

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

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

**DANMARK**

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Directorate-General for Fisheries

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DANMARK

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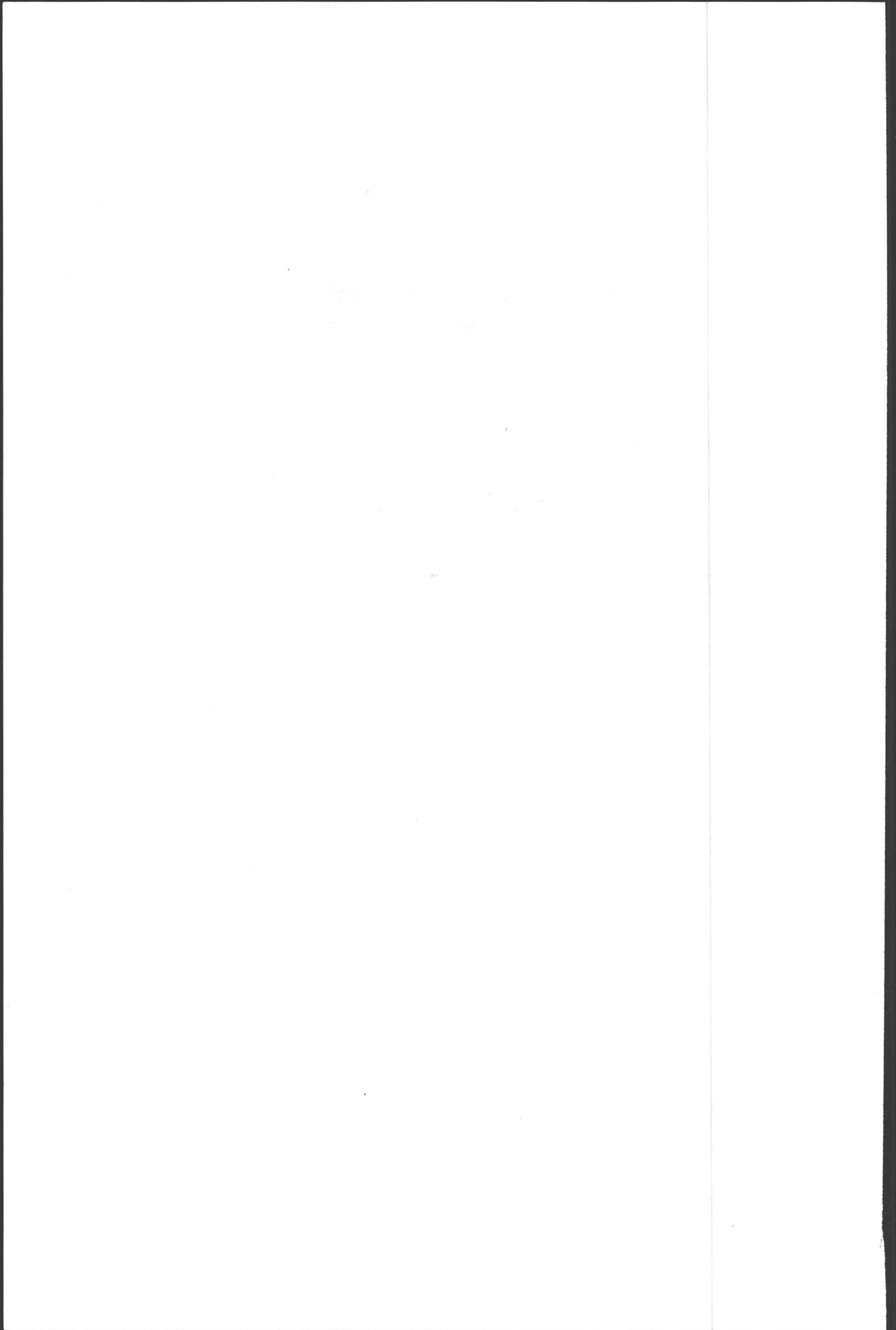
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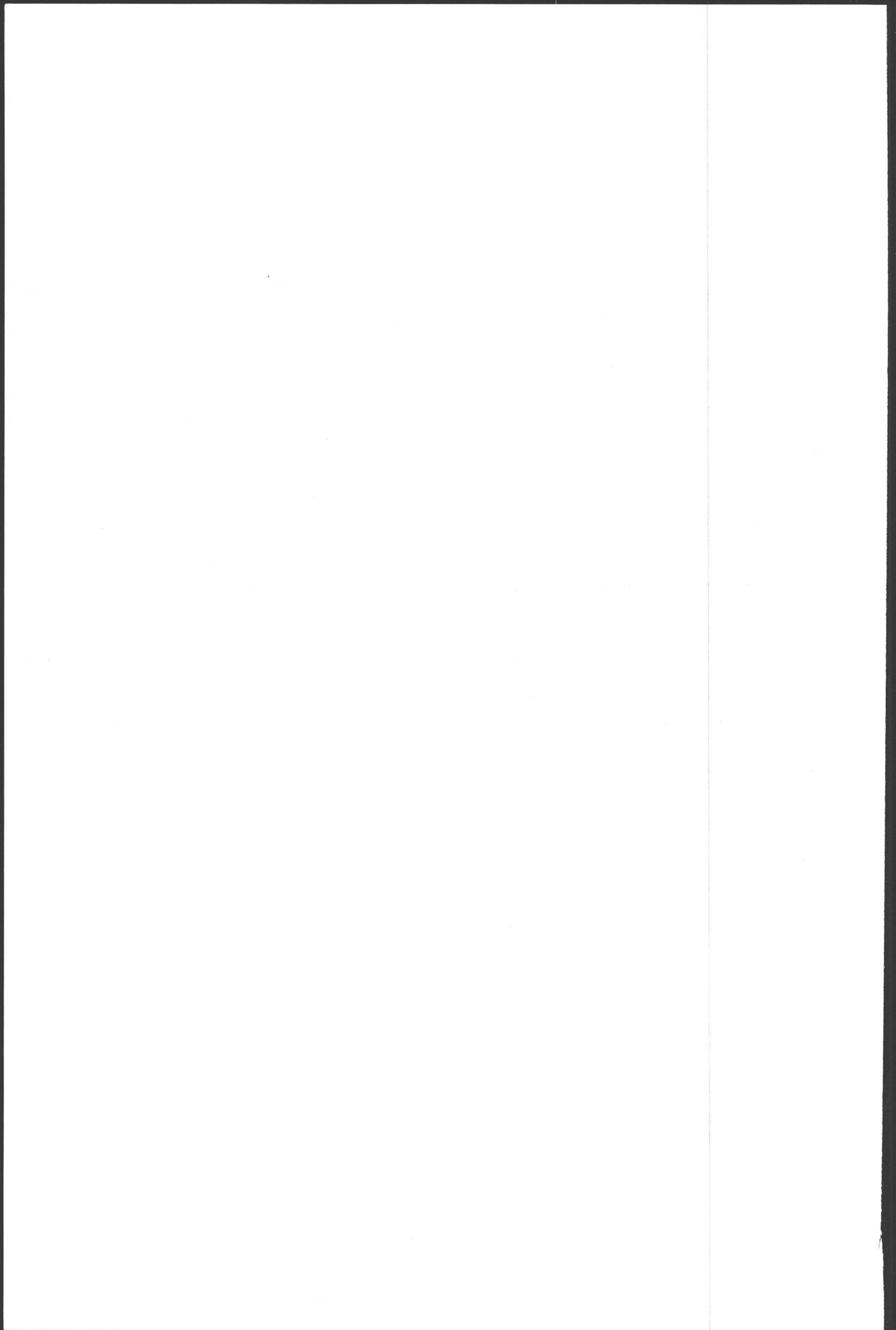
#### ABSTRACT

While it is generally recognized that there is a substantial surplus capacity in the fishing fleets of the EC Member countries, it is also acknowledged that further reductions in fishing capacity and further TAC/quota restrictions will have to be accompanied by interventions that support a process of reconversion in fishing dependent communities.

The present report seeks to identify suitable types of interventions. However, prior to this exercise, the report provides a description of the size and structure of the Danish fishing industry. Furthermore, the areas (zones) in Denmark particularly dependent on fisheries, are identified and these zones are described by means of socio-economic indicators. The zones defined are; the municipalities along the West coast of Jutland (zone 1), the municipalities along the North coast of Jutland (zone 2) and the whole of the island of Bornholm (zone 3).

The report also includes a description of the developments in the zones since the initiation of the Common Fisheries Policy; the description considers the socio-economic developments together with the developments of the fishing industries of the zones, and the description is related to the Common Fisheries Policy.

The report concludes by identifying suitable types of intervention with regard to a process of reconversion in fishing dependent communities. The identification is based partly on available information on various ERDF funded programmes that have been or that are being executed in Denmark and partly on interviews made with representatives from various institutions, administrations and organisations.



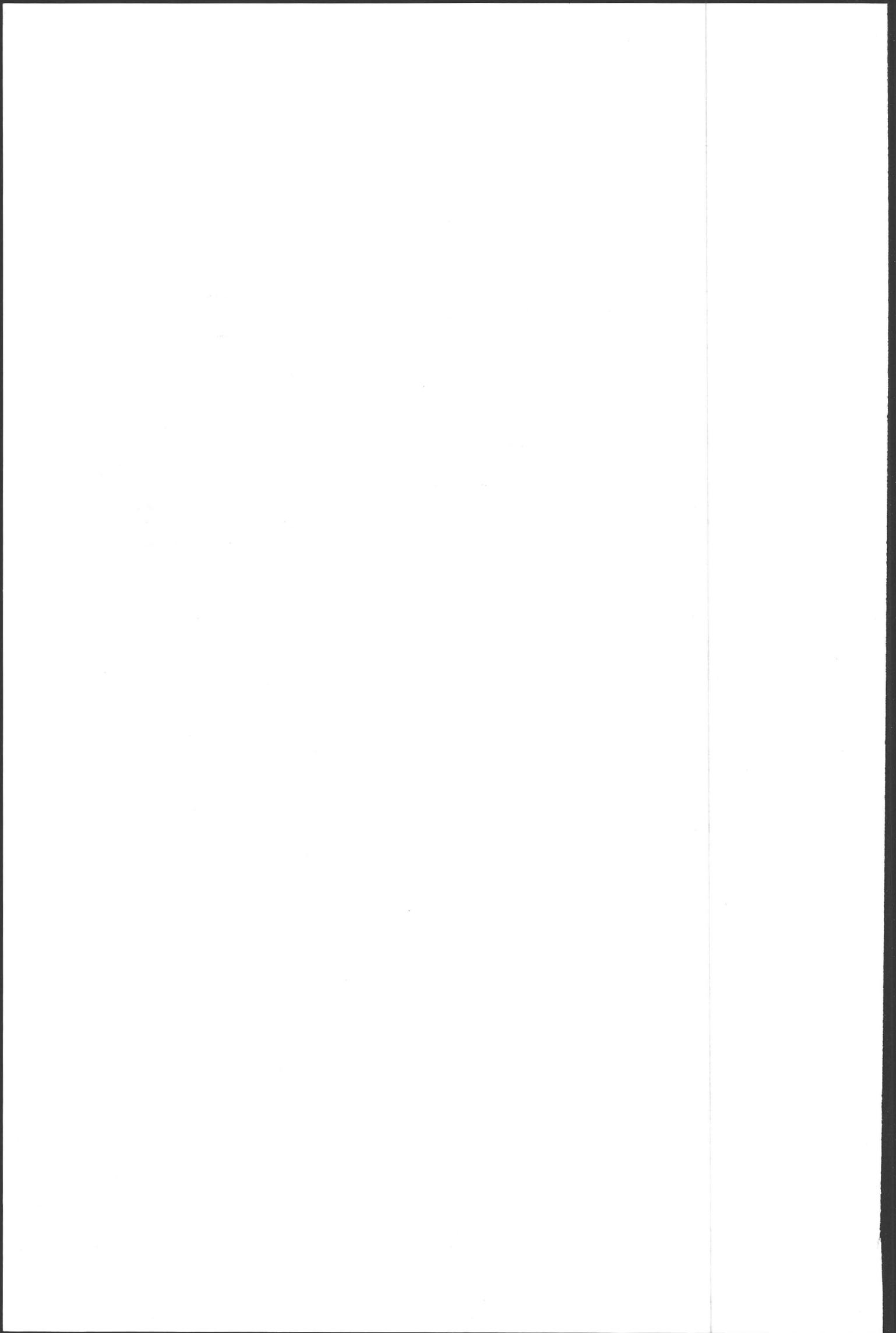
## A B S T R A C T

Si l'on admet généralement que les flottes de pêche des pays membres de la CE sont largement excédentaires, il est également reconnu que toute nouvelle réduction de la capacité de pêche d'une part et des TAC et quotas d'autre part devra être accompagnée de mesures visant à favoriser un processus de reconversion des communautés tributaires de la pêche.

Le présent rapport cherche à définir des types d'intervention appropriée. Il commence par une description de la dimension et de la structure du secteur danois de la pêche. Puis, il identifie les zones du Danemark particulièrement dépendantes de la pêche, qu'il décrit sur la base d'indicateurs socio-économiques : il s'agit des communes situées le long de la côte occidentale du Jutland (zone 1), de celles situées le long de la côte septentrionale du Jutland (zone 2) et de l'ensemble de l'île de Bornholm (zone 3).

Le rapport comprend également une description de l'évolution de la situation dans ces zones depuis le lancement de la politique commune de la pêche ainsi que de l'évolution socio-économique et des développements des industries de la pêche dans ces zones, en fonction de la politique commune de la pêche.

Le rapport se termine par une identification des types d'intervention permettant de mettre en oeuvre un processus de reconversion des communautés tributaires de la pêche. Cette identification repose en partie sur l'information afférente à différents programmes financés dans le cadre du FEDER, qui ont été mis en oeuvre ou sont en cours de réalisation au Danemark, et en partie sur des interviews de représentants de différentes institutions, administrations et organisations.



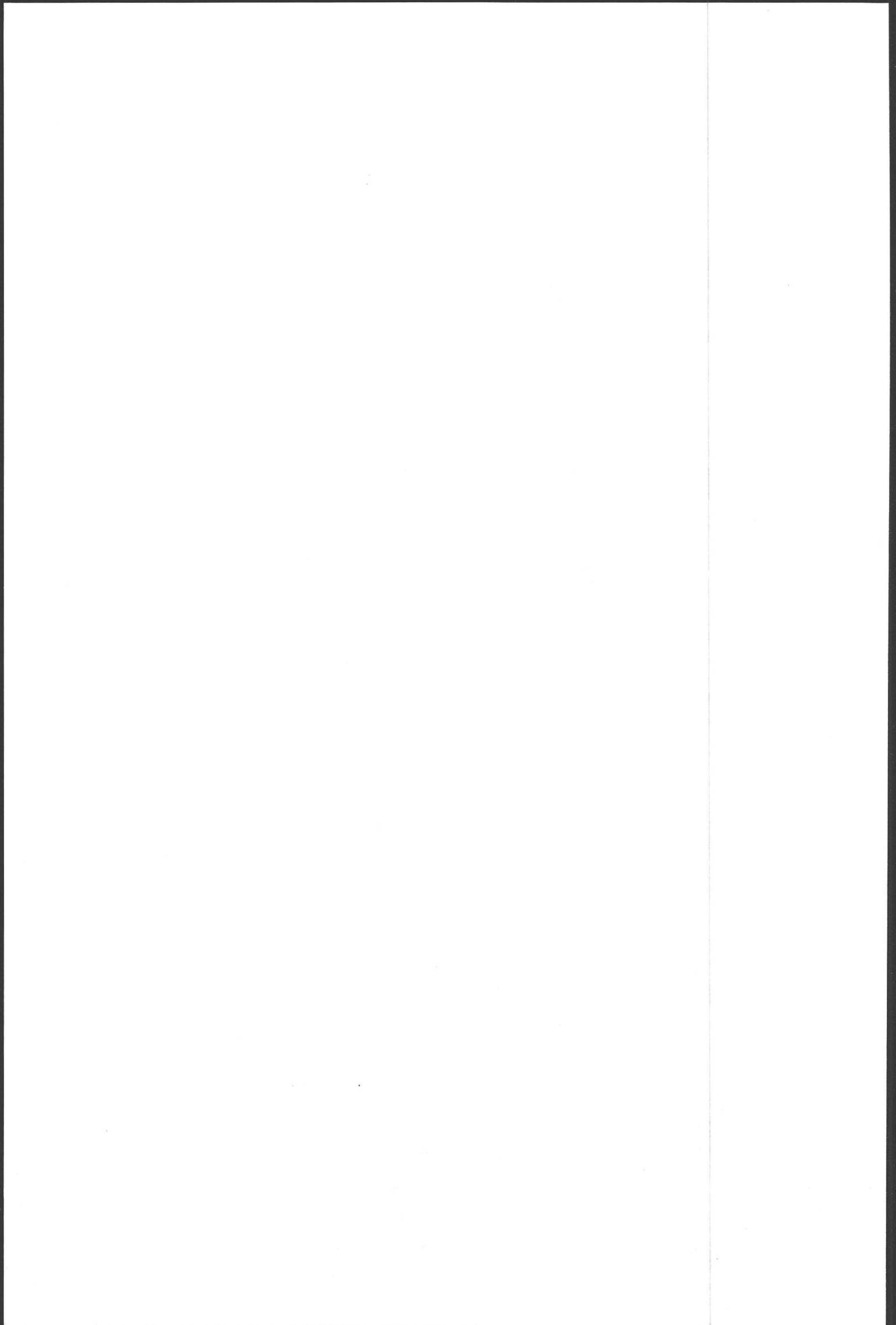
## A B S T R A C T

Det er almindelig anerkendt, at medlemsstaternes fiskerflåder har en betydelig overskudskapacitet, men det anerkendes også, at en yderligere reduktion af fiskerikapaciteten og yderligere TAC-/kvoterestriktioner må ledsages af interventioner, der bidrager til at gennemføre en omstillingsproces i samfund, der er afhængige af fiskeriet.

I den foreliggende rapport er der gjort forsøg på at indkredse hensigtsmæssige interventionsformer. Men forud herfor er der i rapporten givet en beskrivelse af det danske fiskerierhvervs omfang og struktur. Desuden er der foretaget en afgrænsning af de områder (zoner) i Danmark, som er særligt afhængige af fiskeri, og givet en beskrivelse af disse zoner ved hjælp af socioøkonomiske indikatorer. De fastlagte zoner er: kommunerne langs Jyllands vestkyst (zone 1), kommunerne langs Jyllands nordkyst (zone 2) og hele Bornholm (zone 3).

Rapporten omfatter også en beskrivelse af udviklingen i zonerne siden indførelsen af den fælles fiskeripolitik, dvs. den socioøkonomiske udvikling og udviklingen inden for zonerne fiskerierhverv set i relation til den fælles fiskeripolitik.

I rapportens afsluttende del indkredses hensigtsmæssige interventionsformer i forbindelse med omstillingen i samfund, der er afhængige af fiskeriet. Indkredsningen er dels baseret på de foreliggende oplysninger om forskellige EFRU-finansierede programmer, der er blevet gennemført eller er under gennemførelse i Danmark, dels på interviews med repræsentanter fra forskellige institutioner, administrationer og organisationer.



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## 0 SUMMARY AND CONCLUSION

It is generally recognized that there is a substantial overcapacity in the fishing fleet of the European Community, compared to the available fish stocks and taking conservation considerations into account. On the other hand, it is also acknowledged that further reductions in the fishing capacity may have to be accompanied by support measures, in order to counteract the possible negative socio-economic impacts on the fishing dependent communities, and in order to assist these communities in a process of reconversion.

The present report is an abstract of an extensive study, the results of which are fully described in the main confidential report. The latter contains the exhaustive and detailed quantitative analysis, which constitutes the background for the present report and it looks into past developments and the present state of affairs as well as possible future developments, and relates these issues to the developments in the Common Fisheries Policy.

The present report seeks to identify suitable measures with regard to the process of reconversion in fishing dependent communities and the report is organised as follows; Firstly, three zones in Denmark are identified as highly dependent on fisheries and a description is provided on their socio-economic status and of their fishing industry (the term "fishing industry" comprises all segments of the industry). Secondly, the socio-economic development and the development of the fishing industry in these three zones is described since the initiation of the Common Fisheries Policy. The report concludes by identifying suitable types of intervention that could support a process of reconversion in fishing dependent communities.

The three zones defined are; the coastal municipalities along the West coast of Jutland (zone 1), the coastal municipalities in the North of Jutland (zone 2) and the whole of the county of Bornholm (zone 3).

These zones are characterised by a job dependency on the fishing industry (i.e. the share of all jobs that is related to the fishing industry) of between 6.7% and 10.4%. The dependency in economic terms (i.e. the fishing industry's contribution to total value added) is estimated to be in the order of 8% to 11%. (Annex V provides a table on key socio-economic indicators and on key figures on the fishing industry in the three zones). Zone 3 is the most dependent zone and zone 1 is the least dependent. It ought to be noted however that the three zones comprise municipalities, in which the dependency rates are much higher; job-dependencies of between 25%-45% and economic dependency rates in the range of 30%-50% are seen in many cases.

The three zones comprise 63% of the Danish fishing vessels, which corresponds to 88% of the total tonnage and 74% of the fishermen in Denmark. 95% of all landings by Danish vessels are landed by vessels from these three zones and this corresponds to 85% of the value of total landings.

Trawlers are the most common type of vessels; in Denmark and in all three zones. Still, the Danish fleet also contains purse seiners, net fishing vessels and Danish seiners. On average, the vessels in zone 1 are the largest and the least labour-intensive and the vessels of zone 3 are

the smallest and the most labour-intensive.

Cod is the single most important species in the Danish fishing industry, but in terms of volume, the fisheries for industrial purposes account for the largest share of all catches; around 75%. The landings of mackerel and herring in particular are also substantial, but in general the Danish catches are composed by a wide variety of species, e.g. also plaice, flounder, haddock, turbot and sole together with blue mussels.

The fishing industry of zone 3 is characterised by the highest degree of monostructure; cod is of overwhelming importance to the fishing fleet as well as to the processing industry. Furthermore, zone 3 also differs from the other zones in the way that almost 50% of all landings come from foreign vessels; mostly vessels from other Baltic Sea countries. The fishing industries of zone 1 and zone 2 are more diversified, but the fishing industry of zone 1 relies more than any other area in Denmark on the fish meal industry and the fishing industry of zone 2 relies more than any of the other two zones on the catching and processing of herring and mackerel. Around 25% of the landings in zone 2 come from foreign vessels, e.g. Norwegian, whereas almost all landings in zone 1 are landings by Danish vessels.

Denmark has reached the objectives for reductions in the fishing capacity specified in the first Multiannual Guidance Programme and the most substantial reductions have taken place in zone 3. The fleet of Bornholm has declined by around 20% since 1985 and the number of fishermen has declined by even more in the same period. Still, all the three zones have experienced substantial reductions in the number of vessels, the total GRT and the number of fishermen in this period, whereas the fishing capacity increased prior to the initiation of the structural policy of the Common Fisheries Policy.

Most of the Danish quotas were utilised in 1990 and they have been almost fully utilised throughout the entire observed period. Therefore, any further reductions are likely to have a direct impact on the fishing fleet. The total Danish landings of fish for human consumption has declined by 10% from 1984 to 1990 (in terms of both volume and (deflated) value), and the Danish landings of cod were in 1990 only almost half of what they were in 1984. On the other hand, the total landings in Denmark, show a rather stable development which indicates that increases in foreign supplies have compensated for the decline in Danish landings. Hence, the supplies to the Danish processing industry have not declined in total and therefore, this segment of the fishing industry may not have been as affected by the reductions in quotas and catches as the fishing fleet.

In spite of the fact that the number of fishermen, total tonnage and the number of vessels have declined substantially, there are no indications (in terms of (deflated) value of landings per fisherman, -vessel, -GRT or per kg. of fish landed) that the fishing fleet were better off financially, in 1990, than in 1984; rather the opposite.

The description of the socio-economic developments in the zones from 1982 to 1989 indicates a decline in the employment in the fishing industry; particularly from 1985 to 1989 and a decline in the general level of economic activity in the same period. The observed fall in the level of ac-

tivity is most outspoken in zone 3, where also the most substantial reductions in the fishing fleet took place from 1986 to 1990.

The final chapter of the report seeks to identify suitable types of interventions with regard to a process of reconversion of fishing dependent communities in Denmark. Prior to this identification, the particular characteristics of fishing dependent communities in Denmark are established. These communities are often characterised by e.g. a strong industrial monostructure and by a peripheral geographical location.

The larger the possibilities for employment within the community and outside the community and the higher the degree of professional mobility, the easier the process of reconversion will be. Furthermore, it may also prove possible to reconvert the fishing industry itself, and this possibility ought to be considered as well.

On the basis of the identified common characteristics of most of the fishing dependent communities in Denmark and the experiences from relevant ERDF funded programmes that have recently been implemented in Denmark, the report assesses how the above four factors (job opportunities in the community and outside the community, the professional mobility and the preservation of jobs within the fishing industry) may be strengthened.

With regard to the creation of job opportunities within the local community, interventions are stressed that aim at supporting existing non-fishing industries (such as the formation of e.g. industrial networks and measures that increase the competitiveness of such enterprises) or at developing new industries. With regard to the latter, interventions are emphasised that encourage initiatives of local origin. The tourist industry is the most obvious alternative industry, and this industry has already been stressed in many programmes. However, the present report stresses the importance of not only considering the tourist industry, while at the same time, of course, not excluding it.

The creation of job opportunities outside the community may be achieved by various types of interventions depending on the industrial structure that prevails in those communities and the type of industries that are in a state of growth. However, it is important to bear in mind, that the jobs created should form a real alternative to those people, in the fishing dependent communities, that are likely to lose their jobs. This implies that account should be taken of the qualifications of these people, who are often unskilled or skilled workers/fishermen or, to a smaller extent, craftsmen.

It is also important to increase the professional mobility of those that are likely to be affected by unemployment for two reasons. Firstly, in order to qualify them for other types of employment and secondly, in order to increase the qualifications of the local workforce and thereby making the fishing dependent community a more attractive location for enterprises from other industries.

The present skills and know how in the fishing dependent zones are based on the fishing industry and therefore, interventions that aim at reconverting this industry, by increasing the degree of processing or by utilising hitherto underutilised species in the processing industry, should be considered as well. (In this respect, it should be remembered that the

fishing industry consists of i.a. the fish processing industry and the ancillary and supplying industries). Furthermore, initiatives that aim at an expansion of the markets for the fishing industry in e.g. the Eastern European countries could be supported as well together with efforts to increase exports of fisheries related technology and know-how.

Finally, attention should be drawn to the over-view table in annex 5 which provides key socio-economic indicators on the three zones defined.

## 1 INTRODUCTION

### 1.1 Background and Purpose of the Study.

It is widely recognized that there is a substantial overcapacity in the fishing fleet of the European Community, compared to the available stocks and taking conservation considerations into account. This is reflected in two recent reports; "Report of an Independent Group of Experts on Guidelines for the Preparation of Multiannual Guidance Programmes in Relation to the Fishing Fleet for the period, 1992 - 1996", and "Communication from the Commission to the Council and the European Parliament on the Common fisheries Policy". In the former report it is estimated that the overcapacity of the European fleet is of a magnitude of 40%. This draws attention to the need for reductions in the fishing capacity.

However, it is also acknowledged that reductions in the fishing capacity are likely to have negative socio-economic impacts on the fishing dependent areas in the Community and therefore measures may be needed in order to counteract these effects and to assist the areas in a process of reconversion.

The present report seeks to identify suitable measures with regard to a process of reconversion in fishing dependent areas in Denmark.

The study defines three zones in Denmark that are highly dependent on fisheries and provides a characteristic of these zones by means of socio-economic indicators and a description of the size and structure of their fishing industry.

The Common Fisheries Policy was agreed upon by Member States in 1983 and supplemented in 1986 by the structural policy. The socio-economic situation and development in the zones highly dependent on fisheries is analysed with a view to establishing the impact from the Common Fisheries Policy in the zones.

Prior to the identification of suitable measures in regard to the process of reconversion, the major strengths and weaknesses of the zones highly dependent on fisheries is identified. The definition of suitable measures draws from experiences from other programmes that have been or that are being executed in Denmark and that have been given ERDF grants.

The present report is an abstract of a larger report entitled "Socio-Economic Study of the Danish Fishery and Aquaculture Sector - Confidential Report".

### 1.2 The general Approach and Sources of Information

A statistical, descriptive approach has been applied in order to provide a picture of the present state of affairs in the Danish fishing industry and of the socio-economic situation in the zones highly dependent on fisheries. This approach has been supplemented with an analytical part that looks into the developments since the initiation of the Common Fisheries Policy and into the possible future effects from various assumed changes or further restrictions in the Common Fisheries Policy. In regard to the task of identifying suitable measures that can assist in a process of reconversion, a qualitative approach has been applied based on available information on and evaluations of measures applied hitherto and on interviews made with various representatives from the local communities that are likely to be affected by future restrictions in the fishing possibilities or fishing capacity.

The main statistical sources of information have been The Danish Ministry of Fisheries and The Statistical Bureau of Denmark ("Danmarks Statistik"), from whom we have requested various specific statistics. Furthermore, information has been provided by the Commission for the European Community on matters related to the fishing industry as well as to the ERDF funded programmes that have been executed in Denmark. On the latter subject, information provided by the municipalities, counties and ministries has also been applied. An important source of information, particularly with regard to identification of suitable future measures and the definition of strengths and weaknesses in areas highly dependent on fisheries, have been local representatives and representatives from various organisations whose members are likely to be severely affected in the case of a recession in the Danish fishing industry. Furthermore, the Masterplan study of the Danish fishing industry, carried out by COWIconsult in 1987, has been a source of information as well together with various other sources of literature, inc. the report on the processing industry prepared for the EC Commission by DIFTA/MATCON. Annex 2 lists the institutions, organisations and administrations interviewed.

### 1.3 Definitions

The word "fisherman" refers to skippers and their crew. Only those, whose main source of income is the activity of fishing is considered, although this need not imply a full time employment. The Danish Ministry of Fisheries maintains a register of all vessel owners and on the basis of this register and the vessel owners information on number of crew members, the number of fishermen in Denmark is established. It is required from vessel owners that 3/5 of their income should accrue from fishing. The register only includes owners of vessels of more than 5 GRT/GT. The Danish Statistical Bureau bases their calculation of the number of fishermen in Denmark on a computerisation, by the first week in November, of the number of people whose major income in that week accrued from fishing. Hence, the two calculations need not end up with the same figure. It has been chosen in this report to apply the Ministry's approach, whenever an analysis is, in general, based on information from this source, and the Statistical Bureau's figure, whenever an analysis is based on data provided from this source. This basically implies, that all sections that provides a description of the Danish fishing fleet applies the definition from the Ministry and all other sections are based on information from the Statistical Bureau, i.e. the socio-economic descriptions and the scenerio analyses.

The word "fishing industry" means the fishing industry in a broad sense, i.e. the fishing fleet, the ancillary and supplying industries, the fish processing industry, and wholesale. Thus, this term includes every segment that is somehow related to fisheries. Still, it should be noted, that aquaculture is described in section 3.3 and otherwise, this segment is not considered.

"Processing industry" refers to any industry that is employed in the processing of fish for human consumption and the "fish meal" industry refers to industries that processes fish for industrial use and waste. The term "fish processing industry" includes both segments.

"MGP" is an abbreviation for the "MultiAnnual Guidance Programme" and "CFP" for the "Common Fisheries Policy".

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The figures on employment, which are applied in the socio-economic analyses

of this study, have been calculated by the Danish Statistical Bureau by the end of November and for the three the years considered in this study; 1982, 1985 and 1989.

Finally, it should be mentioned that statistics on the fishing fleet in this report only refer to vessels of more than 5 GRT/GT and that the Danish Ministry is, at present, in a process of converting all statistics to GT measures and hence the statistics for the various years may not be in full correspondence.

#### 1.4 Structure of this Report

Chapter 2 identifies the zones in Denmark that are highly dependent on fisheries and provides a socio-economic description of the state of affairs in these zones in 1989.

Chapter 3 provides a picture of the structure and the size of the Danish fishing fleet in 1990 and the zonal fleets. Furthermore, the landings and quotas are described in that section and a brief assessment of the profitability of the Danish fishing fleet is carried out. In addition, the Danish fish processing industry, the aquaculture and the ancillary and supplying industries are described.

Chapter 4 describes major elements of the CFP that may have had an impact on the Danish fishing industry and thereby on the socio-economic situation in the fishing dependent zones. This description is followed by a description of the socio-economic developments during the last decade in the three zones defined and assesses the impact from the CFP on the observed developments.

Chapter 5 identifies suitable types of measures in regard to a future process of reconversion in the fishing dependent communities. This identification is based on the experiences from types of measures applied hitherto and the identification of important characteristics of fishing dependent communities. Furthermore, four factors of importance to a successful reconversion are identified. The provision of job opportunities in the local community and outside the local community, an increased professional mobility of the persons likely to be affected and the preservation of jobs within the fishing industry. Various types of measures are thereafter assessed with regard to their ability to assure and strengthen the presence of these four factors.

## 2 IDENTIFICATION AND CHARACTERISATION OF THE ZONES HIGHLY DEPENDENT ON FISHERIES

The purpose of this section is to identify and to characterize the zones in Denmark that are highly dependent on fisheries. Firstly, the zones are defined and secondly, the chapter characterizes the zones defined by means of socio-economic indicators.

### 2.1 Identification of Zones that are highly dependent on Fisheries

The following considerations have been taken into account when defining the zones:

- the zones should comprise more than just one fishing-dependent municipality (more than one fishing port).
- each of the zones should be geographically unbroken.
- all the most fishing dependent municipalities should be included in the

#### zones

- the defined zones should assure as high a degree of homogeneity within each zone while still maintaining the transparency of the study.

Figure 1 overleaf illustrates the three zones that are defined to be highly dependent on fisheries on the basis of the above considerations (annex 1 lists the municipalities in each of the zones). In 1990, the three zones comprised 63% of the vessels in Denmark, 88% of the total tonnage of the Danish fishing fleet and 74% of the fishermen in Denmark. 95% of all the tonnes landed by Danish vessels were landed by vessels from one of the three zones and this corresponds to 85% of the value of these landings. The geographical definition of the zones reflects very much the traditional view of the structure of the Danish fishing industry.

Zone 1 (Western Jutland) comprise all coastal municipalities on the West coast of Jutland from the border to Germany and along the coast until (inc.) Thyborøn-Harboør. This zone receives the highest share of landings for industrial purposes, as the three major harbours in the zone; Esbjerg, Hvide Sande and Thyborøn are characterized by it that more than 80% of the volume of landings in the harbours consist of landings of species for industrial use. Zone 1 comprises 25% of the vessels in Denmark corresponding to 45% of the total tonnage. Fishermen from zone 1 land 64% of the total Danish landings which corresponds to 40% of the value of the landings.

Zone 2 (Northern Jutland) comprise all coastal municipalities along the North coast of Jutland; From the municipality of Sydthy and until (inc.) Sæby. Furthermore, Læsø is also included in zone 2. This zone is somewhat dependent on landings for industrial purposes, but to a smaller extent than zone 1. For the major harbours of this zone (Hansthalm, Hirtshals and Skagen) around 50% of the landings consists of species for industrial use. Zone 2 comprises 29% of the vessels in Denmark, which corresponds to 34% of the tonnage. Fishermen from zone 2 land 28% of all Danish landings (35% of the value).

Zone 3 (Bornholm) includes the whole of the island of Bornholm. This zone is highly dependent on the cod fishery in the Baltic Sea. Around 10% of the Danish vessels are registered on Bornholm and 9% of the tonnage. Fishermen from Bornholm land less than 3% of the total Danish landings but still, this corresponds to almost 10% of the value.

Outside the three zones, fishery-dependent municipalities and communities of course exist. However, they have been excluded here due to the following considerations:

- They are geographically spread over the rest of Denmark.
- The three fishing dependent zones defined include all the most fishing dependent municipalities, in terms of job dependency and economic dependency as defined in section 2.2.1, in Denmark and cover most of the Danish fishing industry.
- The dependency in the excluded small communities may be high in relative terms, but the absolute number of jobs is, in many cases, quite small and very often, the dependency on fisheries is concentrated to the small fishing village only.

Figure 1. Zones in Denmark highly dependent on Fisheries



## 2.2 Analysis and Characteristic of the Zones highly dependent on Fisheries

This section will characterize the zones that are highly dependent on fisheries and furthermore, the section will also provide a picture of the particularly fishing-dependent municipalities in the zones.

The socio-economic indicators applied will provide information on the degree of dependency on fisheries, the persons working in the fishing industry, the industrial structure in the fishery dependent zones and the size of unemployment and income in the zones.

Unless stated otherwise, all the following figures apply for 1989, as this is the latest year for which it is possible to obtain all the information needed.

Zone 1 and Zone 2 each comprise around 200,000 inhabitants and the population of zone 3 is around 45,000 people. In the most fishing dependent municipalities of the three zones a high share of the population is below the age of 14. This is particularly the case for zone 1 and zone 2 where 18.5% of the population belong into this group, whereas the share is only 17% for Denmark in general. However, the share of the population that are above the age of 65 is smaller in the most fishing dependent municipalities of these two zones than in Denmark in general. The explanation may be that many of these harbours have experienced a rapid development during the last 30-40 years. On the other hand, zone 3 has a much larger share of older people than Denmark in general, 18.2% of the population on Bornholm is above the age of 65 whereas only 15.6% of the Danish population is above that age. (1991 figures).

### 2.2.1 The Dependency on the fishing Industry

Table II overleaf provides a picture on the degree of dependency on the fishing industry; - In the three zones, - in those municipalities of the three zones that are particularly dependent on fisheries and - in Denmark in general. It should be borne in mind, that table I only includes the first round employment effects; the derived effects on employment (income effects) are ignored in the table and hence the calculated degrees of dependencies are below actual dependency on the fishing industry.

The employment in the fishing industry is calculated as the sum of the employment in the fleet and aquaculture, the processing industry, the fishmeal industry and the whole sale industry. This sum has been upgraded by a factor of 1/3 in order to include the ancillary and supplying industries. This upgrading factor is further explained in section 3.4.

The economic dependency is measured as the estimated gross value added at factor costs in the fishing industry in percentage of the total gross value added at factor costs (hereafter gross value added). Table I overleaf illustrate the calculated gross value added that have been applied in these estimations. The figures stated in the table have been calculated using the Danish National Accounts which provides figures on the number of employees in the sectors stated and on the total gross value added produced for the sectors.

When calculating, for a specific zone, the gross value added produced by the fishing industry, the gross value added produced in each of the sectors of the fishing industry in the zone is estimated and they are added up. For the fishing fleet, processing industry and fish meal industry, the number of employees within the sector is multiplied by the corresponding figure for gross value

added per employee. For fish whole-sale, the gross value added per employee is assumed to correspond to the one that can be calculated for the total whole sale industry in Denmark, which is the one stated in table I. Finally, the gross value added per employee in ancillary and supplying services is assumed to correspond to the gross value added/employee for the whole Danish economy.

Table I. Gross Value Added at Factor Costs/employee. '000 DKK/year. Figures are not deflated

	1982	1985	1987
Fishing fleet and Aquaculture	284.9	289.6	298.4
Processing Industry	128.7	147.5	172.9
Fish Meal Industry	292.2	427.5	495.7
Whole Sale in general	256.5	369.9	381.3
Total for all sectors of the Economy	164.2	205.6	223.6

Table II. Job Dependency and economic Dependency

	Total number of jobs	Number of jobs in the fishing industry	job dependency (share of all jobs), %	Economic dependency (share of production value), %
Zone 1	101,845	6,800	6.7	8.0
Esbjerg	46,791	2,960	6.3	7.0
Holmsland	3,069	1,160	37.8	50.2
Thyborøn-Harboør	3,306	1,120	33.9	45.7
Subtotal (the above 3 municipalities)	53,166	5,240	9.9	11.9
Subtotal (Holmsland and Thyborøn-Harboør)	6,375	2,280	35.8	47.9
Zone 2	102,174	8,420	8.2	9.2
Hanstholm	3,887	1,800	46.4	52.5
Hirtshals	7,664	2,240	29.2	30.7
Skagen	7,272	1,990	27.3	32.1
Læsø	1,067	320	30.4	40.5
Subtotal (The above 4 municipalities)	19,890	6,350	31.9	36.0
Zone 3	21,862	2,280	10.4	11.0
Neksø	4,176	1,180	28.2	31.6
Zone 1,2 and 3	226,179	17,500	7.7	8.9
Denmark	2,673,832	30,200	1.1	1.2

The economic dependency is estimated applying the above described total gross value added produced by the fishing industry in the zone. This figure is divided by the total gross value added of the zone; total number of employees

multiplied by the gross value added per employee in the whole economy.

Figures have not been available for years later than 1987 and therefore, the calculated gross value added at factor costs per employee for 1987 has been applied when calculating figures for 1989. Of course, these figures have been corrected for inflation.

The dependency in job terms in the three zones lies within a range of 6.7% and 10.4% and the economic dependency is between 8% and 11%. 7.7% of all jobs in the three zones are jobs in the fishing industry and the fishing industry of the three zones accounts for almost 9% of total gross value added at factor costs in the zones. These figures should be held up against a dependency on the fishing industry for Denmark in general of only a little more than 1%.

While the above serves to illustrate the relatively high degrees of dependency on the fishing industry in the three zones, attention should also be paid to the fact that 7 of the 8 municipalities emphasized in the table are characterized by a much higher degrees of dependency. The job dependency in these 7 municipalities lies within the range of 27% to 46% and the economic dependency is between 30% and 52.5%. The municipalities emphasized in the table are thus characterized by very high degrees of dependency on the fishing industry, with the sole exception of Esbjerg. This municipality has, however, been emphasized in the table due to it that Esbjerg is the municipality in Denmark with the largest number of jobs in the fishing industry.

The higher levels of dependency in certain municipalities in the three zones is also illustrated in the subtotals shown in the table. The three emphasized municipalities in zone 1 is seen to account for 77% of all jobs in the fishing industry in the zone and 10% of the employment in these three municipalities is related to the fishing industry. Furthermore, it can be seen that the municipalities of Holmsland and Thyborøn-Harboør alone accounts for one third of jobs in the fishing industry in the zone whereas only 6% of all jobs in zone 1 are located in these two municipalities.

The four emphasized municipalities of zone 2 account for 75% of all jobs in the zone related to the fishing industry, but only for 20% of all jobs in the zone. Similar observations may be made for zone 3 where around half of all jobs in the fishing industry of zone 3 is located in the municipality of Neksø.

#### 2.2.2 A Characteristic of those Employed in the Fishing Industry

Table III overleaf illustrates the composition of those working in the fishing industry, according to type of employment. (It has not been possible to obtain information on the individual zones). It appears from the table that more than 50% of those working in the three segments of the fishing industry stated in the table are employed as unskilled workers and furthermore, it should be noted that the majority of vessel owners (and crew members) possess little or no formal education/vocational training, apart from a masters certificate allowing for the navigation of smaller vessels. Out of all jobs in Denmark, between 25-30% are employed as unskilled workers and hence the fishing industry is characterized by a much higher fraction of unskilled workers.

Almost all fishermen are male and they also dominate the fish meal industry; 85% of those employed in this industry are male. In the processing industry, on the other hand, 59% of those employed are female.

Table III. Type of Employment in the Fishing Industry

Segment	Owners	Help-mates	Administrative staff etc.	Skilled workers	Unskilled workers	Total
Fishing	42%	7%	2%		49%	100%
Processing industry			13%	8%	79%	100%
Fishmeal industry	2%		32%	11%	55%	100%

### 2.2.3 The industrial Structure in the fishing dependent Zones

Table IV overleaf shows the industrial structure in terms of distribution of employment in the zones, in the emphasized municipalities and in Denmark in general. When comparing the three zones taken as one with Denmark in general, one notes the higher share of employment in the primary industries (i.e. agriculture, fisheries and forestry) and in manufacturing in the three zones and the lower share of employment in private and public service sector.

However, zone 3 differs from this general picture as the relative size of the public service sector exceeds that of Denmark in general. This is mainly due to the fact that the county of Bornholm has a rather small population and still maintains municipality administrations as well as a county administration. The share of employment in the private service sector also exceeds the shares in the other two zones, but in this respect it should be noted that some of this employment is related to the fishing industry. The magnitude of the public and private service sectors is the major reason why the primary industries and manufacturing account for a smaller share of the employment in zone 3 than in the other two zones.

It also appears from the table that the more dependent a municipality is on fisheries, the lower is the share of employment in public services. Furthermore, it should be noted that for the municipalities highly dependent on fisheries, most of the manufacturing industry, if not all, is related to fisheries. Apart from zone 2, it is also the case that the private service sector is smaller, the more dependent the municipality is on fisheries. Finally, it should be mentioned that the table clearly shows that some of the municipalities that are emphasised (Holmsland, Skagen and Neksø) have a very high level of attraction to tourists.

Table IV. The industrial Structure. (Percentage distribution of employment)

	Primary Industries	Manufacturing	Construction	Trade, hotels etc.	Private services	Public services
Zone 1	11.3	23.2	6.3	15.4	11.9	32.0
Esbjerg	3.7	26.8	6.8	15.5	15.9	31.2
Holmsland	28.7	15.9	5.8	24.8	6.5	18.3
Thyborøn-Harboør	20.2	38.4	3.2	12.8	8.0	17.5
Zone 2	12.1	22.7	6.3	16.3	10.8	31.8
Hansthalm	16.0	28.4	7.4	16.2	11.4	20.7
Hirtshals	17.9	25.5	6.2	16.1	11.4	22.9
Skagen	11.1	20.5	4.9	24.4	12.8	26.3
Læsø	26.1	8.8	4.2	20.1	12.1	28.7
Zone 3	7.6	18.3	6.9	16.7	14.6	35.9
Neksø	21.1	19.3	6.8	18.5	9.4	25.0
Zone 1, 2 and 3	11.7	22.4	6.4	15.9	11.3	32.2
Denmark	5.7	19.8	6.4	16.3	16.0	35.8

#### 2.2.4 Levels of Income

Table V below illustrates the annual average levels of income of the population in the zones and in Denmark. The table states the average annual per capita gross income for all persons above the age of 14. All three zones are characterized by income levels below that for Denmark in general. However, it also appears from the table that the most fishery dependent municipalities within the zones are characterized by levels of income above that for the zone in which they belong; and in many cases, the level of income in these municipalities actually exceed the level for Denmark in general. This may be due to the fact that the wages in the fish processing industry are, on average, higher than the wages in other types of unskilled employment. Furthermore, the fact that the emphasized municipalities of zone 1 and zone 2 has a lower share of the population above the age of 65 is probably also part of the explanation together with the lower unemployment rates (cf. section 2.2.5 below).

Table V. Annual Level of Income in the Zones highly dependent on Fisheries

	1,000 DKK
Zone 1	140.0
Esbjerg	141.6
Holmsland	163.2
Thyborøn-Harboør	160.8
Zone 2	135.2
Hansthalm	151.2
Hirtshals	140.8
Skagen	148.0
Læsø	123.2
Zone 3	132.0
Neksø	139.2
Denmark	145.6

### 2.2.5 Unemployment

It appears from table VI below that the level of unemployment in the three zones exceed the level for Denmark in general. However, it should be mentioned that the rates in the previously emphasized municipalities are, in many cases, below the level for Denmark. Zone 2 reaches the highest level of unemployment, and this high level is of course also due to the general state of industrial recession in this area, and furthermore, this region has always been characterized by high levels of unemployment compared to the rest of Denmark. Furthermore, the table illustrates that in Northern Jutland, the average duration of a period of unemployment exceeds that for Denmark in general, whereas the opposite is the case for the other two zones.

Table VI. Unemployment. 1990

	Rate of unemployment in pct.	Number of persons unemployed	Average duration of unemployment % of the year
Zone 1	9.7	10,058	33.3
Zone 2	12.4	13,385	37.0
Zone 3	10.0	2,342	33.7
Zone 1,2 and 3	11.0	25,786	35.2
Denmark	9.7	272,000	36.9

### 2.3 Summary

This chapter has provided a characterisation of the zones highly dependent on fisheries. The dependency appears to be in the magnitude of 8-11% in economic terms. The dependency in terms of jobs lies within a range of 6.5% and 11%. Still, it has been noted too that there are municipalities in the zones in which the degree of dependency is much higher; a job-dependency between 30% and 45% and an economic dependency ranging between 35% and 53%.

The chapter has also established that the primary industries account for a higher share of total employment in the fishery dependent zones than in Denmark in general and that the private and public services, on the other hand, account for less.

It has also been illustrated that the level of education and vocational training is low in the fishing industry, when comparing to Denmark as a whole.

The level of per capita income in the zones is lower than in Denmark in general. However, the municipalities particularly highly dependent on fisheries diverts from this picture, as they are very often characterized by rather high levels of income. This may partly be due to it that the wages in the fish processing industry and in many of the ancillary and supplying industries are rather high, compared to other types of unskilled/skilled employment and the fact that a lower share of the population in the emphasized municipalities of zone 1 and zone 2 is above the age of 65 and to the fact that these municipalities are characterized by lower levels of unemployment.

The unemployment rates of the zones exceed the rate for Denmark as a whole. Still, for the fishery dependent municipalities, the rates are below those for the zone as a whole. Part of the explanation may be that a decline in the level of activity in the fish processing industry cannot be observed hitherto (i.e. until 1989); rather the opposite.

### 3 THE DANISH FISHING INDUSTRY. 1990

This chapter provides an overview of the state of the Danish fishing industry in 1990. Firstly, the fishing fleet is described, followed by the processing industry, the aquaculture sector and the ancillary and supplying industries. All figures applied refer to 1990.

#### 3.1 The fishing Fleet

Table VII overleaf provides an overview of the state of the Danish fishing fleet. The Danish fleet consists of 2832 vessels with a total tonnage of 118,000 GRT/GT and 6956 fishermen. As it can be deduced from the table the three zones comprise 75% of the fishermen in Denmark, 88% of the total tonnage of the Danish fleet and 63% of the vessels. A little less than 10% of the Danish fleet is located on Bornholm and a much larger and almost equal share in zone 1 respectively zone 2. Most of the vessels that belong to other areas in Denmark than the three zones are coastal vessels, i.e. smaller vessels.

The Danish fleet can be seen from table 1 to be dominated by trawlers, albeit the variety, concerning types of vessels, of the Danish fleet is noteworthy. The dominance of trawlers becomes even more outspoken in terms of tonnage, as the other two dominant vessel types; coastal fleet and netfishing vessels, are much smaller types of vessels.

Almost 67% of all landings in Denmark (in terms of quantity landed) are used by the fish meal industry and 71% of all Danish landings are supplies to this industry. However, landings of species for human consumption still account for more than 80% of the value of landings by Danish vessels. The most important species in value terms are cod and other roundfish followed by plaice and other flatfish. The low-value species herring and mackerel make up 35.6% of all Danish landings. Foreign vessels account for almost 12% of the volume of landings in Denmark.

From table 1 it appears that the trawlers make up the largest share of the fleet of zone 1, followed by net fishing vessels and Danish seiners. The dominance of trawlers will be even more outspoken in terms of GRT as the majority of the very big trawlers in Denmark are located in zone 1. The vessels from this region are the least labour intensive vessels and they are, on average, larger than those of the rest of Denmark.

Nearly 90% of the landings into this zone are used by the fish meal industry and almost 85% of all landings by vessels from this zone consist of supplies to this industry. These figures underline the importance of this type of fishery to zone 1. However, it also appears from table 1 that almost 70% of the value of all landings by vessels from the zone is made up by species for human consumption (excl. mussels). The most important of these are cod fish (as mussels are low-value species). The low-value species herring and mackerel make up almost the same share of the volume landed. Plaice is also a species of some importance to this region.

The zone receives only a negligible volume of foreign landings, which is partly due to its more unfavourable geographical location than e.g. the harbours in zone 2.

Trawlers also dominate the picture in zone 2. Danish seiners and net fishing vessels are also of importance in this zone, whereas the coastal fleet makes up a much smaller share than in zone 1. All the purse seiners in Denmark (11) are

Table VII. An Overview of the Danish fishing Fleet and the fishing Fleets in the fishing dependent Zones.

	Denmark	Zone 1	Zone 2	Zone 3
No. of fishermen	6,956	2,345	2,157	669
GRT/GT	118,801	53,036	40,634	10,428
No. of vessels	2,832	699	812	273
GRT/vessel	41.9	75.9	50.0	38.2
fishermen/100 GRT	5.9	4.4	5.3	6.4
Composition of the fleet, %				
- coastal	22.0	6.3	15.8	22.0
- purse seiners	0.4	-	1.4	-
- trawlers	39.6	41.2	54.7	46.2
- Danish seiners	8.8	22.7	7.5	-
- net fishing	26.6	27.5	18.6	31.5
- others	2.6	2.3	2.0	0.3
- total	100.0	100.0	100.0	100.0
landings in the zone/Denmark 1000 tonnes	1,644	883	593	88
landings in the zone/Denmark, mill. DKK	4,105	1,305	1,614	762
share (tonnes): industrial use	66.7	88.8	48.0	3.6
share (tonnes): foreign landings	11.6	0.7	23.7	48.5
landings for human consumption by vessels from the region/zone, 1000 tonnes	413.3	151.0	174.7	32.4
- of which, %				
- cod, haddock and saithe	24.4	20.2	15.3	76.8
- plaice, flounder and dab	10.5	16.7	4.5	2.5
- herring and mackerel	35.6	19.2	51.8	7.4
- lobster and prawn	2.2	0.3	3.7	3.7
- mussels	22.6	36.2	18.9	-
Landings for industrial use by vessels from the region/zone, share of total landings, %	71.0	83.4	56.4	11.6
landings for human consumption (excl mussels) by vessels from the region/zone				
- mill DKK	2,861	954,2	1,067.0	334.2
- DKK/kg	8.9	9.9	7.5	10.3
- share of total landings,%	82.1	68.6	86.6	98.8

registered in zone 2 (Hirtshals).

Almost half of the landings into this zone are used by the fish meal industry and 56% of the landings by vessels from this zone consists of supplies to this industry as well. More than 85% of the total value of the landings by vessels from this zone is made up by species for human consumption and in this regard codfish together with herring and mackerel dominate the picture. Codfish constitute 15% of the total volume landed and herring and mackerel more than half. The magnitude of the latter figure is partly explained by the presence of the large purse seiners in this zone. These vessels only enter the herring and mackerel fisheries, and to a smaller extent, the sand eel fishery.

Foreign over-sea supplies constitute a little less than 25% of total volume of landings into this zone.

The fleet of zone 3 is composed of trawlers, net fishing vessels and coastal vessels, where the former dominates the picture, albeit the dominance is not as outspoken as in the other two zones. The vessels from this zone are the most labour intensive and the smallest of the three zones. Apart from a big trawler of 3,090 GRT, which mainly enters into the prawn fisheries in waters around Greenland, the whole of the fleet of Bornholm is to a large extent dependent on the cod fishery in the Baltic Sea. Thus, 77% of the landings by the fleet of zone 3 is made up by codfish and these vessels obtain the highest average price for their landings. Zone 3 relies heavily on foreign landings as around 50% of the landings into this region are landed by foreign vessels and hence the processing industry is heavily dependent on foreign supplies.

Table VIII below illustrates the Danish quotas of 1990 and the corresponding utilisation of these quotas. As can be seen, most of the Danish quotas are almost fully utilized with the sole exception of whiting and, to a smaller extent, saithe.

Table VIII also includes an illustration of how much of e.g. the total catches of cod by Danish fishermen was caught in the North Sea and how much was caught in the Baltic Sea (ICES 3BCD). The Baltic Sea and the North Sea are the major fishing waters for the Danish fishing fleet.

In addition to the table, it should be mentioned that 75% of all Danish catches are caught in the North Sea and around 5% in the Baltic Sea (The corresponding shares in terms of value are; 45% and 15%). It thus follows that the North Sea is of utmost importance to the Danish fishing fleet and more than 50% of the catches of the non-quota species Norway pout, sprat and blue mussels are caught in the North Sea and almost all of the catches of sand eel.

Table VIII. The Danish Quotas and Quota Utilisation, 1990

	Quota 1000 tonnes	Quota util- isa- tion, %	% of total catch taken in the North Sea	% of total catch taken in the Baltic Sea
Cod	96.7	96	22	51
Haddock	9.9	97	34	-
Saithe	6.3	75	72	-
whiting	22.3	11	50	1
Hake	2.6	98	45	-
Plaice	40.8	91	71	0
Sole	1.8	108	70	0
Mackerel	28.5	104	75	-
Herring	134.0	98	52	6
Salmon	0.7	78	0	77

However, it can be seen from the table that more than 50% of the cod catches are caught in the Baltic Sea, and in this regard the importance of cod to the

Danish fishing industry should be stressed.

The Masterplan study referred to in chapter 1 included a study on the profitability of the Danish fishing fleet in 1986, 1987 and 1988. The study was highly disaggregated and comprehensive and the major result was that cod fishing in the Baltic Sea was, in the years considered (1986-1988), crucial to the Danish fleet in the sense that e.g. the participation in this fishery improved the financial result of vessels participating in other fisheries. Hence, the decreasing quotas for this fishery may be assumed to have severely affected the financial situation of many Danish vessels.

Furthermore, the study confirmed that the Danish fishing fleet exhibits a high degree of flexibility; many Danish vessels participate in several fisheries through a year and very often, the fisheries, in which a particular vessel participates, in one year are not similar to those of another year. The study also illustrated that profits may vary a lot over the years. However, a decline in profits is reflected by fewer vessels participating in that particular fishery.

The study illustrated that there are substantial variations in profits according to the type and size of vessels; the small trawlers, the purse seiners and the net fishing vessels performed rather well whereas trawlers of between 40 and 150 GRT obtained quite unsatisfactory results (in the years considered; 1986-1988). It is believed that these observations are, to a large extent, still valid.

### 3.2 The Fish processing Industry

This section will provide an overview of the state of the Danish fish processing industry in 1989 (the latest year for which data was available). Firstly, a description at a national level is provided followed by a description of the three zones; number of enterprises and employees.

#### 3.2.1 The supply of raw Materials

From table IX below it appears that the Danish processing industry relies heavily on foreign supplies. In total, almost half of the supplies are foreign and more than 60% of the supplies of cod, which is a very important species to the Danish processing industry are imported. The Danish fish meal industry receives only a small fraction of foreign supplies.

Table IX Supplies (Danish landings + imports - exports) to the Danish processing industry.

	Total	Cod	Herring	Mackerel
Total supply, 1000 tonnes	589.3	161.5	191.5	54.3
Import share, %	45.5	61.5	47.8	51.0

#### 3.2.2 The industrial Structure of the Fish processing Industry and Wholesale

From table X overleaf it can be seen that there were in 1989 468 enterprises in the Danish fishing industry. The table also states the distribution of these enterprises according to the character of their final product and it appears that only 9 enterprises were engaged in fish meal processing.

The industrial structure of the Danish fish processing industry is one of

many small enterprises and a few big companies. Recently a trend of merging and buying-up has been observed, the effect of which is likely to be a enforcement of the present structure in the sense that the big companies are merging and buying up.

The fish meal industry is the only industry that can be said to be truly vertically integrated, as the fish meal plants are owned by the fishermen.

Table X Number of Enterprises in the Danish fishing Industry.

	No. of enterprises
Processing industry	65
Processing industry and wholesale	220
Wholesale	133
Fish meal	9
Bulk centres	24
Auctions	17
Total	468

From table XI below it appears that 65% of the enterprises in the processing industry make more than 80% of their total turnover from one product-type only, and hence, these enterprises can be said to be highly specialized. Furthermore, it should be noted that in almost half of the enterprises all the turnover accrues from only one product-type. Still, these enterprises only employ less than 25% of the employees.

In general, it appears from table XI that the level of specialisation in the Danish fishing industry is rather high as more than 75% of the enterprises receive more than 60% of their turnover from the production of one particular product type and furthermore, these enterprises employ almost 75% of the employees, which indicates that many larger enterprises are based on one product-type and supplementing with others.

Table XI The relative Number of Firms (and their relative Share out of total Employees), that make more than 60%, more than 80% and 100% of their Turnover from one particular Product Type.

	Pct. of all firms in processing or processing/wholesale	Pct. of all employees in processing or processing/wholesale
More than 60%	78.6	73.3
More than 80%	65.0	44.3
100 %	43.5	22.3

Table XII overleaf shows the total production value within various types of processing together with estimated totals of value added. As can be seen, there are huge variations in the percentage value added, ranging from 62% in the production of marinated products to 12% in the production of deep-frozen products. The latter type of production is the single most important, in terms

Table XII Total Production Value and Value Added within various Types of Processing

	Production value in mill. DKK	Value added in mill DKK.	Value increment in pct. of production value
Fresh and chilled processed products	1,141	420	37
Canned products	831	377	45
Deep frozen products	2,650	322	12
Smoked products	758	242	32
Dried and salted products	427	90	21
Marinated products	381	234	62
Ready prepared meals	153	67	44
Fish meal	2,142	593	28

of total production value, but still, the relative value added from this production is much smaller than in e.g. the production of fresh products, which is also a sector that contributes substantially to the total production value and which is characterized by a low level of processing.

### 3.2.3 Employment and the industrial Structure of the Fish processing Industry and wholesale

Table XIII overleaf illustrates the employment and the industrial structure of the fish processing industry and wholesale - in Denmark and in the three zones.

It appears from the table that most of the employment is to be found in the processing industry (68%), followed by whole-sale (29%). Zone 2 accounts for the biggest share of this employment, as around 30% of those employed in these two industries belong to this zone. The fish meal industry only accounts for 356 employees, but the major share of this employment is found in zone 1 (69%). In total, the three zones comprise 57% of the total employment in fish processing industry and wholesale in Denmark.

In zone 1, the processing industry dominates the picture. Still, the importance of the fish meal industry in this region is stressed by the fact that 69% of total employment in this industry is located in zone 1. 18% of all enterprises are located in this zone and 20% of total employment.

The production in zone 1 is mainly related to the processing of codfish and flatfish into fresh and frozen products. Furthermore, the fish meal industry is of importance in this region.

In zone 2, the processing industry employs 70% of those employed in production/wholesale of fish products whereas the fish meal industry only accounts for a little more than 1% of all those employed in the industry. 42% of all enterprises are located in this zone and 30% of the employment.

The main part of the Danish herring and mackerel based production is located in zone 2, but still all types of processing industry is represented in this

Table XIII Enterprises and Employment in the Danish fish processing Industry and wholesale according to type of production.

	Denmark	Zone 1	Zone 2	Zone 3
- Total number of enterprises	466	85	196	16
- Distribution in pct.	100%	18%	42%	3%
Number of enterprises in the processing industry	65	10	34	-
Number of enterprises in the processing industry and wholesale	220	51	81	11
- Number of enterprises in the processing industry and wholesale	285	61	115	11
- Distribution in pct.	100%	21%	40%	4%
The number of enterprises in the processing industry and wholesale in relation to the total number of enterprises in the fishing industry	61%	72%	59%	69%
Number of employees in the processing industry	9,352	1,640	2,881	889
Number of employees in wholesale	4,008	900	1,193	110
Number of employees in fish meal industry	356	247	62	24
Total number of employees in fish processing and wholesale	13,716	2,787	4,136	1,023
Average number of employees/enterprise (the processing industry and wholesale)	46.8	41.6	35.4	90.8
Distribution of employees within the zones/Denmark				
- processing industry	68%	59%	70%	87%
- wholesale	29%	32%	29%	11%
- fish meal industry	3%	9%	1%	2%
- total	100%	100%	100%	100%
Distribution of employees in Denmark, %				
- processing industry	100%	18%	31%	10%
- wholesale	100%	22%	30%	3%
- fish meal industry	100%	69%	17%	7%
- total	100%	20%	30%	7%

zone.

The processing industry is of overwhelming importance in zone 3 and account for 87% of total employment in fish processing industry and wholesale. On the other hand, the whole sale industry is less important in this zone than in the other two and comprises only 11% of total employment. 3 % of all enterprises in the fish processing industry and wholesale are located in zone 3 and 7% of the employment in these industries.

The production that takes place in zone 3 is heavily based on the processing of cod.

It appears that enterprises in zone 2 are, on average, smaller than those

of zone 1 and particularly those of zone 3; in terms of the average number of employees.

#### 3.2.4 Import and Export

Table XIV below provides figures on Danish imports and exports in 1990. All product groups are seen to be characterized by exports exceeding imports apart from "unprocessed sea water fish". As can be seen, a substantial part of the Danish exports is made up by fish fillets, which is a product characterized by a rather low level of processing. Prepared and canned products do, however, exhibit a significant export surplus.

Table XIV Danish Imports and Exports of Fish and Fish Products. 1990.

	Export 1000 t.	Export mill. DKK	Import 1000 t.	Import mill. DKK
Unprocessed fish:				
- sea water fish	113.1	1,837.6	268.0	1,868.0
- fresh water fish	36.6	1,216.5	27.1	946.5
- crustaceans and molluscs	61.7	1,916.9	54.5	1,499.3
Fillets; fresh, chilled and frozen	163.5	3,289.5	47.5	845.6
Salted, dried and smoked fish	41.1	1,521.9	15.2	326.6
Prepared and canned products	94.6	2,847.4	28.9	1,270.5
Fishmeal, -oil, etc.	219.3	753.4	99.9	158.2

The major markets for the Danish fish processing industry are Germany, France, Italy, U.K. and Spain and, among the non EC countries, Japan and Sweden.

#### 3.3 The Aquaculture sector

This section will provide a brief overview of the state of the Danish aquaculture sector in terms of production, number of plants, employment and type of production. Unless stated otherwise, the figures in this section apply for 1990.

Data are not available on the volume of production from the aquaculture sector, but the total volume of production is estimated to be around 40.000 tonnes, the majority of which (around 35.000 tonnes) is fresh water rainbow trout. This type of farming is well-established in Denmark. Sea cage farmed trouts account for around 5.000 tonnes. Furthermore, land based sea water farms have recently been established in Denmark together with eel farms. Finally, a minor production of mussels also take place together with turbot fingerlings and sea bream. Production of fingerlings from cod is in a phase of initiation at the moment. Due to environmental constraints imposed on the industry and due to physical constraints, there does not seem to be, at present, scope for substantial expansion of the Danish aquaculture sector in the near future.

From table XV overleaf it can be seen that the sector, in 1990, comprised 648 installations corresponding to an employment of 1446 employees. Almost 80% of these installations (employment) were fresh water farms producing rainbow

Table XV The Danish Aquaculture Sector

	Total	Fresh water farms	Sea cage farms	Land based sea water farms	Eel farms	Other
Denmark						
- no. of plants	648	505	29	15	89	9
- no. of employees	1446	1199	49	26	155	17
- employees/plant	2.2	2.4	1.7	1.7	1.7	1.9
Zone 1						
- no. of plants	246	213	0	9	20	4
- no. of employees	725	660	0	10	47	8
- employees/plant	2.9	3.1	-	1.1	2.4	2.0
Zone 2						
- no. of plants	138	119	2	1	15	1
- no. of employees	289	257	3	2	24	3
- employees/plant	2.1	2.2	1.5	2.0	1.6	3.0
Zone 3						
- no. of plants	4	0	1	1	1	1
- no. of employees	8	0	2	2	2	1
- employees/plant	2.0	-	2.0	2.0	2.0	2.0

trout. The second most important type of aquaculture production, albeit not in terms of volume of production, is eel farming; this type employs 11% of all those employed in the aquaculture sector and 11% of the installations are eel farms. The average employment is largest in the fresh water installations. The three zones highly dependent on fisheries account for 60% of the Danish aquaculture installations.

Almost 40% of the aquaculture installations are located in zone 1 and they are larger, on average, than those in the rest of Denmark, in terms of average employment. The dominance of fresh water farms is more outspoken in this zone, where 94% of all installations are of this type.

138 of all Danish aquaculture plants are located in zone 2 and this corresponds to a share of 20%. The average employment is a little smaller than for Denmark in general.

Only a very small share of the aquaculture installations are based in zone 3; less than 1%, which is mainly due to unsuitable natural conditions for this type of production in the zone.

Germany is the only export market of importance for the Danish aquaculture production and it is believed that between 70% and 90% of the production is exported.

As mentioned, there is not much scope for expansion of the aquaculture industry in Denmark, due to the previously mentioned environmental constraints and physical constraints. Furthermore, the profitability of this industry is influenced by the increased supplies of farmed products on the world markets, which weakens the financial incentive to start up a production.

### 3.4 Employment in ancillary Services and supplying Industries

This section will provide an estimation of the employment in ancillary services and supplying industries related to the fishing industry. As data on these industries are available only to a limited extent, the following draws on

estimations performed in the Masterplan study referred to in chapter 1, on interviews with local harbour authorities and on the general knowledge of the consultants on the sector.

Table XVI below provides an overview of the results achieved. It should be noted again, that the calculated employment effects only take into account the first round effect, in the sense that income effects etc. are ignored. Hence, the calculated effects on employment only concern employees involved in activities related to the fishing industry.

Table XVI Derived Employment Effect on ancillary Services and supplying Industries.

	Calculated employment effect pr. employee/fisherman (man years)	Total effect in terms of number of man years
Fishing fleet:		
- human consumption	0.30	min 2,100
- industrial	0.59	max 4,100
Fish meal industry	0.55	200
Processing industry		
- single frozen cod	0.28	min 2,600
- ready prepared meals	0.41	max 3,900
Wholesale, auctions etc.	0.50	1,600
Retail etc.	0.10	100
Total		min 6,600 max 9,900

It appears from the table that the fisheries for industrial purposes and the fish meal industry has the biggest effect on employment in ancillary and supplying industries. This is mainly due to it that the fisheries for industrial purposes and the fish meal industry are more capital intensive than the other fisheries respectively the processing industry.

The previous sections stated that there are around 7,000 fishermen in Denmark and around 13,500 employees in the processing industries and in wholesale and hence the fishing industry, in total, accounts for between 27,000 and 30,000 jobs directly related to the fishing industry.

Table XVII overleaf provides a more detailed picture on the effects on supplying industries and ancillary services related to the activity of fishing only, thereby ignoring all effects that arise from the fish processing of the species. However, it should be noted that the calculated totals do not include wholesale, and it must be assumed that some part of the wholesale activity is related to the sales of unprocessed fish. It follows from the table and from the fact that there are app. 7,000 fishermen in Denmark that the activity of fishing alone accounts for between 8,400 and 11,200 jobs in Denmark.

The other Table XVIII overleaf applies the minimum and maximum effects on employment from table XVII, i.e. 0.30 respectively 0.59, in order to illustrate the employment in supplying industries and in ancillary services that arise solely from the activity of fishing, in the three zones. When interpreting the results shown in the table it should be noted that the fishing industry of zone

1 is dominated by fishing for industrial purposes and hence this zone is probably closer to the maximum than any of the other two zones. On the other hand, zone 2 and particularly zone 3, obtains relatively high shares of foreign landings; zone 2 around 25% of all landings and zone 3 around 50%. These foreign vessels do, to some extent, demand the products and the services from the supplying and ancillary industries, and hence they create some employment in these industries as well.

Table XVII Total Employment related to the Activity of fishing

	Fishing: human consumption species		Fishing: species for industrial use	
	Employment effect pr. fisherman	Total effect: no. of man years	Employment effect pr. fisherman	Total effect: no. of man years
Loading and unloading	0.10	700	0.16	1,120
Oil and ice	0.01	70	0.14	980
Fishing gear etc.	0.06	420	0.11	770
Maintenance of vessel	0.06	420	0.16	1,120
Depreciation *)	0.07	490	0.02	140
Total	0.30	2,100	0.59	4,130
Auctions **)	0.50	300	-	-
Total		2,400		4,130

\*) this term refers to employment related to e.g. the building of new vessels

\*\*) this figure consists of app. 200 people directly employed in the auctions and a derived effect of 0.50 \* 200.

Table XVIII The Employment Effect from the Activity of fishing in the three Zones

	Zone 1	Zone 2	Zone 3
No. of fishermen	2,350	2,150	650
Minimum additional employment: no. of man years	700	650	200
Maximum additional employment: no. of man years	1,400	1,250	400
Total employment related to the activity of fishing	3,050-3,700	2,800-3,400	850-1,050

Unless stated otherwise, future chapters will assume an employment effect from the activities in the fishing fleet and the fish processing industry of 3:1, i.e. each three jobs at sea or in the processing industry will lead to the

establishment of one additional job in the supplying and ancillary services.

Finally, it should be mentioned that it is estimated that around 80% of the employment derived from the activity of fishing is located in the zones and that the corresponding figure for the processing industries is 50%. Table II in chapter 2 showed the total number of jobs in the fishing industry, i.e. the figures stated in that table include the derived employment, calculated using the 3:1 relation.

### 3.5 Summary

This chapter has provided a picture on the size and structure of the Danish fishing industry. The importance of the fisheries of species for industrial use has been confirmed. In terms of value, cod is the single most important species to the Danish fishing fleet. The chapter has established that the Danish fishing fleet is characterized by a flexible fleet in the sense that many types of vessels are included in the Danish fleet. On average, the Danish fleet appears to consist of rather small vessels; those of zone 3 being the smallest and those of zone 1 the largest (of the zones considered). Cod landings are substantial in all the three zones considered, but of overwhelming importance in zone 3. The major part of landings for industrial use are landed in zone 1 and the major part of herring and mackerel catches are landed in zone 2. It has been shown that the major part of the Danish quotas were utilized in 1990. A substantial share of landings in Denmark is made up by foreign landings, whereas Danish landings abroad is of minor importance. The foreign landings come from i.a. Poland and Norway.

The Danish fish processing industry has been described. The structure of this industry is characterized by many small enterprises and a few big companies. The Danish fish processing industry appears to be characterized by a rather high degree of specialisation and a rather low level of processing. The fish meal industry is mainly located in zone 1, but zone 2 also has some fish meal processing plants. The fish meal industry appears to be only of minor importance in terms of employment, as this type of production is very capital intensive. On average, the processing enterprises of zone 3 are much bigger than those of the other zones, as some of the very big processing companies are located in zone 3. The processing of fish for human consumption was shown to be rather dependent on foreign supplies of raw material. In terms of production value, the fish meal industry appears to be the single most important type of production, followed by fresh processed products and deep frozen products for human consumption. The Danish fish processing industry has a rather significant export surplus but still, one ought to note the excess of imports to exports of unprocessed fish. The major foreign markets for the Danish fish processing industry are to be found within the EC; Germany, France and the U.K.

The major product of the Danish aquaculture sector is trout. Denmark has a long tradition for the production of fresh water rainbow trout, and today, sea water installations also produce this species. Physical and legislative (environmental concerns) constraints puts a limit to how much the segment can expand. The expansion is, however, further limited by the substantial increases in supply to the world market of aquaculture products, which has weakened the financial incentive to start up aquacultural production. The major export market is Germany and between 70% and 90% of the Danish aquaculture production is

exported.

Estimations on the employment in ancillary and supplying industries was provided in the chapter. The fish meal industry and the fisheries for fish for industrial use appear to have a larger impact on the employment in these industries than activities related to the utilisation of species for human consumption.

#### 4 SOCIO-ECONOMIC IMPACT OF THE COMMON FISHERIES POLICY IN DENMARK

This chapter describes the development of the Danish fleet since 1984 (no data on the fleet prior to 1984 are available) and the development of the basic socio-economic indicators from 1982 to 1989 (1990 figures have not been available).

It is extremely difficult to establish a clear link between specific elements of the CFP on the one hand and the socio-economic development in fishery-dependent zones on the other hand. This difficulty arises because the fishing industry is influenced by many other factors that are external to the CFP, such as e.g. the availability of resources, the supplies from foreign vessels, changes in cost structure that is not due to the CFP, price developments on the world market for the products/catches in question etc. Furthermore, the observed developments may also be due to factors that are external to the fishing industry such as e.g. growth in other industries. However, certain qualitative observations related to the CFP will be made prior to the quantitative description. These observations are based on the interviews made with fisheries organisations and from the consultants' knowledge of the sector.

Basically, the CFP consists of three elements; the conservation policy, the structural policy and the market policy.

The conservation policy consists of the TAC/quota system, the technical conservation measures and the control measures.

The TAC/quota system has an impact on the behaviour of the fleet to the extent the available quotas are utilized. This is the case today for most of the Danish quotas, with very few exceptions, such as the quota for whiting and, to a smaller extent, the quota for plaice, which is not utilized at present, mainly because of unfavourable prices compared to the costs of this fishery. The fully utilized quotas imply that any further TAC/quota reductions have a direct impact on the economy and the behaviour of the fishing fleet. Furthermore, the quotas may also lead to overinvestments in the sector, as more capacity is needed for the individual vessel owner in order to obtain as high a share as possible of the available quotas. An increase in investments, and hence a cost increase, may also occur as a consequence of the quota system, as the vessels may have to participate in more types of fisheries than they did, before the quotas became binding. Still, it should be kept in mind that the TAC/quota system reflects the facts that many stocks are today overutilized and hence, substantial increases in catches need not occur in the absence of a TAC/quota system; as the volume of catch is influenced by the availability of fish stocks.

Control measures regard the efficient enforcement of the fisheries policy.

The structural policy aims i.a. at reducing the existing overcapacity of the EC fleet (and hence also at counteracting the above described incentive to overinvest) while at the same time maintaining an efficient fishing fleet. In Denmark, the aims for reductions set in the MGP has been reached, and hence

substantial reductions in the fishing fleet can be observed from 1986. At present the Danish government receives a substantial number of applications for support in regard to the cessation of vessels, which indicates that the present system is deemed favourable by many vessel owners compared to their present financial situation.

One of the elements in the market policy of the CFP is that it provides a kind of income support to the fishermen in the sense that the prices obtained by the vessels for their catches may be supported by the EEC in case they fall under a certain level. However, it should be mentioned that the compensation provided does not guarantee a minimum price, at the unit price support provided declines the larger the quantity withdrawn. In 1990, less than 5% of the Danish landings of fish for human consumption was withdrawn from the market with price support.

#### 4.1 The Development of the Danish Fleet and Landings

Table XIX overleaf provides index values on key indicators on the development of The Danish fishing fleet and its output (landings). The first part of the table concern the development in fishing capacity and it appears that the capacity of the Danish fishing fleet was lower in 1990 than in 1984. The number of vessels have been continuously declining through the observed period, whereas the tonnage of the fleet increased until 1986 and declined thereafter. Still, the important thing to note on the subject of fishing capacity is that the most substantial reductions can be observed from 1987, in which year the MGP was also introduced. However, the initiation of MGP's need not be the only explanation why the largest declines can be observed from 1987 to 1988; another explanation could be that the most substantial reduction in the cod quota also took place from 1987 to 1988 and cod is the single most important species to the Danish fishing fleet. The continuous decline in the number of fishermen per GRT may be due to more and more capital intensive vessels, but it may also be caused by the declining catches and revenues of the vessels.

It was mentioned in chapter 3 that the cod quota for 1990 was fully utilized, and viewing the developments in quotas and landings as stated in the table, a full utilisation seems to have been the case, more or less, throughout the observed period. Hence, one may conclude that the cod quota has been binding, particular from 1987 and onwards. Therefore, any quota restrictions will have a direct negative impact on the fishing fleet. Furthermore, chapter 3 also established that the cod fishery in the Baltic Sea was crucial for many Danish vessels in the period 1986-1988 in order to obtain satisfactory - or improved - financial results.

The above indicates that the substantial reduction in the fishing capacity of the Danish fleet that appears to have taken place from 1987 to 1988 was probably due to the introduction of MGP's which implied a larger incentive to cease fishing and the quota reductions. However, it should also be mentioned that from 1988 to 1990 larger reductions in fishing capacity took place than in the period prior to the introduction of MGP.

Finally, it should be noted too that all zonal fishing fleets were in 1990 below the level of 1984, with the exception of zone 3 where the declines commence a little later; probably due to the good results of cod fisheries in the Baltic Sea in the mid eighties. Still, zone 3 has experienced the most

Table XIX The development of the Danish Fleet and Landings; 1984-1990. (All values are deflated by the consumer price index and 1984=base year).

Index: (1984 = 100)	1985	1986	1987	1988	1989	1990	actual figure 1990
No. of vessels							
- Denmark	100	99	98	92	89	86	2,832
- Zone 1	98	98	102	97	87	85	699
- Zone 2	100	100	97	91	92	88	812
- Zone 3	105	105	102	90	92	86	293
Total GRT/GT							
- Denmark	106	111	110	102	99	96	118,801
- Zone 1	107	112	107	99	101	99	53,039
- Zone 2	101	103	108	100	93	91	40,634
- Zone 3	139	163	166	150	142	127	10,428
No. of fishermen							
- Denmark	101	100	98	91	87	83	6,956
- Zone 1	99	98	102	95	86	84	2,345
- Zone 2	100	101	96	89	90	86	2,157
- Zone 3	111	111	107	93	90	81	669
GRT/vessel	106	112	113	112	112	112	41.9
Crew/100 GRT	94	90	88	88	87	87	5.9
Cod quota, tonnes	103	90	83	70	61	55	96,610
Cod landings, tonnes	90	81	80	68	62	53	88,513
Landings in Denmark, 1000 tonnes							
- Total	97	100	93	108	105	84	1,643.6
- Human cons.	108	100	98	98	102	103	444.4
- Industrial use	93	100	90	113	106	76	1,095.8
Danish landings: 1000 tonnes							
- Total	97	100	92	107	105	81	1,458.2
- Human cons.	107	97	92	89	93	90	320.0
- Industrial use	94	101	92	113	109	77	1,034.8
Danish landings: mill DKK							
- Total	93	91	86	86	81	75	3,484.8
- Human cons.	103	103	102	88	83	88	2,861.1
- Industrial use	70	59	46	77	73	41	561.9
Value, 1000 DKK of Danish landings per:							
- fishermen	93	91	87	94	93	90	502.6
- GRT	88	81	78	84	81	78	29.3
- vessel	93	92	88	93	91	87	1,230.5
DKK/kg of Danish landings							
- Total	96	90	93	80	77	92	2.39
- Human cons.	97	106	111	99	90	98	8.94
- Industrial use	74	58	51	68	67	53	0.54

substantial annual reductions when considering the period 1986 to 1990. However, it should be noted that the level of capacity in 1990 is below the level of 1985 and part of the reason why, the capacity increased from 1984 to 1985 is the entry of the large long-distance trawler into the fleet of Bornholm. (more than

3,000 GRT)

The table also includes indices on the development in the volume of landings in Denmark and it can be seen that the landings of fish for human consumption have remained fairly stable throughout the observed period, which may indicate that the processing industry is not affected by decreasing quotas and fishing capacity to the same extent as the fishing fleet; as foreign landings have, to some extent, compensated for the declining Danish landings. However, in this regard, it should be noted that landings of cod in Denmark has declined by 27% and landings of herring has increased by 53%.

The landings of fish for industrial purposes are seen to vary a lot, which is mainly due to the biological variations in the availability of this stock and, to a smaller extent, the substantial variations in the world market prices for protein sources, which can be seen from the table to have had a substantial negative impact on the prices obtained for landings for industrial purposes. Apart from 1988-89 they have been continuously declining and do not, in any year, reach the level of 1984.

Although the fisheries for fish for industrial purposes constitute the major share of Danish landings, the landings for human consumption are much more important in terms of value.

The table also includes indices on the development in the deflated value of landings. From 1985 there has been a declining trend in the total value of landings for human consumption, but as mentioned above, the fishing capacity has declined as well, which needs to be taken into account. Calculations have been performed on the development in value/fisherman, value/vessel and value/GRT and it appears that they have all declined since 1984, with the sole exception of 1987-1988. The increase from 1987 to 1988 may be explained by the substantial declines in fishing capacity that took place in that year.

The deflated average unit prices obtained can be seen to vary somewhat, but still, apart from 1986 and 1987, they are below the level of 1984, which indicates that the declined landings have not been fully compensated by increased prices. Of course, the average unit price observed in a particular year is influenced by the composition of landings in that year. However, it was mentioned in chapter 3, that the Danish fishing fleet does, to some extent, appear to behave economically optimal in the sense that the vessel do not exhibit a static fishing behaviour. Rather, they tend to shift according to which fisheries seem the most profitable at the time, of course given the political constraints and the constraints determined by the vessel type and fishing gear etc. Therefore, the average unit prices may be taken as an indication of what was the best that could be achieved in the year considered.

In regard to the above, it needs mentioning, however, that the profitability of the activity of fishing depends on many other factors which are not considered in table XIX, e.g. the costs involved in particular fisheries. Furthermore, the effort applied also varies from one year to the other.

#### 4.2 The socio-economic Development in the Zones highly dependent on Fisheries

The forthcoming tables XX, XXI, XXII and XXIII illustrate the development of the key socio-economic indicators from 1982 to 1985 and to 1989. Index values are provided on the indicators themselves and on the development of a series of relative indicators (i.e. the situation in the zones compared to the situation

in Denmark in general). Table XX provides a picture on the development in the three zones combined while tables XXI, XXII and XXIII concern the development in the particular zones. The base year for the index calculations is 1982 and the shares stated in the table are the figure for the zone in relation to the figure for Denmark in general.

From table XX below it can be seen that from 1982 to 1985, the situation have remained fairly stable in the three zones and the indicators have developed in very much the same direction as for Denmark in general.

Table XX The Development of socio-economic Indicators in the three Zones combined, 1982, 1985 and 1989. (Employment in the fishing excludes ancillary and supplying industries)

Index: (1982 = 100)	1985	1989	Share out of Denmark in general, pct 1989	Actual figure 1989
Average annual income	123	160	-	136,800 DKK
Average annual income in the zones/average annual income in Denmark	100	99	-	-
Population	100	100	8.6	443,552
Total employment	105	105	8.5	225,881
Total employment in the zones/total employment in Denmark	100	100	-	-
Employment in the fishing industry	101	98	60.0	13,162
Employment: fishing and aquaculture	99	88	63.5	5,216
Employment: processing of fish	110	111	59.2	5,743
Employment: whole sale of fish and fish products	86	92	55.0	2,203
No. of unemployed	96	101	9.5	25,556
No. of unemployed in the zones/no. of unemployed in Denmark	100	101	-	-
Unemployment rate	93	107	-	12.0 %
Local unemployment rate / Danish unemployment rate	90	102	-	-
Dependency on the fishing industry in terms of jobs	95	92	-	7.7 %
Dependency on the fishing industry in economic terms	87	82	-	8.9 %

The unemployment rate has even developed more favourably in the zones than in Denmark in general.

However, it should be noted too, that the level of income in the zones is below the level for Denmark and the unemployment rate exceeds that for Denmark

in general.

From 1985 to 1989, on the other hand, a more undesirable development can be observed. Compared to Denmark in general, average income fell in the zones and the number of unemployed together with the unemployment rate rose.

The employment in the fish processing industry has increased in all years observed and the employment in the fleet have declined. The result has been a slight increase in the total employment in the fishing industry from 1982 to 1985, followed by a decline mainly caused by the decline in the fleet.

The dependency in terms of jobs as well as in economic terms have declined. However, it is noteworthy that the economic dependency has declined the most, which is due to an underlying steady decline (in real terms) in the gross value added at factor costs per employee in the fishing fleet. This may be an indication that the level of activity in the fishing fleet has declined considerably and it may also be an indication that the activity of fishing is becoming less profitable for the participants.

From the above it follows that from 1982 to 1985, the zones highly dependent on fisheries have developed very much in line with Denmark in general, whereas the development has been more unfavourable from 1985 to 1989. This seems to indicate that the decline in the level of activity in the Danish fishing fleet, which was illustrated in section 4.1, has been accompanied by a general decline in the level of activity in the zones highly dependent on fisheries.

#### 4.2.1 The socio-economic Development in Zone 1

Table XXI overleaf illustrates the socio-economic development in zone 1. The average annual income in this zone has declined a little compared to Denmark in general from 1985 to 1989 and it was in 1989 4% below the level for Denmark in general. It should be noted that the dependency on the fishing industry, is not as outspoken in this zone as it is in zone 2 and zone 3.

The general picture for this zone diverts from the above for all three zones, in the sense that the most unfavourable development can be observed from 1982 to 1985 and that an improvement actually seems to have taken place from 1985 to 1989, in which period the employment in the fishing industry actually increased contrary to the other zones. In this regard, it is however, noteworthy that employment declined in the previously emphasised municipalities that are particularly highly dependent on fisheries; Holmsland, Thyborøn-Harboør and Esbjerg. On the other hand, the increase that can be observed in the zone should be compared to the decline that took place from 1982-1985. Still employment in the processing industry and in wholesale in 1989 does actually exceed the levels of 1982.

#### 4.2.2 The socio-economic Development in Zone 2

Table XXII following table XXI contains a description, similar to the above, for zone 2. This zone exhibits very much the same pattern of the development, as the one that was observed for the three zones together, i.e. a general improvement from 1982 to 1985 and a general worsening of the situation from 1985 to 1989.

From 1982 to 1985 income rose compared to the level in Denmark in general, employment rose, the fishing industry employed more people, unemployment fell, and it even fell more than in Denmark in general. Finally, the dependency on the

Table XXI The development of the socio-economic indicators in zone 1. 1982, 1985 and 1989. (Employment in the fishing industry is exclusive of ancillary and supplying industries)

Index: (1982 = 100)	1985	1989	Share out of Denmark in general, pct 1989	Actual figure 1989
Average annual income	123	159	-	140,000 DKK
Average annual income in the zone/average annual income in Denmark	100	99	-	-
Population	100	101	3.8	194,449
Total employment	104	106	3.8	101,845
Total employment in the zone/total employment in Denmark	99	101	-	-
Employment in the fishing industry	94	97	23.3	5,116
Employment: fishing and aquaculture	90	80	28.4	2,329
Employment: processing of fish	92	112	19.4	1,887
Employment: whole sale of fish and fish products	116	125	22.5	900
No. of unemployed	100	103	3.7	10,321
No. of unemployed in the zone/no. of unemployed in Denmark	105	102	-	-
Unemployment rate	98	99	-	9.9%
Local unemployment rate / Danish unemployment rate	96	94	-	-
Dependency on the fishing industry in terms of jobs	90	92	-	3.8%
Dependency on the fishing industry in economic terms	84	80	-	8.0%

fishing industry declined only a little.

From 1985 to 1989, on the other hand, the situation worsened. Income fell a little, the employment fell and unemployment rate rose, the employment in the fishing industry declined and the number of unemployed increased considerably. The dependency on the fishing industry declined considerably. It can also be seen that the developments in the zone from 1985 to 1989 are more unfavourable than in Denmark in general.

The above may indicate, that the zone has not been able to compensate fully for the decline in the level of activity in the fishing industry as expressed by e.g. the decline of 15% in the number of persons employed in the fishing industry. In this regard table I in chapter 2 should be kept in mind, as it appeared from that table that 75% of the employment in the fishing industry was to be found in 4 municipalities and that 25-45% of the employment in these zones

Table XXII The Development of the socio-economic Indicators in Zone 2. 1982, 1985 and 1989. (Employment in the fishing industry is exclusive of ancillary and supplying industries)

Index: (1982 = 100)	1985	1989	Share out of Denmark in general, pct 1989	Actual figure 1989
Average annual income in the zone	125	161	-	135.2
Average annual income in the zone/annual average income in Denmark	101	100		-
Population	100	100	3.9	203,112
Total employment	107	106	3.8	102,172
Total employment in the zone/total employment in Denmark	101	101	-	-
Employment in the fishing industry	105	101	28.9	6,334
Employment: fishing and aquaculture	106	98	26.8	2,198
Employment: processing of fish	121	112	30.3	2,943
Employment: whole sale of fish and fish products	74	85	29.8	1,193
No. of unemployed	91	98	4.9	12,903
No. of unemployed in the zone/no. of unemployed in Denmark	95	98	-	-
Unemployment rate	88	94	-	11.9%
Local unemployment rate / Danish unemployment rate	83	85	-	-
Dependency on the fishing industry in terms of jobs	99	94	-	8.2%
Dependency on the fishing industry in economic terms	89	85	-	9.2%

was related to the fishing industry. Hence, it is likely that these municipalities have been severely affected by the decline in the level of activity in the zone's fishing industry (assuming that no major changes in the geographical distribution of the activity in the fishing industry has taken place).

#### 4.2.3 The socio-economic Development in Zone 3

Table XXIII overleaf shows the indicators for zone 3. As can be seen a worsening of the situation has taken place from 1982 to 1985 and again from 1985 to 1989. In the first period, the income developed similarly to the development for Denmark in general, but the employment developed less favourably than in Denmark in general, albeit the employment in the zone did increase. The number of persons unemployed rose and so did the unemployment rate, which increased by more than the Danish rate. Finally, the dependency on the fishing industry rose

Table XXIII The Development of socio-economic Indicators in Zone 3, 1982, 1985 and 1989. (Employment in the fishing industry is exclusive of ancillary and supplying industries)

Index: (1982 = 100)	1985	1989	Share out of Denmark in general, pct, 1989	Actual figure 1989
Average annual income	122	157	-	132,000 DKK
Average annual income in the zone/average annual income in Denmark	99	98	-	-
Population	100	97	0.9	45,991
Total employment	102	98	0.82	21,862
Total employment in the zone/total employment in Denmark	97	94	-	-
Employment in the fishing industry	107	91	7.8	1,712
Employment: fishing and aquaculture	112	90	8.4	689
Employment: processing of fish	115	107	9.4	913
Employment: whole sale of fish and fish products	68	41	2.7	110
No. of unemployed	109	115	0.9	2,332
No. of unemployed in the zone/no. of unemployed in Denmark	114	114	-	-
Unemployment rate	107	115	-	9.9%
Local unemployment rate / Danish unemployment rate	104	108	-	-
Dependency on the fishing industry in terms of jobs	105	92	-	10.4%
Dependency on the fishing industry in economic terms	94	81	-	11.0%

from 1982 to 1985.

In the latter period, the average income increased by less than in Denmark in general and the average level of income was, in 1989, only 91% of the level in Denmark (this cannot be seen in the table). The total employment declined (and declined more than in Denmark), and was, in 1989, even below the 1982 level. This is the only zone, for which a remarkable decline in population can also be observed; 3% from 1985 to 1990. The number of unemployed increased as well, although the zone managed to keep the increase at a level corresponding to the Danish level. The unemployment rate also increased considerably. The seriousness of the above developments is further stressed by the fact that there are no indications of improvement at present, rather the opposite.

Zone 3 is probably the zone that has been affected the most by quota reductions, as the fishing fleet of this zone relies heavily on the cod fishery in the Baltic Sea, and the quotas for these catches has been reduced substantially. These reductions have continued since 1989 and the 1992 quota is almost

half of the quota in 1991. While the impact from these reductions on the processing industry may be somewhat counteracted by an increase in foreign supplies, the impact on the fishing fleet is substantial and this may have an impact throughout the island, in the form of decreased levels of activity. Furthermore, section 3.1 also stated that zone 3 has experienced the most substantial reductions in fishing fleet, particularly in terms of number of fishermen; the number of fishermen on Bornholm was, in 1990, 20% below the level of 1986.

It thus appears that this zone was in 1989 already noticeably affected by a decline in the level of activity in the fishing industry; a decline which seems to have had an effect throughout the zone in the form of a general decline in the level of activity; and it appears that the decline has continued since 1989.

#### 4.3 Summary

This chapter has illustrated that the quota restrictions and the structural policy of the CFP appears to have had an impact on the Danish fishing fleet. A substantial reduction in fishing capacity can be observed from 1987 to 1988 and the MGP's were introduced in 1987. Hence, the substantial reductions in the cod quotas that took place from 1987 to 1988 and the existence of the possibility for support in regard to the cessation of vessels seem to be the major reasons for the substantial reductions observed. The trend of reduction in fishing capacity continues from 1988 to 1990 as well.

The chapter has further established that the processing industry does not seem to be affected to the same extent as the fleet, although changes in the composition of supplies may of course have taken place.

The chapter has provided indications that the financial situation of the fishing fleet has worsened throughout the period, albeit it should be kept in mind that the indicators provided only considered the gross earnings; changes may have occurred in the cost structure as well.

For the three zones together, the socio-economic situation is rather stable when comparing 1985 to 1982. However, when comparing 1989 to 1985, a worsening of the situation can be observed; also when comparing to Denmark in general. This may indicate that the effect on the fishing-dependent zones from the decline in the level of activity in the fishing industry has been a general decline in the level of activity in the zones. Hence, sufficient alternatives have not existed that could compensate for the mentioned lower level of activity in the fishing industry.

Nevertheless, important differences can be observed for the three zones; Zone 1 exhibits a pattern of development adverse to what is observed for the other zones highly dependent on fisheries.

In zone 2, the situation did not worsen from 1982 to 1985, but a general decline in the level of activity in the zone can be observed when comparing 1985 to 1989. This may be explained by the decrease in the level of activity in the fishing industry, which may have had a negative impact on the general level of activity in the zone.

Zone 3 has experienced an unfavourable development throughout the period, when comparing the three years. In this regard, it should be mentioned that serious restrictions on the cod-fisheries in the Baltic Sea was not introduced

prior to 1985. Hence, the unfavourable development that can be observed when comparing 1985 to 1982 has occurred in spite of an increase in the level of activity in the fishing industry. However, it should be noted that while the total number of jobs increased from 1982 to 1985, it decreased from 1985 to 1989 and was even in 1989 below the level of 1982. Furthermore, this zone has actually experienced a substantial decline in population from 1985 to 1989 of 3%, and in spite of this unemployment has increased.

While it must not be forgotten that the socio-economic indicators are, of course, also influenced by factors external to the fishing industry, this chapter has nevertheless indicated that the reductions in the Danish fishing fleet which can be observed, particularly since the late eighties, appear to have affected the socio-economic situation of the fishery dependent zones. This is particularly the case for zone 3. This zone has experienced the most substantial decline in its fishing fleet and the socio-economic indicators have also developed the least favourable of the three zones.

Until now, increases in foreign landings have offset the declining Danish landings. However, it is unlikely that this will continue to be the case, as a continuous decline in the Danish quotas will demand a continuous increase in foreign landings in order to not affect the volume of fish landed in Denmark. It is obvious that an overall decline in the total landings in Denmark will affect the fishing industry more as this is likely to have a larger impact on the processing industry than the developments observed hitherto.

## 5 RECONVERSION ACTIONS

This chapter is based partly on available information and evaluations of programmes funded by the ERDF and carried out in Denmark from 1986 and onwards, and partly on interviews made with representatives from local authorities and mayors of selected municipalities. Furthermore, representatives from the two big fisheries organisations in Denmark and from the local fisheries organisation on Bornholm have been interviewed together with the Danish union for unskilled workers and the employment exchange in Esbjerg. Annex 2 provides a list of all institutions, organisations and authorities interviewed.

The chapter begins by a brief assessment of the types of measures and types of projects that have been implemented within the frames of finalised or on-going programmes. This assessment is followed by an identification of types of projects that have been directly related to the fishing industry. Thereafter, particular characteristics of fishing-dependent communities is identified together with factors that influence the magnitude of the possible impact on these communities from future restrictions in the CFP.

On the basis of the general assessment mentioned above and the characteristics that are particular to a fishing dependent community together with an identification of factors, the presence of which is a prerequisite for a successful process of reconversion in these communities, the efficiency of possible future initiatives in this regard is assessed. Throughout this chapter the word "fishing dependent community" is applied. This term refers to a community which is particularly highly dependent on fisheries and may, in many cases, be identical to a municipality.

### 5.1 A Categorisation of the Intervention Types

The programmes, the measures and projects of which have been considered are the Borntek programme (applied for Bornholm), the Nordtek programme (applied for the county of Northern Jutland) and the Special Community Action (applied for certain municipalities within all three zones). While these three programmes have been given particular attention (due to the fact that they are finalised) other programmes have been considered as well: Renaval, Objective 2, Objective 5b, Interreg Bornholm and EVA. A description of the programmes is provided in annex 3. National employment programmes have not been considered explicitly in this study, as they may apply measures that are beyond the competence of the EC Commission. Still, relevant aspects of national employment programmes were mentioned and looked upon, especially during the interviews.

It should be strongly emphasized that the purpose of this exercise is not one of evaluating the above programmes, but rather one of assessing the potential efficiency of various types of measures and projects with regard to their ability to create the assumed benefits. Therefore the forthcoming assessment is not performed on a programme by programme basis, but rather on the basis of a categorisation of the various measures and projects according to type of intervention. The resulting three main categories (of main types of intervention) is illustrated overleaf in table XXIV. It should be mentioned that all projects or measures may be referred to at least one of the categories defined in table XXIV. A description of the various categories and intervention types, by providing examples of types of projects that have been carried within each intervention category is found in annex 4.

Intervention that aims at improving infrastructure, is characterised by it that the existing or potential user group is large and not well-defined. Furthermore, the benefits from the infrastructural improvements may accrue to others than just the users and hence positive externalities may be involved in improved infrastructure. However, the fact that external benefits constitute part of the pay-off from these projects, implies that a high degree of public participation and involvement in these types of projects is necessary in order to assure that they are initiated.

Intervention that is received by the single enterprise is related to one particular and identified enterprise. Hence, the recipient of the support and the major recipient of the benefits from the support, i.e. the enterprise, is known and well-defined. Of course, benefits may accrue to the community in a wider sense, but the immediate benefit from the support is received by the enterprise. Within the category of interventions aimed at enterprises is also included intervention that benefits industries in general.

Intervention that aims at the individual need not be received directly by the individual, but the benefit from the resulting projects accrues to the individual.

Table XXIV Categories of and Types of Intervention.

Intervention category.	Intervention type.
Infrastructure	transport tourism technology research environment
Enterprises	productive investments feasibility studies and preliminary investigations innovation and technology export and marketing tourism quality control establishment of new enterprises
Individuals	training and education job programmes advisory functions educational facilities

### 5.2 An Assessment of Intervention Types

This section will assess the efficiency of various types of intervention. The efficiency is assessed in relation to the ability of the intervention types to obtain the expected benefits. It should be mentioned, that this section does not attempt to consider all types of intervention, but rather those that appear to be most relevant with regard to a later assessment in relation to the fishing industry and/or those that are commonly applied intervention types.

#### 5.2.1 Interventions aimed at Infrastructure

There is a general belief in the socio-economic benefits from infrastructural investments. However, certain factors must be taken into account in order to assure that the expected benefits from infrastructural projects do in fact appear.

It is important to be aware of the potential problem of "oversupply" which is inherent in many types of infrastructural investments. Particularly, where bordering counties are concerned and in cases, where it may prove difficult to expand the total number of users considerably. In the case of e.g. improved port facilities, it must be assured that a sufficient number of potential users exist so as to avoid a situation of under utilisation of the facilities provided. The importance of this problem is illustrated by the fact that the volume of Danish landings has been declining in the last decade. However, the volume of foreign landings have been increasing and hence the resulting outcome may be that there is scope for some infrastructural improvement within this industry (e.g. the improvement and expansion of port facilities).

The problem of potential oversupply is not present with nearly the same weight as far as tourist infrastructure is concerned. This is because the tourist industry in an expanding industry in general, and due to the fact that the larger the number of and the better the quality of tourist attractions etc. which a particular area can offer, the higher is the level of attraction of the area to tourists. It is important to note, in regard to tourist infrastructure,

that initiatives should be co-ordinated in order to cover a wider geographical area than just one municipality. This does not, however, imply that each project should cover several municipalities, but rather that they should be part of an over all, explicit or implicit, tourist promoting strategy for a wider area.

Many of the outskirts in Denmark are in the need for an innovative and R&D friendly environment in order to create the basis for a more dynamic development of the industries of the communities, and in the communities in general. It has, however, proven extremely difficult to attract researchers and innovators which is most likely due to the marginal geographical location of many of these areas. Publicly initiated and administrated research into particular topics, e.g. food processing, is a means by which to stimulate the research environment.

#### 5.2.2 Intervention aimed at Enterprises

In general, the representatives interviewed expressed a high level of satisfaction with the results from intervention aimed at enterprises. However, one should be aware that this may be influenced by it that it is easier to establish a clear link between the support provided and the resulting outcome in this case than when targeting infrastructure or individuals.

A problem concerning these types of intervention is the question of whether the funds provided were decisive for the initiation of the project. This need not be a criteria for the granting of funds, but as the funds available are limited, it is of importance to identify and support projects that are likely to pay off in the longer run and that would not be initiated, due to e.g. prohibitively high costs in the phase of initiation. Intervention that encourages innovation and the implementation of new technologies within the specific enterprise, is very often crucial in order to assure the initiation of such projects. This is because the majority of enterprises in Denmark, and particularly in the regions considered here, are small enterprises. These small enterprises very often do not possess neither the funds needed in order to initiate the projects nor the human capital that is necessary to define the need for the project and that are capable of carrying out the project in question.

It is important to note too that many programmes have stressed the importance of product development and projects that aimed at increasing the degree of processing; particularly within the fields of agriculture and fisheries, but nevertheless the applications were few. The possible reasons for this are manifold; The potential gain or the funds offered may not be considered sufficient, the SME's may not be willing or ready to enter into research at present or simply that there is a lack of "ideas" in this respect. With regard to the issue of research it is important to obtain an appropriate balance between publicly initiated and administrated research (infrastructure) and privately run research (at an enterprise level). The enterprises may not engage whole-heartedly in the public research, which on the other hand constitute the basis for the more advanced and commercially oriented research that may be undertaken in the enterprises. Furthermore, public research undertaken in the local communities stimulates the innovate environment in general, which may also benefit the enterprises.

Intervention related to the necessary human capital in the small enterprises, in the form of e.g. managerial support, has been applied too within many of the programmes considered and this possibility has been used by many

enterprises.

Quality control is related to the ISO 9000 certification and the benefit from this type of support is assumed to accrue from the certification itself and from the process of obtaining it, as the latter may very well lead to a higher degree of efficiency within the enterprises. It has proven extremely difficult to attract new enterprises in many of the regions covered by the programmes considered, particular when the effort has been aimed at attracting new industries. Therefore, intervention should probably focus on the creation of a good environment for people who want to start of as self-employed.

A commonly applied measure within this category is the establishment of advisory bodies etc. whose purposes may be i.a. to provide information and advice on EC-related matters and on questions related to exports and technology. As many of the enterprises covered by the programmes considered are small SME's, it is important that such bodies be "unbureaucratic", in the sense that they have to spend many resources on the task of informing the potential users of the services they can offer and the likely benefits from it to the individual enterprises. Advisory bodies have also been established with the aim of providing advice and guidance to people who want to start as self-employed, and the services from these institutions have been well demanded.

#### 5.2.3 Intervention aimed at Individuals

The main point to note in regard to this intervention category is the importance of the projects to be based on the needs and wishes of the individuals concerned and of the industries. This will assure a high degree of motivation on the side of the individuals and it will assure that they will also be able to find use for the skills that they may acquire. Furthermore, it is important to be aware of whether the individuals considered are motivated for educational initiatives or initiatives that aim at vocational training or job training.

However, most initiatives undertaken in this regard with grants from the EC is funded by the ESF and this study only considers ERDF financed programmes, and therefore they are given a more peripheral treatment in this study. This does not imply that they are not considered of importance, but rather that most measures implemented hitherto are aimed at the individuals covered by Objective 3 and Objective 4.

#### 5.2.4 Intervention Types and Projects aimed at the fishing Industry

With the exception of the Special Community Action, none of the above programmes were particularly aimed at supporting a process of reconversion within the fishing dependent communities. Still, projects have been executed within the programmes that are directly related to the fishing industry. Contrary to this, the Special Community Action emphasized the process of reconversion in fishing dependent communities, but the process was to be supported by means of strengthening the tourist industry and the SME's. It is noteworthy, that project that were somehow related to the fishing industry were not eligible for funds from the Special Community Action. Thus the examples below concern projects carried out within the frames of other programmes than the Special Community Action.

Measures have been implemented that aim at expanding markets, and the fishing industry may of course also apply for funds within these measures.

The development of new products based on either hitherto unused species or at increasing the degree of processing has been given a high priority in many of the programmes, but still the number of applications and the resulting number of projects have been few.

The fisheries Network in Northern Jutland was supported too and the initiatives of this network may lead to increased future sales abroad.

The fish processing industry has also received funds aimed at enterprises, e.g. in relation to the acquirement of new and better means of production.

The structural policy of the CFP does, to some extent, also aim at easing the process of reconversion, particularly for the individual vessel owner. From 1987 to 1990 313 MDKK have been applied in this regard. The support was distributed with 41% in zone 1, 37% in zone 2 and 12% in zone 3. While this "intervention" appears to reach its purpose in Denmark (the reduction in fishing capacity) and while it is considered by the involved parties to be a highly suitable measure in this regard, it should nevertheless be borne in mind that it does not provide support in regard to a process of reconversion in fishing dependent communities, apart from the income effect that it may generate.

### 5.3 A Characteristic of fishing dependent Communities

The most important characteristics of a fishing dependent community are:

1. Marginal geographical location.
2. Industrial monostructure dominated by fisheries, and sometimes supplemented by agriculture and tourism.
3. A high level of know how and expertise within fields related to fisheries.
4. No - or very few - institutions that offer vocational training or education at levels higher than primary and secondary school.
5. A low share of the population have a higher education and a high share of the population are self-employed.

Still, there are variations from the above picture, as the municipality of Esbjerg does not possess any of the characteristics listed (apart from 3.) and nevertheless, Esbjerg may, to some extent, still be characterized as dependent on fisheries. However, it remains a fact that several municipalities exist that posses the above characteristics and that these municipalities are those that are likely to be affected the most by further reduction of fisheries.

The more distinct the above-mentioned industrial monostructure is, the more will a community of course be immediately affected by a worsening of the conditions for fishing; this may be in the form of e.g. fleet reductions and quota reductions. However, the structure of the fisheries sector in the local community may also influence the magnitude of the impact on the community. Below are listed 2 possible characteristics of importance in this respect:

1. A monostructure within the fisheries sector in the community. For example, in the case of Bornholm, the whole fishing industry relies heavily on cod. The more distinct this monostructure is, the more severely is the community affected by further restrictions related to the specific fishery the community relies on. If the restrictions in question are of a general nature that apply equally to all fisheries, the degree of monostructure within the fishery sector should be of no importance.

2. The composition of landings in the region; the higher the share of landings that are landed by foreign vessels, the less may the local community be affected by further restrictions. This is particularly the case, if the foreign landings are landings from third countries' vessels. The smaller overall impact in regions that receive a high share of foreign landings (vessels) is achieved because the industries related to the repair, maintenance and production of fishing gear etc. are less dependent on the demand for their services from Danish vessels and that the processing industries probably receive a larger share of their supplies from these foreign landings.

The above has served to illustrate the key common characteristics of a fishery dependent community together with factors that may influence the magnitude of the immediate impact on the community from restrictions in fishing possibilities. These elements must be taken into account when considering the possible frames of a future Action to support the reconversion process in the fishery dependent zones.

#### 5.4 Factors of Importance in Regard to the Process of Reconversion

Prior to an assessment of the efficiency of various possible measures in regard to the object of supporting the process of reconversion within the fishing dependent communities, it is important to establish the strengths and weaknesses that prevail within the community. Below are stated four important factors (basic conditions) whose presence will ease the process of reconversion:

1. Alternative possibilities for employment within the local community.  
The less distinct the industrial monostructure is, the more likely will it be to find alternative employment within the community, provided that other industries are not in a state of recession as well.
2. Alternative possibilities for employment outside the local community.  
The smaller the commuting distance to other communities with other industries and the higher the level of industrial activity within these communities, the more is it likely to find alternative employment outside the community.
3. A high degree of mobility of the persons affected.  
This refers to the willingness of the persons affected to accept jobs in other communities or within other industries and to the professional mobility of the persons affected in the sense that the higher the level of education and the better and broader the professional experience of the persons affected, the more will their labour be demanded by enterprises in other industries.
4. Possibilities for maintaining jobs within the fisheries sector and related sectors.

Possible future restrictions in the fishing opportunities, e.g. in the form of quotas or capacity reductions, will have a direct impact on fishermen. However, other segments of the fishing industry will be affected as well and the magnitude of this multiplier effect will be smaller the less dependent the processing industry is on local (Danish/EC) landings and the less dependent the ancillary services are on local (Danish/EC) demand.

The more the above four factors are present the easier and shorter will the process of reconversion be, and the less will the need for support in this process be. However, in many of the communities that are likely to be affected, the above four factors are not present or they are present at a low and insufficient level. Hence, support is needed in order to create the basis for a successful reconversion by providing or strengthening the above four factors. The following section will assess the efficiency of various relevant measures in regard to their ability to create/strengthen the above four factors in fishery-dependent communities that possess the characteristics mentioned in section 5.4.

#### 5.5 The Efficiency of Measures in Regard to a Reconversion in fishing dependent Communities

This section will emphasize types of measures that are believed to be the most efficient, with regard to supporting a process of reconversion, i.e. the strengthening of the four factors identified above, in communities possessing the characteristics defined previously.

##### 5.5.1 Possibilities for alternative Employment within the Community

The presence of alternative possibilities is clearly a prerequisite to sustain the communities affected in the longer run; assuming that the level of activity within the fisheries sector will decrease considerably. Basically, this can be achieved by lessening the industrial monostructure that prevail in many of the communities that are likely to be affected. This may be achieved by means of infrastructural interventions and intervention aimed at enterprises, so as to benefit and strengthen other industries. The identification of suitable types of measures, of course, also draws from the experiences described in section 6.2.

###### 5.5.1.1 The tourist industry

The most obvious alternative industry is the tourist industry, which is already of significant importance in many of the communities. As opposed to the fishing industry, the tourist industry in general has good prospects for expansion and the potentials for growth within this sector are present in most communities as well.

The tourist industry and the tourist infrastructures have been included in most of the programmes considered, and in the Special Community Action this industry was devoted particular attention. In general, projects related to this type of intervention is viewed as beneficial to the fishing dependent communities. The potential of the industry is further stressed by the fact that many of the communities have initiated projects related to the promotion of tourism, independently of support programmes.

However, with regard to the inclusion of tourist infrastructure and the tourist industry in a possible future Action it is important to stress the importance of measures that prolongate the season, as many of the communities do already receive a substantial number of tourists in the high season. This draws attention to measures that

- improve the quality of, the number of and the variety of the tourist attractions that may be in demand all year round, such as museums and in-

door sports facilities and recreational facilities.

- improve the quality of over-night facilities that are suitable for use all year round, i.e. hotel facilities in particular.
- support the marketing of an area with regard to increasing tourism in other seasons.

It should also be stressed that if the ultimate objective of a possible future Action is to sustain the fishing-dependent communities as more than just recreational centres (which has also been stated as an explicit wish by those interviewed) the future should not be based solely on tourism. This consideration also further stresses the importance of measures that aim at prolongating the season. Such a prolongation is likely to have a more positive effect on the municipality as a vital community than further expansions of tourism during the high season. By spreading the activity arising from tourism more evenly over the year, it is likely that a larger share of local people will be able to make a living out of tourist related activities and it may also increase the level of attraction of the municipality in regard to increasing immigration and decreasing emigration. However, the above does not imply that measures that have an effect on tourism in high-season should be neglected, but rather that attention should also be given the above.

Finally, it is to be noted that intervention aimed at the tourist industry and the tourist infrastructure will probably have no direct impact on fishermen and the immediate effect on people employed in other industries related to the fisheries sector will probably also be limited. This is because the tourist industry does not represent an alternative for employment for these people. Hence, these measures aim at sustaining the community as such and the impact from those measures on people presently employed in the fisheries sector will be of an indirect nature, arising from the general increase in the level of activity within the community.

#### 5.5.1.2 Other industries

Numerous types of measures have been applied the effect of which is supposed to weaken the industrial monostructure that prevails in many outskirts in Denmark. However, apart from the Special Community Action, the programmes were not specifically aimed at the municipalities highly dependent on fisheries.

The task of weakening the industrial monostructure in the fishing dependent communities is rendered difficult by the fact that the monostructure is very strong in many of the communities, i.e. there is no or only very few other industries present, apart from the tourist industry. Hence, measures in this group will, to a very large extent, have to concentrate on the establishment of new enterprises, while of course also supporting those that may be present. The establishment of new enterprises may basically be achieved by improved transport infrastructure and improved industrial infrastructure, so as to make it more attractive to establish in the community in question.

Furthermore, the potential enterprises may of course also be supported in the phase of establishment (the acquirement of means of production, the provision of advice and guidance, a monetary subsidy so as to make them competitive in the phase of initiation and support related to the marketing and sales).

As far as existing non-fishery related industries are concerned, infrastruc-

tural intervention as well as intervention aimed at enterprises may be suitable. The types of intervention may be any of those mentioned in section 6.2 including those aimed at technology, as the aim of this support is to improve the competitiveness of the enterprises and to expand their markets and sales. In regard to transport infrastructure, one should be aware of the marginal geographical location of many of the fishing dependent communities. This may imply that improved transport infrastructure may not lead to the establishment of new enterprises as the local community will still be considered to be too marginally located.

With regard to intervention aimed at strengthening existing enterprises that are not related to the fishing industry, it is important to note that within each local community, there is probably only a few of these enterprises. Therefore, intervention that encourages co-operation between enterprises is likely to prove beneficial. One could envisage a co-operation among enterprises located in different communities but related to the same industry. The purpose of the co-operation may be e.g. market expansion, but it is difficult to establish beforehand the likely purposes of such networks and they will depend on the nature of the industry concerned, the particular strengths and weaknesses within that industry and where there is scope for co-operation. Furthermore, it could be considered, not only to provide the support to enterprises that are established within the communities highly dependent on fisheries, but to allow the networks to include enterprises from other communities, and still be eligible for support, in order to strengthen the network. Still, it needs to be established, in this case, that the project concerned is to the benefit of the enterprises located in the communities covered by the programme.

Regarding the possible support related to the establishment of new enterprises, the key words are: "think small", as it has proven extremely difficult to convince existing, non-fishery related companies to establish (branches) in communities with a strong industrial monostructure and as the effect on employment from many small enterprises often exceeds the effect from one big enterprise. The relevant approach will be to support people who want to start off as self-employed by providing guidance and advice and support in the phase of establishment. This may also have a direct effect on people likely to be affected by a recession in the fishing industry as a new small enterprise that originates locally is more likely to be based on the existing know-how and skills in the community in question.

Finally, it should be mentioned that the Special Community Action did encourage the above, but nevertheless the possibilities for support were less utilized by the local communities that relies the most on fisheries. This serves to illustrate the magnitude of the barriers to be overcome in order to change the fishing-dependent communities into less industrially mono-structured societies.

#### 5.5.2 Alternatives for Employment outside the local Community

While it is clear that the presence of possibilities for employment outside the fishing dependent community may be an important positive factor in the process of reconversion, it is clear that interventions aimed at strengthening industries outside the community, will not, by themselves, maintain the communities as vital communities. This does not, however, exclude these types

of intervention from being considered as relevant with regard to a reconversion in fishing dependent communities. Intervention that aim at creating alternative possibilities for employment outside the fishing dependent communities have both an immediate effect and a long term effect.

The immediate effect is one of counteracting the increase in unemployment and thereby also the decline in the overall level of income.

The effect in the longer run arises from a likely weakening of the industrial monostructure in the community. Those, who were previously employed in the fishing industry will, by their employment in these other industries, have acquired new skills. Thereby the qualifications of the work force in the community will be increased as the work force have become less monostructured as well. Thus, the community may have become more attractive to other enterprises in other industries.

Means by which the number of jobs outside the community may be increased are manifold, c.f. all the programmes considered in this study (annex 3). However, in regard to the specific purpose of assisting the fishing dependent communities in the reconversion, it is important to note the importance of the measures being aimed at those, who are most likely to be affected by the probable future recession in the fishing industry. The majority of those employed in the fishing industry are fishermen, unskilled and skilled workers and craftsmen. Hence, industries and enterprises in other municipalities that represent a viable alternative to these people should be given a priority.

#### 5.5.3 The Mobility of the People affected

The professional mobility of the persons likely to be affected by a recession in the fisheries sector is low. Hence, it is important to increase this mobility. This will enable these people to find alternative employment more easily and it will support the process of weakening the industrial monostructure of the municipalities, as it will increase the qualifications of the local work force, which may make the community more attractive to industries not related to fisheries.

It seems to be an experience from the programmes that have been executed or that are in the phase of execution that the most successful initiatives among those aimed at vocational training/education are those that originate from the needs and wishes of the industries and of the individuals. In other words, initiatives should be based on the felt needs of industries that possess the potentials for growth and on the aspirations and wishes of the individuals concerned. The latter implies that an individual-oriented view should be applied so that focus is on the potentials and skills of each individual.

As stated in the previous subsection, it remains a fact that the majority of people presently working in the fisheries sector, possess little or no formal higher education. Considering this and the line of work these people have chosen, they will probably benefit the most from initiatives that are based on vocational training and job training rather than formal educational initiatives. These kinds of initiatives will, in general, assure the highest level of motivation and the best use of the skills that these people possess beforehand.

It is furthermore preferable that the specific projects be aimed at one homogeneous group of individuals, as e.g. the skills, needs and wishes of fishermen probably differs from those of workers in the processing plants.

However, the above need not imply an exclusion of an element of flexibility. Professional mobility is a prerequisite for a dynamic community, as the community is made more flexible and therefore it is important to encourage education/vocational training as much as possible. Hence, it is important that any vocational training/job training/educational programme be eligible for support, provided that it is established that the project is in demand by the industries and by the individuals. Furthermore, any project that can be assumed to be to the benefit of the fishery dependent communities should be eligible for support, although priority should be given to projects that aim directly at those that used to work/are working in the fisheries sector.

Finally, the intervention types aimed at increasing the possibilities of employment in other industries outside the community, as described above in section 5.5.2, should be repeated here, as employment in another industry also implies an element of job training and may increase the professional mobility of the person in question. However, it is important that the types of intervention mentioned here be included as well. It is namely likely that those who obtain employment in other industries outside the community are those, who possess the best qualifications and therefore it is still of importance, to increase the qualifications of the remaining unemployed people.

#### 5.5.4 Possibilities for maintaining Jobs within the fishing Industry

The Special Community Action excluded the possibility of providing support to projects that was in some way related to the fisheries sector. This can be said to be the most important drawback of this programme for two reasons; Firstly, many other programmes that were executed simultaneously with the Special Action did allow for projects related to fisheries, which counteracted the expected effect from this exclusion. Secondly, the decision that projects were not to be related to the fisheries sector, disqualified to a very large extent projects based on the utilisation of the present skills and know-how in the communities concerned.

It is a fact that one of the most important strengths that these communities possess are the skills and know-how of fisheries and fisheries-related services and production which is built up through decades, and therefore it is important to consider carefully whether these skills could be applied to support a process of reconversion.

The fleet of many of the former Eastern Europe countries is old and badly kept which implies that there is a potential market for the repair and future maintenance of these vessels and the supply of fishing gear etc. In the lack of sufficient local provision of the services, know-how and products needed, Denmark represents an obvious choice for many of the Baltic Sea countries in this regard; this is particularly the case for Bornholm, which is geographically well-placed and which already has a tradition for providing these services to other Baltic Sea Countries. Furthermore, some of the other communities, particularly those for which a substantial share of the landings is made up by landings from third country vessels, may also be able to expand their third-country market for services and production related to fishing gear and vessels.

The potentials for the fish processing industry originates from it that Danish exports are today dominated by low-processed fish and that many species are today not utilised or underutilised. Still, many of the programmes described

in section four did encourage product development aimed at utilising hitherto non-used species or at increasing the level of processing, but few applications for this support was received. This does not, however, imply that these project types should be excluded from a future Special Action, particularly when taking into account that the future market possibilities may differ from those that prevail today, e.g. in former Eastern Europe. It is very likely that this region will present a market for processed low-value species, such as herring and sprat, in the future. Furthermore, the barrier to developing new products may lie in hesitations related to the marketing and sales as well as production, and hence it may prove beneficial to support activities related to sales and marketing as well as the product development itself.

It may be possible to re-orient the activities within some types of enterprises and plants that are currently employed mainly in the fisheries sector. If it is possible to re-orient part of an enterprise, so that a (larger) part of its activities is not based on fishery-related production and services, this will be beneficial to the community. A re-orientation will still be founded in the skills and know-how that form the competitive advantage of the enterprise in question. The project types eligible for support in such a phase of re-orientation could be the of the following types: feasibility studies and preliminary investigations, the acquirement of necessary buildings and means of production, product development, marketing and sales. The major task in relation to this measure is to assure that a potential project does concern a factual re-orientation of production.

Finally, it is a fact that enterprises related to the fishing industry are also located in communities that are not dependent on fisheries to nearly the same extent as e.g. those municipalities mentioned in chapter 2. Hence, there may be scope for encouraging these enterprises to establish in the communities considered here, while at the same time provide some kind of compensation to the communities that loose employment in case the enterprises decide to move. It may also be considered only to encourage enterprises to move when the community in which they are located is in a state of growth. However, one should be aware that this type of intervention is controversial and hence, it is important to consider carefully how to implement this type of intervention in order to obtain the full co-operation of the fishing dependent communities on the one hand and of the communities not dependent on fisheries, on the other hand.

Chapter 5.5.2 drew attention to intervention that aims at encouraging the formation of e.g. industrial networks and the co-operation among enterprises and such a scheme could also be envisaged within the fishing industry, with a view to e.g. common research, market expansion and common promotion of products.

In regard to the possibilities of maintaining jobs within the fisheries sector or related activities attention should nevertheless be drawn to the fact that none of the above-sketched possibilities is to the direct advantage of fishermen. On the other hand, it is very often the case today, that if a fishermen are leaving the fishing industry, he will tend to seek employment within the sector, e.g. on the harbour or within the processing industry and hence, he may actually benefit from the above as well. In this regard, it could also be mentioned that the structural policy of the CFP also allowed for support in relation to e.g. experimental fishing and in this regard it could also be envisaged to support e.g. fishermen's participation in third countries'

fisheries, in case these are underutilised. This could be a means by which also to provide these countries' fishermen with know-how.

Aquaculture may represent an alternative within the fishing industry as well. And to the extent that Danish legislation allows for it and there is financial and physical scope for further expansions within this area, it of course represents an alternative possibility. This does also concern research like production, which may prove beneficial to the fishing industry as such, e.g. initial production of cod fingerlings etc.

Finally, the possibility of encouraging and expanding exports of fisheries related know-how and technology needs mentioning as well.

#### 5.6 Summary

The above has highlighted specific characteristics that are valid for fishery-dependent communities and identified four important factors, the presence of which is necessary in order to assure a successful reconversion of fishermen and people employed in the fisheries sector in general, while still maintaining the fishery dependent communities as vital communities.

The recommendations that can be derived from this section are very similar to the measures applied previously within the Special Community Action, but still there are also important diversifications from that Action. The above has also stressed the importance of the tourist industry as a viable alternative industry and the importance of encouraging the establishment of new SME's while also supporting existing SME's not related to fisheries, which is very much in line with the previous Special Community Action.

However, this section has also stressed the importance of realising the existing potentials (apart from tourism) for growth in the communities and the need for making use of these potentials. This lead to the identification of measures containing vocational training/education, which should be based, to a very large extent, on the particular wishes and needs of the potential employees as well as the potential employers. This also includes an identification of industries that are likely to grow in the near future. Furthermore, the characterisation of the fishery-dependent communities also referred to the fact that they possess skills and know-how on fishery-related production and innovation. This skill and know-how may be turned into a potential for growth in the fishery-dependent communities, namely to the extent that it is possible to expand the markets for those of the products that are not based on the utilisation of fish, to the extent that it is possible to develop new products that increases the level of processing or utilises hitherto non--used species and to the extent that it is possible to re-orient production so as to include products and services not aimed at the fisheries sector.

It is of importance to a future Action to support the process of reconversion that an overall and encompassing strategy for each of the particular communities be considered. One community may differ from the other and the way the community is affected by restrictions in the future CFP may therefore also be different. This should be considered and furthermore, it should be recognised that the four factors defined in this chapter are equally important and of a supplementary nature in regard to a process of reconversion.

In other words, measures should be defined that aim at:

- increasing the possibilities for alternative employment within the community.
- increasing the possibilities for alternative employment outside the community.
- increasing the professional mobility of the workforce in the community, and in particular of those, who are presently employed in the fishing industry.
- maintaining some jobs within the fishing industry or at re-orientating this industry.

It is important, when defining particular measures within the above four groups of measures, to recognise the particular strengths and weaknesses of the community in question and give the highest priority to those that are likely to lessen the weaknesses or/and to enforce the strengths.

Annex 1. The Zones defined as highly dependent on Fisheries:

Zone 1 comprises the following municipalities:

Højer,  
Bredebro and  
Skærbæk                      located in the county of Southern  
Jutland (Sønderjyllands Amt)

Ribe,  
Fanø,  
Bramming,  
Esbjerg,  
Blåvandshuk and  
Blåbjerg                      located in the county of Ribe (Ribe Amt)

Holmsland,  
Ringkøbing,  
Ulfborg-Vemb,  
Lemvig and  
Thyborøn-Harboør          located in the county of Ringkøbing  
(Ringkøbing Amt)

Zone 2 comprises the following municipalities:

Sydthy,  
Thisted and  
Hanstholm                    located in the county of Viborg (Viborg Amt)

Fjerritslev,  
Brovst,  
Pandrup,  
Løkken-Vrå,  
Hjørring,  
Hirtshals,  
Skagen,  
Frederikshavn,  
Sæby and  
Læsø                          located in the county of Northern Jutland  
(Nordjyllands Amt)

Zone 3 comprises the following municipalities

Allinge-Gudhjem,  
Hasle,  
Neksø,  
Rønne and  
Åkirkeby                      located in the county of Bornholm (Bornholms  
Amt) and they actually make up the whole of  
the county of Bornholm.

It should, however, be noted, that data for the fishing fleet, i.e. the zonal fleets and the zonal landings, have been obtained at a county level:

- Zone 1: The counties of Ribe and Ringkøbing.
- Zone 2: The counties of Viborg and Nordjylland.
- Zone 3: The county of Bornholm.

ANNEX 2. INSTITUTIONS, ORGANISATIONS AND ADMINISTRATIVE ORGANS INTERVIEWED.

INSTITUTIONS AND ADMINISTRATIVE ORGANS:

The County of Nordjylland: The EC secretariat of the county of Nordjylland.  
The mayor and the had of the local administration in the municipality of Hirtshals.

The County of Viborg: The EC secretariat of the county of Viborg.  
The mayor and the had of the local administration in the municipality of Hanstholm.

The County of Ringkøbing: The mayor and the head of the local administration in the municipality of Holmsland.

The County of Bornholm: The Director of Finance in the local administration of the county of Bornholm.  
The EC secretariat of the county of Bornholm.  
The Director of the local Bureau of Industries (Erhvervsråd).

The County of Ribe: The employment exchange in Esbjerg.

ORGANISATIONS RELATED TO FISHERIES:

Danmarks Havfiskeriforening: The Director and the head of section in "Danmarks Havfiskeriforening". This organisation covers the whole of the West and North Coast of Jutland until the harbour of Strandby, with the exception of the purse seiners (of which there are 11; all registered in Hirtshals).

Dansk Fiskeriforening: The financial consultant of "Dansk Fiskeriforening". This organisations covers the rest of Denmark and the purse seiners.

Bornholms og Christiansø Fiskeriforening: The financial consultant and the chairman of the biggest local organisation on Bornholm (there are two other organisations on the island). this organisation is member of "Dansk Fiskeriforening".

SID: A representative from the Danish union of unskilled workers. This organisation represents the fishermen who are not vessel-owners and the male workers in the fishing industry together with people working as unskilled workers in ancillary services.

ANNEX 3. The ERDF supported programmes considered in the study.

This annex provides an overview of the programmes that have been considered in this study: the graphical coverage of the programmes, the duration, the financial contribution from the Structural funds together with the overall budget for the programmes and the administration of the programmes. Furthermore, the purpose of each of the programmes have been stated together with a mentioning of the measures applied.

3.1. BORNTEK. (Council Regulation (EEC) 1787/84)

Coverage: The County of Bornholm.

Duration: 1988 - 1992.

Purpose: To increase employment and welfare and to remove the outskirts status of the island through a well-considered implementation of new technologies.

Measures:

- 1 The establishment of industrial-technological environments and improvement of the qualifications of the work force in regard to technology.
- 2 The introduction and implementation of new technologies.
- 3 Product-development, particularly with reference to the major industries on Bornholm.
- 4 Industry-promoting activities in municipalities.

Financing.

ERDF:	2.5 MECU
Danish Public funds:	2.5 MECU
<u>Private financing:</u>	<u>1.4 MECU</u>
<u>Total:</u>	<u>6.4 MECU</u> (1988 figures)

Administration: The final responsibility lies with the "Industri- og Handelsstyrelsen (Administration of Industries and Trade). A local Borntek Committee and executive committee were established. The executive committee met every 1-2 months in order to decide on its recommendations on project proposals to "Industri- og Handelsstyrelsen". The Borntek committee dealt with monitoring and principal matters. Daily administration of the programme was undertaken by the County's administration.

Remarks: The program is not finished, but all available funds have been allocated.  
Conversion rate: 8.0 DKK/ECU.

INTERREG BORNHOLM. (Council Regulation (EEC), 2052/88)

Coverage: The County of Bornholm.

Duration: 1991 - 1983.

Purpose: To contribute to the survival of the island as an industrially active society through an extended co-operation with the other Baltic Sea countries; especially the Baltic States and Poland.

- Measures.
- 1 The provision of advice and service to SME's.
  - 2 Investments in SME's.
  - 3 The improvement of infrastructures.
  - 4 Vocational training and education.

Financing:

ERDF:	1.8 MECU
ESF:	0.2 MECU
Danish public funds:	2.4 MECU
<u>Private financing:</u>	<u>2.6 MECU</u>
<u>Total:</u>	<u>7.0 MECU</u> (1991 figures)

Administration: A structure similar to the frames for administration set in the BornTek programme.

Remarks: The approval from the EC Commission was received in December 1991 and hence, the programme is in a phase of initiation.

SPECIAL COMMUNITY ACTION. (Council Regulation (EEC) 3638/85)

Coverage: Fishing-dependent municipalities in the counties of Bornholm, Viborg, Ringkøbing and Nordjylland.

Duration: 1987 - 1990.

Purpose: To develop new economic activities in the fishing-dependent areas in order to increase employment, which will be to the benefit of people presently out of work and may work as a future replacement for jobs lost in the fishing industry during the coming years.

- Measures:
- 1 The promotion of tourism
    - tourist infrastructure
    - improved environment
    - marketing
    - investments in over-night facilities
  - 2 Promotion of SME's
    - advice etc.
    - investments in buildings and means of production etc.
    - sectoral analysis on market possibilities etc.

Financing:

ERDF:	13.0 MECU
Danish Public funds:	10.2 MECU
<u>Private financing:</u>	<u>26.1 MECU</u>
<u>Total:</u>	<u>49.3 MECU</u> (1987 figures)

Administration: The final responsibility lies with the "Industri- og Handelsstyrelsen" (The Administration of Industries and Trade). Local steering committees were established within each county and these committees made their recommendations to "Industri- og Handelsstyrelsen". The daily administration was undertaken by the counties' administrations.

Remarks: The Special Community Action aimed at reconversion in fishing dependent communities, but project proposals were not, in any way, to be related to the fishing industry, in

order to be eligible for support.  
Conversion rate: 8.0 DKK/ECU.

EVA. (Council Regulation (EEC) 1787/84)

- Coverage: The municipalities of Hanstholm, Sydthy, Morsø, Sundsøre, Spøttrup, Ålestrup and Møltrup, in the county of Viborg; The EVA programme as such applied for the whole of the county of Viborg, but the above mentioned municipalities are eligible for ERDF support and hence a special sub-programme was developed for these municipalities and this programme is the subject of this description.
- Duration: 1989 - 1992.
- Purpose: To support the regional development plan for the county of Viborg by creating the basis for a more equal development within the county. The basic idea for the regional plan is to strengthen the development of industrial activity and to offer the industries a good environment for developing.
- Measures:
- 1 Education and vocational training.
  - 2 Promotion of technologies.
  - 3 Product development and -processing.
  - 4 Encouraging innovators and initiatives.
  - 5 Industrial service.
- Financing:
- |                           |                                 |
|---------------------------|---------------------------------|
| ERDF:                     | 5.8 MECU                        |
| Danish Public funds:      | 5.8 MECU                        |
| <u>Private financing:</u> | <u>2.0 MECU</u>                 |
| <u>Total:</u>             | <u>13.6 MECU</u> (1989 figures) |
- Administration: The final responsibility lies with the "Industri- og Handelsstyrelsen" (The Administration of Industry and Trade). A committee is established which recommends project proposals to the "Industri- og Handelsstyrelsen". An executive committee prepares matters to be presented to the committee. The daily administration is undertaken by the county's administration.
- Remarks: An EVA programme has been prepared and is being executed for the whole of the county of Viborg. Hence, the programme mentioned above only concerns a sub-programme of the county-covering programme. This is due to it that the above-mentioned municipalities are the only ones in the county that are eligible for ERDF funds.

NORDTEK. (Council Regulation (EEC) 1787/84)

- Coverage: The County of Nordjylland (Northern Jutland).
- Duration: 1986 - 1991.
- Purpose: To increase employment in the county of Northern Jutland and to remove the outskirts status of the county through a well-considered implementation of new technologies.

- Measures:
- 1 To strengthen those areas of the industrial structure where it is possible to establish industrial milieus, due to either a strong market position or by the use of new technologies, in particular information technologies.
  - 2 To spread the knowledge on EDP and other new technologies and to strengthen the qualifications of the work force.
  - 3 To initiate a public strategy for product development based on the particular needs of the public sector.
  - 4 To market the county in Norway and Sweden in order to attract high-technology investments.

Financing:

ERDF:	11.9 MECU
Danish Public funds:	11.9 MECU
<u>Private financing:</u>	<u>1.3 MECU</u>
<u>Total:</u>	<u>25.1 MECU</u>

Administration: The final responsibility lies with the "Industri- og Handelsstyrelsen" (The Administration of Industries and Trade). A steering committee deals with major applications and principal matters and an executive committee deals with other applications. The daily administration of the programme is undertaken by the County's administration.

Remarks: The total costs (financing) of the programme are p.t. estimated to be in the magnitude of 38 MECU.

RENAVAL AND OBJECTIVE 2. (Council regulations (EEC) 2506/88 and 2017/80)

Coverage: The municipalities of Aalborg, Hals, Sejlflod, Aabybro, Dronninglund and Brønderslev in the county of Northern Jutland.

Duration: 1990 - 1991 (Objective 2)  
1990 - 1993 (Renaval)

Purpose:

Objective 2: To strengthen areas that have been severely affected by a decline in industrial activities.

Renaval: To counteract the negative impact on employment from the decline in the level of activity in the ship yard industry.

In the county of Northern Jutland the two programmes are implemented under a common heading: "Internationalisation".

- Measures:
- 1 Productive investments, particularly highly technological industries, SME's and tourism.
  - 2 Industrial vocational training and education and advisory initiatives supporting industrial development and tourism.
  - 3 Improvement of infrastructure.

<u>Financing:</u>	<u>Renaval</u>	<u>Objective 2</u>
ERDF:	8.2 MECU	8.7 MECU
ESF:		5.8 MECU
Danish Public funds:	6.7 MECU	18.6 MECU
<u>Private financing:</u>	<u>22.7 MECU</u>	<u>20.1 MECU</u>
<u>Total:</u>	<u>37.6 MECU</u>	<u>53.2 MECU</u>

Administration: The two programmes are considered to be highly supplementary and hence they are commonly administrated. The final responsibility lies with "Industri- og Handelsstyrelsen (The Administration of Industries and Trade)" representing the Ministry of Industries. With regard to ESF funds, the responsibility lies with the Ministry of Labour. A supervising board is established to monitor the execution of the programmes. A steering committee and an executive committee are making recommendations for support to the national authorities. The EC secretariat of the county is responsible for the daily administration of the programme. Renaval does not presume Danish public funding in order to receive EC funding.

Remarks: The Objective 2 programme has just received additional funds and is extended for another year. The programmes emphasises existing industries that are in a strong position together with initiatives that lead to increased exports and expansion of markets, cf. the headline "Internationalisation".  
Conversion rate: 8.0 DKK/ECU

Objective 5b. (Council Regulation (EEC) 2052/88)

Coverage: 33 islands in Denmark, inc. Bornholm.

Duration: 1989 - 1993.

Purpose: Maintenance of economically viable local communities in the islands.

- Measures:
- 1 To improve and to spread production so as to improve the incomes in agriculture and forestry.
  - 2 To encourage the creation of alternative sources of income besides agricultural and forestry production.
  - 3 Hatching and farming of fingerlings.
  - 4 The provision of advice, development support and consultancy support.
  - 5 Support for investments in SME's.
  - 6 Support for infrastructure and tourist attractions.
  - 7 To increase the qualifications of the workforce, with a particular view to the above 6 measures.
- 1,2,3 relates to EAGGF support, 4,5,6 to ERDF support and 7 to ESF support.

<u>Financing:</u>	ERDF:	7.9 MECU
	ESF:	5.3 MECU
	EAGGF:	4.5 MECU
	Danish Public funding:	21.6 MECU
	<u>Private financing:</u>	<u>17.5 MECU</u>
	<u>Total:</u>	<u>56.8 MECU</u> (1990 figures)

Administration: The overall responsibility lies with the Ministry of Agriculture. However, the responsibility for developing sub-programmes have been allocated so that the Ministry of Labour is responsible for the ESF supported part, the Ministry of Agriculture for the EAGGF supported for and the Ministry of Industries for the ERDF part. Furthermore, the Ministry of Fisheries is responsible for the part of the EAGGF that concerns support for hatcheries. A monitoring committee has also been established consisting of representatives from Ministries, regions (counties or municipalities), the Association of Municipalities, the Association of Small Islands.

Remarks. The programme is still in a phase of initiation.

#### ANNEX 4. Categories of Intervention and Types of Projects.

The annex provides examples of particular projects and types of projects that have been carried out within the frames of the programmes listed in annex 3. The projects and project types are categorised according to type of intervention.

##### A.4.1. Intervention Category: Infrastructure.

###### A.4.1.1 Intervention Type: Transport Infrastructure.

The most common types of projects that aims at improving transport infrastructure is the improvements of road and port facilities. The NCT project (Transport Centre Northern Jutland) that seeks to turn the harbour of Aalborg into a centre for transport by facilitating common handling of goods.

###### 1.2 Intervention type: Tourist Infrastructure.

An improved tourist infrastructure has been included in many of the programmes and has been given a rather high priority within i.a. the Special Community Action. Projects include e.g. the establishments of cycle paths, golf courses and recreational activities, e.g. surfcenters. Improved information and booking systems also fall under this heading.

###### A.4.1.3 Intervention Type: Technological Infrastructure.

Projects under this heading aim at improving the knowledge on technologies and at stimulating a positive attitude towards the implementation and use of these. Examples of projects that aim at improving the technological infrastructure are the setting up of advisory bodies and information campaigns. The establishment of NOVI (A building complex in Aalborg in Northern Jutland) also seeks to stimulate the overall level of knowledge on technologies.

###### A.4.1.4 Intervention Type: Reseach Infrastrucure.

It is generally recognised that there is a lack of research in many of the areas concerned and therefore measures are applied that aims at creating a stimulating environment for research. The previously mentioned NOVI in Northern Jutland may be referred to this category. Various research projects that are not carried out within particular enterprises also seek to stimulate the innovative environment and thereby attracting innovators and researches.

###### A.4.1.5 Interventon Type: Environmental Improvements.

The establishment of a bio-refinery on Bornholm, which is to find ways to commercially utilise waste from agricultural production and hitherto unused products is an example, albeit this project also has an effect on the innovative infrastructure is an example of a project within this category.

##### A.4.2. Intervention Category: Enterprises.

###### A.4.2.1 Intervention Type: Productive Investments.

The intervention aimed at supporting productive investments in the enterprises is directly related to the acquirement of new and better means of production, to the improvement of the final product or to the creation of new product lines.

A.4.2.2 Intervention Type: Feasibility Studies or preliminary Investigations.

Projects within this group include e.g. preliminary market investigations carried out by a particular enterprise investigating the potentials of future markets or the market possibilities for new types of products.

A.4.2.3 Intervention Type: Innovation and Technology.

Support has been provided that is related to the research within a particular enterprise, e.g. research into increasing the degree of processing in the fishing industry. Support has also been provided to the single enterprise in relation to the implementation of new technologies. This may relate to the phase of investigation in which support has been provided in order to properly define the needs of the enterprise as well as the process of implementation and the acquirement of the specific technologies. Furthermore, managerial support has also been provided within the frames of e.g. NordTek.

A.4.2.4. Intervention Type: Export and Marketing.

The implementation of EDI (Electronic Document Interchange) which will facilitate trade has been eligible for support. Managerial support has also been supported in relation to export and marketing. The improvement of administrative procedures in regard to trade and the knowledge of these is included in Interreg Bornholm and in Renaval/objective 2. The establishment and common activities of industrial networks is also sought to be stimulated. Furthermore, various advisory bodies have been established in this regard.

A.4.2.5. Intervention Type: Tourism.

Apart from the tourist infrastructure, various enterprises within the tourist industry have also received support. This relates to e.g. an improvement of over-night facilities and recreational centres.

A.4.2.6 Intervention Type: The Establishment of new Enterprises.

This intervention may aim at providing support in the phase prior to the decision on starting up an enterprise or on locating the enterprise in the particular area and it may also relate to support provided in the initial phase of starting up the production. The first type of intervention may be in the form of the establishment of advisory bodies etc. and the second type may be in the form of e.g. monetary support in regard to the acquisition of means of production etc.

A.4.3. Intervention Category: Individuals.

A.4.3.1 Intervention Type: Training and Education.

Within Renaval/objective 2, a project has been initiated that trains people presently out of work so as to enable them to take over the jobs of those presently employed and thereby enabling the latter to also receive some training and education so as to make their knowledge and abilities up-to-date.

A.4.3.2 Intervention Type: Job Programmes.

Most of the job programmes have been carried out within objective 3 and objective 4 and are therefore not included in this study.

A.4.3.3 Intervention Type: Advisory Functions.

The establishment of advisory bodies that provides guidance and information to individuals on matters related to education and vocational training have been included in the EVA programme.

A.4.3.4 Intervention Type: Educational Facilities.

Support has been provided in regard to the costs of the necessary buildings and facilities in order to establish a line of education within the area of fisheries and food processing under the EVA programme. The provision of buildings and facilities in regard to the establishment of an Educational Centre in Hadsund (Northern Jutland) was supported under the Nordtek programme.

ANNEX 5. Overview of the socio-economic Situation in the Zones highly dependent on Fisheries in Denmark. (Explanations to the table provided on the following page).

	General features of the Zone						Employment in fisheries and related activities			Gross value added in fisheries and related activities			De-pen-dency on the CFP	Relative dependency			
	Popu-lation '000 (a)	Work-force '000 (b)	No. of jobs '000 (c)	Gross value added Mecu (d)	Total income Mecu (e)	Per capita income '000 ecu (f)	No. of fisher-men (g)	Other em-ploy-ment (h)	Total (i)	Fishing fleet Mecu (j)	Other ac-tivities Mecu (k)	Total Mecu (l)	Share qouta species % (m)	Job dependency % (n) (o)		Economic dependency % (p) (q)	
Zone 1	194	109	102	3,118	2,767	17.5	2,329	4,475	6,804	95.2	154.3	249.5	57	2.3	6.7	3.1	8.0
Zone 2	202	114	102	3,137	2,804	16.9	2,198	6,226	8,424	89.8	198.8	288.6	61	2.2	8.2	2.9	9.2
Zone 3	46	25	22	672	630	16.5	689	1,588	2,277	28.6	45.3	73.9	94	3.2	10.4	4.2	11.0
Rest of DK	4,704	2,660	2,448	74,984	69,724	18.2	2,075	10,625	12,700	122.1	278.3	400.4	51	0.1	0.5	0.2	0.5
Denmark	5,146	2,908	2,674	81,911	75,925	18.2	7,291	22,909	30,200	335.7	676.7	1,012.4	60	0.3	1.1	0.4	1.2

Explanations to overview table.

- (a) Total population include all inhabitants in the zone in 1991.
- (b) Work force include all persons in the work force whose address is in a municipality that is part of the zone. 1989.
- (c) No. of jobs. Those who live in the zone and who are employed. 1989.
- (d) GDP at factor costs in 1989. Employment figures are from 1989, whereas GDP/employee are 1987 figures. Transformed to 1989 figures applying a deflator of 9.6%. Rest of Denmark has been calculated as the residual. All zones are assumed to have an average GDP/employee corresponding to the average for Denmark as a whole.
- (e) Gross income. 1989.
- (f) Gross income/number of persons above the age of 14. 1989.
- (g) The number of fishermen as calculated by the Danish Statistical Bureau. Those, whose main source of income, in november, was the activity of fishing; corresponding to the method of defining employment and workforce. Figures apply for 1989. The figure is inclusive of aquaculture.
- (h) Figures supplied by the Danish Statistical Bureau as described above. The data supplied cover the processing industry and the fish meal industry together with wholesale. Employment in ancillary industries is calculated assuming that for each three persons employed in the other segments of the industry, one is employed in these industries. Figures apply to 1989.
- (i) (g) + (h)
- (j) The average GDP at factor costs per fishermen (inclusive of aquaculture) have been estimated on the basis of the Danish National Accounts. This figure has been multiplied by the number of fishermen as stated (g). As the most recent complete data on GDP at factor costs within the various sectors apply to 1987, the resulting figure has been corrected for inflation from 1987 to 1989 by a rate of 9.6%.
- (k) Based on estimated average GDP at factor costs per employee for the whole of Denmark; for processing industry, fish meal industry, wholesale in general and the whole Danish economy. The latter was applied when assessing the gross value added per employee in ancillary services and supplying industries. 1987 is the latest year for which data have been available at a sufficiently detailed level. The 1987 figures have been transformed to 1989 figures applying a rate of inflation from 1987 to 1989 of 9.6%. The source for the corresponding employment figures is stated in (h).
- (l) (j) + (k)
- (m) The value of landings of quota species divided by the value of all landings. Landings; landings in Denmark and abroad by vessels registered in the zone in question. Quota Species; cod, haddock, hake, whiting, saithe, plaice, sole, herring, mackerel, salmon, prawn and shrimp.
- (n) (g)/(c)
- (o) (i)/(c)
- (p) (j)/(c)
- (q) (l)/(c)

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