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COMMISSION OF THE EUROPEAN COMMUNITIES
Directorate-General for Fisheries

IZWO

Instituut voor Zeewetenschappelijk Onderzoek (vzw)

Institute for Marine Scientific Research

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

BELGIË

West Vlaanderen

**Document
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CONTRACTOR

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ABSTRACT

In 1990 bestond de Belgische vloot uit 201 vaartuigen, hoofdzakelijk boomkorkotters. De meest gevangen vissoorten zijn schol, kabeljauw en tong. De meeste vaartuigen van de vloot zijn winstgevend. Klasse III-vaartuigen en bordentrawlers zijn het minst winstgevend en komen het meest in gevaar bij een vermindering van het aantal schepen.

Een groot aantal mensen werkt in aanverwante bedrijven, zoals visafslagen, verwerkende industrie, marketingsector en scheepswerven. In de scheepsbouwsector alleen al is het aantal arbeidsplaatsen in de laatste 10 jaren drastisch verminderd. Ook het gemeenschappelijk visserijbeleid heeft daarin een rol gespeeld.

Er kunnen drie zones worden geïdentificeerd die in zekere mate afhankelijk zijn van de visserij en de aanverwante activiteiten, namelijk bij de vissershavens Oostende, Zeebrugge en Nieuwpoort.

Vermindering van het aantal schepen leidt alleen tot een belangrijk verlies aan werkgelegenheid bij de vloot en in de scheepsbouw. De verwerkende industrie en de groothandel werken namelijk in grote mate met geïmporteerde vis.

Er bestaat alternatieve werkgelegenheid. Vissers kunnen worden tewerkgesteld op vaartuigen met een tekort aan bemanning, maar kunnen ook werk vinden in de baggersector, de sleepvaart, bij veerboot- of handelsmaatschappijen.

Zeebrugge is hoofdzakelijk een handelshaven en maakt deel uit van een stad met een sterke economische basis. Nieuwpoort kan profiteren van het Geïntegreerd Actieprogramma voor de Westhoek. Oostende en vooral Bredene is een deel van een probleemgebied. Daarom wordt voorgesteld Bredene aan te merken als een gebied van doelstelling 6.

ABSTRACT

In 1990 the Belgian fleet consisted of 201 vessels, mainly beam trawlers. Main species caught are plaice, cod and sole. Most vessels of the fleet are profitable, Class III vessels and otter trawlers show least profitability and are endangered most by fleet reductions.

A great number of people works in ancillary industries such as auctions, processing industry, marketing and ship yards. Only in ship yards the number of jobs has decreased drastically over the last ten years. The CFP has played a role in this.

Three zones situated around the fishing ports of Oostende, Zeebrugge and Nieuwpoort which are dependent to some degree on fisheries and its ancillary activities can be identified.

Fleet reductions cause only major job losses in the fleet and the ship yards. The processing industry and wholesale trade however are very dependent on imports.

Several job opportunities already exist. Fishermen can be signed on to vessels with crewing problems, but they can also be employed in dredging, towing, ferry or trading companies.

Zeebrugge is mainly a commercial port and is a part of a city with a strong economic base. Nieuwpoort can benefit from the Integrated Action Programme of the Westhoek. Oostende, and particularly Bredene, is part of a problem area. Therefore recognition of Bredene as an Objective 6 area is suggested.

A B S T R A C T

En 1990, la flotte belge comptait 201 bateaux, essentiellement des chalutiers à perche. Les principales espèces capturées sont la plie, le cabillaud et la sole. La plupart des bateaux de la flotte belge sont rentables; les bateaux de la catégorie III et les chaluts à panneaux sont les moins rentables; et ce sont les plus menacés par les réductions de capacité.

De nombreuses personnes travaillent dans des secteurs auxiliaires tels que les ventes à la criée, l'industrie de la transformation, la commercialisation et les chantiers navals. Au cours des dix dernières années, l'emploi n'a diminué de façon drastique que dans les chantiers navals. La politique commune de la pêche y est pour beaucoup.

On peut distinguer trois zones, situées autour des ports de pêche d'Ostende, de Zeebrugge et de Nieuport, qui sont relativement tributaires de la pêche et de ses activités connexes.

Les réductions de capacité n'entraînent d'importantes pertes d'emploi que dans la flotte proprement dite et dans les chantiers navals. Toutefois, le secteur de la transformation et le commerce de gros sont largement tributaires des importations.

Il existe déjà plusieurs sources d'emploi. Les pêcheurs peuvent être engagés sur des bateaux ayant des problèmes d'équipage, mais ils peuvent aussi être employés dans des sociétés de dragage, de remorquage, de car-ferries et dans des sociétés commerciales.

Zeebrugge est essentiellement un port commercial, dans une ville ayant une importante base économique. Nieuport peut bénéficier du programme d'action intégrée du Westhoek. Ostende, et en particulier Bredene, appartient à une zone à problèmes. C'est pourquoi il est suggéré de reconnaître Bredene comme zone relevant de l'objectif 6.

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1 INTRODUCTION

West-Vlaanderen, region B1, is the only coastal province of Belgium (a coastal line of 67 km). Three out of its eight *arrondissementen* are situated along the coast (Brugge, Oostende and Veurne). In these three *arrondissementen* in general and in the municipalities around the three fishing ports (Zeebrugge, Oostende and Nieuwpoort) in particular, fisheries and its ancillary activities are of great importance.

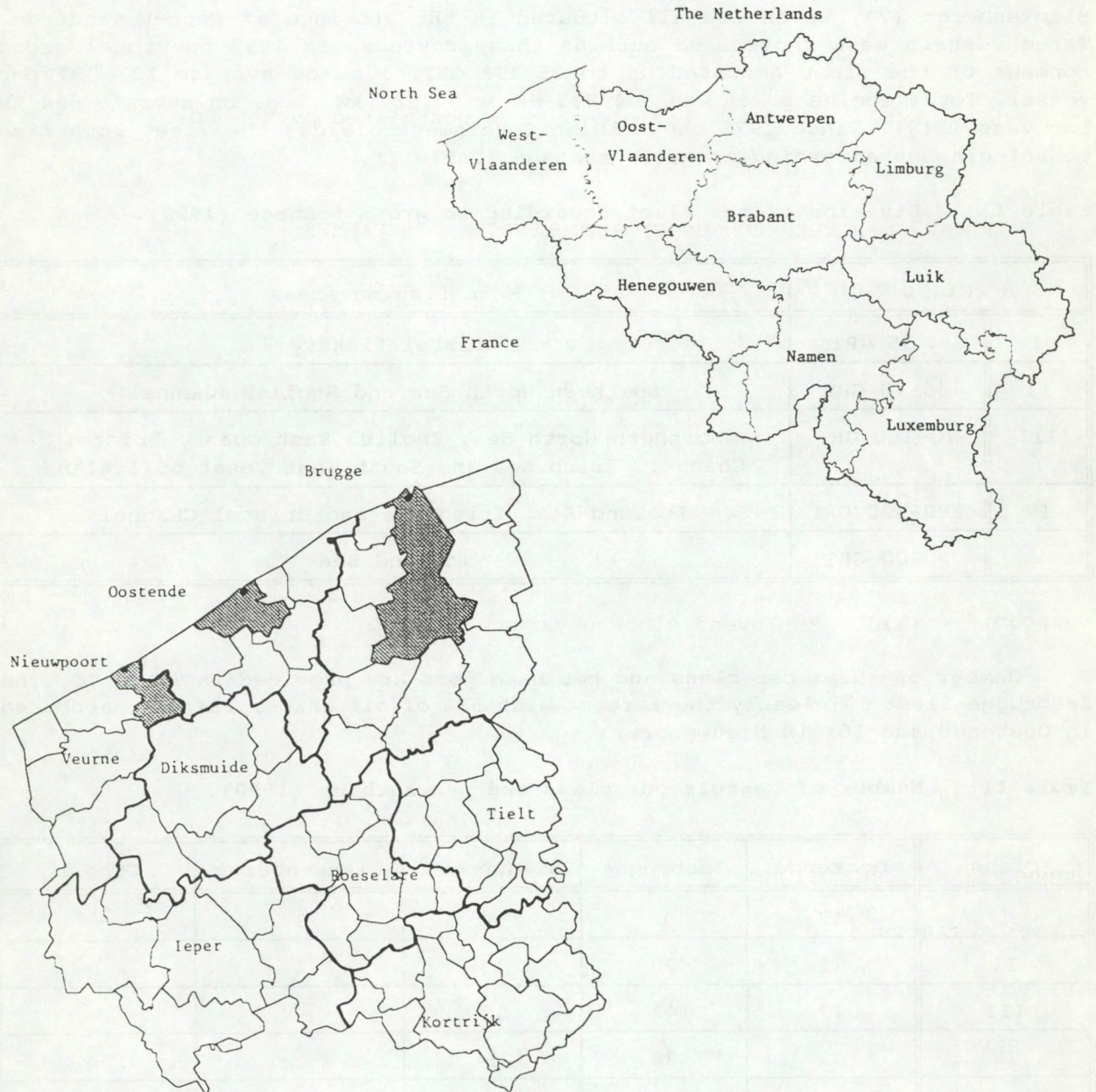


Figure 1: West-Vlaanderen, the only coastal province of Belgium, is divided into eight *arrondissementen* of which three along the coast (Brugge, Oostende and Veurne), where the three fishing ports (Nieuwpoort, Oostende, Brugge) are located.

2 ANALYSIS OF THE SECTOR

2.1 Fishing fleet

2.1.1 Structure

2.1.1.1 Fleet subdivision

The Belgian fishing fleet can be divided into a sea fishing fleet and a Schelde fishing fleet. The latter comprises only 14 vessels and will not be considered in this study. In 1990 the base ports of the 201 vessels of the sea fishing fleet were Zeebrugge (106), Oostende (57), Nieuwpoort (33) and Blankenberge (2), which are all situated in the province of West-Vlaanderen. Three vessels were registered outside this province. In 1990 the total gross tonnage of the fleet amounted up to 25,498 GRT, i.e. on average 127 GRT per vessel. Total engine power was 104,843 HP or 77,261 kW, i.e. on average 384 kW per vessel (9). Since 1971 the Belgian Government divides the fleet into five vessel classes according to gross tonnage (Table I).

Table I: Division of the fleet according to gross tonnage (1990).

Class		Main fishing areas
I	< 35 GRT	Coastal fishery
II	35-70 GRT	Southern North Sea and English Channel
III	70-180 GRT	Northern North Sea, English East Coast, Bristol Channel, Irish Sea and South West Coast of Ireland
IV	180-400 GRT	Iceland Sea, Irish Sea and Bristol Channel
V	> 400 GRT	Iceland Sea

Sources: (9)

Number of ships per class and per base port are provided in Table II. The Zeebrugge fleet is clearly the largest with 53% of all ships; 28% are harboured in Oostende and 16% in Nieuwpoort.

Table II: Number of vessels per class and per harbour (1990).

Class	Oostende	Zeebrugge	Nieuwpoort	Blankenberge	Others
I	13	1	4	1	-
II	16	26	15	1	1
III	17	42	13	-	1
IV	11	36	1	-	-
V	-	1	-	-	-
Total	57	106	33	2	2

Source: (9)

This subdivision of the fleet is used in most existing analyses. However, when minimum and maximum engine power are considered per class, there is an overlap of range. Therefore the division into classes according to gross tonnage is not realistic. Another subdivision will be used based on other criteria (13). The first criterion to subdivide the fleet is the fishing method. Almost all Belgian vessels are equipped with a **trawl**: 199 out of the 201 vessels (December 31st, 1990). A trawl is a towed net bag with a wide opening at the mouth and an end closed by a special knot. It is designed in a smooth funnel-like shape to guide the fish into the closed end.

Beam trawl

To keep the trawl open, a large horizontal beam is used. Beam trawls are usually towed in pairs, one on each side of the vessel. Two vessels can also cooperate by stretching the horizontal opening of the trawl between them (pair fishery). They have more power to tow a bigger trawl at higher speed.

Otter trawl

The trawl opening is spread by two large boards (otter boards), rectangular or oval in shape, which are attached to each side of the net and caused to flare apart by the pressure of the water.

The other two vessels use **gill nets**. Gill nets drift with the vessel or are set as anchored nets in long rows at or near the bottom of the sea (22).

Beam trawlers are further subdivided into inshore fishery and medium and long distance trawlers. The other segments of the fleet (otter trawl and other fisheries) are not subdivided further. The different categories can be defined as follows (13).

A BEAM TRAWL FISHERY

- 1 **Inshore fishery:** Vessels with maximum engine power of 300 HP (221 kW), which spend usually less than 24 hours on sea. These include vessels with length over all of more than 8 metres which are allowed to use a beam trawl in certain coastal zones of the Community, listed by EC Regulation 55/87 of the Commission of Juli 26th, 1987.

A further subdivision can be made into Eurocutters, shrimp fishery and other coasters.

a) **Eurocutters:** Beam trawl vessels built after 1981 with maximum engine power of 300 HP (221 kW) and maximum length over all of 24 metres allowed to fish within the 12-miles zone. These are also coastal fishing vessels.

b) **Shrimp fishery:** Vessels with length over all of more than 8 metres, allowed to fish sole using a beam trawl with total length of more than 9 metres in certain zones of the Community as defined by EC Regulation 3664/90 of the Commission of December 18th, 1990.

c) Other coasters

- 2 **Small trawlers:** Beam trawlers of no more than 300 HP (221 kW), which are not Eurocutters or coastal fishing vessels.
- 3 **Medium trawlers:** Beam trawlers of more than 300 HP (221 kW), but less than 900 HP (663 kW).
- 4 **Large trawlers:** Beam trawlers of more than 900 HP (663 kW).

B OTTER TRAWL FISHERY

Vessels using an otter trawl. Includes lobster fishery.

C GILL NET FISHERY

Vessels using gill nets.

Numbers of vessels per category and base port are provided in Table III. Most vessels are beam trawlers (81.4%). Inshore fishing vessels make up 52% of the beam trawl fleet. They are very important for Nieuwpoort (55% of all vessels there). The shrimp fishery fleet is a particular part of the inshore fishery fleet and makes up almost 40% of all coasters. Most Eurocutters and other beam trawlers are harboured in Zeebrugge. Finally, otter trawlers make up 18.4% of the total fleet.

Table III: Number of vessels per category and per harbour (1990).

Vessel category		O	Z	N	B	Other s
B T	Inshore fishery	29	33	18	2	4
E R	Shrimp fishery	(16)	(12)	(2)	(1)	(2)
A A	Eurocutters	(-)	(15)	(5)	(1)	(1)
M W	Other coasters	(13)	(6)	(11)	(-)	(1)
L	Other beam trawlers	15	58	4	-	1
OTTER TRAWL		14	14	9	-	-
GILL NET		1	-	1	-	-

Source: Own calculations based on (9), (10), (16) and Regulations 55/87 and 3664/90

2.1.1.2 Landings

Until 1986 total catches amounted up to more than 40,000 tons. Since 1986 however catches fluctuate between 35,000 and 37,000 tons. The three main species caught are **plaice**, **cod** and **sole**. Their joint share in total catches increased from 46% in 1981 to 68% in 1990. Pelagic fish - mainly herring - made up 20% of total catches in 1981, but less than 1% in 1990. Catches and returns of other kinds of fish are presented in Table IV. Since 1986 an increasing part of total catches by the Belgian fleet is landed in foreign ports especially in the Netherlands and in Denmark.

In Table V landings are provided by port. **Zeebrugge** is clearly specialised in large quantities of demersal fish, especially plaice (8572 tons, i.e. 69% of all plaice landed) and sole (2728 tons). It is also the most important landing port for shell-fish. Pelagic fish is of no importance. In **Oostende** demersal fish is relatively even more important (94% of all catches), but smaller quantities are landed in total. More round fish (cod, whiting and pollack) is landed here than in Zeebrugge, where there is an apparent domination of flat fish. Pelagic fish such as herring (12 tons) and mackerel (18 tons) are of some importance. **Nieuwpoort** is the only port where pelagic fish is of some real importance. In 1990 164 tons of herring was landed here, which makes up 75% of all pelagic fish landed in Belgium. Nevertheless, as in the other ports, sole is the most important fish landed as it makes up nearly half of total returns. Haddock, black saithe, halibut and redfish were not landed there in that year.

Table IV: Belgian landings, catches (in tons) and returns (in million BEF), home and foreign ports (1990).

Species	Catches (in tons)			Returns (in million BEF)		
	Home	Foreign	Total	Home	Foreign	Total
DEMERSAL FISH						
Plaice	12,470	4,449	16,919	661.0	249.2	910.2
Sole	4,378	602	4,980	1,106.4	146.1	1,252.5
Cod	3,168	623	3,791	276.4	54.0	330.4
Whiting	1,366	76	1,442	63.1	3.8	66.9
Ray	1,220	19	1,239	68.4	1.4	69.8
Lemon dab	656	93	749	77.9	9.8	87.7
Haddock	633	67	700	38.5	3.7	42.2
Dab	476	33	509	16.0	1.1	17.1
Dogfish	481	1	482	13.7	0.0	13.7
Turbot	355	66	421	128.9	24.6	153.5
Brill	306	31	337	74.6	7.5	82.1
Anglerfish	195	52	247	67.3	13.1	80.4
Spiny dogfish	102	-	102	4.7	-	4.7
Redfish	69	1	70	4.7	0.0	4.7
Other	2,533	577	3,110	119.0	51.6	170.6
PELAGIC FISH	220	21	241	2.6	0.8	3.4
SHELL-FISH						
Shrimp	447	42	489	92.9	8.6	101.5
Norway lobster						
Scallop	461	-	461	96.9	-	96.9
Other	232	3	235	21.3	0.3	21.6
	1,001	16	1,017	42.7	0.6	43.3
TOTAL	30,769	6,772	37,541	2,977.0	576.2	3,553.2

Source: (5)

Table V: Landings by port in tons and in million BEF (1990).

Species	Zeebrugge		Oostende		Nieuwpoort	
	Tons	Mio BEF	Tons	Mio BEF	Tons	Mio BEF
Plaice	8572	464.1	3558	179.2	340	17.7
Sole	2728	698.1	1347	334.7	303	73.6
Cod	1268	100.3	1678	152.0	222	24.1
Demersal fish	16114	1588.6	10991	987.3	1305	144.8
Pelagic fish	5	0.1	41	0.9	173	1.6
Shell-fish	1345	169.8	713	77.4	83	6.5
TOTAL	17464	1758.5	11744	1065.6	1561	152.9

Source: (5) and own calculations

In Table VI catches of the three groups of fish, i.e. demersal fish, pelagic fish and shell-fish per type of fishery are provided.

Table VI: Catches of the three groups of fish per type of fishery (1990).

Fishery	Demersal fish	Pelagic fish	Shell-fish	Total
Beam trawl	29,132	8	1,143	30,283
Otter trawl	4,407	38	68	4,513
Other (a)	89	1	-	90
Herring pair	4	154	-	158
Cod pair (b)	-	-	-	-
Cod pair (c)	339	30	-	369
Shrimp	69	8	489	566
Norway Lobster	1,058	2	502	1,562
TOTAL	35,098	241	2,202	37,541

(a) lines; dredges; gill nets

(b) large vessels

(c) small vessels

Source: (5)

As almost all demersal and pelagic fish caught by the Belgian fleet are under quota regulation, the sum of the percentages of the landings of these fish reflects roughly the dependence on quotas. Nieuwpoort shows the largest dependence as 95% in quantities or 96% in value of its landings are demersal and pelagic fish. Oostende (94% in quantities or 93% in value) and Zeebrugge (92% in quantities or 90% in value) are also highly dependent on quotas.

Demersal species are the most important species caught by the main types of fishery (beam and otter trawl). The most important group of fish caught by the shrimp fishery fleet is that of shell-fish, as it makes up 86% of all their catches. However, most shell-fish (52%) is caught by the beam trawl fleet. Finally, more than three quarters of all pelagic fish were caught by pair fishery.

Every year, Total Allowable Catches (TACs) are determined. Every Member State receives a share of these, set in the quotas. Each national government is permitted to exchange parts of these quotas with other EC Member States. The total Belgian quotas in 1983 amounted up to almost 39,000 tons and reached a maximum in 1985 with more than 47,000 ton. Ever since this amount has decreased to 40,690 tons in 1991. As the value of this package of quotas is determined by its composition, the quota per species will be studied.

Main pelagic fishes are herring, mackerel and sprat, of which only herring is important for Belgium. The quota for herring amounts up to about 9,000 tons since 1985. Most of it is being exchanged for other species, especially plaice and sole, with Denmark or the Netherlands. As a result there is nearly full utilization of this quota.

The Belgian quota for cod, which represented one quarter of total Belgian catch possibilities in 1983 with 9,700 tons, decreased steadily to 4,610 tons in 1991. In 1983 and 1984 part of it was exchanged for other species, but during the next years nearly all of it was caught by the Belgian fleet, except in 1990. The quota for whiting follows roughly the same evolution, but is very little exchanged. The quota for haddock has become very small.

Plaice is the most important fish for the Belgian fleet. In 1990 the quota

for this species was more than 13,000 tons, but was complemented through exchange to more than 18,000 tons, which makes up about half of the Belgian catch possibilities. Always, more than 90% of this complemented quota was fished. Sole is also a very popular fish. Since 1989 the quota was overfished by a few percent. Finally, there is a considerable quota for anglerfish, but since 1986 utilization percentage was never more than 33%.

Belgian quotas before and after exchange with other EC Member States in 1990 are provided in Table VII. By relating quota to catches utilization percentages are calculated (5).

Table VII: Belgian quotas before and after exchange with other EC Member States and utilization percentages of the different quota (1990).

Species	Quota before exchange (tons)	Quota after exchange (tons)	Utilization percentage
DEMERSAL FISH			
Plaice	13510	18211	93
Cod	5080	4435	92
Sole	4765	4900	102
Anglerfish	3370	3200	19
Whiting	2005	2105	71
Haddock	435	325	77
Pollack	430	480	20
Hake	400	358	55
Black saithe	130	130	25
Redfish	50	50	-
PELAGIC FISH			
Herring	8840	340	98
Sprat	1560	1560	-
Megrim	430	435	40
Mackerel	340	340	11
TOTAL	41345	36869	

Source: (5)

2.1.2 Employment

On the 31st of December 1990 201 vessels were registered. Only 194 of these were really practising sea fishery. The remaining seven ships were withdrawn from service for an indefinite period of time due to reparations or exhaustion of the quotas. The crew of these vessels is considered as being discharged. Altogether there were 1249 fishermen of which 404 discharged (89 skippers, 242 lower deck personnel and 73 engineers). Apart from the crew of non-active vessels, discharged fishermen are also those staying ashore by rotation (eventually carrying out repair works for the vessel owners) and those no longer active in the catching sector (but still owning a fishing licence). The total crew of the 194 active vessels amounted up to 845 fishermen, i.e. an average of 4.36 per ship. This average is very stable, as it has remained more or less unchanged since the sixties (9).

The evolution of number of fishermen is determined by three factors : (a) the decreasing number of vessels, (b) the increasing productivity as a result of the increasing quality of fishing equipment and vessels and of improving professional skills and (c) the modernisation of the fleet which results in a

shift from smaller (class I and II) towards larger vessels (class III and IV) and in the replacement of old vessels by new, more productive vessels (30).

The decreasing number of vessels is the most important reason for the strong decrease in number of fishermen. In 1960 1736 fishermen were signed on; in 1990 this was only 845, i.e. a decrease of 51%. During the same period of time the decrease in number of vessels was 49%. Only in the seventies this decrease was toned down as a result of the stabilisation of the number of vessels.

The crew of a fishing vessel can be divided into two groups: deck personnel (77%) and engine room personnel (23%). The different functions are:

* deck personnel:

- skipper;
- steersman;
- boatswain;
- sailor;
- ordinary seaman;
- wireless operator;
- cook;
- ship boy;

* engine room personnel:

- first engineer;
- second engineer.

Since the sixties the boatswain, cook and wireless operator have disappeared. Other crew members exercise these functions now.

A division of crew according to function and vessel class is provided in Tables VIII and IX. The share of **engine room personnel** in total crew is clearly smaller for class I and II vessels, i.e. 9.6% and 13.8% respectively. The number of **skippers** is equal to the number of vessels. This is not surprising, since a vessel is not allowed to put to sea without. Many skippers also exercise other functions, mainly those of steersman and engineer, particularly in classes I and II (one out of four skippers is also engineer). **Steersmen** (middleman between skipper and crew) are found on 52% of all ships, predominantly on larger ships (on 85% of class IV and on all class V vessels). The average number of **sailors** per ship depends highly on vessel class, but never exceeds two (1.2 in class I and 2 in class IV). **Ordinary seamen** (an intermediate step between ship boy and sailor) are only sporadically found. Finally, the number of **ship boys** (apprentices) varies from 0.2 on class I vessels to 0.4 on class IV vessels.

Table VIII: Deck crew by function and vessel class (1990).

Class	Functions					Total
	Skipper	Steersman	Sailor	Ordinary seaman	Ship boy	
I	19	-	23	1	4	47
II	57	10	82	2	11	162
III	69	48	114	1	16	248
IV	47	40	78	3	19	187
V	2	2	4	2	-	10
TOTAL	194	100	301	9	50	654

Source: (9)

The average crew varies from 2.74 on class I, 3.30 on class II, 4.59 on class III, 5.83 on class IV to 7.00 on class V vessels. The average crew according to port reflects the average vessel size per port, which is smallest in Nieuwpoort (3.91 crew members) and largest in Zeebrugge (4.70) (Table X).

Table IX: Engine room crew by function and vessel class (1990).

Class	Functions		Total
	First engineer	Second engineer	
I	5	-	5
II	26	-	26
III	66	3	69
IV	47	40	87
V	2	2	4
TOTAL	146	45	191

Source: (9)

Table X: Crew according to port (1990).

Port	Number of manned ships	Enrolled crew		% of total crew enrolled
		Total	Average per ship	
Oostende	56	227	4.05	26.87
Zeebrugge	101	475	4.70	56.21
Nieuwpoort	32	125	3.91	14.79
Blankenberge	2	6	3.00	0.71
Other	3	12	4.00	1.42
TOTAL	194	845	4.36	100

Source: (9)

Crewing problems have always been a major concern in the fisheries sector. These can be of quantitative or qualitative nature. The **quantitative** aspect, i.e. crew shortage, is a time related problem embracing two components: the relatively small supply of new labour forces and the relative strong flowing off of active forces, mostly to ancillary activities (ferry companies, towing services, dredge companies, etc.). The **qualitative** aspect includes firstly temporary shortages of certain qualified personnel. As a result deviations are granted and many crew members are employed on jobs they are not trained for. Furthermore, education has to be tuned to the strongly evolved requirements of the profession (30).

In Table XI number of vessels that have met with difficulties to compose their crew for a shorter or longer period of time and for one or more crew members is provided. In the period concerned only 72 vessels could sail without any crewing problems. One or more deviations have been granted for 324 persons. If no deviations should have been granted one third of those 130 vessels with crewing problems would have remained in the port for the whole year, one third during six months or more and one third during one to six months (24).

In order to ensure continuity of crew size certain ship owners are obliged by law (of September 23th, 1931) to enlist a number of ship boys. Vessels with

a crew of three to eight adults and vessels with nine or more adults need to have signed on respectively at least one and at least two ship boys. In practice this has never been possible to accomplish, as demands were put too high. There has always been a shortage of ship boys and officials never really made sure this law was applied. The question remains whether it is really necessary to employ one ship boy for every five crew members to ensure continuity (30). In 1990 there were 50 ship boys, i.e. one per 17 crew members. These figures give clear indications for apparent succession problems in the fisheries fleet (9).

Table XI: Number of vessels with deviant crew by port and function in the period from August 1, 1990 until July 31, 1991.

Function	O	Z	N	Other	Total
Skipper	12	39	8	4	63
Skipper inshore fisheries	5	3	1	1	10
Steersman	17	53	8	5	84
Engineer	6	33	1	1	41
Sailor-engineer	19	42	8	1	70
Number of vessels with deviant crew	28	80	15	7	130
Number of vessels with normal crew	26	29	15	1	72

O = Oostende
Z = Zeebrugge
N = Nieuwpoort

Source: (24)

2.1.3 Profile of vessel owners

The fishing profession is clearly an artisanal activity. Out of 186 ship owners 172 own only one vessel. Therefore most ship owner companies are family based or are one man companies. Twenty eight of the ship owners are also enrolled, half of them being skipper on a vessel of class II. Some ship owners are sailor (three) or engineer (three). Companies with larger vessels are mostly limited liability companies and private companies with limited liability, which is the most frequent form (49%) anyway. There is only little interest in factual or cooperative firms. Companies owning more than one vessel are mostly private companies with limited liability (9).

2.1.4 Strengths and weaknesses

The strengths and weaknesses of the fishing fleet are studied based on two parameters: the age of the vessels and the profitability of the different parts of the fleet.

2.1.4.1 Age structure of the fleet

When looking at hulls only, the Oostende fleet (23.3 years) is older than the Zeebrugge fleet (16.2 years). One could conclude that the fleet in Oostende will be harmed most by the fleet reduction. However, differences in age of

engines between Oostende (13.7 years) and Zeebrugge (11.5 years) are much smaller. To explain these age differences we need to look closer to the different categories of the fleet.

Coasters are small, old vessels, aged 21.5 years on average, but two categories have to be considered separately, namely the very old shrimp fishery fleet and the young Eurocutter fleet. The **shrimp fishery fleet** is the oldest part of the fleet with an average age of 29.0 years for the hulls and 14.6 for the engines. Apparently engines have been replaced quite often. Only two new hulls have been built during the eighties. The situation is roughly the same for every port. Oostende (30.6 years) and Zeebrugge (29.4 years) are a bit above average; Nieuwpoort (28.5 years) below. Engines are younger in Oostende (10.9 years) than in Zeebrugge (16.5 years) and Nieuwpoort (29.0 years). **Eurocutters** constitute the youngest part both of the inshore fisheries fleet and of the whole fleet, as these vessels were only built after 1986. Averages are 4.6 years for the hulls and 2.9 years for the engines.

The **beam trawl fleet** (beam trawlers other than coasters) is the most modernized part of the fleet. Most vessels that are built now belong to this group. The oldest vessel has been built in 1948, but 55% of all trawlers is not older than 12 years. The average age of the hulls is 13.5 years. The engines have an average age of 9.2 years, as they have been replaced more often. The age difference of vessels between different base ports is not very distinct. Average age of the hulls is 14.7 years in Oostende, 12.9 years in Zeebrugge and 21 years in Nieuwpoort. Differences in age of engines between Oostende (9.3 years) and Zeebrugge (9.45 years) are even less obvious. Nieuwpoort engines are slightly younger, i.e. 7.5 years on average.

The **otter trawl fleet** is very aged. The average age of the hulls is 24.0 years. The average age of the engines is 20.7 years. Most vessels are built in the sixties. The oldest hull has been constructed in 1940. Ever since there has been little new construction of vessels. Only two vessels have been built since 1973, both in 1987, in Oostende. During the same period eight engines have been replaced. As a result the average age of the engines is somewhat lower. Again, there is only little difference in age between vessels in the three ports. Average age of the hulls is 23.7 years in Oostende, 25.1 years in Zeebrugge and 22.3 years in Nieuwpoort. Average age of engines does not show any distinct differences between Oostende (21.1 years) and Zeebrugge (21.9 years). Again, Nieuwpoort engines are slightly younger, i.e. 18.4 years on average. Both **gill net vessels** have been built very recently, i.e. in 1987.

2.1.4.2 Profitability

In order to measure profitability various indicators can be considered. The *Dienst voor de Zeevisserij* of the Department of Agriculture calculated until 1989 the net return on invested capital for each vessel class. As indicated before another subdivision is used since 1989, so that data on profitability are limited to exploitation results. More recent figures are not available (13).

2.1.4.2.1 Gross exploitation result

The gross exploitation result is calculated by subtracting total costs from landings. The results for each vessel class (according to GRT) over the period 1984-88 are provided in Table XII; the results of each category for 1989 in Table XIII.

Landings and total costs practically double or triple when going up one class. However, the gross exploitation result as percentage of landings do not. Over the considered period, class I vessels knew the highest percentage, class III the lowest. When looking at vessel categories, large beam trawlers perform best. These vessels cover mainly class IV. Again, as in class I and II, coastal fishery results are not so bad. Medium beam trawlers and otter trawlers (class

II and III) have the lowest percentages and therefore seem the least profitable categories.

Table XII: Gross exploitation result by vessel class (1984-88): average per vessel.

Class	Landings	Total costs	Gross exploitation result	
			Nominal	As % of landings
I	3,833,991	2,927,862	906,129	23.6
II	6,949,661	5,591,902	1,357,759	19.5
III	18,867,445	16,171,819	2,695,626	14.3
IV	39,041,541	30,291,651	8,749,890	22.4

Source: (13)

Table XIII: Gross exploitation result by vessel category (1989): average per vessel.

Category	Landings	Total costs	Gross exploitation result	
			Nominal	As % of landings
Coastal fishery	4,594,436	3,715,546	878,890	19.1
Eurocutters	12,427,128	10,004,235	2,422,893	19.5
Small beam trawlers	12,372,454	10,302,986	2,069,468	16.7
Medium beam trawlers	17,944,237	15,956,807	1,987,430	11.1
Large beam trawlers	38,641,797	29,719,034	8,922,763	23.1
Otter trawlers	11,825,802	10,985,013	840,789	7.1

Source: (13)

Subtracting depreciations from gross exploitation result gives the net exploitation result. Further subtracting financial costs and adding subsidies, net profit before taxes is obtained. Results of these calculations are provided in Table XIV.

Table XIV: Gross and net exploitation result and net profit before tax as a percentage of landings per vessel category (1989).

Category	Gross exploitation result	Net exploitation result	Net profit before tax
Coastal fishery	19.1	8.9	7.1
Eurocutters	19.5	-4.1	-7.0
Small beam trawlers	16.7	5.0	3.1
Medium beam trawlers	11.1	1.3	1.2
Large beam trawlers	23.1	7.2	8.2
Otter trawlers	7.1	2.5	3.0

Source: Own calculations based on (13)

In some categories net profit is larger than net exploitation result. This is because in these cases subsidies exceed financial costs. Coastal fishery and large beam trawlers are still the most profitable categories. Eurocutters however have negative results. This can be explained by the heavy burden of depreciations and financial costs as these vessels all have been built very recently.

2.1.4.2.2 Gross exploitation result according to age

As age could be an important factor in activities and cost structure of a vessel, different results are looked for according to the age of a vessel in each vessel category. In Appendix V various costs and gross exploitation result are provided as a percentage of landings. There is not much difference between activities of older and younger coasters. In contrast with coasters however, other beam trawlers and otter trawlers do differ regarding their activities and results (13).

2.1.4.2.3 Net return on invested capital

The net return on invested capital can only be calculated for the fleet subdivision according to gross tonnage. In order to compare different classes all figures are expressed per GRT. Estimates were made concerning depreciations and total invested capital, i.e. the capital necessary to build an identical vessel. Thus, replacement value is considered regarding depreciations and invested capital, rather than historical value. The calculation of this replacement value is based on the hypothesis that it is a function of tonnage. Yearly depreciations amount up to 6% of new build value, supposing an average lifetime of 30 years, during which modernisation works (such as engine replacement) worth 80% of new build price need to be carried out. Profitability can be calculated subtracting depreciations per GRT from the gross exploitation result per GRT and dividing this net result by total invested capital (new building price) (30). Results are provided in Table XV. Class IV shows a return that is much higher than for other classes. Again, class I vessels turn out to be relatively profitable.

Table XV: Net return on invested capital by vessel class (1986-88).

Class	1986	1987	1988	Average 1986-88
I	1.4	2.6	3.3	2.4
II	0.7	2.1	1.3	1.4
III	5.2	0.4	2.0	2.2
IV	10.1	3.2	5.9	6.4

Source: Own calculations based on (13)

2.1.4.3 Conclusions

The average age of the Oostende fleet is the highest of all base ports. This is because there are no Eurocutters in Oostende, less large beam trawlers than in Zeebrugge and almost all of class I vessels. Ship owners in Oostende are older as the fishermen's community is more integrated in the town of Oostende. There are more alternative opportunities for the sons of fishermen and ship owners. In Zeebrugge and Nieuwpoort however the fishermen's community is more isolated. The shrimp fishery fleet, which covers a large part of vessel class I, and the otter trawl fleet are the oldest parts of the fleet. They are

represented more or less equally in Zeebrugge and Oostende, but as there are less vessels in Oostende, their relative importance is much higher there (25% in Oostende; 13% in Zeebrugge). However, despite their age, class I vessels are quite profitable. Moreover, shrimp fishery vessels are not very dependent on species under quota regulation. On the contrary, otter trawlers are much less profitable and more dependent on quotas. Trawlers of medium size, especially otter trawlers, are endangered most, as they are old and show low profitability.

2.2 Aquaculture

In Belgium about 34 exploitations are member of the *Union Professionnelle des Pisciculteurs belge*. The majority of them has its seat in Wallonië, the others in Northeastern and Central Belgium. The two major species grown are trout (800 tons) and carp (600 tons) (17). In the province of West-Vlaanderen there is no aquaculture firm at this moment. Last oyster cultures have disappeared in the seventies as a result of increasing pollution of the sea (26).

In 1988 an eel farm was established in Diksmuide, but had to close down after two years mainly due to two problems: bad water quality and the capital intensive character of breeding. The yearly production of 50 to 60 tons was mainly exported to the Netherlands, where eel is smoked. However, as a result of the regionalisation of institutions, an institutional void was created. Flemish fish farmers can not receive financial aid under Regulation 4026/86.

In the future there are plans to use cooling water of a power station working on coal in Zeebrugge. In the meantime government initiative is awaited (28).

2.3 Fish processing industry

The fish processing industry in West-Vlaanderen comprises small, artisanal firms sourcing mainly from local catches and some large, industrial companies highly dependent on imports. The large firms are oriented towards export and inland markets, whereas the small firms supply local markets. Processing and wholesale trading are largely integrated. Most large processing firms also sell their products, while most coastal wholesalers also exercise some primary processing such as filleting. Both processing firms and wholesalers own warehouses past the fish auction hall, where they fillet fish coming from local landings. Several large supermarkets also own their processing unit in the fish auction (27).

In 1990 51 firms employed 1242 people in the Belgian fish processing industry: 1130 in Vlaanderen, 56 in Wallonië and 56 in Brussel (14). Most enterprises are located near their source of supply, i.e. the three landing ports. As a result regional importance in terms of employment is considerable. More than half of the employment in fish processing is situated in the province of West-Vlaanderen. More female labourers are employed than male. The reason for this is the quality of manual labour. There is only little part time or seasonal labour, especially in the larger firms, where raw materials are available throughout the year. In this way they can assure a continuous production line (27).

Raw materials of large fish processing firms originate for 70% from imports, of which more than 80% originate from EC countries. The Netherlands and Denmark are the most important suppliers. The following three reasons can be cited to explain this high import share. First, the Belgian fleet is rather small, so that landings are small as well. Second, Belgian landings constitute mainly of expensive species such as cod, sole and plaice. These species are too expensive to be processed, so that they are only filleted and sold fresh. Third,

the fish processing firms use more and more frozen raw materials to assure a continuous production throughout the year, whereas there are no freezing ships in the Belgian fleet. Belgian fish processing industry and trade have at their disposal 252,100 tons of fish and fish products of which 88% are imported and 12% are local catches. The total for inland available supply was in 1990 187,900 tons of which 16% were provided by the Belgian fleet. In 1989 large fish processing firms (i.e. with more than five employees) used 31,400 tons of raw materials of which 24,900 tons fresh, frozen and salted fish and 6,500 tons other fish, mainly shell-fish (6).

The supply from non-EC countries increased enormously during the last few years as a result of the following evolutions: (a) the shortage of fish within the EC, (b) the increasing use of frozen raw materials and (c) the increasing import of processed raw materials. Recently, more and more firms expand their product gamma, as non-pelagic species and shell-fish are also processed. Moreover, container transport holds storage costs. The use of processed raw materials is not without consequences. Filleting causes a loss of weight of 50%, so that transport costs decrease. On the other hand added value of the processing firms also decreases (and thus profit margin). As a result commercial activities become more and more important for these firms (6).

The output of the fish processing industry in West-Vlaanderen includes dried and salted, marinated, smoked, canned, fried and deep frozen products and prepared dishes. The only Belgian fish meal plant is situated in the province of Oost-Vlaanderen. Most large firms have integrated several of these processing activities. Outlet possibilities for fish processing firms are wholesale trade, supermarkets, small fish retailers, hotels and restaurants, large scale kitchens, own distribution network and export. Retail trade and hotels and restaurants are only of local importance. Almost 90% of total Belgian export is headed to EC countries, especially the Netherlands and France. Canned products are exported almost exclusively to France (6).

Direct integration of the fish processing industry with the Belgian sea fishing fleet is not possible as all landed fish has to be sold in the fish auctions. As aquaculture conditions are not very favourable in Belgium, no integration with aquaculture is possible. Only one large fish processing firm has considerable participations in aquaculture firms in Portugal and France (turbot). It also participates in a mussel farm in the Netherlands. Other fish processing companies are more reserved regarding the integration or participation in aquaculture (27).

2.4 Ashore infrastructure and ancillary activities

2.4.1 Ports

A distinction should be made between base ports and fishing ports. A fishing port is considered as being a port where necessary facilities for landing and unloading fishing vessels and for selling catches are available. A base port can be defined as a port where at least one fishing vessel is registered. Using these definitions, there are four base ports along the 67 km of the Belgian coast: Nieuwpoort, Oostende, Blankenberge and Zeebrugge. Only Nieuwpoort, Oostende and Zeebrugge are fishing ports (34).

Every port and its respective auction has its own specific characteristics. Nieuwpoort is very small ($\pm 5\%$ of total landings and returns). Its fleet consists for the largest part of small vessels which practise coastal fisheries. Consequently they can sell fresh quality fish. As the available volumes are rather small the demand side mainly consists of retail traders and hotels and restaurants. Its geographical influence atmosphere is mainly the regional market. Zeebrugge, on the other side, has the largest fleet ($\pm 57\%$ of total landings and $\pm 59\%$ of total returns). Large quantities of fish are sold mainly

to processing industry and wholesale traders. Up till now Zeebrugge is the only automatised fish auction in Belgium. Its regional influence atmosphere are the national and international markets, more than 50% of the landings is exported. The position of Oostende is somewhere in between Nieuwpoort and Zeebrugge. Its fleet is a mixture of all vessel classes ($\pm 38\%$ of total landings and $\pm 36\%$ of total returns). As in Zeebrugge large quantities of fish are sold, the demand side however is different and is a mixture of wholesalers and retailers. Oostende supplies mainly regional and national markets.

The importance of Nieuwpoort has remained the same during the last 15 years, Oostende, however, has evolved from the most important fishing port (60% of landings and 52% of returns in 1974) to second most important. Zeebrugge has taken its place of most important fishing port now.

In all three ports and their respective auctions, clear elements are present which could form the basis for a development strategy in the long term. Zeebrugge anticipates on these with the development of its 'Europees Viscentrum' (European Fish Center), an integrated fishing port where all segments of the sector will be brought together in one center. The question remains how the two other ports will develop their own strategy and also how they will anticipate on the development of the Europees Viscentrum in Zeebrugge.

2.4.2 Marketing

Wholesale trade provides for handling, storage, distribution and sales. However, on one hand, a lot of them also carry out retail trade activities while on the other hand many processing firms also provide for wholesale services, as was already mentioned before in paragraph 2.3 concerning the fish processing industry.

According to a list provided by the NDALTP (Nationale Dienst voor Afzet van Land- en Tuinbouwprodukten), there were 207 wholesale traders in fish and fish products in Belgium in 1991. The seat of 82 of them or 39.6% is in West-Vlaanderen. Other big sale centers outside the region are Antwerpen (10.6%) and Brussel (7.7%). According to a list compiled by ourselves making use of several sources (professional organisation, telephone books, magazines, etc.) there are 131 wholesale traders in West-Vlaanderen only. In the following table the geographical distribution within West-Vlaanderen is shown.

Table XVI : Geographical distribution of wholesale traders in West-Vlaanderen (in %).

	Source: NDALTP (n = 82)	Source: own list (n = 131)
Oostende	41.46	37.40
Brugge	32.93	33.59
Nieuwpoort	6.10	5.34
Others	19.50	23.66

When considering the geographical spreading within West-Vlaanderen it is clear that Oostende and Brugge (Zeebrugge) are most important. This is not surprising. As was discussed before, Nieuwpoort is a small volume auction, buyers are predominantly retailers and hotels and restaurants, while Oostende and Zeebrugge are large volume auctions.

Besides buying directly at the auction there are two other ways for wholesale traders to foresee in their supply of fish: importing or buying from colleagues. A study carried out in 1987-1988 on the sales structure of fish in

Belgium showed that two thirds (in value) of the fish is imported (29). The importance of imports increases with size of the wholesale company. According to the same study, only 'coastal' wholesalers export fish. As applies for imports, the importance of exports increases with size of the company.

In the same study the total turnover of wholesale trade in fish in Belgium was estimated to be 20 to 23 billion BEF. Another estimate (mentioned in the study) gave a figure of 30 billion BEF. About half of the wholesale companies would have a turnover of less than 50 million BEF, the turnover of only 10 wholesalers would be more than 500 million BEF.

2.4.3 *Vessel servicing*

Under vessel servicing all kinds of servicing are understood: servicing of navigation equipment, supply of fishing equipment, supply of ice and accounting and insurances. It is clear that these services are not limited to fishing vessels only.

Three companies in Belgium, all three in Zeebrugge, provide for the **servicing of navigation** equipment. The equipment itself is always imported mainly from Japan and the United Kingdom. Apart from servicing new equipment they also provide for modernisation and repairs. It is estimated that in total about 30 people are employed in these three companies.

Vessel owners can buy **fishing equipment**, such as nets, cables, electricity devices, etc. in private stores or from a professional organisation '*Hand in Hand*' in Zeebrugge. The equipment is mostly imported from the Netherlands (nets), Japan or Taiwan (links). There is a factory of nets in Oostende which employs about 30 people.

Ice factories deliver ice to vessels, processing companies, wholesale traders and auctions. There are five such companies in West-Vlaanderen, two in Zeebrugge, two in Oostende and one in Nieuwpoort. These factories do not need many employees; about 15 people are employed in all five together.

As with supply of fishing equipment, vessel owners have the choice between private companies or professional organisations for their **insurance and accounting**.

2.4.4 *Vessel construction, maintenance and repair*

The Belgian fleet is made up by 201 vessels (1990), 170 of them (or 84.6%) is built in Belgian ship yards (23). In West-Vlaanderen, there are four ship yards whose main activity is constructing fishing vessels (two in Oostende and two in Zeebrugge). However, apart from building vessels they also maintain and repair them. All four fall under the category of 'small ship yards' as recognised by the Flemish Government (23). Apart from these four ship yards, there are some small family businesses (2 to 5 people employed), mainly in Oostende, who carry out maintenance and repair activities.

Available statistics on employment in ship yards comprise building, maintenance, repair and breaking up of all kinds of boats. Dependence of this sector on fisheries is therefore an overestimation (see later).

The Flemish Government supports (in form of loans with favourable conditions or subsidies or state warrant or a combination of these) Belgian vessel owners who have the seat of their company in the coastal region of West-Vlaanderen. This support is only provided in case of building new ships (to replace old ones) or in case of modernising vessels. The aim of this policy is a continuous modernisation of the fleet so as to assure a certain supply of fish necessary for an economically healthy fisheries and ancillary industry (23).

Despite this support, ship builders foresee hard times for their industry. They are too small to work for export. Some of them are trying to diversify (metal industry) or to work under subcontract for other, larger ship yards.

2.5 Relationship between segments of the sector

A schematic presentation of the relationships between the different segments of the sector is provided in the following figure.

From the discussions on the different segments of the sector in previous paragraphs it is clear that many of the suppliers of the fleet are very much specialised in fisheries. Therefore, the dependence of these suppliers on the own fleet is rather strong. Furthermore, vessel owners are organised in a co-operative providing vessels servicing ('Hand in hand').

The marketing and processing sector is supplied by three sources: the fleet, through the auction, aquaculture and imports. The last source becomes more important with size of the company. Relationships within marketing and processing sector can be of different forms. Most companies carry out only one of the three activities and supply the others or are supplied by the others. Larger firms however combine sometimes two or even all three activities.

Mainly retailers supply consumers but in some cases wholesale traders and processing firms also sell directly to consumers. As is the case for imports, exports (mainly by wholesale traders and processing industry) increase with size of the company.

All segments of the sector are in relation with research, professional organisations, training and governmental services.

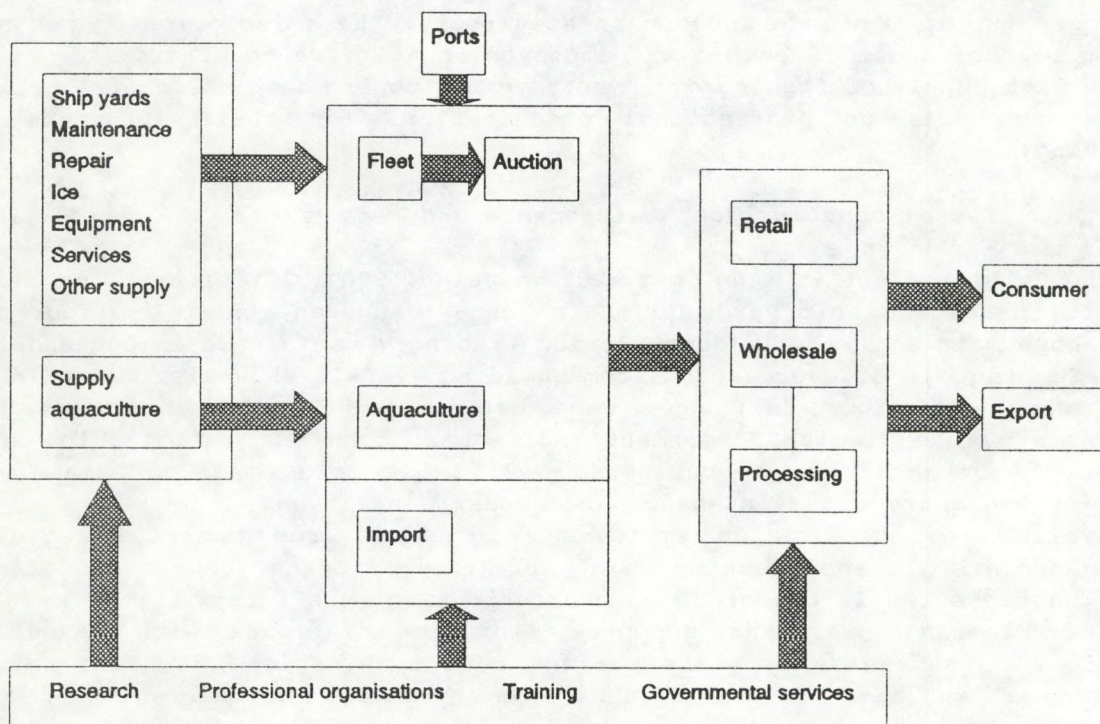


Figure 2: Schematic presentation of relationships between different segments of the fisheries industry.

2.6 Conclusions

The Belgian fishing fleet consists mainly of trawlers, especially beam trawlers. Demersal fish, particularly plaice, sole and cod, are captured most. Most vessels of the fleet are profitable, shrimp fishery vessels as well. Class III vessels, particularly otter trawlers, are little modernised and show least profitability, which implies that they are endangered most by fleet reductions.

Aquaculture conditions are unfavourable in Vlaanderen (too cold and bad water quality), which implies that there is no great future ahead of it.

Large processing firms are very dependent on imports for their raw materials and are very competitive. Small firms however show investment problems to meet EC hygiene standards.

The three fishing ports, Nieuwpoort, Oostende and Zeebrugge have their specific characteristics. In all three elements are present which could form the basis for a development strategy at long term. Zeebrugge anticipates on these with the development of its 'Europees Viscentrum', an integrated fishing port where all segments of the sector will be brought together in one center.

The sector of marketing in fish in West-Vlaanderen is concentrated in Oostende and Zeebrugge. In the future smaller wholesale traders might encounter investments problems in exercising the EC hygiene regulations. The largest companies are likely to expand.

The four ship yards building fishing vessels have a dark future ahead of them. Diversification or working under subcontract for other, larger ship yards are already practised by some of them.

3 IDENTIFICATION AND CHARACTERISATION OF THE ZONES HIGHLY DEPENDENT ON FISHERIES AND ANCILLARY ACTIVITIES

From the information gathered, it is clear that fisheries and its ancillary activities are only practised in the three coastal *arrondissementen* of region B1. In order to be able to **identify** zones highly dependent on fisheries and ancillary activities, the importance (absolutely and relatively) of employment in this sector in the different municipalities is taken as most important criterion. In the **characterisation** of the zones also other socio-economic indicators are considered, such as unemployment rate, relative average income levels and so on.

3.1 Identification of zones highly dependent on fisheries and ancillary activities

3.1.1 *Employment*

Data on employment in **fisheries, aquaculture, ship yards and processing industry** are available by sex and by kind of labour (labourers and clerks) (Table XVII) (11). Although these segments of the sector represent largest part of employment in the whole sector, the importance in the municipalities can not be different than underestimated. The available data show that there is no aquaculture in the region.

From the data can be **concluded** that the relative importance in terms of jobs (location quotients) of fisheries and ancillary activities is highest in towns where ports are located and their neighbouring municipalities along the coast. This relative dependence decreases with distance to these towns and with distance to the sea. The *arrondissement* of Oostende is most dependent on the fisheries industry, followed by the *arrondissement* of Brugge and then by that of Veurne. The order in the dependence of harbour towns on fisheries is different: first the town of Nieuwpoort, then Oostende and finally Brugge;

Apart from data on employees, data on **self employed** in fisheries and total number of self employed are available per municipality (12). Self employed in fisheries comprise vessel owners, self employed in aquaculture (which should be none since there is no aquaculture in the region) and directors of companies in this sector. Most vessel owners have the seat of their company in the harbour towns or in the neighbouring municipalities along the coast (in the case of Knokke-Heist). They are not exclusively 'bound' to municipalities along the coast, which is the case for fishermen.

There is some discrepancy between the total number of jobs in fisheries in Table XVII (1014) and the number of fishermen mentioned before (845). This is because the figure in Table XVII is a yearly average, whereas the figure of 845 reflects the number of fishermen active at December 31st, 1990. At this moment many fishermen stay ashore due to the Christmas holidays. Nevertheless it is the figure used in all analyses by de *Dienst voor de Zeevisserij*.

3.1.2 *Identification of the zones highly dependent on fisheries and ancillary activities*

Before going into the characterisation of the zones highly dependent on fisheries and ancillary activities, the **definition** of these zones, as was used to demarcate them, is given.

A zone highly dependent on fisheries and ancillary activities is comprised of one or more neighbouring municipalities which satisfy following **conditions**:

- total number of people employed in the sector is more than 100;
- the importance of the sector in terms of jobs is higher than 1%;
- the location quotient (municipality/three coastal *arrondissementen*) for importance in terms of jobs is higher than 1.

Table XVII: Number of jobs in fisheries and ancillary activities, importance (%) of the sector in number of jobs and location quotient of the sector per municipality of the coastal *arrondissementen* and totals for the *arrondissementen* (1990).

Municipality	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Arr. Brugge	81187	610	182	159	951	1.2	0.69
Blankenberge	3011	13	0	0	13	0.4	0.26
Brugge	46843	283	143	159	585	1.3	0.74
Damme	1806	7	0	0	7	0.4	0.23
Knokke-Heist	7078	307	14	0	321	4.5	2.69
Arr. Oostende	35371	287	304	533	1124	3.2	1.88
Bredene	1286	70	3	126	199	15.5	9.18
De Haan	2209	6	0	0	6	0.3	0.16
Gistel	1733	3	0	0	3	0.2	0.10
Middelkerke	2259	36	0	0	36	1.6	0.95
Oostende	25585	167	301	407	875	3.4	2.03
Oudenburg	1091	5	0	0	5	0.5	0.27
Arr. Veurne	14730	117	22	0	1398	1.0	0.56
De Panne	2197	0	0	0	0	0.0	0.00
Koksijde	4081	31	0	0	31	0.8	0.45
Nieuwpoort	2765	86	21	0	107	3.9	2.29
Three coastal <i>arrondissementen</i>	131288	1014	508	692	2214	1.7	1.00

- (1) Total number of jobs in the municipality
- (2) Number of jobs in fisheries
- (3) Number of jobs in ship yards
- (4) Number of jobs in processing industry
- (5) Total number of jobs in the sector
- (6) Importance (%) of the sector in terms of jobs
- (7) Location quotient of the sector

Source: (11) and own calculations

An exception is made in this regard for Brugge, which does not fulfil the last condition. The reason for this exception is that Zeebrugge does not exist as administrative unit (since the amalgamation of municipalities of 1978). Therefore, the dependence of the village of Zeebrugge on fisheries disappears in the overall economy of the town of Brugge.

Using these criteria three zones are identified:

- **Zone 1** comprises the town of Oostende (port) and the neighbouring municipality of Bredene;
- **Zone 2** is formed by the town of Brugge (port of Zeebrugge) and the municipality of Knokke-Heist;
- **Zone 3** consists of the municipality of Nieuwpoort (port) only.

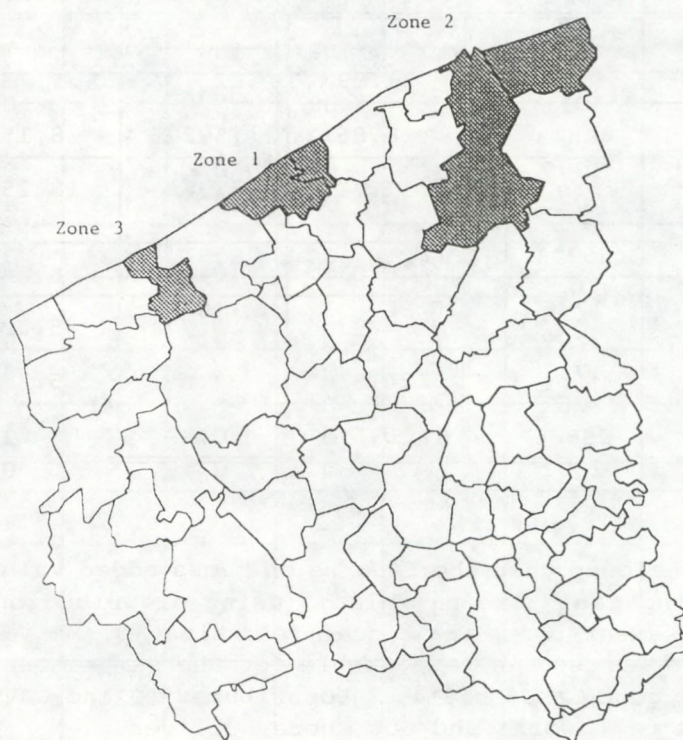


Figure 3: Zones highly dependent on fisheries and ancillary activities (1990).

3.2 Characterisation of zones highly dependent on fisheries and ancillary activities

These three zones are further characterised by several socio-economic indicators (given for each municipality within the zones) (Table XVIII) and by the economic activity in the zones as compared with the economic activity in the province of West-Vlaanderen (Table XVIII).

From the figures in this table it is clear that the industrial sector is less important in the three zones, especially in Zone 1 and 3, than the average for the province. It is not surprising that the importance of trade, hotels, restaurants and catering and other services is considerably higher since the coastal region knows a lot of tourism. The port of Oostende probably plays an important role in the high percentage for transport and traffic in Zone 1. Zone 3 is part of the 'Westhoek' which is a development region as recognized by the EC (see also Chapter 5). Population density is very low (171.5 inhabitants/km²) in this region and as seen in the table, the primary sector is relatively a more important source of employment.

Table XVIII: Total employment in different branches of the economy for the province of West-Vlaanderen and the three zones (1981) (in %).

	Province	Zone 1	Zone 2	Zone 3
Agriculture, forestry and fishery	6.27	1.70	2.17	7.28
Industry	31.89	12.78	22.73	14.34
Construction	8.86	5.27	8.15	8.01
Trade, hotels, restaurants and catering industry	17.71	22.29	18.25	23.54
Transport and traffic	6.01	19.36	8.24	3.60
Bank, insurances	4.11	4.27	5.75	5.74
Other services	24.59	33.89	35.75	37.25
Activity unclear	0.56	0.44	0.65	0.24

Source: (1)

It should be mentioned that the figures on gross added value against factor costs in the following table are calculated using distribution codes from the figures per *arrondissement*. They are therefore estimates. Underlying hypotheses were that every active person is responsible for the same amount of gross added value against factor costs and that this contributes to the GAV/factor costs in the municipality where he works and not where he lives.

In Table XIX a summary of characteristics of the three zones is given. When the number of jobs of related activities are calculated, only ship yards and processing are included. Calculating the added value of related activities however, wholesale trade, auctions, ice factories, etc. are also included. Added value is calculated making use of the balance sheets of all companies concerned (8). The total reflects the sum of the three zones (which does not correspond to the total of the three coastal *arrondissementen*).

Bredene and especially Knokke-Heist make up a great part of the added value of landings. This is because most of the ship owners have their seat in these municipalities rather than in Oostende and Zeebrugge.

Only 913 out of 1014 fishermen are located in the three zones considered.

The remarkably high share in jobs in Bredene could be misleading, as it is a result of the employment in one large processing firm only. However, many employees of this particular firm do not live in Bredene. Nieuwpoort also is a small town with a lot of non-resident employees in the fisheries sector. As a result the relative dependence in terms of jobs is larger than the relative dependence in economic terms.

All zones are highly dependent on quotas: as mentioned before more than 90% of all fish landed are under quota regulation.

Table XIX: Summary of the characterisation of the zones highly dependent on fisheries and ancillary activities.

Zone	General features of the zone					Number of jobs in fisheries and related activities			Added value of fisheries and related activities			Relative dependence				
	Total popula- tion	Working force	Total number of jobs	GDP		Fisher- men only	Other jobs	Total	Landings and first handling	Other activities	Total	In terms of jobs (%)		In economic terms (%)		
				Total	Per capita							e/b	g/b	h/c	j/c	
	a		b	c	d=c/a	e	f	g=e+f	h	i	j=h+i					k
Zone 1	80,793	33,830	26,871	1149.82	14.2	237	837	1074	7.9761	20.0023	27.9784	1	4	½	2½	94
Oostende	68,527	28,659	25,585	1084.36	15.8	167	708	875	5.3909	16.7438	22.1347	½	3½	½	2	
Bredene	12,266	5,171	1,286	65.46	5.3	70	129	199	2.5852	3.2585	5.8437	5½	15½	4	9	
Zone 2	149,001	62,494	53,921	2162.34	14.5	590	316	906	18.0124	19.5472	37.5596	1	1½	1	1½	92
Brugge	117,460	49,268	46,843	1861.50	15.8	283	302	585	3.4352	19.4121	22.8473	½	1½	0	1	
Knokke-Heist	31,541	13,226	7,078	300.84	9.5	307	14	321	14.5772	0.1351	14.7123	4½	4½	5	5	
Zone 3	9,377	3,938	2,765	141.11	15.0	86	21	107	1.1746	0.6734	1.8471	3	4	1	1½	95
Nieuwpoort	9,377	3,938	2,765	141.11	15.0	86	21	107	1.1746	0.6734	1.8471	3	4	1	1½	
TOTAL	239,171	90,516	83,557	3453.27	14.4	913	1174	2087	27.1631	40.2229	67.3860	1	2½	1	2	

a: 1990;

b: 1990; these figures comprise only employees, self employed are not included;

c: 1988, in million ECU;

d: GDP divided by population of 1988 (Oostende 68397; Bredene 11950; Brugge 117857; Knokke-Heist 31541; Nieuwpoort 9121), in thousand ECU;

e: 1990; excluding self employed;

f: other jobs comprise people employed (self employed excluded) in ship yards and fish processing;

h,i,j: 1988, in million ECU;

k: percentage of catches (in tons) from quota species

1 ECU = 43.4284 BEF (1988)

3.3 Characterisation of target populations

From the analysis of the sector it is clear that fishermen, fish unloaders, fish sorters and personnel in ship yards are/will be most affected by the CFP. Since processing industry is largely dependent on imports, the future of people employed in this sector is not (much) dependent on the CFP.

3.3.1 Fishermen

Fishermen can be defined as the crew of a fishing fleet. They need to fulfil several conditions to conclude a valid labour agreement. These conditions refer to age, knowledge of languages, physical ability and professional capability. Labour agreements between vessel owners and fishermen can be for a fixed number of journeys or can be of uncertain duration. The latter ones are most common (31).

All fishermen are men. Age structures (31/12/90) of fishermen of different functions and of overall crew are shown in following figure. Average ages at that moment were:

- skipper: 37.25 years;
- lower deck personnel: 27.67 years;
- first engineer: 33.17 years;
- lower engine room personnel: 31.00 years;
- overall average: 30.92 years.

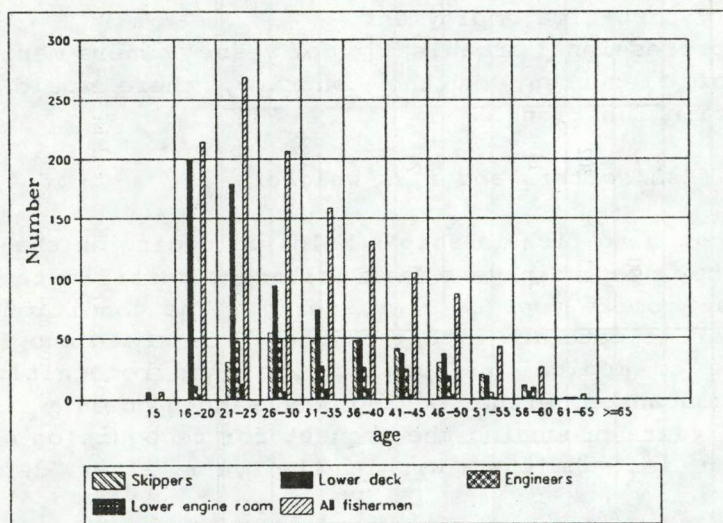


Figure 4: Age structure of fishermen of different functions (1990).

Source: (9)

Fishermen do not have fixed wages, they receive a certain percentage of the gross returns, eventually after deduction of costs for unloading, fuel, etc. However, fishermen's incomes do not only consist of these percentages of the gross returns. They also receive some remuneration in kind. In order to be able to compare incomes of fishermen with incomes of labourers ashore (= comparable income) average income (percentage of returns) per signed on fisherman is calculated (total income of crew / average number of fishermen signed on). However, it is clear that a large variation in incomes of fishermen exist, on one hand due to different functions on the vessel and on the other hand due to

different categories of vessels (larger vessels get usually higher returns). The comparison shows that fisheries procures good to very good incomes (Table XX). A majority of fishermen is employed on vessels of higher categories where incomes are higher than the comparable income (31).

Table XX: Incomes of fishermen (a) per vessel class as compared with labourers ashore (b) (1989) (incomes in BEF).

Vessel class	Fishermen (a)	Ashore (b)	(a)/(b)
Class I	425,000	646,000	0.66
Class II	461,000	888,000	0.52
Class III	1,039,000	966,000	1.08
Class IV	1,757,000	1,196,000	1.47

Source: (13)

At a certain age fishermen stop their fishing activities, however a lot of them does not leave the sector. **After their career** as fishermen a great number starts to work in the auction or in warehouses. Some of them are employed by State Shipping Companies (RMT in Oostende) or by towing services. Other activities fishermen carry out after their career as fishermen are establishing a retail shop in fish, becoming dock labourer or carrying out jobs for vessel owners. The latter is usually part-time employment.

'De Rederscentrale', a professional organisation of vessel owners mentioned that there is no surplus of fishermen, on the contrary, there would be a structural shortage for certain functions.

3.3.2 *Fish unloaders, fish sorters and fish weighers*

Fish unloaders are men catching fish in ship's hold, unloading on the quay, sorting and weighing fish. They need to have a **fish unloaders certificate** which is delivered by the '*paritair comité voor de zeevisserij*'. The conditions for receiving a fish unloaders certificate are either being ex-fisherman who is not allowed anymore to sail due to medical reasons or for whom recognition is justified due to social circumstances, either having been signed on on a fishing vessel for 10 years in the 15 years preceding the request for recognition either the request for recognition is submitted within the year after definite discharge.

In case there are not enough fish unloaders, it is possible to recognise candidats who do not fulfil these conditions, but they should be familiar with fisheries and handling of fish. Such a certificate is valid for one year only (31).

Labour agreements with fish unloaders are daily. In fact, these people are unemployed. The days they work they do not receive unemployment benefit. They know legally guaranteed minimum wages. **Fish unloaders** receive every day they work the minimum wage of 3087 BEF (second quarter of 1991). It is assumed that they unload 300 baskets a day. For each basket more they receive 1 BEF extra. **Fish sorters** receive 1.5% of the gross returns a day (all together; individually they receive this 1.5% divided by the number of fish sorters that day). In Zeebrugge they are paid every fortnight. Those **weighing fish** receive the minimum wage of 3087 BEF a day (second quarter of 1991) (31).

Alternative employment for people employed in the auction is to be sought within the sector. Employment in warehouses or in processing industry is most

likely. Some of them might want to work as dock labourers (unloading trading ships).

3.3.3 *Personnel of warehouses*

The labourers in warehouses are divided into three categories: unskilled (did not have a training), trained (those trained in a training center recognised by the VDAB (Flemish service for unemployed) or those worked six months in the sector as unskilled) and skilled (those trained in a recognised training center and after one month of employment in the sector or after working six months in the sector as trained or those employed in the fish auction and in the possession of a certificate delivered by the *paritair comité voor de Zeevisserij*). The employees receive hourly wages. According to category these wages are different.

3.3.4 *Personnel of ship yards*

As was mentioned before, under the description of the sector of vessel construction, maintenance and repair, the future of ship yards building fishing vessels is not very positive. Ship yard owners try to 'save' their employees from unemployment by 'lending' them to other other ship yards in the country (in case the latter are in need of more personnel).

Labourers employed in ship yards are in most cases craftsmen (carpenters, metal workers, electricians, etc.). In case they need to leave the ship building sector, for some of them it should not be too difficult to find a job in other sectors (carpenters and electricians for instance). Metal workers might encounter more difficulties since the metallurgical sector as a whole is in an unfavourable situation concerning employment.

4 ANALYSIS OF THE SOCIO-ECONOMIC IMPACT OF THE COMMON FISHERIES POLICY

4.1 The Common Fisheries Policy (CFP)

4.1.1 Description of the CFP (18,19)

The purpose of the CFP of the European Community is to ensure the sustainability of the fishing industry. This depends on a balanced and rational exploitation of the fishery resources. In order to achieve this the EC has introduced in 1983 several directives that influence all subsectors of the fishery industry.

1) Conservation and management of resources

On the first of January of 1977 the EC introduced an exclusive European fishing zone of 200 miles. Every Member State is authorised to reserve a 12 miles zone for its own coastal fishery. Outside this 12 miles zone everybody has equal rights to the fishing grounds. This does not imply that everybody is allowed to catch all fish species in unlimited amounts. Yearly TACs (**Total Allowable Catches**) are fixed per fishing ground and per fish species in order to assure continuous profitable fishing. These TACs are divided amongst Member States according to fixed percentages (**quotas**). Apart from this some technical conservation measures are taken to protect the available resource. The most important ones are minimum size of meshes and minimum size of landed fish.

2) Structural policy

One of the main obstacles to the rational evolution of the CFP is the fleet overcapacity. Therefore, a number of regulations and measures have been taken in this regard. Objectives pursued are the restructuring, modernisation and development of the fishing industry, stabilisation or reduction of fleet capacity, development of aquaculture, improvement of conditions under which fishery products are processed and marketed and improvement of living standard and living conditions of people living from fisheries.

3) Marketing policy

Most important instruments of the marketing policy are trade norms concerning quality of fish (size, weight, freshness, etc.), support for producer organisations (in Belgium the '*Rederscentrale*'), regulation of prices through orientation prices, subsidies for non sold fish and premium for storage and regulation of trade with third countries.

4) Agreements with non-Community countries and international organisations

4.1.2 Implementation of the structural policy of the CFP

Multiannual Guidance Programmes (MGPs) are one of the essential instruments to the implementation of the structural policy. The restructuring of the fishing industry which has to be implemented by the Member States is laid down in figures in these MGPs (15,16). During the period 1987-1991 the Member States were obliged to reduce their fleet with 3% in tonnage and 2% in engine power (18).

In the framework of improvement of conditions under which fishery products are processed and marketed the EC has set hygiene standards. As for the fleet, the deadline was the end of December of 1991. These standards are very rigid and will demand large investments of the auction, wholesalers and processors of fish.

4.2 Analysis of past evolution (1983-1991)

It is rather complicated to calculate exactly the socio-economic impact of the CFP in a quantitative way. All evolutions concerned (quotas, landings, returns, employment) are reviewed.

4.2.1 Evolution of fishing fleet

During the period 1960-80 the number of vessels practically halved (Figure 5). Several causes can be identified for this decrease:

- natural reduction by shipwreck or age;
- sale of some units abroad;
- withdrawal from service of older and less profitable vessels without renewal;
- few new building especially in the seventies.

The latter was due to a number of negative factors, such as the oil crisis (high fuel costs), rapidly increasing building costs, international catch limitations and the uncertainty among ship owners regarding the access to traditional fishing grounds. From 1980 this evolution was turned and continuous replacement building stabilised the numerical strength of the Belgian fleet around 200 units. A number of stimulating support measures were taken both by the national and regional government and by the EC.

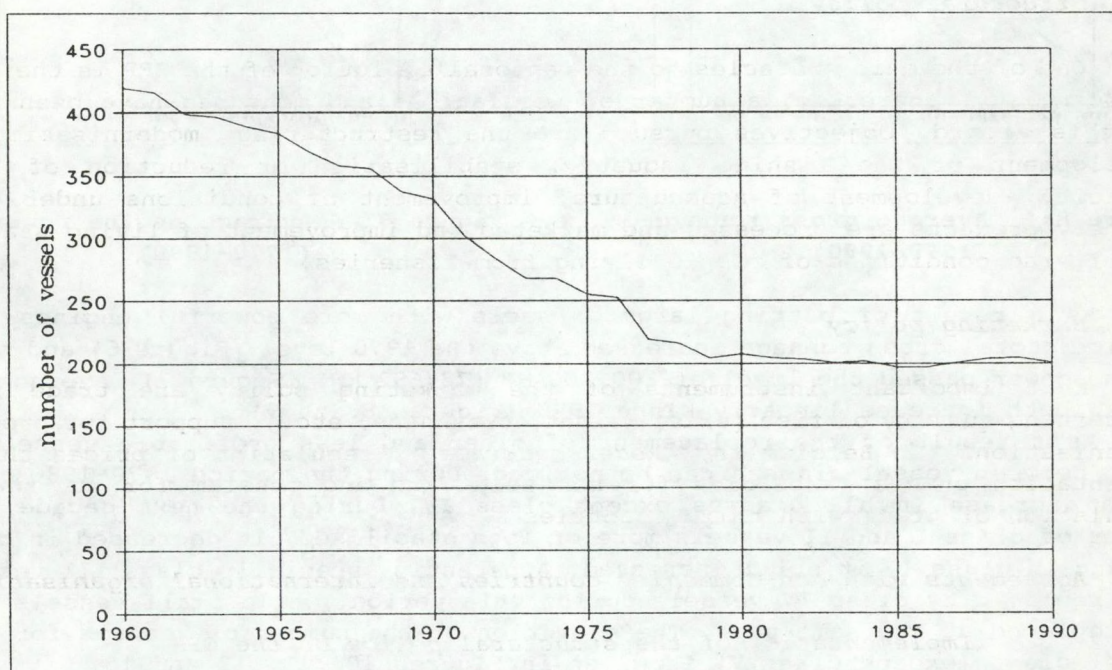


Figure 5: Evolution of number of vessels of the Belgian sea fishing fleet (1970-90).

Source: (9)

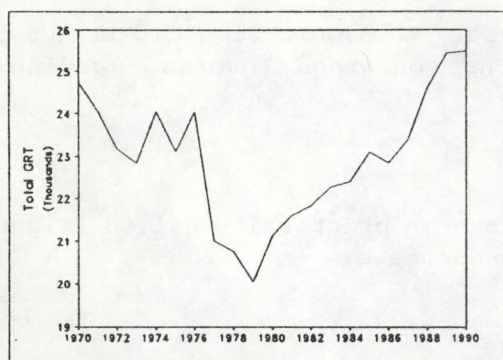


Figure 6: Total gross tonnage (1970-1990).

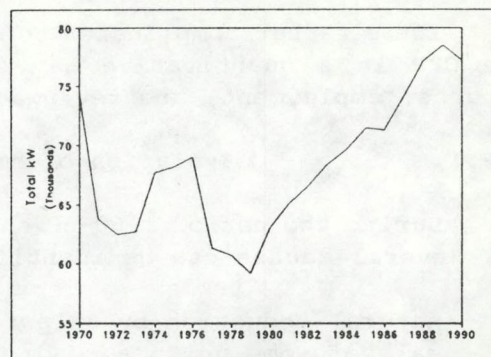


Figure 7: Total engine power (1970-1990).

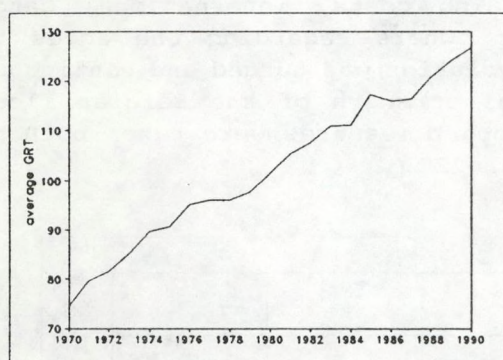


Figure 8: Average gross tonnage (1970-1990).

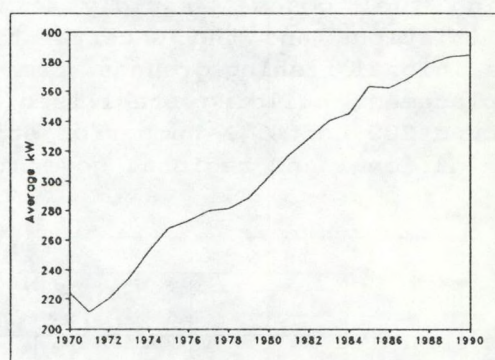


Figure 9: Average engine power (1970-1990).

As a result of putting larger vessels with more powerful engines into service, total gross tonnage increased above the 1970 level (Figure 6) and total engine power passed the level of 100,000 HP (73,692 kW) (Figure 7). Average GRT and kW both increase linearly since 1970 (Figures 8 and 9).

As a result of the replacement of older and less profitable vessels, a shift between vessel classes can be noticed. During the period 1970-1980 there was a decrease in all classes except class IV. During the next decade, the number of class I and II vessels more or less stabilised, it decreased in class III and in class IV it still increased. Apparently especially class III vessels were replaced by class IV vessels during this period, while small vessels were not replaced at the same pace. The evolution of the number of vessels for each vessel class (except class V) is given in Figures 10, 11, 12 and 13.

The profitability of the fishing industry has always been such that vessels were not withdrawn from service. During the period 1987-1990 11 termination demands have been submitted of which only three have really been carried out. As a result there was only a reduction of 206 GRT and 553 kW within the scope of this system. Targets set by the EC can not be achieved in this way (Table XXI), so that extra measures to reduce the fleet are necessary.

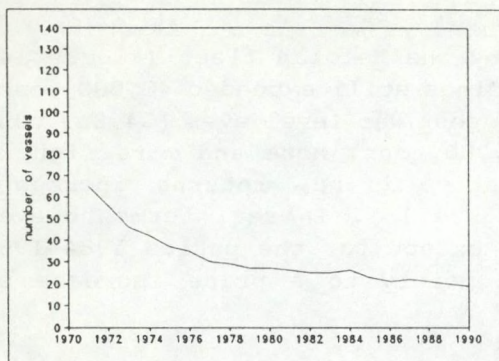


Figure 10: Number of vessels in class I (1970-1990).

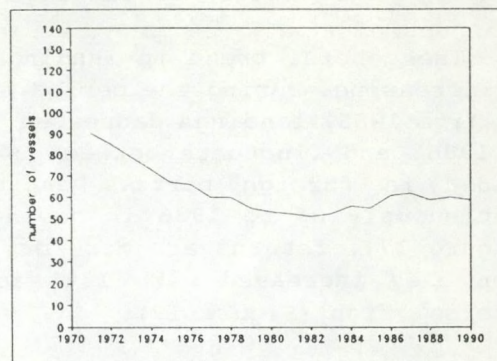


Figure 11: Number of vessels in class II (1970-1990).

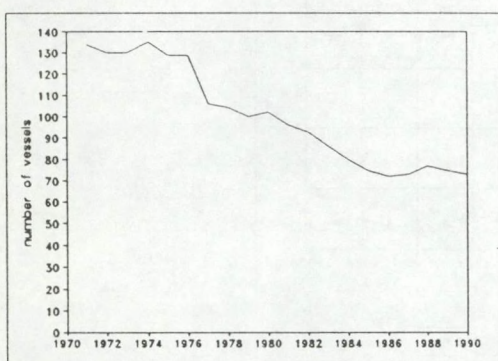


Figure 12: Number of vessels in class III (1970-1990).

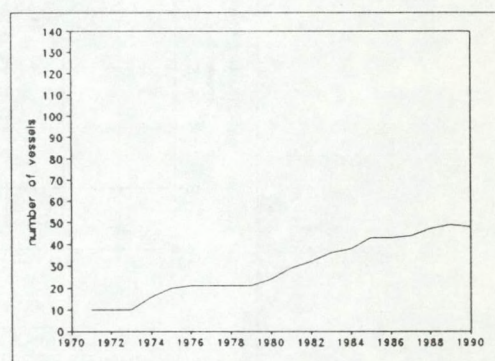


Figure 13: Number of vessels in class IV (1970-1990).

Table XXI: Current situation and anticipated development in fleet capacity

	Gross tonnage (GRT)	Engine power (kW)
Situation at 31.12.1990	25498	77164
Situation at 30.6.1991	26279	78244
Target set for 31.12.1991	21340	69242
Difference between situation in 1990 and target set for 1991	4158	7922
	(16.3%)	(10.3%)

Source: (18)

4.2.2 Evolution of landings and quotas

The general trend in landings (in tons) by the Belgian fleet (Figure 14) is increasing. During the period 1980-1984 landings still exceeded 40,000 tons, but from 1985, landings decreased to the lowest post war level ever (34,819 tons in 1986) and fluctuate between 34,000 and 38,000 tons. More and more fish is landed in foreign ports. Despite this negative trend, returns increased continuously up to 1986 in nominal terms (Figure 16). In real terms however (Figure 17), returns are more or less stable, except for the period 1984-1987 when they increased with 13% each year, due mainly to a price increase of demersal fish (Figure 19).

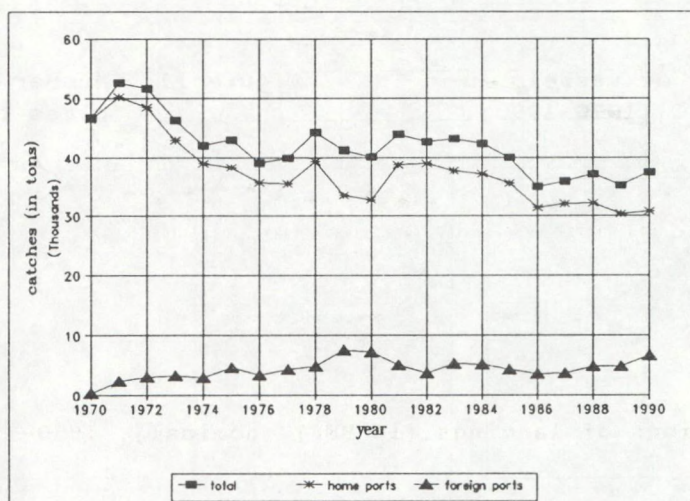


Figure 14: Evolution of catches (in tons), 1970-1990.

Source: (6)

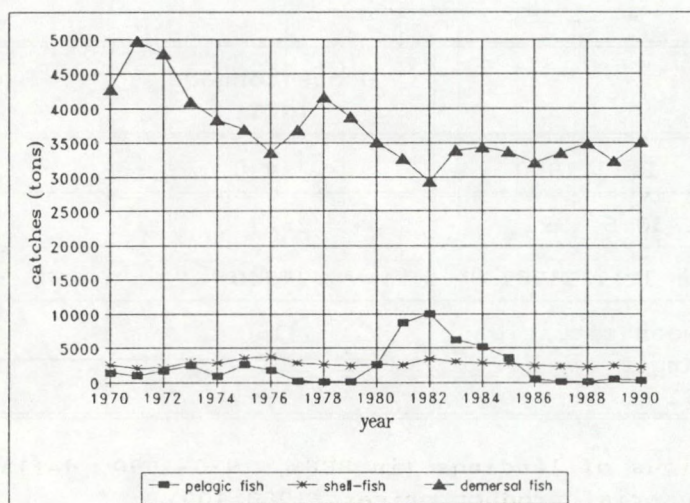


Figure 15: Evolution of catches (in tons) of demersal, pelagic and shell-fish, 1970-1990.

Source: (6)

The evolution of total catches is determined by the evolution of catches of demersal species. However, between 1980 and 1985 there was an upsurge of herring catches (Figure 15). Ever since, catches of pelagic fish are neglectable, due to low prices.

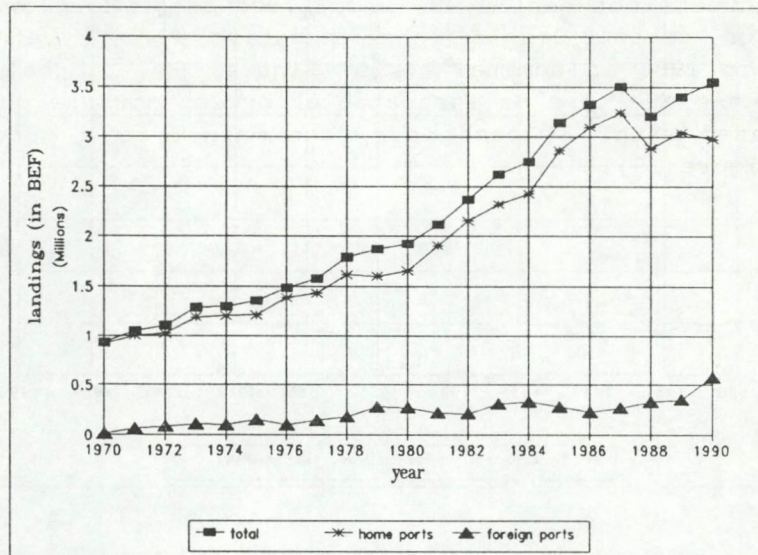


Figure 16: Evolutions of landings (in BEF) (nominal), 1970-1990.

Source: (6)

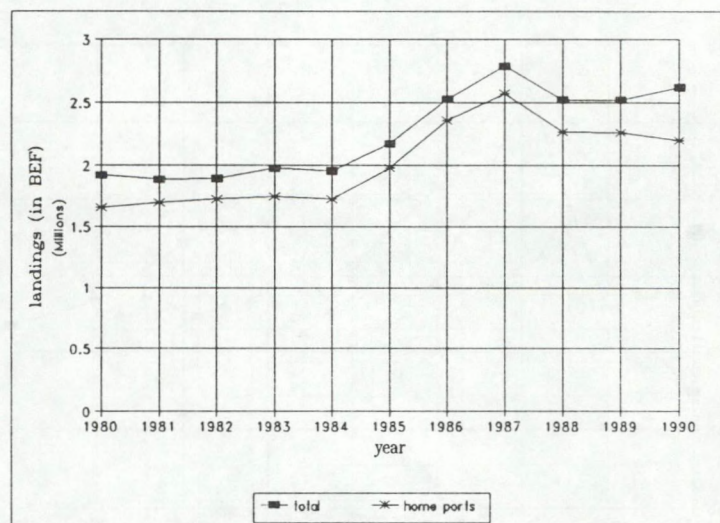


Figure 17: Evolutions of landings (in BEF), 1970-1990, deflated by the index of industrial product prices (1980=100).

Source: Own calculations based on (6)

In Figures 18 price evolutions are shown. Both nominal and real prices increase except in 1988, when prices for demersal and pelagic fish fall. Shellfish prices however continuously increase.

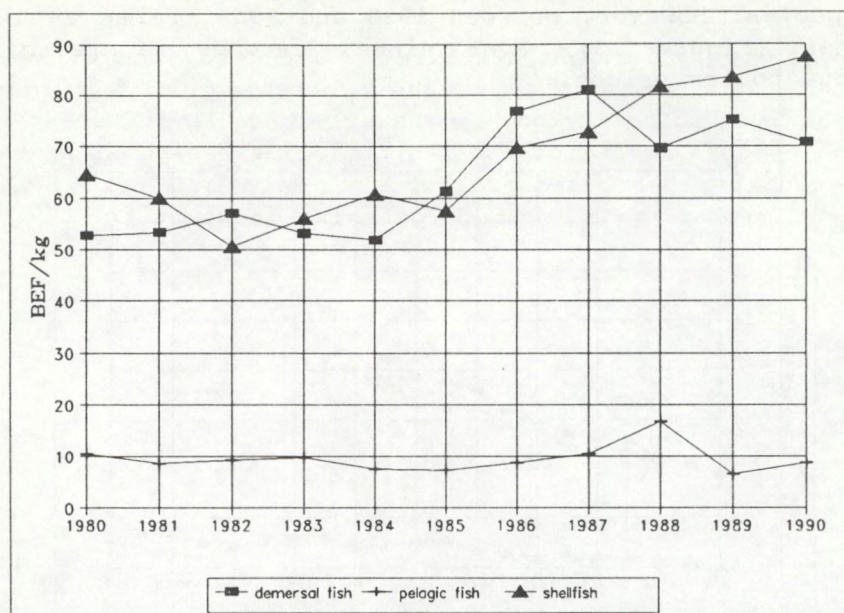


Figure 18: Real price evolution of demersal, pelagic and shell-fish, 1980-1990, deflated by the index of industrial product prices (1980=100).

Source: Own calculations based on (6)

Since 1985 Belgian quotas decrease steadily. In 1990 they were further reduced by 11% through exchange (Figure 19).

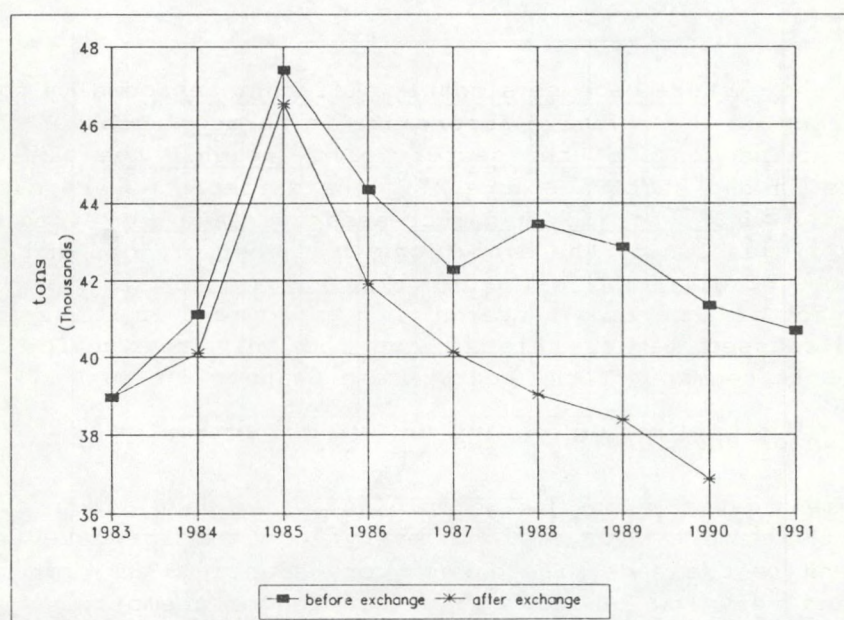


Figure 19: Total Belgian quotas before and after exchange, 1983-1991.

Source: (5)

4.2.3 Evolution of employment in the sector

There has been only a **slight decrease** in number of jobs in the whole sector (this includes fisheries, ship yards and processing only) (Figure 20). This decrease has mainly occurred in Zone 1. The situation is different for different segments of the sector. Number of jobs in **fisheries** has remained rather stable, that in **ship yards** has decreased drastically (only in Zone 1). There has been an increase in number of jobs in the **processing industry**.

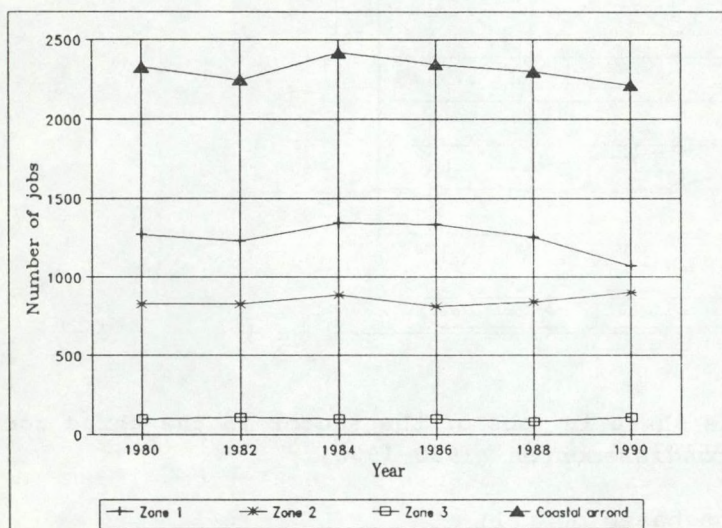


Figure 20: Evolution of number of jobs in the sector in the three zones and in the coastal arrondissement (1980-1990).

Source: (11)

Although the picture becomes slightly different, especially for Zones 1 and 3, the evolutions of the **relative importance in terms of jobs** of the sector and of the different segments of the sector follow roughly the same trend as the number of jobs in the sector (Figure 21). The differences are due to the fact that the overall number of jobs has increased over the concerned period.

From the discussion of the evolutions of number of jobs and of importance in terms of jobs of different segments of the sector, it is clear that the CFP has had an impact of some importance only on employment in ship yards. However, as will be discussed later, this is not the only reason for the negative evolution in this segment of the sector (see Chapter 6).

4.2.4 Evolution of unemployment rates

Unemployment rates (number of unemployed/active population) for men and for women follow the same trend. Also, in every zone and in West-Vlaanderen as a whole the trend is the same. These were very high in 1982 (for men) and 1984 (for women) and very low in 1990. The evolution of unemployment rates can be explained by the evolution of the general economic climate in Belgium.

4.3 Forecasts (1991-1994)

Forecasts for the period 1991-1994 are made starting from two different scenarios. These scenarios are based on the current situation of the fleet with no change in the evolution expected in the future (scenario 1) and on the development as targeted by the EC (scenario 2) (Table XX). All calculations are

only rough estimates and do not rule out several other factors (general economic conditions,...).

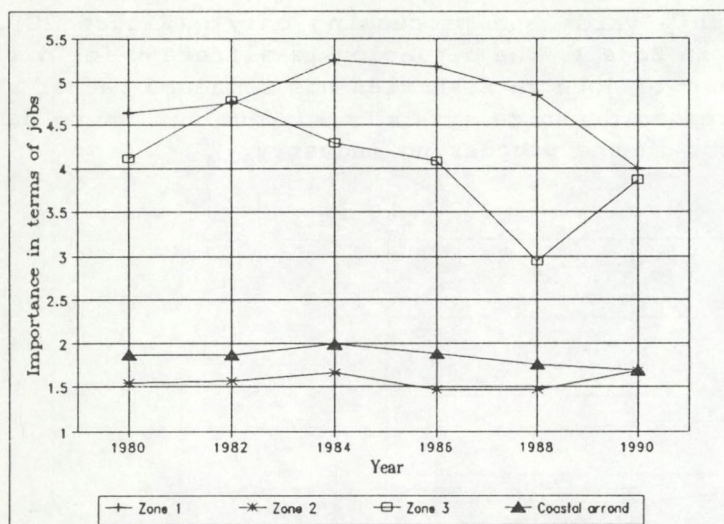


Figure 21: Evolution of the share in jobs of the sector in the three zones and the coastal arrondissement (1980-1990).

Source: Own calculations based on (11)

4.3.1 Scenario 1: No changes

When no extra actions to reduce the fleet are carried out, vessel owners are not stimulated to leave their business, as profitability is expected to remain sufficient.

Number of vessels, gross tonnage and engine power are extrapolated using trends of number of vessels, average gross tonnage and average engine power over the period 1980-1990. This produces the following results:

- number of vessels remains constant around 202;
- as a result of continuous replacement of smaller vessels by larger vessels more crew is needed and crewing problems increase;
- total gross tonnage and total engine power keep on increasing as indicated in Figures 22 and 23.

4.3.2 Scenario 2: Reduction as postulated by the EC

The Commission postulates for 31.12.1991 a reduction of 4158 GRT and 7922 kW with respect to the situation at 31.12.1990 (Table XX).

Hypotheses:

- (1) reductions take place in the least profitable part of the fleet, i.e. class III vessels, particularly medium beam trawlers and otter trawlers;
- (2) only vessels with hulls older than 15 years are considered;
- (3) reductions take place equally in the three ports;
- (4) average crew is 4.59.

Two criteria are used to reduce the fleet:

- case 1 : reduction of engine power (-10.3%);
- case 2 : reduction of gross tonnage (-16.3%).

In this way, the number of vessels and fishermen which will be withdrawn can be estimated (Table XXII).

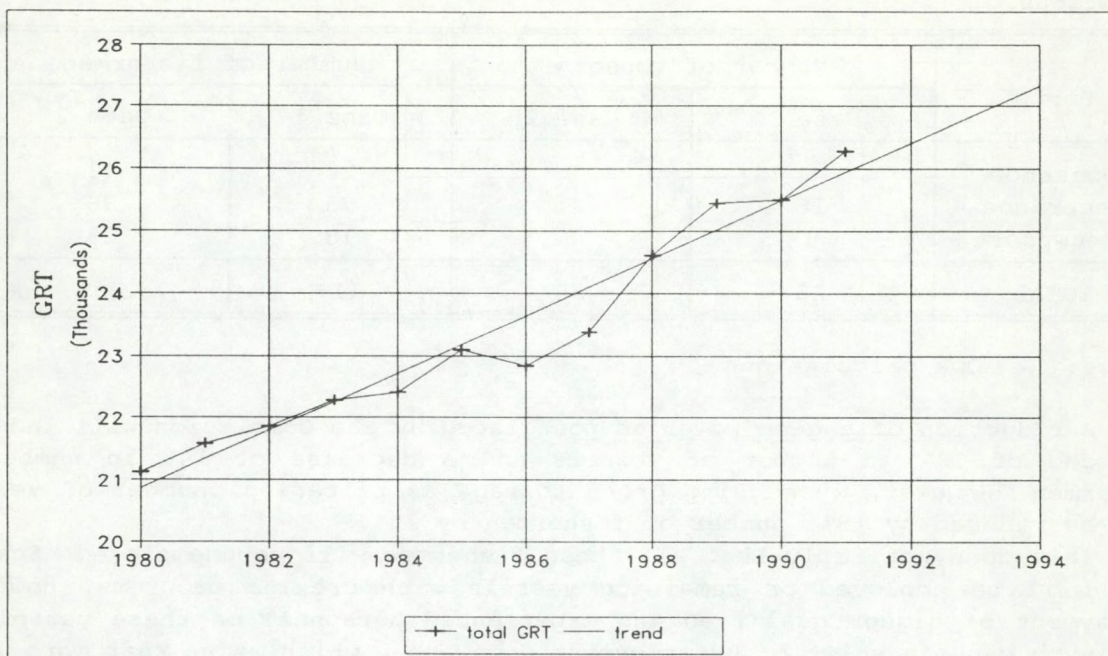


Figure 22: Total gross tonnage: 1980-1990; forecasted 1991-1994.

Source: Own calculations based on (9)

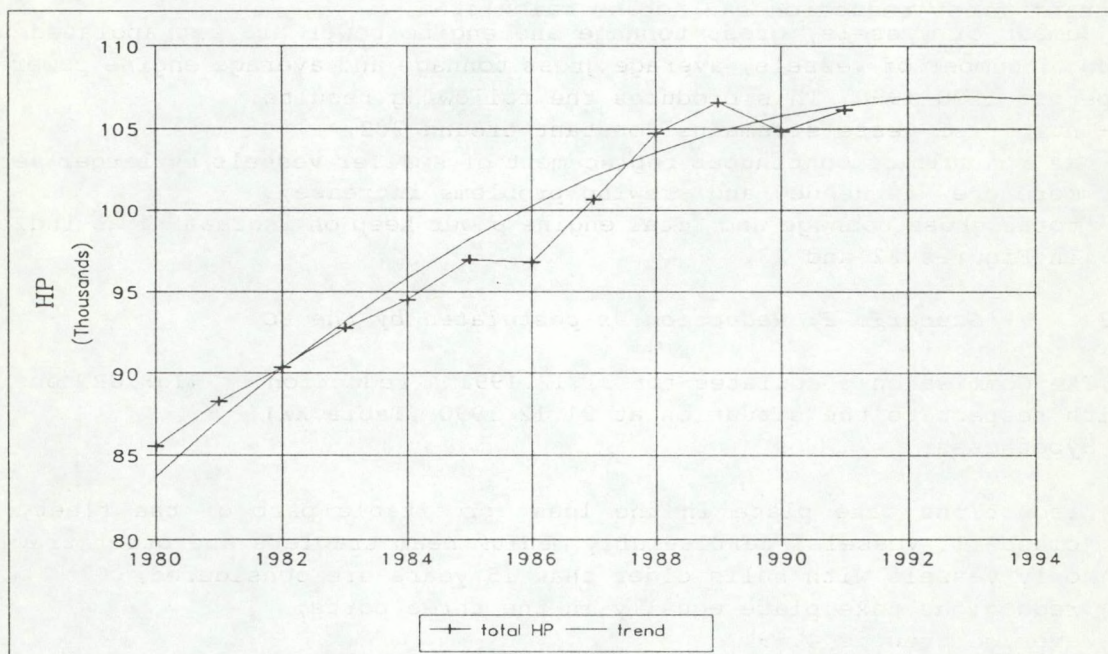


Figure 23: Total engine power: 1980-1990; forecasted 1991-1994.

Source: Own calculations based on (9)

Table XXII: Number of vessels and fishermen which will be withdrawn.

Ports	Number of vessels		Number of fishermen	
	Case 1	Case 2	Case 1	Case 2
Oostende	6	9	28	41
Zeebrugge	16	21	73	96
Nieuwpoort	4	6	18	28
TOTAL	26	36	119	165

Source: Own calculations

A reduction of engine power as postulated by the Commission will induce a decrease of 13% in number of vessels and a decrease of 14% in number of fishermen. However, when using gross tonnage as criterion, number of vessels will be reduced by 18%, number of fishermen by 20%.

This does not imply that all these fishermen will be unemployed. Some of them will be employed on remaining vessels with crewing problems. However, employment of higher qualified and experienced personnel on these vessels is likely to cause a shift of unemployment downwards, which means that more lower qualified personnel will become unemployed.

A reduction of the fleet of this kind will cause only little reduction in landings or even none. As a result fish processing industry will not be affected by reductions of this size. Even a reduction of landings of for instance 10% will cause a reduction of total supply of fish and fish products of 1% only. Processing firms can easily overcome this decrease in own landings.

The industry of ship yards and vessel servicing will be affected more seriously by fleet reduction, as there are less vessels to repair and maintain. As no comprehensive quantitative data on these subsectors are available, the impact of fleet reduction can not be calculated.

5 REVIEW OF OTHER COMMUNITY RECONVERSION PROGRAMMES

The European Community pays a lot of attention to the position of so called underdeveloped regions. By improving the socio-economic situation in these regions, the Community wants to promote the integration of Europe.

After the entry of countries such as Greece, Spain and Portugal, the EC has restructured its Structural Funds. The EC now determines its development zones according to five objectives. Two of these objectives are appropriate for Vlaanderen: **Objective 2**, reconversion of regions where industry is seriously declined and **Objective 5b**, development of rural areas with weak socio-economic structure. Mainly on the basis of Objective 2 the province of Limburg, the *arrondissement* of Turnhout and the 'Westhoek' are recognised by the EC as reconversion zones. They have right to more than usual support from the own government and the EC. Biggest part of the funds goes to Limburg, that has known major difficulties since the closing down of the coal mines.

5.1 Objective 2 region: province of Limburg

In 1987 the Flemish Government approved the regional reconversion policy (1987-1996) for Limburg. Mainly two reasons caused the development of this regional development policy for Limburg: the fact that all the coal mines were going to be closed down between 1986 and 1996 with a loss of 16,400 jobs and secondly a particular high level of unemployment (in 1984 the average unemployment rate was 25%, as compared with 16% for Vlaanderen as a whole).

The main **objective** of the reconversion policy was/is to decrease unemployment in the province by creating new jobs and by raising the level of schooling. Main priorities were/are development of industrial growth (especially SMEs (Small and Medium Enterprises), stimulation of tertiary sector (mainly tourism) and diversification of activities of the coal mines (*Kempense Steenkoolmijnen*). Several new institutions have been established to attain these objectives. Some stimulate production and investments in order to create new jobs, others are responsible for the social development of Limburg.

After three years of policy a **first evaluation** was made. This showed that unemployment surplus has decreased with 30% (unemployment surplus is the difference between real number of unemployed and number of unemployed calculated using the same unemployment rate for Limburg as for Vlaanderen). The unemployment surplus now amounts up to 110 unemployed. However, special efforts are still necessary for women, immigrants and low skilled. Another fact to be mentioned is that newly created jobs are in many cases part time jobs. During the period (1987-1990) about 70 new companies were established.

It can be **concluded** that several indicators are positive. However, they were reached in a period when economic conditions were favourable. The question remains whether the province can handle an economic recession period. (21)

5.2 Integrated Action Programme for the Westhoek (1987-1991)

The Westhoek comprises the *arrondissementen* of Ieper, Diksmuide and Veurne. The **emphasis** of this programme was the change over of a strong agrarian region towards a region with sufficient industrial foundation. In the development strategy it is therefore assumed that the fundamental points of application for the necessary reconversion have to be sought in this industrial foundation and in an optimal development of the possibilities of tourism.

Three EC Funds gave **support** to the programme: European Fund for Regional Development (EFRD), European Social Fund (ESF), European Agriculture Guidance and Guarantee Fund (EAGGF). The awarded EFRD support was divided as follows: 32% for development of industries, 18% for tourism projects, 46% for water supply, water control and waste water purification, 3% for training and the remaining 1% for infrastructure projects. EAGGF support is given to projects for the

improvement of conditions of processing and marketing of agricultural products. Besides agriculture, the IAP also foresees support for the improvement and adaptation of the structure of fisheries and aquaculture. Three projects for the modernisation of fishing vessels (Nieuwpoort) have been approved. They received 7% of the total support to the Belgian fishing fleet.

Under the IAP a 'Stuurcomité' was established whose mandate was management, control and evaluation of execution of IAP. Also three technical committees (for EFRD, ESF and EAGGF support) were established in order to execute the IAP as efficiently and professionally as possible. The EC emphasised coordination and cooperation in the execution of the IAP.

An evaluation shows that the socio-economic situation in the Westhoek has improved considerably. An evolution of employment in the main sectors for the Westhoek and West-Vlaanderen is shown in Table XXIII.

Table XXIII: Division of employment according to economic sector, 1947-1990 (in %).

Sector	Westhoek				West-Vlaanderen			
	1947	1961	1970	1990	1947	1961	1970	1990
Primary	36	25	19	12	19	12	8	5
Secondary	27	30	36	30	44	47	48	36
Tertiary	37	45	45	58	37	41	44	59

Source: (33)

Employment in the primary sector has decreased drastically. Nevertheless the Westhoek remains one of the most agrarian regions in Belgium. The expansion of the secondary sector is mainly due to real industry and not so much due to building industry. The difference between the Westhoek and the whole country, Vlaanderen and West-Vlaanderen in degree of industrialisation has become smaller considerably. The late reconversion of the Westhoek from an agrarian area towards an area with industrial foundation has caused - together with other elements such as dispersal of population - that although the secondary sector has grown it is still showing arrears.

West-Vlaanderen is evolved from a province with the highest level of unemployment to the province with the lowest score. In 1961 the level of unemployment in the Westhoek was double of that of the country. In 1991 this was one fourth lower than the average for the country. Compared with the average for West-Vlaanderen there is still a difference of 12% mainly due to the *arrondissement* of Veurne where seasonal employment in tourism is high.

The economic rise of West-Vlaanderen and the Westhoek will certainly continue. Points of support at the edge of the Westhoek are tourism along the coast, the development of the port of Zeebrugge, horticulture activities in the centre of the province, the strong industrial foundation of neighbouring areas and in the future the Chunnel and the TGV. (33)

5.3 Reconversion programme for shipbuilding areas: RENAVAL

This programme is only applicable to the region around Antwerpen and in Land van Waas (province of Oost-Vlaanderen) and not to the coastal region of Belgium. Projects in the framework of RENAVAL are now being submitted.

6 JOB CREATION AND SUPPORT MEASURES

No specific actions are undertaken by the national, regional or local government for the reconversion or the support of fishermen.

6.1 Affected populations

6.1.1 *Fishermen*

The first to be affected by fleet reductions are fishermen. However, as there is a structural shortage for certain functions, part of them can be signed on to vessels with crewing problems. Within the fisheries sector they can also be employed in the auction (unloading and weighing fish) or in the warehouses (filletting fish). Outside the sector, a number of alternatives already exist:

- ferry companies (such as RMT);
- towing services;
- dredging firms;
- trading firms.

6.1.2 *Employees in ship yards*

From the evolution of employment in different segments of the sector between 1980 and 1990 it is clear that only in ship yards the number of jobs has decreased considerably. Especially labourers are affected. In fact, this decrease has only taken place in Zone 1 (Oostende and Bredene). In Zone 2 (Zeebrugge and Knokke-Heist) there has been a slight increase. In absolute numbers, 292 jobs have disappeared in ship building in Oostende, the share in total number of jobs has almost halved. However, as mentioned several times before, it is important to keep in mind that the data on employment in ship yards comprise building, maintenance, repair and breaking up of all kinds of boats and not only of fishing vessels.

In 1987, the Commission has fixed the level of gross tonnage and engine power of the fleet to be reached on December, 31th 1991. The gross tonnage of the fleet should be not more than 21,340 GRT and the engine power not more than 94,169 HP (69,242 kW). In the execution of this decision, credits from the Flemish Government were only granted for modernisation (without increase of HP or GRT) and for replacement building (with a HP reduction of at least 10%). This is of course one of the causes of the negative evolution in the number of jobs in ship yards. Other reasons are the unfavourable situation in which the metallurgical industry in general is in now and the economic recession.

The **reconversion programme** for ship building yards of the EC, RENAVAL, is not applicable to the coastal region. Therefore, no projects under terms of this programme exist nor are there other special relief programmes undertaken.

6.2 Affected zones

6.2.1 *Zone 1: Oostende - Bredene*

The *arrondissement* of Oostende is characterised by a unilateral and weak economic base. The weakness and vulnerability of this base manifests itself especially in high unemployment figures. It is important to emphasize that this concerns a structural problem which was already present before the economic crisis of 1974. The arrears in development is also visible in the relative course of income levels and global course of employment.

The economic activities in the *arrondissement* of Oostende are too unilateral directed towards sectors which do not have growth potentials or which are directly threatened and for which reconversion is necessary. In Table XXIV

the economic activity in the three coastal *arrondissementen* is compared with that in the province of West-Vlaanderen.

Table XXIV: Total employment in different branches of the economy for the province of West-Vlaanderen and the three coastal *arrondissementen* (1981) (in %).

	Province	Brugge	Oostende	Veurne
Agriculture, forestry and fishery	6.27	4.71	4.10	9.38
Industry	31.89	26.20	12.34	12.80
Construction	8.86	8.58	8.19	7.64
Trade, hotels, restaurant and catering industry	17.71	17.78	23.78	24.53
Transport and traffic	6.01	6.34	15.31	3.79
Bank, insurances	4.11	4.59	4.42	4.72
Other services	24.59	31.22	31.46	36.54
Activity unclear	0.56	0.57	0.40	0.60

Source: (1)

From this table it is clear that there has been no development of the secondary sector (industry and construction). The share of construction in the secondary sector is disproportionately high and problem sectors such as textile, ship building and maintenance yards are relatively strong represented. Employment in tertiary sector is relatively high due to tourism, but a lot of this employment is seasonal and quality of employment is rather low. Growth potentials concerning employment of the primary and tertiary sector are about zero. In 1981, the employment coefficient (active population working in the area/active population living in the area) of the *arrondissement* of Oostende was only 79.

The development arrear which the *arrondissement* already has is still growing and in the present situation no autonomous elements exist which can change this. On the contrary, factors such as the building of the Chunnel, regression of the British market and the ageing of the port can make the situation dramatic if there will be no intervention.

The problems are very similar to those of the ancient situation in the neighbouring Westhoek, which was recognized by the EC as development region. Despite several endeavours of *GOM-West-Vlaanderen* and *Vlaamse Gewest* the EC did not recognize the *arrondissement* of Oostende as development region, regrettably.

Impuls (incentive) areas are regions in Vlaanderen having socio-economic difficulties but which are not recognised by the EC as development regions. The Flemish Government decided to take some selective measures in favour of these problem areas which did not get EC recognition. The determination of these *impuls* regions was made according to relevant regional socio-economic indicators. The region Oostende - Blankenberge is one of these *impuls* regions. The *impuls* region Oostende - Blankenberge encompasses the municipalities of Middelkerke, Oostende, Bredene en De Haan in the *arrondissement* of Oostende and Blankenberge and Zuienkerke in the *arrondissement* of Brugge. It counts 125,000 inhabitants. This region will receive 296,7 million BEF (1991-1993).

The *impuls* programme consists of three large parts: infrastructure projects

(about 40% of the budget), training projects (20% of the means) and specific actions (the remaining 40% of the budget). Infrastructure projects concern the equipment of industrial areas, redevelopment of ruined sites and the improvement of the opening up of specific points in the impuls area. The training programme provides for training of employees, self employed and training of chance poor. Under the specific actions fall among other projects a pilot project concerning aquaculture.

For the shaping of the impuls programme a regional manager and a technology agent who will be responsible for the coordination were appointed.

It is expected from the impuls programme that it contributes to the attraction of undertakers' initiatives. Emphasis shall be given to projects which, after the impuls programme is finished, will still contribute to an increase of the regional power of attraction. This policy fits totally the endogenous regional development model of *GOM-West-Vlaanderen*, which wants to realize the regional development by valorisation of internal growth forces of the region (20,25).

Fleet reductions will cause even greater problems for this area. Especially the municipality of Bredene is highly dependent on fisheries and ancillary activities. Therefore the recognition of Bredene as an **Objective 6** area is suggested.

6.2.2 *Zone 2: Brugge - Knokke-Heist*

Zeebrugge is not only a fishing port, but mainly a ferry and trading port. In 1989 1.6 million passengers were transported and traffic amounted up to 25.8 million tons (32). It is a part of the municipality of Brugge (117,460 inhabitants in 1990). As a result the economic base for job creation is strong enough. Moreover, most young and dynamic vessel owners have their seat in Zeebrugge or Knokke-Heist. The creation of a *Europees Viscentrum* will further emphasize Zeebrugge as the leading fishing port in Belgium.

6.2.3 *Zone 3: Nieuwpoort*

As already mentioned before Nieuwpoort is a part of the **Westhoek** and thus it can benefit from the Integrated Action Programme of the Westhoek. The affected population of fishermen is too small to provide for specific support measures.

SUMMARY AND CONCLUSIONS

1 ANALYSIS OF THE SECTOR

The Belgian fishing fleet, which is mainly a demersal fleet, consists preponderantly of profitable trawlers. However, medium size trawlers, and particularly otter trawlers, show low profitability and are aged, and thus these vessels seem to be endangered most by the CFP.

Aquaculture conditions are unfavourable in Vlaanderen, which implies that there is no great future ahead of it.

Large processing firms are very dependent on imports for their raw materials and are very competitive. Small firms however show investment problems to overcome EC hygiene regulations.

The three fishing ports (Oostende, Zeebrugge and Nieuwpoort) have their specific characteristics. In all three, elements are present which could form the basis for a development strategy in the long term.

The sector of fish marketing is concentrated in Oostende and Zeebrugge and is largely integrated with fish processing. As a result, small wholesale traders encounter the same investment problems as small processing firms. The largest companies however are likely to expand.

The four ship yards building only fishing vessels have a dark future ahead of them. Diversification, working under subcontract for other ship yards or co-operation with foreign ship yards are all ways to get out of the crisis in this subsector.

2 IDENTIFICATION AND CHARACTERISATION OF THE ZONES HIGHLY DEPENDENT ON FISHERIES AND ANCILLARY ACTIVITIES

As most important criterion to identify zones highly dependent on fisheries and ancillary activities, the share of employment of fisheries, fish processing and ship yards in total employment has been calculated. In this way three zones that are highly dependent on fisheries and ancillary activities have been identified.

Zones and municipalities belonging to that zone	% in total employment	% in total added value
Zone 1	4	2½
Oostende	3½	2
Bredene	15½	9
Zone 2	1½	1½
Brugge	1½	1
Knokke-Heist	4½	5
Zone 3	4	1½
Nieuwpoort	4	1½

Populations that are likely to be most affected are fishermen, workers ashore (unloading, sorting,...) and ship yard personnel.

3 ANALYSIS OF THE SOCIO-ECONOMIC IMPACT OF THE COMMON FISHERY POLICY WITH A PARTICULAR EMPHASIS ON THE CONCERNED ZONES

The consequences of the CFP for the Belgian fishing fleet are that vessels have been modernised and no new vessels can be built anymore. The CFP has caused

no reduction of the fleet, but has contributed to the stabilisation of the number of vessels around 200 units. As a result total tonnage and engine power have increased and targets set by the EC have not been achieved. As no new vessels can be built, the number of jobs in ship yards decreased drastically, especially in Oostende (zone 1). Other ancillary activities (mainly processing) have not been affected as much. Considering the present situation and outlook no vessels will be withdrawn from the fleet. As a result total tonnage and engine power will increase further.

A reduction of the fleet as suggested by the EC would imply a reduction of total tonnage by 16% or a reduction of total engine power by 10%. Mostly old, less profitable vessels would have to be withdrawn, i.e. medium size trawlers, particularly otter trawlers. According to this scenario the number of vessels would decrease by 13 to 18%, the number of fishermen by 14 to 20%, considering a reduction in engine power and tonnage respectively. All three zones would relatively be affected more or less equally.

4 ASSESMENT OF RECONVERSION ACTIONS ALREADY CARRIED OUT AT A COMMUNITY LEVEL AND WHICH COULD SHOW ANALOGIES WITH THE RECONVERSION OF AFFECTED POPULATIONS

Mainly on the basis of Objective 2 the province of Limburg, the *arrondissement* of Turnhout and the Westhoek in the province of West-Vlaanderen are recognized by the EC as reconversion zones. Biggest part of the funds goes to Limburg that has known major difficulties since the closing down of the coal mines (**RECHAR**), resulting in a loss of 16,400 jobs.

The reconversion of the Westhoek implied an integrated action programme. Regional Development funds were spent on the development of industries, tourism projects, water supply, control and purification, training and infrastructure.

The programme **RENAVAL** is not applicable to the coastal region of Belgium.

5 OPPORTUNITIES TO CREATE JOBS, WITH A PRIORITY FOR THE CONCERNED ZONES, SUPPORT MEASURES

The situation is very different for each of the three zones.

Zone 1 (Oostende and Bredene)

The region Oostende-Blankenberge is an impuls (incentive) area, i.e. a problem area having socio-economic difficulties, but was not recognized by the EC. The economic activities in this area are too unilateral directed towards sectors without growth potentials or which are directly threatened. Fleet reductions would cause even greater problems for this area. Therefore the recognition of Bredene due to its high dependence on fisheries as an **Objective 6** area is suggested.

Zone 2 (Brugge and Knokke-Heist)

Zeebrugge is not only a fishing port, but mainly a trading port. It is a part of the municipality of Brugge and as a result the economic base for job creation is strong enough. Moreover, most young and dynamic vessel owners have their seat in Zeebrugge.

Zone 3 (Nieuwpoort)

The municipality of Nieuwpoort is part of the **Westhoek** and thus it can benefit from the integrated action programme of the Westhoek.

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