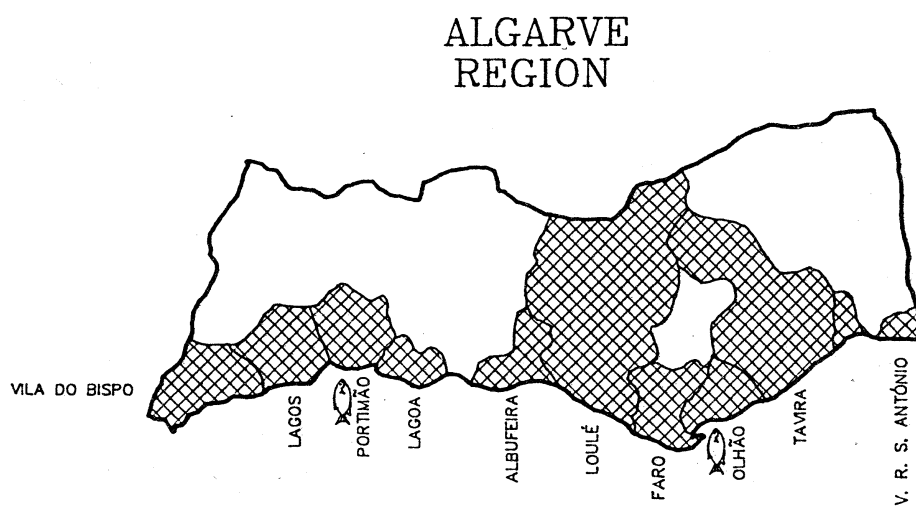
WORKING POPULATION: 157 thousand

CONTRIBUTION TO MAINLAND GVA: 3%

PRIMARY SECTOR	-----	7%
SECONDARY SECTOR	-----	2%
TERTIARY SECTOR	-----	4%

GVA PER CAPITA: 3,647 ECU

**FIGURE 15**  
**ALGARVE REGION**  
**IMPORTANCE OF FISHERIES SECTOR**



REGISTERED FLEET: 4,413 vessels

CONTRACTED FISHERMEN: 9,916


LANDINGS (Fresh and Refrigerated Fish): 42,002 tons


CONTRIBUTION TO MAINLAND FISHERIES GVA:

Catches ----- 22%

Processing Industries ----- 7%

MUNICIPALITIES ON THE COAST: 13

 MUNICIPALITIES MOST DEPENDENT ON FISHING ACTIVITY: 10

 MOST IMPORTANT FISHING PORTS: Portimão. Olhão

**Table XVIII - Algarve Region**  
Landings of Fresh and Refrigerated Fish by Fleet Segments

(tons)

FLEET SEGMENTS	1988	1989	1990
Trawlers	6 338.8	6 184.5	6 057.7
Multipurpose	14 004.1	10 479.2	9 409.5
Purse-Seiners	24 279.2	18 645.8	23 379.4
Mixed Companies	3 063.6	2 532.5	2 755.8
Agreements Morocco	2 077.6	2 205.5	2 280.5
Agreements Mauritania	0.0	0.0	0.0
Fishing in Spain	1 289.8	992.7	1 073.4
<b>TOTAL</b>	<b>51 053.1</b>	<b>41 040.2</b>	<b>44 956.3</b>

Source: Gabinete de Estudos e Planeamento das Pescas

**Table XIX - Algarve Region**  
Landings of Fresh and Refrigerated Fish by Fleet Segments and by Main Species - 1990

TRAWLERS			MULTI-PURPOSE			PURSE-SEINERS		
Species	Landings (tons)	Average Price (PTE/Kg)	Species	Landings (tons)	Average Price (PTE/Kg)	Species	Landings (tons)	Average Price (PTE/Kg)
Horse mackerel	631.1	332.50	Octopus	1 866.1	561.00	Sardine	15 009.3	56.30
Norway lobster	585.0	1 858.30	Com.mackerel	673.7	44.60	Com.mackerel	1 548.1	35.60
Jack mackerel	346.4	93.20	Cuttlefish	573.5	492.10	Seabreams	336.2	207.10
Monk	339.3	858.10	Seabreams	565.5	446.70	Tuna	142.4	251.60
Hake	260.4	670.60	Hake	404.9	905.10	Horse mackerel	126.5	483.40
<b>SUB-TOTAL</b>	<b>2 162.2</b>	<b>787.30</b>	<b>SUB-TOTAL</b>	<b>4 083.7</b>	<b>484.40</b>	<b>SUB-TOTAL</b>	<b>17 162.5</b>	<b>62.20</b>
<b>% ABOVE SPECIES</b>	<b>36%</b>		<b>% ABOVE SPECIES</b>	<b>43%</b>		<b>% ABOVE SPECIES</b>	<b>73%</b>	
<b>TOTAL</b>	<b>6 057.6</b>	<b>872.80</b>	<b>TOTAL</b>	<b>9 409.5</b>	<b>562.30</b>	<b>TOTAL</b>	<b>23 379.3</b>	<b>66.50</b>

Source: Gabinete de Estudos e Planeamento das Pescas

**Table XX - Municipalities Most Dependent on fishing in the Algarve**  
**Number of municipalities on the coast: 13**  
**Municipalities most dependent on fishing activity: 10**

MUNICIPALITIES	RESIDENT POPULATION		EMPLOYED WORKING POPULATION RESIDENT IN THE MUNICIPALITY - 1981		EMPLOYMENT IN THE MUNICIPALITY -1990 (*)
	1981	1991	TOTAL	% FISHERMEN	% FISHERMEN
Vila do Bispo	5700	5687	2052	24.3	20.1
Lagos	19700	20664	7748	5.1	2.2
Portimão	34464	38642	14060	4.3	2.6
Lagoa	15635	17024	6048	4.9	0.6
Albufeira	17218	21438	7197	3.9	0.4
Loulé	44051	47150	14919	4.7	2.5
Faro	45109	49699	18583	2.1	0.6
Olhão	34573	36894	12115	18.4	21.7
Tavira	24615	25032	8704	10.4	7.0
V.R.S.António	16347	14465	6080	9.1	10.8
<b>TOTAL</b>	<b>257412</b>	<b>276695</b>	<b>97476</b>	<b>7.0</b>	<b>4.4</b>

(\*) Does not include workers in Central and Local Public Administration, the self-employed, liberal professions, sole proprietors and their relatives who work in sole proprietorships.

Source: INE - Instituto Nacional de Estatística



### 3. GLOBAL ASSESSMENT OF THE EFFECTS OF APPLICATION OF THE COMMON FISHERIES POLICY IN THE MAINLAND

#### 3.1. Assessment of the effects of application of the Common Fisheries Policy in the period 1986-90

Fishing activities on the Mainland in the eighties and particularly after Portuguese accession to the EEC in 1986 were influenced by a series of factors arising from:

- a) changes introduced in the mid-seventies in international legislation concerning maritime law, which led to the creation of Exclusive Economic Zones of 200 sea miles;
- b) restrictions on fishing ranging from reducing the fishing fleet to application of technical conservation measures (e.g., minimum sizes of fish caught and sold, prohibited areas and close seasons, restrictions on the use of more exhaustive fishing equipment), associated to the Common Fisheries Policy.

More recently the successive restrictions on access to traditional fishing grounds, particularly in the North and South Atlantic, together with restrictions arising from the Common Fisheries Policy, have had a marked impact on activity in the sector.

The Multiannual Guidance Programme for 1987/1991 envisaged an adjustment in the global capacity of the Mainland fleet to 184,459 GRT, equivalent to a reduction of some 2% in the reference period.

The effective adjustment, however, largely exceeded the objectives established, reflected in a reduction of around 12% in the capacity of the Mainland fleet up to 1 January 1991.

Meanwhile indicators of the development of fish production in the period 1986-1990 evidenced a drastic fall in catches in external waters - about 38% - together with a reduction of 9% in catches in national waters, leading to a global decrease in Mainland fish production of approximately 21%.

The change in the number of contracted fishermen in the same period points to a global fall in direct labour associated to the fleet of around 2.6%, a comparatively moderate fall in light of the reduction in capacity of the fleet and catches.

This situation was reflected in a marked fall in the productivity of the Mainland fleet, as shown in Table XXI.

The fall in productivity, however, was accompanied by substantial increases in prices of the first sale of fresh and refrigerated fish, enabling the impact of the negative development in catches to be offset and the spread of possible social tension in the sector to be avoided.

In the period 1986-1990, in fact, fish price increases far greater than average inflation in the country were recorded, reaching 80% to 100% in the case of some species and around 75% in the case of sardine, the dominant species in the volume of catches in Mainland national waters.

The increase in the price of the sardine, made possible by a fall in catches of the species (-11% in the period 1986-90), had repercussions downstream in the sardine canning industry, where a significant number of factories has largely been dependent on the availability of plentiful raw material at a relatively low price.

The changes in the price of the raw material associated to strong international competition led to decreases in the production and export of canned sardines of around 12% and 18%, respectively, in the period 1986-1990.

Table XXI - Development of Indicators in the Period 1986-1990

	1986	1990	VARIATION 1986/90 %
Fish production (000 tonnes)	377	298	-21.0
Fleet registered			
. Vessels (no)	16,188	13,302	-17.8
. GRT (tonnes)	188,218	165,447	-12.1
. Power (kw)	460,701	433,549	- 5.9
Contracted fishermen (nº)	35,466	34,561	- 2.6
Productivity indicators (tonnes)			
. Production/vessel	23.3	22.4	- 3.9
. Production/GRT	2.0	1.8	-10.0
. Production/kw	0.82	0.69	-15.9
. Production/fisherman	10.7	8.6	-19.6

It must be noted, however, that exports of canned sardines to EC countries have recovered after 1988, when custom duties applied on Portuguese canned sardines were banished. Meanwhile, exports to third countries disclose a continuous drop, having decreased from 16 thousand tons in 1985 to 5 thousand tons in 1991.

Sardine canning companies are often critical of what they consider an EC trade policy offering counterweights for fishing agreements. However, above described situation suggests that major problems affecting the Portuguese sardine canning industry are not confined to the competition with Morocco in EC market, but they result from structural reasons leading to loss of competitiveness in third countries market.

On the other hand, the fall in catches in external waters of fish frozen or salted on board meant that the freezing, salting and drying industries became increasingly dependent on imported raw material.

In addition to the fall in catches there was a profound change in the structure of species caught: while in 1986 the prevailing species were frozen hake and cod salted on board, almost all aimed at the domestic market, in 1990 the dominant species were cod, rockfish and plain bonito, frozen on board, and mostly geared to direct export with no processing on land.

The fall in catches in external waters, particularly by the long-distance fleet, traditionally geared towards operating in the North and South Atlantic, was crucial in macroeconomic terms to the increase in the weight of imports in apparent consumption of fish, which rose from 48% in 1986 to 70% in 1990.

This led to an increase in the deficit of the fish products trade balance which grew 1.5 times in the period 1986-1990, despite the substantial reinforcement of global exports.

Although the effects at macroeconomic level in the region have been rather marked, as pointed out above, the social impact in terms of the municipalities and communities more dependent on fishing have not been significant, which is essentially due to:

- . the small fall in direct labour associated to the fleet, against a background in which the rate of unemployment at national level is fairly low (4.7% in 1990);
- . the significant increases in prices of the first sale of fresh and refrigerated fish, making it possible to offset, in terms of fishermen's and ship owner's income, the falls occurring in fish production.

## 3.2. Possible scenarios for the future impact of the Common Fisheries Policy

### 3.2.1. Fishing fleet and access to fishing grounds

#### Fishing Fleet

The reasons underlying the reduction in capacity of the Mainland fleet in the period 1987-1990 far beyond the objectives defined in the Multiannual Guidance Programme are basically related to the fact that a substantial part of the registered fleet operates on a very irregular basis.

The inactivity of a significant proportion of the fleet also largely explains the unfavourable development of the above-mentioned average productivity indices, calculated on the basis of the number and tonnage of vessels registered.

From information supplied by producers' organisations and ship owners' associations it is estimated that in 1991 only around 7,400 vessels, representing little more than 55% of the total number of vessels registered on the Mainland on 1/1/1991, operated significantly on a regular basis (see Tables XXII and XXIII).

It is estimated that these 7,400 vessels correspond to around 115,000 GRT, which is equivalent to approximately 70% of total registered capacity. This is because indices of inactivity are more marked in multi-purpose vessels under 9 meters in length, with a very low average tonnage.

Estimated levels of activity/inactivity for vessels suggest that **direct labour associated to the fleet on a permanent basis is around 26,650 fishermen**, considering the average size of crews in the different types of fishing. In other words, some 23% of total fishermen contracted on 31/12/1990 pursue fishing activity on an irregular basis.

#### Fishing Grounds in National Waters. Quotas

Twelve species are subject to quotas in national waters, but catches have been less than 60% of quotas awarded in 1990. Quotas awarded in 1991 (68 235 tons) and in 1992 (69 830 tons) reflect a moderate growth, though catches in 1991 are estimated to be also considerably below exploitable potential.

Against this background, a more efficient exploitation of stocks subject to quotas appears as viable, leading to a future growth of catches, in particular in the case of commercially valued species.

Meantime, it must be noted that catches related to species subject to quotas represent less than 1/5 of total catches in Mainland waters.

In fact, the most important resource in Mainland waters - sardine - is not subject to quotas and stocks are considered to be stable, allowing a moderate expansion of catches in the near future.

Table XXII- Fleet Registered and Fleet with Regular Activity on the Mainland

SEGMENTS OF FLEET	FLEET REGISTERED ON 1/1/91			FISHERMEN CONTRACTED ON 31/12/90		FLEET WITH REGULAR ACTIVITY IN 1991						FISHERMEN WORKING IN 1991			
	Nº	GRT	KW	Nº	%	NATIONAL WATERS		EXTERNAL WATERS		TOTAL		REGULAR OCCUPATION			PART. OCCUP.
						Nº	GRT	Nº	GRT	Nº	GRT	NAT. WATERS	EXT. WATERS	TOTAL	
Multi-purpose	12777	48959	192915	25500	73.8	7000	31925	55	1740	7055	32665	18200	450	18650	
L. < 9 m	11809	18341	69190	13480	39.0	6300	9185	-	-	6300	9785	-	-	-	
L. > 9 m	968	30618	123725	12020	34.8	700	22140	55	1740	755	23880	-	-	-	
Trawlers	151	21114	74359	2220	6.4	80	11185	30	4195	110	15380	1450	550	2000	
Purse-seiners	274	12238	54334	4420	12.8	170	7590	-	-	170	7590	4000	-	4000	
Long-distance	100	83136	111941	2420	7.0	-	-	70	58195	70	58195	-	2000	2000	
<b>TOTAL</b>	<b>13302</b>	<b>165447</b>	<b>433549</b>	<b>34560</b>	<b>100.0</b>	<b>7250</b>	<b>50700</b>	<b>155</b>	<b>64130</b>	<b>7405</b>	<b>114830</b>	<b>23650</b>	<b>3000</b>	<b>26650</b>	<b>7910</b>

Source: GEPP (registered fleet), INE (total number of contracted fishermen), TECNINVEST estimate

Table XXIII - Fleet with Regular Activity by Regions

SEGMENTS OF FLEET	NORTH		CENTRE		LISBON AND TAGUS VALLEY		ALENTEJO		ALGARVE	
	Nº	GRT	Nº	GRT	Nº	GRT	Nº	GRT	Nº	GRT
Multi-purpose	1341	7608	776	2457	2335	13466	233	976	2370	9157
Trawlers	10	1892	37	5937	21	3521	-	-	42	4030
Purse-seiners	47	2225	13	805	59	2680	2	91	49	1792
Long-distance	11	8322	30	29214	28	20310	-	-	1	349
TOTAL	1409	20047	866	38413	2443	39977	235	1067	2462	15328

Source: TECNINVEST estimate

## Fishing Grounds in External Waters

Fishing possibilities in EC-10 waters (excluding Portugal and Spain) are not exploited (e.g. quotas awarded for horse mackerel and blue whiting). There are no catches of Portuguese vessels in EC-10 waters, suggesting lack of capacity of ship owners to take advantage of opportunities in non-traditional fishing grounds.

Access to fishing grounds in NE and NW Atlantic (NAFO) is increasingly difficult, leading to the conclusion that the Mainland long-distance fleet operating in North Atlantic is over-sized, considering available quotas.

Catches of the Mainland fleet in Central Atlantic have been stable after admission of Portugal to EEC, being around 15 to 20 thousand tons per year. Nevertheless, access to waters under jurisdiction of third countries will tend to be more difficult in the future, which is related to the fact that African countries are becoming increasingly interested in exploit their stocks, by means of developing their fishing capacity (e.g. national vessels, mixed companies).

## Development prospects

Medium term analysis of development prospects for the fleet operating on a regular basis shows that the situation is not homogeneous in the different segments, and that different problems face vessels operating in national waters compared to those operating in external waters.

## Vessels operating in external waters

The basic problems occur in the segment of the fleet operating in external waters, i.e.:

- . the long-distance fleet, operating in the North Atlantic;
- . some subsegments of the coastal fleet - trawlers and multi-purpose vessels over 9 meters in length - that are operating in the Central Atlantic (coast of Morocco, Mauritania, Senegal, Guinea, etc.).

The estimated 155 vessels operating in external waters on a regular basis will face increasing difficulties in access to traditional fishing grounds, and some clear indicators of this have already been identified:

- . recent restrictions on the number of vessels authorized to operate in the NAFO (45 vessels in 1991, which will fall to 30 vessels in 1992);
- . increasing restrictions imposed by third countries (e.g. countries in North and Central Africa) on vessels operating in the respective Exclusive Economic Zones (recent problems occurred with Morocco are an example).

### **Vessels operating in national waters**

Significant reductions in the various segments of the fleet operating in national waters are not likely for vessels that actually work on a regular basis.

For the purse-seine fleet the situation of sardine stocks (the principal target species of this segment) does not suggest over-fishing.

Meanwhile the domestic market's great preference for this species (for processing or direct consumption) suggests that the purse-seine fleet can maintain its current scale in terms of working vessels and it could possibly increase catches to provide a better supply for canning units.

The coastal trawler and multi-purpose segments could also maintain the capacity of the fleet currently operating, bearing in mind:

- . the potential of fish stocks in traditionally less exploited waters more distant from the coast;
- . the possibility of more efficient exploitation of various species, catches of which have been significantly below the quotas authorized.

In summary, with respect to vessels operating in national waters, some contingent adjustments to be implemented in the medium term may have some repercussions in terms of labour (e.g., reduction in the average size of crews, reduction in the number of part-time fishermen), although the levels of reduction expected are not likely to be significant.

### **3.2.2. Fish Processing Industry and Ancillary Activities**

Significant reductions in labour engaged in fishery activities downstream of catches are not envisaged, because of the following:

#### **. Fish processing industries**

- . Canning industry - canned sardines are highly dependent on the output of the national fleet, but potential problems are not envisaged in terms of catches of this species;
- . Frozen, salted and dried fish industry - these industries basically use imported raw materials and are therefore not directly dependent on the development of national fleet catches.

#### **. Ancillary activities**

- . Shipbuilding and repairs - renewal and modernization of the fleet, even within a framework of a likely reduction in the respective global capacity, will be sufficient to ensure the survival of the more important regional shipyards due to their limited production capacity;
- . Manufacture of fishing nets - natural wear and tear in nets in use at present and probable changes in mesh sizes (because of improved technical measures to conserve stocks in the medium term), in addition to exports, will combine to maintain sufficient demand to ensure the activity of existing factories.



### **3.3. Recommendations to minimize the social impact arising out of the Common Fisheries Policy**

Although repercussions in terms of labour will not be particularly serious, adjustments in the fleet must be phased gradually.

It must be noted that estimates on the fleet operating on a regular basis have been made from information provided by the principal operators because of difficulties in obtaining official statistics. These estimates must therefore be compared to official records of vessels supplying fish on a regular basis to the various auctions and sales outlets along the coast so as to accurately determine the regional distribution of the fleet actually working and the labour associated thereto.

Systems of support to offset the social effects resulting from the likely reduction in labour employed in the catches segment may involve coordinated measures of the following type:

#### **a) Early retirement**

Labour involved in the fisheries sector is aging, and the early retirement of older workers is therefore a viable possibility.

Current regulations allow fishermen to retire from the age of 55, and a reduction in this minimum age limit (e.g., 50 years of age) can be considered as part of the framework of specific actions to be adopted.

It must be noted, however, that it is current practice for retired fishermen to continue to work in fishing activity to supplement their generally low retirement pensions, which could limit the effectiveness of this type of measure.

#### **b) Retraining and professional qualification of workers threatened with unemployment**

Levels of schooling of maritime professionals are generally low, which together with strong links to fishing activity and the respective fishing communities hinders professional and geographic mobility.

The following are favourable factors, however:

- . the most significant proportion of labour affected will be in the long-distance segment, where average academic qualifications are estimated to be higher than in the other segments;
- . the coastal area includes the most developed regions of the Mainland and therefore has greater potential to absorb labour.

#### **c) Support for the creation of self-employment and small and medium size companies**

c.1.) Transferring surplus fishermen to aquaculture could be a solution if the development prospects forecast in the Multiannual Guidance Programme for Aquaculture are confirmed.

Recent development of aquaculture production, however, suggests that this activity is not likely to generate a significant number of jobs.

A moderately optimistic forecast is that aquaculture may be an alternative for absorbing a relatively limited number of fishermen, particularly those connected to local fishing, especially in the Algarve, the Lisbon and Tagus Valley region (Tagus and Sado estuaries), and the Central region (Aveiro ria).

c.2.) Increased support for establishing fishing mixed companies, linked to making ship owners more aware of the advantages of this type of solution, could make a decisive contribution towards absorbing surplus labour from the Mainland fleet operating in external waters.

Portugal's good relations with many countries in Africa and South America, particularly Portuguese-speaking countries, could facilitate this type of action.

#### **d) General recommendations**

In general, the design and implementation of support systems should involve the following essential steps:

- . rigorous evaluation of the fleet actually working so as to adjust official records to the real situation;
- . consideration of the opinion of organisations connected to the sector (trade unions, producers' and ship owners' associations), with respect to the different types of actions to be adopted;
- . establishment of regional offices to support workers to be redeployed in the most affected zones so as to provide guidance on bureaucratic and/or other procedures concerning access to benefits.

#### 4. SUMMARY AND CONCLUSIONS

Dominant characteristics of the fishery sector on the Mainland are synthesized as follows:

- . fishing in national waters essentially concerns a group of 60 species;
- . 12 species are subject to quotas, but catches have been considerably below quotas awarded;
- . sardine is the most important resource, representing more than 40% of catches in Mainland waters; sardine is not subject to quotas and stocks are considered to be stable;
- . the Mainland fishing fleet registered on 1.1.1991 involved 13,302 vessels, with 165,447 GRT, though it is estimated that only 70% of total registered capacity corresponds to vessels operating on a regular basis;
- . the long distance fleet operating in external waters has been facing increased difficulties in access to fishing grounds, becoming evident that this segment is clearly over-sized;
- . the fleet segments operating in national waters (purse-seiners, coastal trawlers, multi-purpose vessels) can undertake a moderate expansion of catches in the future, considering the situation of exploitable stocks;
- . aquaculture units with semi-intensive or extensive systems still prevail, though a significant number of units with more intensive systems have appeared after Portuguese admission to EEC, in 1986;
- . the aquaculture production and the number of workers involved is relatively low, which mainly results from the fact that most units are still being set up.

Recent development of the fishing activity on the Mainland discloses the following trends:

- . fish production in the period 1986-90 evidenced a global decrease, mainly resulting from a drastic drop in catches in external waters;
- . during the same period, increases in the prices of fresh and refrigerated fish have been much higher than average inflation in the country;
- . the increase in the price of sardine associated to strong international competition led to a fall in the production and exports of canned sardines;
- . the drop in catches in external waters led to an increase in the deficit of the fish products trade balance and reinforced the dependency of freezing, salting and drying industries on imported raw materials;

- . the above referred macroeconomic developments resulted in limited social impacts in terms of subregions and fishing communities, which is essentially due to a small fall in direct labour associated to the fleet (-2,6% in the period 1986-90) and to significant increases in price of fish, offsetting the reductions occurred in fish production.

The contribution of fishing activities in terms of GVA and employment on the Mainland is estimated to be around 0,6% and 0,8% respectively, considering the catching subsector and 0,9% and 1% including the catching subsector and the fish processing industries as a whole.

Although at the global level of the Mainland the fisheries sector has a limited impact, situations of higher dependency have been identified in 30 municipalities along the coast. These coastal municipalities are characterized by a job dependency in the catches subsector greater than the Mainland average, ranging from 1% to 24% (i.e. the share of fishermen in total working population resident in the municipality).

The objectives defined in the Multiannual Guidance Programme (1987-91) for the reduction of the Mainland fleet capacity were largely exceeded, which is basically related to the fact that a substantial part of the registered fleet is not operating regularly.

The social characteristics of fishermen - aging workforce, low levels of schooling, strong links to fishing activity and to their fishing communities - hinder professional and geographic mobility.

Considering this background, intervention measures to offset the social effects arising from the likely reduction in number of jobs in fisheries should be focussed essentially on the following:

#### **Within the fishery sector:**

- . increased support for establishment of fishing mixed companies, in particular with Portuguese-speaking countries in Africa and South America;
- . transferring a limited number of fishermen to aquaculture, which is being recently developed with more intensive systems, stimulated by Community and national incentives;
- . early retirement of older workers;

#### **Non fishing activities:**

- . creation of job opportunities within the local communities or in neighbour communities, the type and characteristics of activities to be supported depending on the prevailing economic structure and on the regional development plans in each municipality;
- . retraining and professional qualification of affected workers, viewing to increase professional mobility.

**NOTES:**

<sup>(1)</sup>Due to unavailability of official information on the gross value added of the catches sector in 1990, this was estimated on two steps:

. Calculation of the "Gross Production Value" of the catches sector based on the following data:

- . volume and value of landings of fresh and refrigerated fish according with official sources (GEPP);
- . volume of landings of frozen fish (long distance fleet) according with official sources (GEPP);
- . average prices of exports of frozen fish, according with official sources (GEPP, INE), considering that a substantial part of production is geared to direct export;
- . average yield of long distance vessels, (350 to 400 million PTE/vessel/year), according with information collected from ship owners.

. Estimation of the "Gross Value Added"

- . Based on the ratio GVA/GPV disclosed in previous years (1986-1989) according with the "National Accounts" of the catches sector, the Gross Value Added in 1990 was calculated.

## APPENDIX 1

## AVERAGE EXCHANGE RATES PTE/ECU

1986	1 ECU .....	PTE 147.00
1987	1 ECU .....	PTE 162.49
1988	1 ECU .....	PTE 170.01
1989	1 ECU .....	PTE 173.32
1990	1 ECU .....	PTE 181.43