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

Bremerhaven Case Study Report

Delaney, Alyne; Zbicinski, Martin

Published in:
Regional social and economic impacts of change in fisheries-dependent communities

Publication date:
2011

Document Version
Early version, also known as pre-print

European Commission

Fish / 2006 / 09

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

Bremerhaven Case Study Report

July 2010

Acronyms

ACFA	Advisory Committee on Fisheries and Aquaculture
EAPO	European Association of Producer Organisations
ERDF	European Regional Development Fund
EU	European Union
TEU	Twenty-foot equivalent units
km	Kilometers
km^2	Square kilometre
MSC	Marine Stewardship Council

This report has been prepared through a joint collaboration between Alyne Delaney (Innovative Fisheries Management, Aalborg University), and Martin Zbicinski, (Johann Heinrich von Thünen-Institut) with the active support of community stakeholders. The authors acknowledge the important role played by local stakeholders in providing both the quantitative data and the qualitative information presented in this report. This support has been critical in generating primary data not previously available for the Bremerhaven area.

Citation: Delaney, A.E. and Zbicinski, M. (2010). Assessment of the status, development and diversification of fisheries-dependent communities: Bremerhaven Case Study Report.

Table of Contents

Table of Tables

Table of Figures

1. Introduction

1.1 General description

Bremerhaven was selected for the detailed case study in a project on socioeconomic dependency of fisheries in maritime communities because it is home to one of the largest concentrations of fish processing in the European Union. Bremerhaven has kept its processing sector despite a nearly completely vanished fishery fleet and declining landing volume of fresh fish in Bremerhaven's port during recent years. The fish-processing sector has sustained its strong competitiveness, as it depends very little on local landings. After some years of decline, the fish-processing sector made a turnaround in 2008, employing more people and increasing its volume of sales remarkably[1].

The modern fish and food processing facilities are located at the Fischereihafen (Fishing port), which is a separated industrial area south of the overseas harbour. The overseas harbour contains one of Europe's largest container-terminals, as well as a car-terminal, a fruit-terminal, a cargo-terminal, dockyards and a passenger cruise-terminal. Bremerhaven's port complex is Germany's second largest harbour, after Hamburg. The development of the city is closely connected with the port which drives the economy and was therefore hit hard by the recent global economic downturn.

1.2 Location

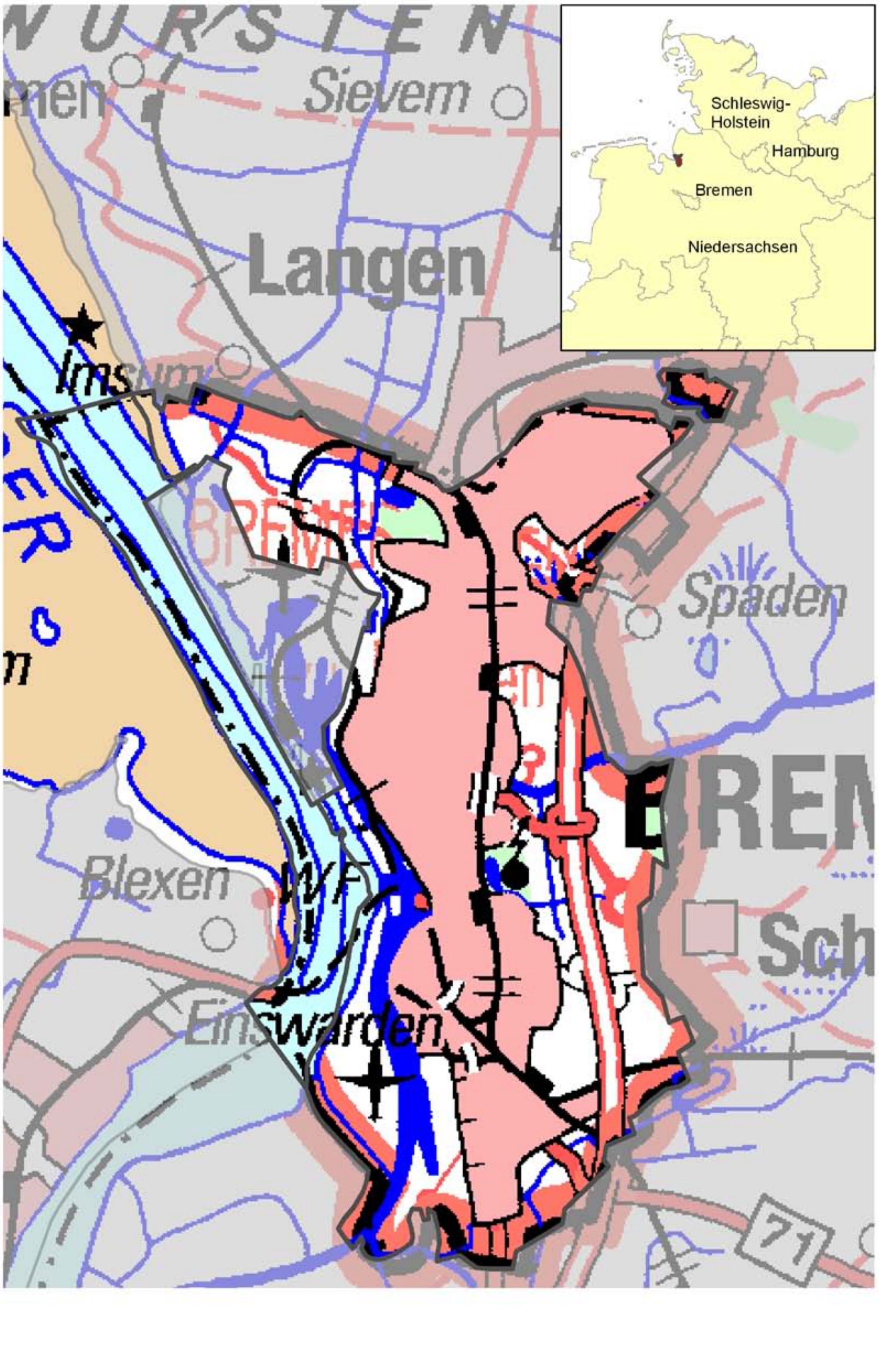
The study area of Bremerhaven (NUTS-Code DE502; GPS coordinates: 53° 33' N, 8° 35' O) lies at the mouth of the Weser River exactly 32 nautical miles away from the North Sea[2]. With a total area of 93.82 km² (in 2010 Bremerhaven officially received additional 14.95 km² of the Luneplate area from Lower Saxony) it was originally founded as an ocean port (North Sea harbour) for the city of Bremen. Together with the city of Bremen it forms (known as the "Free Hanseatic City of Bremen") the state of Bremen.

Due to its location on the coast, 50 kilometres north of Bremen, Bremerhaven forms an enclave in the federal state of Lower Saxony. Although there is still some administrative dependency from Bremen, Bremerhaven has its own mayor, a township administration in the form of a magistrate and a city council assembly which is responsible for council related decisions.

[1] Statistisches Landesamt Bremerhaven, Statistisches Jahrbuch (http://www.statistik.bremen.de/sixcms/media.php/13/Jahrb09_ohne%20Schutz.5841.pdf), S. 89-90

[2] Bremenports, General information, http://www.bremenports.de/891_2

Figure 1. Bremerhaven and the surrounding Federal State of Lower Saxony, Bremerhaven's location in Northern Germany (top right)[3]



[3] Institut für Ländliche Räume, Wald und Fischerei (Johann Heinrich von Thünen-Institut)

1.3 Key geographical characteristics of the community

The port is divided into an overseas harbour (*Überseehafen*) which is managed by the Bremenports GmbH & Co KG and an industrial area of the port called fishery port (*Fischereihafen*). Except for two berths along the river Weser (Container- Passanger- and a part of the Fruit-Terminal), the port is protected by locks. The fishery port is also home to numerous fish processing (e.g. Deutsche See, Frozen Fish International, Frosta AG, headquarters of Nordsee GmbH) and food processing companies, a fish market, a fresh fish auction, a growing wind energy production centre and various other industrial and service corporations and the newly developed maritime centre "*Schaufenster Fischereihafen*". Due to its geographical situation, Bremerhaven is well connected to the highway A27, running north-south and east connecting the city to Bremen and Cuxhaven. However, the road connection to Hamburg suffers a few difficulties. As the *Bundesstraße* 71 and secondary roads carry most of the heavy lorry traffic to Hamburg, solutions are discussed to improve this important route. In addition to waterways and roads, Bremerhaven has rail connections. Although the central rail station lost its last long-distance train connection in 2001, it has regional connection to Bremen, Cuxhaven, Osnabrück and Hamburg. Furthermore, the rail carries heavy load of freight traffic, mostly new cars, containers and food.

Bremerhaven's maritime climate is mild but predominantly humid and rainy. The mean annual temperature is about 9.4°C; in winter the temperature averages 1.8°C, in summer 17.4°C.

The rivers Weser, Geeste, Rohr, Lune and Aue flow through or by the city of Bremerhaven.

The town of Bremerhaven was founded in 1827, although there were already settlements, such as Lehe, as early as the 12th century. Bremerhaven was formerly known as one the most important harbours of emigration in Europe to the New World. As a key base of the German Navy, most of the city was destroyed in World War II. After being a post-war enclave of the United States within the British zone of northern Germany, the city became part of the Federal State of Bremen in 1947 and received its name Bremerhaven[4]. Today, Bremerhaven is therefore part of the city-state of Bremen, practically being a state of two cities, while also a city in its own right. This is complicated to the extent that the city of Bremen has owned the "overseas port" within Bremerhaven since 1927. In the 1970s the import and export of car, fruit and containers increased enormously. Due to the global shipbuilding crisis in the 1980s many shipyards and docks closes down. Nevertheless, there was a positive development in the fish processing industry which sustained its position till now.

2. Demographic aspects

2.1 Population and population age structure

Bremerhaven is a community of 114,177 inhabitants (2010)[5]. Since 1968 when Bremerhaven's population of 148,931 inhabitants reached its peak, there has been a gradual decline in population.[6]

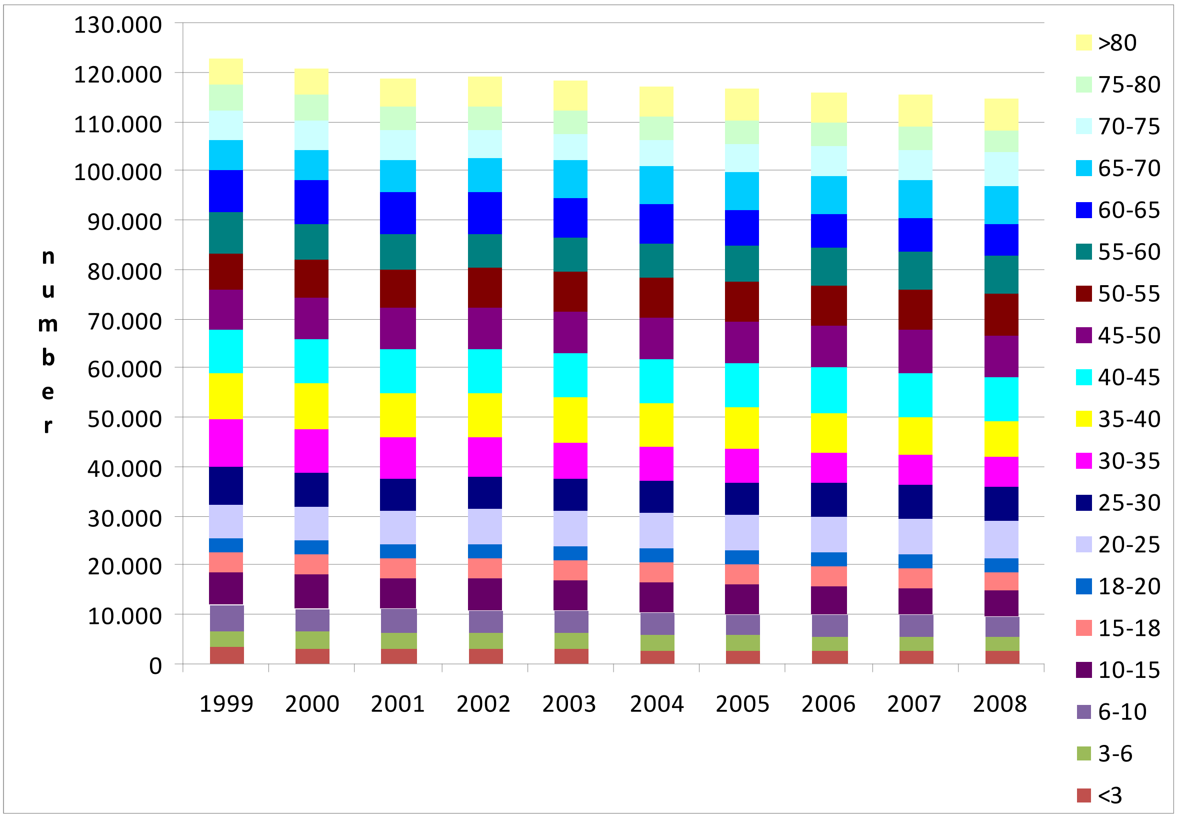
---

[4] Elmshäuser, K. (2007), Die Geschichte Bremens, C.H. Beck oHG, München 2007, pp. 103-104

[5] Der Magistrat der Stadt Bremerhaven (2010): Statistischer Kurzbericht Mai 2010 (2010), p. 2

[6] Der Magistrat (2008): Bericht 2008 über die Verwaltung und den Stand der Stadtangelegenheiten, p. 1

Figure 2: Population and age structure of Bremerhaven, 1999 to 2008



The present depopulation is to some extent due to the relation between birth (lower) and death rates (higher), e.g. in 2008 alone 1496 people died while only 976 were born. The population structure development shows an ageing population which mirrors the national picture. Bremerhaven's Chamber of Trade and Commerce projects a further population decline and assumes a population of 104,959 in 2020.[7]

2.2 Ethnicity and migration

Another very important factor which affects population development is migration. In particular, the movement of inhabitants into the border regions of Lower Saxony (at the border to Bremerhaven) means a population decline for Bremerhaven, but a stable or rather growing population in the region surrounding the city. Local representatives stated that the metropol region Bremen/Oldenburg which consists of Bremen, Bremerhaven and parts of the Federal state of Lower Saxony has seen an increase in population. Because of its close distance to the border of Lower Saxony, many people who work in Bremerhaven live just outside the city's border. Thus the population decline in Bremerhaven should be put into proper perspective.

In 2008 about 10,795 inhabitants of the city were foreign-born and accounted for 9.44% of the population, a statistic which is higher than the national average.[8] Most foreigners have Turkish origins. The second largest group of foreigners in Bremerhaven comes from Portugal, which is unusual in the rest of Germany. A local representative from the fish

[7] Industrie- und Handelskammer Bremerhaven (2009): Statistischer Jahresbericht 2009, p. 5

[8] Der Magistrat der Stadt Bremerhaven (2009): Bericht 2009 über die Verwaltung und den Stand der Stadtangelegenheiten, p. 19

industry stated that most foreign employees in the processing sector are Portuguese and Polish nationals.

Table 1. Number and origin of foreigners living in Bremerhaven, 2008

Staatsangehörigkeit	männlich	weiblich	insgesamt
Türkei	2 005	1 854	3 859
Portugal	691	596	1 287
Serbien und Montenegro	403	410	813
Polen	242	405	647
Russische Förderation	167	233	400
Bosnien und Herzegowina	116	114	230
Thailand	33	196	229
Vereinigte Staaten	133	67	200
Italien	106	57	163
Spanien	68	87	155
Niederlande	82	50	132
Griechenland	87	42	129
Kasachstan	54	67	121
China einschl. Tibet	62	59	121
Bulgarien	87	32	119
Österreich	67	49	116
Kroatien	59	54	113
Ungarn	90	18	108
Ukraine	39	64	103
Syrien, Arabische Repubik	57	46	103
staatenlos	25	12	37
sonstige und ungeklärt	876	771	1 647
insgesamt	5 549	5 283	10 832

3. Economic aspects

Since its constitution, Bremerhaven's economy has always been linked to its port activities. The city's port is the sixteenth-largest container port in the world and the fourth-largest in Europe with 5.5 million twenty-foot equivalent units (TEU) of cargo handled in 2008. However, trade and exports depend heavily on external factors, most notably on the global economy. With the economic downturn, the port authority recorded a 20 % decrease (to 4.4 million TEU) in container handling in 2009 compared to the previous year. Car exports in particular fell sharply by 40.8 % comparable to the level of 2006.[9] [10] Due to the German government's economic stimulus package and the slowly recovering global economy, experts predict a significant positive turnaround for the port 2010.

[9] Industrie- und Handelskammer Bremerhaven (2009): Jahresbericht 2009, pp. 5; 19

[10] Industrie- und Handelskammer Bremerhaven (2009): Statistischer Jahresbericht 2009, p. 17

Bremerhaven's maritime activities, especially logistics and transport, are backed by cooperation with education and science institutions related to this industry. Human capital and know-how are of high importance to the city's future.

Bremerhaven, also called "fish-town" is home to Germany's largest concentration of fish and food processing with European-wide importance. A large number of employees work in this sector which has almost no dependence on locally landed fish. Easy transport connections make it possible to import raw material, mostly frozen fish by containers but also import fresh fish by plane. The traditional fish-processing sector diversified in recent years, especially producing and processing frozen food.

3.1 Importance of economic activities

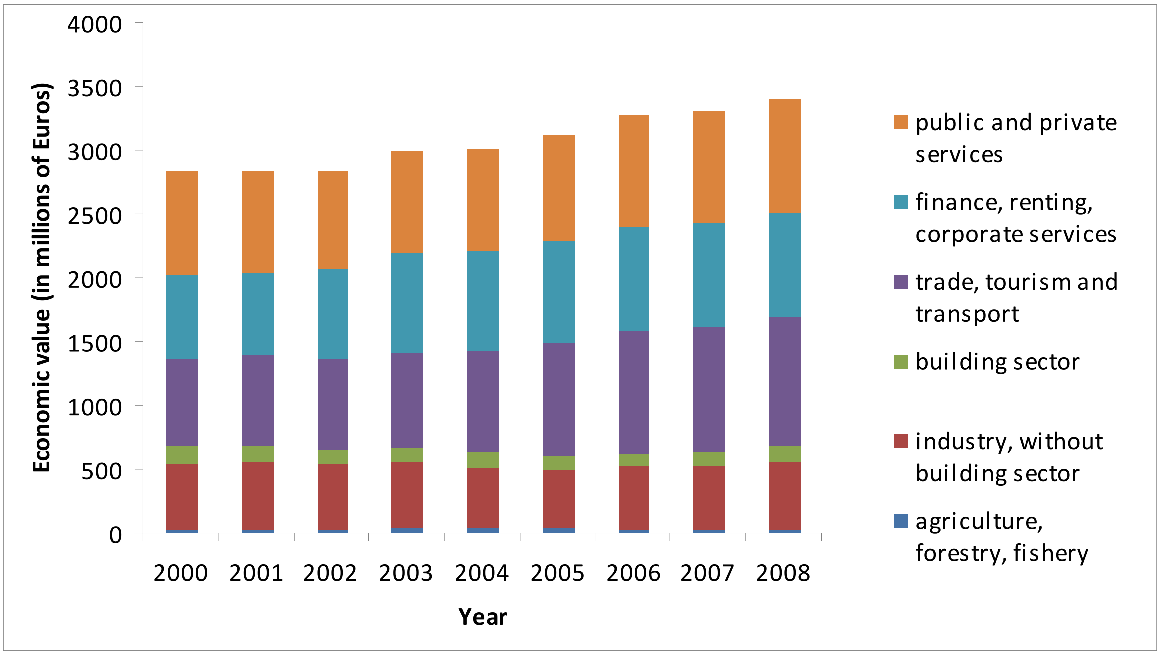
Bremerhaven's economic output rose, with different growing rates, from 2.839 Billion Euros in 2000 to 3.404 Billion Euros in 2008. The broad breakdown of the economic sectors illustrates the importance of the harbour and other activities related to it. Although there is no information available on Bremerhaven's economic dependency to its port, the three largest sectors (especially: private services, corporate services and trade/transport) are directly related to maritime logistic activities and trading businesses. This suggests that the port is of key importance and will certainly keep that position in the future. To strengthen its advantageous position on maritime-related sectors Bremerhaven invests in education and science. The University of Bremerhaven and the Alfred Wegener Institute for Polar and Marine Research cooperate closely with the local industry in order to maintain its position as a centre for logistics and food processing.

In recent years, tourism has become more important for Bremerhaven. With the construction of the climate house and the maritime centre *Schaufenster Fischereihafen*, the city now offers its visitors more highlights and sees great potential in day-trip tourism.

Being famous for its long fishery tradition, Bremerhaven today is one of the largest fish processing centres in Europe. Large companies, e.g. Frozen Fish International, the freezing-food producer Frosta AG, the fish processor Deutsche See and the headquarters of Nordsee are located in the Fishery Port. Various other small and middle size companies, which engage in fish processing or in the production of sea viands, settled in this area and extend the fish food competence to cover innovative fields within the market.[11]

[11] Bremerhavener Gesellschaft für Innovationsförderung und Stadtentwicklung mbH

Figure 3. Turnover by different sectors in Bremerhaven, 2000 to 2008



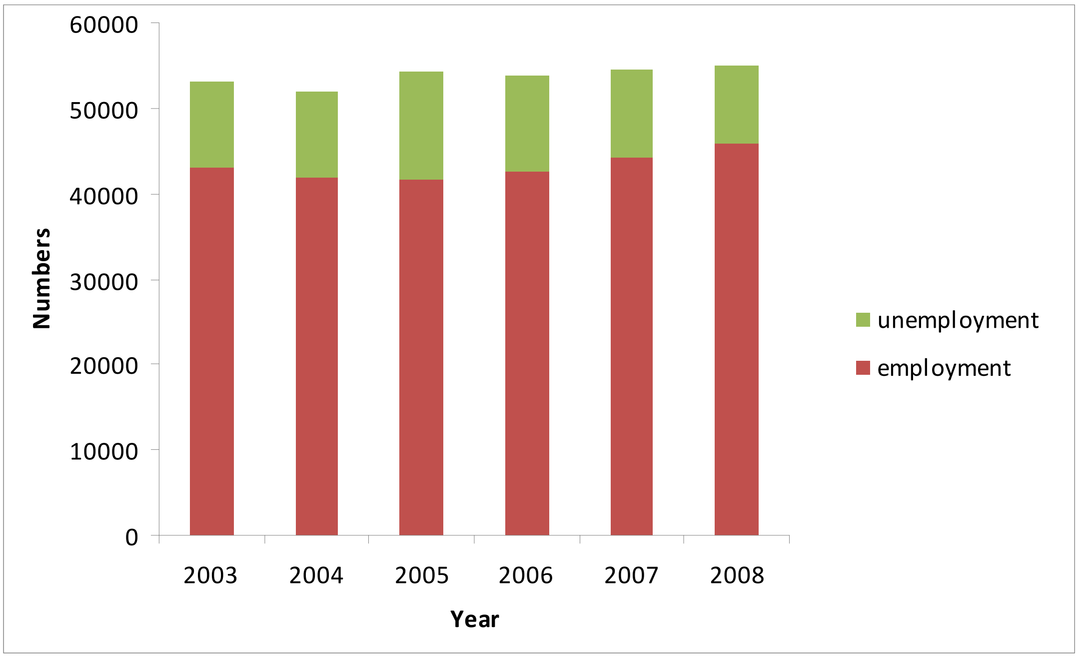
Bremerhaven's industrial area, the Fishery Port, is home to various fish and food processing companies, other manufacturing corporations and a growing basis for wind energy technology production. In the heart of the Fishery Port, an old fish packing hall was replaced by a maritime centre ("*Schaufenster Fischereihafen*") housing an aquarium and museum, many restaurants, cafés, bistros, bars and shops. This project was co-financed by the European Union and has proven to be very successful in attracting people, and is therefore considered exemplary for sustainable investment. The European Union values the positive effects of project "Schaufenster Fishery Port" and asked Ms Riechers-Kuhlmann (the director of the Fischereihafen-Betriebsgesellschaft mbH) on numerous occasions to present the projects outcome as exemplary for a sustainable investment.

During recent years Bremerhaven became home to corporations producing wind energy technology. Producers like Repower, WeserWind and Multibird form the largest industrial area for wind power station production at the North Sea. This concentration may potentially have very positive effects on Bremerhaven (employment, image and renewable energy), since the green technology sector is very likely to increase in the future.

3.2 Employment and unemployment

From 2003 to 2008 the number of full time employees increased from 43,090 to 45,924. During the same period, the unemployment rate rose from 18 % in 2003 to 23.7 % in 2005 and finally declined to 16.7 % in 2008.

Figure 4. Employment and unemployment figures in Bremerhaven, 2003 to 2008



According to present data, at the beginning of 2010 46,707 people were full time employed in Bremerhaven. The current unemployment percentage form July 2010 is 16.9 %. The statistics also show that unemployment amongst foreigners is much higher than for Germans. In 2009 27.9 % foreigners living in Bremerhaven were out of work.[12]

Figure 6 shows the breakdown of full-time employment by the main economic sectors. Most workers are employed in the manufacturing sector, followed by the sector of other services and sector of traffic, transport and communication; the traffic and transport sector shows the highest increase over the years. The reason for this development can be found in the growth of the port and all the logistic operations related with it. It is estimated that over 25 % of Bremerhaven's workforce is directly related to the maritime economy. If indirect labour, like suppliers, producers, logistics are added, the number of employees rises considerably.

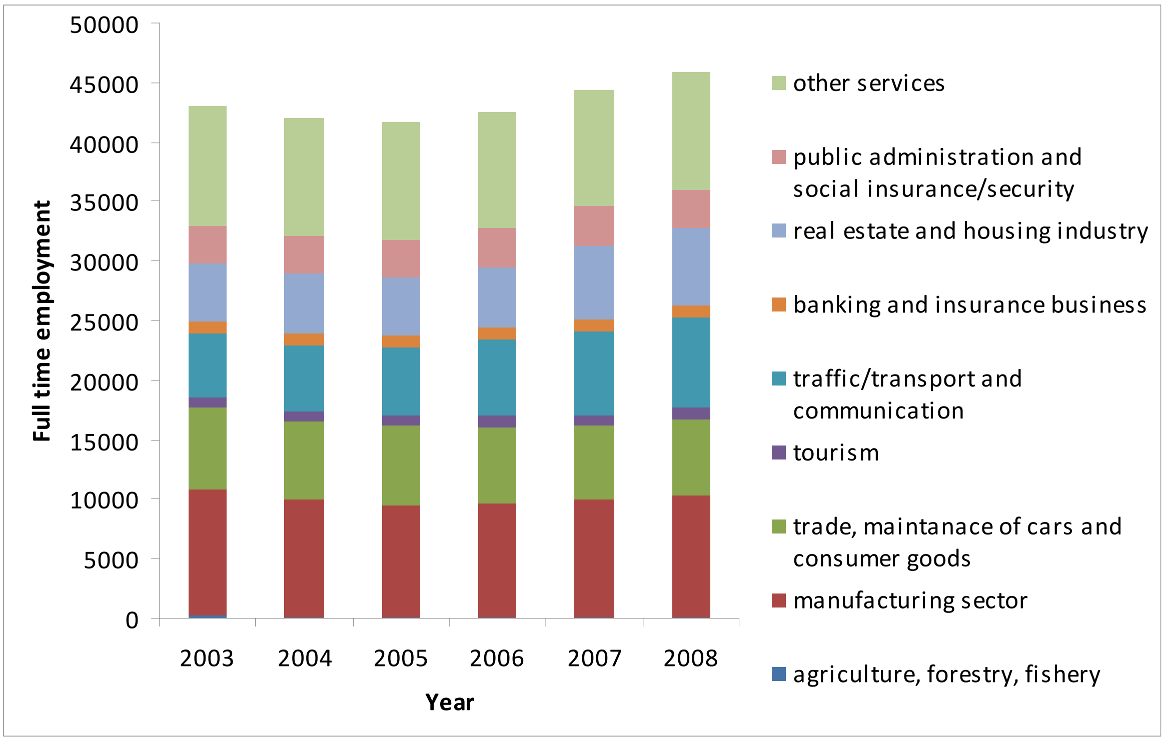
The importance of the fish and food industry is not immediately apparent, as Bremerhaven no longer has a large fishing fleet. But as the centre of fish and food processing in Germany and one of the largest centres of fish processing and frozen food in Europe, no less than 2,175 workers were directly employed in the fish-processing sector in 2008. Together with fish related activities like logistics, manufacturing, auction, market and retail, over 4,000 employees are directly employed in the fish industry, which therefore accounts for 8-9 % of Bremerhaven's workforce.[13] Employment in this sector increased compared to the previous year and according to local representatives, the industry has some difficulties in finding qualified labour, especially for fish food science, quality improvement and food innovations. The overall opinion of the focus group participants about the situation of the fish-processing sector was positive. The company representatives projected a prosperous future for Bremerhaven's fish processing industry, emphasising the strong cooperation with biotechnology and food technology corporations as well as with the university, which

[12] Statistisches Landesamt Bremen (2010): Statistischer Bericht: Bevölkerung, Haushalte und Erwerbstätige (Ergebnisse des Mikrozensus), AI5 7 AVI2 4 j

[13] Bremerhavener Gesellschaft für Investitionsförderung und Stadtentwicklung mbH, http://www.bis-bremerhaven.de/sixcms/list.php?page=en_start

promises many innovations in this regard. All together, the concentration of know-how and industry in one area and the long tradition and gradual increase of competence in fish processing and refinement, further strengthens the city's fish sector and makes it very competitive for the future. But there are also segments of the fishing industry which have experienced a decline. The fishery fleet nearly vanished in Bremerhaven, and with it the local landing volume of fresh fish. Also the fresh fish auction experiences a gradual decline due to the high competition from European countries with larger fleets, such as Norway.

Figure 5. Breakdown of full-time employment in Bremerhaven by sectors, 2003 to 2008



3.3 Infrastructure

Bremerhaven is located at the mouth of the river Weser on its eastern bank. Nevertheless, the city is well connected to the highway network since the 1970s. The A27 runs north-south, east of the city, connecting Bremerhaven to Bremen and Cuxhaven. The road connection to Hamburg can be made via a Federal highway and secondary roads. Given Bremerhaven's easy connection to the highway, transport time by car to the city is approximately:

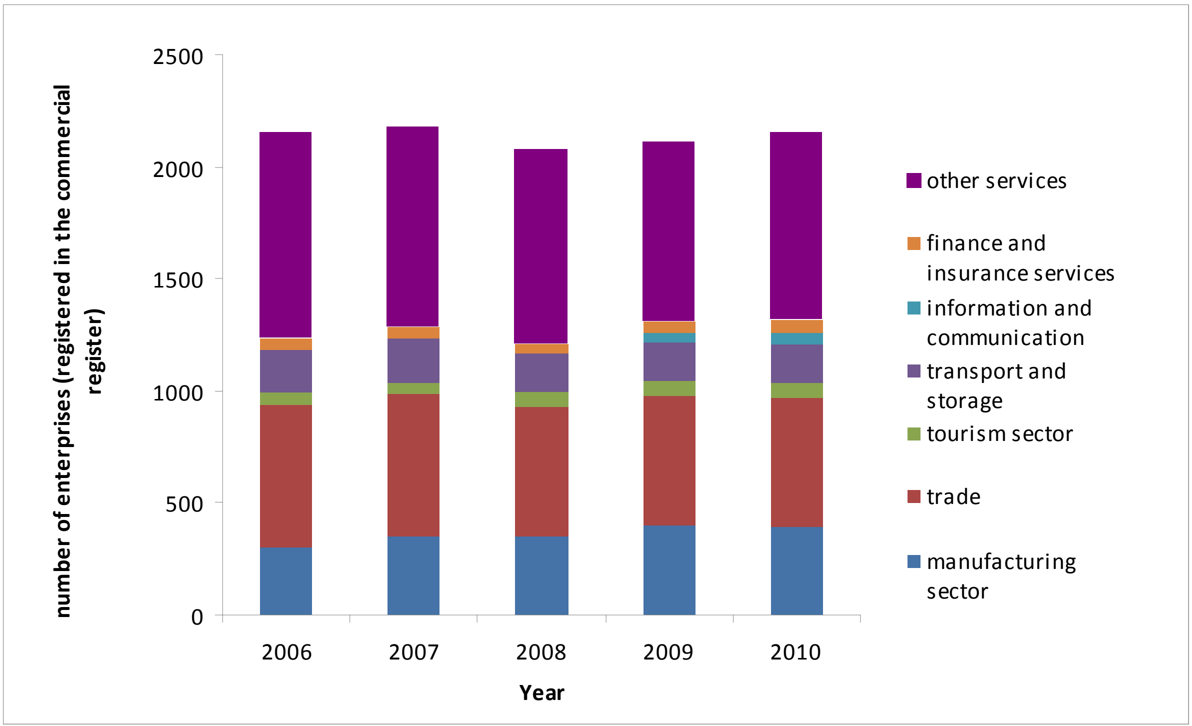
- 33 min from Cuxhaven (44 km)
- 50 min from Bremerhaven (about 60 km)
- 1h 5 min from Oldenburg (75 km)
- 1 h 50 min from Hamburg (about 180 km)

The closest airport is the regional airport Bremerhaven in Luneort, a district of Bremerhaven just 7.6 km from the city centre. However, although the airport is close and convenient, it only serves small aircraft and has only two regular connections to the islands of Sylt and Helgoland.

The closest international airport is the city airport Bremen, located at the highway A 27 outside the city Bremen. From Bremerhaven it is a journey of 45 minutes (66 km) by car.

Looking at Bremerhaven's business sector, in 2010 there are 2,153 enterprises registered at the Chamber of Commerce. On the surface, given this number is nearly equal to the number of businesses registered in 2006, it would appear that Bremerhaven's business and economy is relatively stable. There were fluctuations, however in the intervening years; there were a number of closures in 2008 due to the economic slump. However, this process reversed soon after.

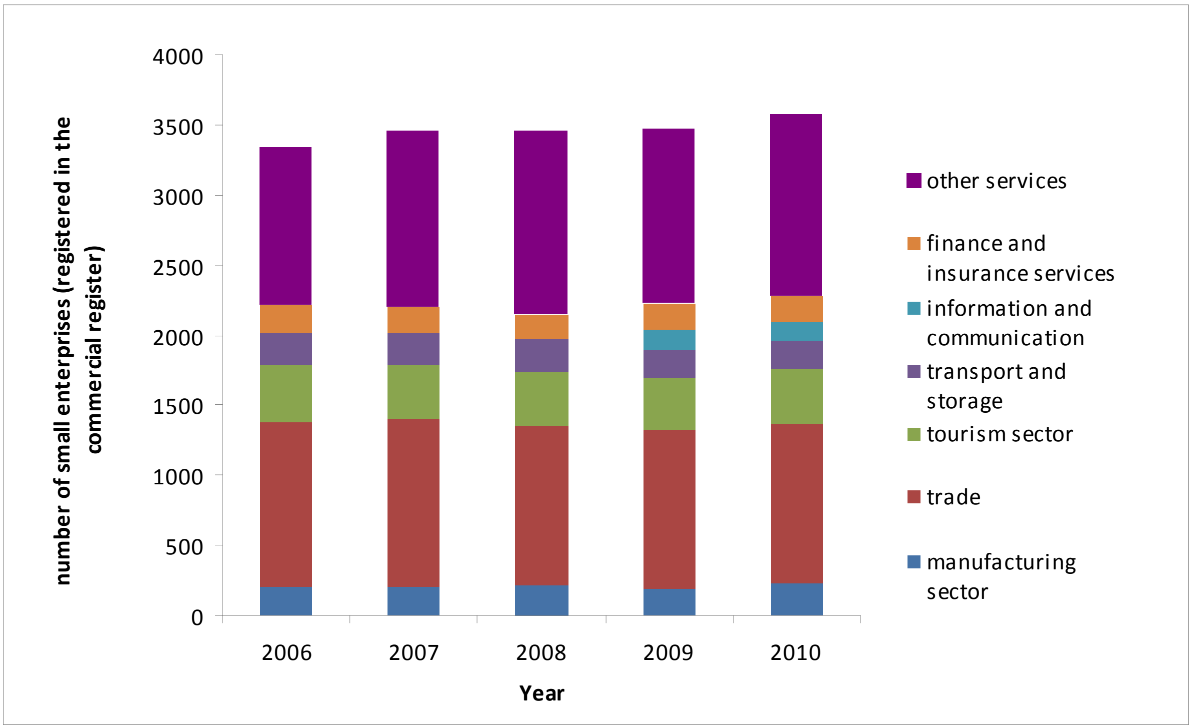
Figure 6. Number of enterprises (registered in the commercial register) and their economic sectors in Bremerhaven[14]



Compared to larger businesses, smaller enterprises were more resilient in the face of the global economic downturn in 2008. Small business entrepreneurship continues to be strong with new businesses continuing to be founded today.

[14] Handelskammer Bremen, Industrie- und Handelskammer Bremerhaven (2010): Statistischer Jahresbericht 2009, p. 23

Figure 7. Number of small enterprises (registered in the commercial register) and their economic sectors in Bremerhaven



Bremerhaven has a number of educational institutions, as would be expected from a city of its size:

- 9 primary schools
- 14 schools offering secondary level education
- 6 schools with support centre
- 4 schools offering vocational courses/training
- 4 Gymnasiums
- University of Bremerhaven (close cooperation with the food industry, wind energy station producers and maritime research)
- Alfred-Wegener Institute for Polar and Marine Research (collaboration with the fish and food processing sectors as well as maritime activities)
- Bremerhaven's biotechnology centre

3.4 Local development plans

The state of Bremen benefited from assistance from European structural funds in the 2007-2013 funding period. About 142 million Euros have been allocated from the European Regional Development Fund (ERDF) for the two cities of Bremen and Bremerhaven under the "Bremen ERDF Operational Programme 2007 – 2013". As is standard, European funding was matched with national funds. For the first time, the financing of the Bremen ERDF Programme 2007 – 2013 included private sector money. In total, including the national co-financing (approximately 101 million Euros from the public sector and over 78 million Euros from the private sector), almost 322 million Euros is available for the implementation of the programme.

After the ERDF programme was implemented, the state of Bremen assessed its success along the lines of economic, social and ecological criteria. On the basis of these results, the strengths, weaknesses, opportunities and risks of the state of Bremen were ascertained and contrasted. An assistance strategy was derived from this, with a view to developing greater competitiveness in Bremen as a region and thus increasing both productivity and the employment rate. The primarily founding targets are in the areas of investment and innovation as well as in terms of the urban structure.[15]

The thematic and financial emphasis of the programme is on the on-going development and implementation of Bremen's regional innovation strategy programme "InnoVision 2010".

The target of "InnoVision 2010" set by the authorities is to make the state of Bremen one of Germany's top 10 locations for technology by the year 2020 (taking up the goal of the Lisbon Agenda, which aims to develop Europe into the world's most competitive economic area).

For the cities of Bremen and Bremerhaven the following funds are in the pipeline:

Table 2. Table of the ERDF programme funding

Priority axis	**EU funding**	**National public-sector funding**	**National private-sector funding**	**Overall funding**	**Share of EU funding**
	(a)	(b)	(c)	(d)=(a)+(b)+(c)	(e)=a)/(d)
Priority axis 1: Promoting innovation and knowledge	94,800,000	55,510,000	76,990,000	227,300,000	41.71
Priority axis 2: Activating urban commercial and residential areas	45,000,000	43,500,000	1,500,000	90,000,000	50.00
Technical assistance	2,206,631	2,206,631	0	4,413,262	50.00
Total	142,006,631	101,216,631	78,490,000	321,713,262	44.14

Some examples of the planned projects for Bremerhaven:

- Promotion of the Fraunhofer Institute for Wind Energy and Energy System Technology IWES in Bremerhaven
- Future in Work (ZiB) – Careers co-ordination and advice office for women
- Support for the Institute for Marine Resources (imare) – pilot phase
- Offshore wind power development project in Bremerhaven
- Offshore wind power development project in Bremerhaven: 2nd construction phase
- Promotion of the science themes period
- Promoting the "*Wissenswelten*" (knowledge worlds) campaign

[15] Bremen Verwaltung online:

4. Fisheries and aquaculture sub-sector

The fishing fleet of Bremerhaven has been in gradual decline since 1991 leaving a fleet of only 4 vessels (two are between 24-40 meters, the other two vessels are 40+ meters). As the local fish processing industry hardly relies on fresh fish landings, there is no sign that the fishing fleet will increase in the future.

Unlike its fishing fleet, Bremerhaven's fish processing industry is of not only national importance, but also European importance. Big name fish and food industry companies are located in Bremerhaven's Fisheries Harbour, called the Fishery Port, making it one of Europe's largest fish processing centres of high competence and innovation. Since the necessary raw materials can be imported by rail, truck, container and airplane, these companies are not dependent on local landings. Given the high concentration of fish processing and fish manufacturing companies in the area, there are also other fish related establishments providing services to the sector and attracting visitors: a fresh fish auction hall, a fish market and a whole maritime centre ("Schaufenster Fishery Port") directly in the heart of the Fishery Port with restaurants, cafés, bistros, bars, shops and an aquarium.

Of key importance for Bremerhaven is the research environment found here with its clear focus on maritime-related disciplines which have arisen in Bremerhaven and are strongly linked to the fish and food business sector. Work and research at the Alfred Wegener Institute for Polar and Marine Research and the University of Applied Science is closely connected to key areas of regional economic development in the fields of biotechnology and food technology as well as maritime industry services.

There is no aquaculture production in Bremerhaven, though the possibility is being investigated. In 2010 responsible authorities announced the funding of a project conducting research on aquaculture. This project is intended to be a first step for commercial aquaculture industry development.

4.1 Details of the local fishing fleets

The status of Bremerhaven's fishing fleet has not changed since 2003. The fleet consists of four vessels (two demersal trawlers, one pelagic trawler and one vessel using pots/traps) which catch their fish mainly in the North Sea, landing it partly in Bremerhaven.

As can be imagined, detailed information on the fishing fleet are not available for privacy reasons. It can be estimated, however that there are approximately 70-80 people working directly in the Bremerhaven catching sector on those four vessels. The "Atlantic Peace" has 22-28 crew members; the "Santa Maria" has 32 crew members; and there are two smaller vessels with crew.

Although the fish processing industry has its own supply chains of raw material, many representatives of the industry regret that Bremerhaven does not have a larger fleet. They also would like to see higher trading volumes at the fresh fish auction.

4.2 Fish stock status

There are no data on fish stocks around Bremerhaven. It is also not of high importance for this study, as the main focus lies on the fish-processing sector (also considering Bremerhaven's small fleet).

Another very important issue concerning the use of fish stocks was uncovered during fieldwork. The certification of fishery products, which aims to verify their sustainable origin, is of vital importance for Bremerhaven's fish processing industry.

During the focus group meeting the attending representatives approved the certification, e.g. MSC, that verifies sustainable fishing. They explained that consumer demand changes focusing on certified fish products of high quality. Taking responsibility and supplying sustainable raw material is not just a matter of course and adaptation to consumer preference but in the industry's own interests (future supply, prices). Bremerhaven's large fish manufacturers successfully implemented the certification early on in the history of certification.[16]

4.3 Fisheries infrastructure

As a port city of European significance, Bremerhaven has well-developed infrastructure in place. A modern food port in the area of the Fishery Harbour is a centre of competence for fish and food including the following facilities:

- Major fish and food processing and manufacturing facilities and halls (especially frozen and convenient fish and food)
- Harbour landing facilities as well as quays (loosing on importance as local landings of fresh fish decline steadily)
- A fish market and a fresh fish auction
- Various upstream ancillary facilities, large shipyards and various suppliers of marine technology (due to the large port and the high density of port services)
- Significant facilities for ice production and cooling (Bremerhaven is also known as Europe's "cold storage" with a storage capacity of about 640,000m^3), packing, engineering and plant construction as well as facilities providing hygiene services, quality assurance, safety testing and product development
- Through 2010, there were no aquaculture facilities (public funding for aquaculture science is in the pipeline)

4.4 Details of the local catching sub-sector

Data on the local catching sector is unavailable due to privacy reasons. Of the limited information available, the local field study and focus group discussions revealed a rather different picture than the one presented. The local landing volumes of fresh fish are decreasing, but the processing sector does not depend on this supply. There are no official numbers on volumes of fresh and frozen fish, yet the size of the processing sector (number of employees, cold storage capacity) and the positive trend and development emphasised by company representative suggest an enormous amount (in this perspective the local fresh fish landings are just a very small fraction of raw material supply for the industry).

4.5 Details of the local processing sub-sector

The industrial area of Bremerhaven accommodates one of the largest concentrations of fish processing in the European Union. Selected statistics (e.g. processed volumes, profits) are not available due to confidential reasons. However, local field study and focus group discussion provided qualitative descriptions of the sector.

The total number of employees in the fish industry exceeds 4,000 people. This is 8-9% of Bremerhaven's workforce and shows the significance of this sector. Large corporations of the fish industry, e.g. Deutsche See GmbH & Co. KG, Frosta AG and Frozen Fish

[16] focus group meeting, local field study

International, are some of the largest employers in Bremerhaven and the region.[17] Additionally, a large amount of fish processing companies of different sizes, small wholesalers, various companies specialised in the supply chain of the fish industry are all together strengthening Bremerhaven's fish processing industry competitiveness.

Frozen fish processing is by far the most important activity of the industry. It is of national, and also of high international importance. The needed raw materials are imported in containers from all over the world (e.g. China, New Zealand, Iceland, Poland, Russia and South America) by rail, truck and plane (high value fresh fish).

Table 3. Number of employees and revenues of Bremerhaven's fish processing industry (direct fish processing), 2005 to 2008

Year	2005	2006	2007	2008
Direct processing employees	2470	2152	2130	2175
Direct employees in sector		4000		>4000
revenues	543,737,000 €	539,590,000 €	769,774,000 €	847,544,000 €

Though the volumes of processed fish were unavailable for confidentiality reasons, a general estimate can be inferred from looking at the largest of the processing firms. The two largest fish processing companies are Frozen Fish International and Deutsche See. Frozen Fish International has 800 employees with a turnover of 95,000 tons while Deutsche See's turnover is 70,000- 80,000 tons. The turnover comes out to about 180 tons/per employee. With the knowledge that there are approximately 2,175 employees in the fish processing industry, and while adjusting the number slightly, because some processing involves high quality production, rather than high production, this means the overall volume of fish processing can be estimated at over 200,000 tons.

Discussions among stakeholders in focus groups highlighted agreement that the trend in the industry is increasing, demand is rising, and thus, revenues will rise.

Bremerhaven as a city still shows some infrastructural and structural deficits. The fish industry, however, benefits from an excellent infrastructure. Especially the high concentration and the integration of a unique fish sector service environment provide exceptional advantages, namely economies of scale, know-how, research and development.

Furthermore, industry representatives emphasised that the close connection to biotechnological and science institutions are drivers of new product development, improvement of fish product quality and production methods. Apparently, innovation and diversification in Bremerhaven's fish and food sector is of vital importance to its competitiveness.

Whereas other countries in the world offer much lower purchasing prices for fish products (especially raw materials), Bremerhaven's processing sector has the competence and know-

[17] RegIS online, Wirtschaftsportal, http://www.regis-online.de/de/home/index.html

how to deliver manufactured products that meet consumer demand in term of convenience, quality and sustainable certification.

Since fresh fish processing has declined in recent years, the processing industry not only focused on frozen fish processing but also diversified into frozen food processing. There are no numbers available, but local authorities mentioned that frozen food processing was a logical step, since the whole frozen processing supply chain was in place. Backed by the long experience and know-how of frozen processing, the fish and food companies created synergies and could better utilize its production capacity, which had decreased through the decline of local fish landings.

The focus group discussion revealed that the processing sector is experiencing substantial growth which makes it more and more difficult to find highly skilled labour. There are incentives to increase the educational capacity (fish and food processing training in vocational schools, specialisation in university) to accomplish the demand for labour.

During the economic downturn, the fish and food industry had a stabilising effect on Bremerhaven's economy (from 2007 to 2008 the number employees in fish processing increased). Presently, its potential and innovative approach promise Bremerhaven's fish and food processing industry a future which responsible persons unanimously describe as very positive.

4.6 Details of the local aquaculture sub-sector

Through 2010, there is no aquaculture production in Bremerhaven. That will change with the creation of the centre for aquaculture ("*Zentrum für Aquakultur*") funded with 1.8 million Euros by the Federal state of Bremen (financed through the economic stimulus package of the German government). The centre will be located in the same neighbourhood as the Alfred Wegener Institute for Polar and Marine Research in the trade port. The development calls for the construction of three closed water loops with 21 individual basins for fish farming. The concept aims to analyse the potential of aquaculture in the region and to demonstrate specific conditions and development objectives of a commercial aquaculture economy in the future.[18] However, some local representatives from the fish industry are not in favour of aquaculture production. They fear a decline in quality and doubt the production will be ecologically sustainable.

4.7 Details of the local ancillary sub-sector

The port of Bremerhaven (serves e.g. large container ships, tank ships, cruise ships, navy ships, fishery vessels) provides all kind of marine ancillary and technology. The very famous Lloyd shipyard with more than 150 years history in shipbuilding is also located here. However, due to the small fishery fleet it is not possible to access the ancillary sector directly related to the fishing industry.

5. Governance

5.1 Key local institutions

Key institutions of relevance to the fishing sector in Bremerhaven are as follows

Fish industry related companies:

[18] Bremerhavener Gesellschaft für Investitionsförderung und Stadtentwicklung: http://www.bremerhaven.de/meer-erleben/wissenschaft-und-forschung/konjunkturpaket-ii-verhilft-der-seestadt-zu-einem-zentrum-fuer.29053.html

- including Deutsche See, Frosta AG, Rrozen Fish International. A detailed list of all companies is available at the website of the Bremerhavener Gesellschaft für Investitionsförderung und Stadtentwicklung (http://www.bis-bremerhaven.de/sixcms/list.php?page=start)

Bremerhaven's administration:

- The Magistrat and the city council assembly are the administrative agencies (http://www.bremerhaven.de/stadt-und-politik/politik/magistrat/)

Organisations and Institute related to the fish industry:

- Bremerhavener Gesellschaft für Investitionsförderung und Stadtentwicklung mbH (http://www.bis-bremerhaven.de/sixcms/list.php?page=start), FIshery Port-Betriebsgesellschaft mbH (http://www.fbg-bremerhaven.de/)

Institute, University and biotechnology centre (strong cooperation with the fish industry and local economy):

- Alfred Wegener Institute for Polar and Marine Research (http://www.awi.de/de/), university of Bremerhaven (http://www.hs-bremerhaven.de/), biotechnology centre Bio Nord (http://www.bio-nord.de/sixcms/list.php?page=home)

Yearly seafood exhibition for wholesalers, retailers, importers, exporters, brokers,, producers and caters (fish international brings the German market for fish and seafood to one location):

- Fish International (http://www.fishinternational.com/)

5.2 Public intervention

Due to Bremerhaven's structural weakness in the past a major community initiative programme ("URBAN II 2000 – 2006") was launched from 2000 to 2006.

The main objective of that programme was to stabilise the economic and social development and to make the area competitive compared with locations outside the city.

These aims were to be achieved via the following strategic goals:

- Strengthening economic prosperity and employment
- Promoting equality of opportunity, social inclusion and renewal, strengthening of people's identifying with the area
- Protecting and improving the environment and the recreation function
- Boosting the competitiveness, functionality and attractiveness of the area
- Reviving historically valuable functions and infrastructure.

An overview of the financing of the priorities and measures (in Euros) can be found in Table 4:

Table 4. Public intervention in Bremerhaven, 2000 to 2006

Priorities/ Measures	Total cost	Proportion	ERDF contribution	National contribution	Private contributi
Economic development	11,261,664	55.81 %	5,630,832	5,630,832	-
Technology promotion – Technology Park flagship project	10,237,664	50.74 %	5,118,832	5,118,832	-
Suburb management	1,024,000	5.07 %	512,000	512,000	-
Labour market and social affairs	4,215,990	20.89 %	2,107,995	2,052,000	-
Training and new businesses	2,930,000	1452 %	1.465,000	1,465,000	-
Social measures in the assisted area	1,285,990	6.37 %	642,995	642,995	-
Urban renewal / ecology	3,708,000	18.38 %	1.854,000	1,854,000	-
Revitalisation of the suburban centre	2,800,000	13.88 %	1,400,000	1,400,000	-
Development of the bank of the river Geeste	908,000	4.50 %	454,000	454,000	-
Technical assistance	992,000	4.92 %	496,000	496,000	-
Monitoring and evaluation	744,000	3.69 %	372,000	372,000	-
Publicity and exchange of experience	248,000	1.23 %	124,000	124,000	-
Total	**20,177,654**	**100.00 %**	**10,088,827**	**10,088,827**	-

During the same time, the Federal state of Bremen funded (with a major assistance from the EU) the “Ziel-2 Programme” that aimed to improve Bremen’s and Bremerhaven’s economic competitiveness (diversity), transport access, service business industry, environment and the city's social problems. The total fund for Bremen and Bremerhaven amounted to exactly 235.924.000 Euros (funded by the Federal State of Bremen, European Fond for Regional Development (EFRD) and the German state).

Bremerhaven alone received 60 % of the means provided by the Federal State of Bremen. The various investment projects from 2000 to 2006 were funded with about 80 million Euros. The detailed explanations can be found at the website of the Federal State of Bremen (http://www.efre-bremen.de/detail.php?gsid=bremen59.c.2924.en)

The current EFRD programme (funding period 2007 – 2013, total funding amount 321,713,262 Euros), which aims to improve Bremen's and Bremerhaven's economic competitiveness significantly is described above in section 3.4.

6. Stakeholder analysis

Some key contacts in the Bremerhaven community who were interviewed and attended focus groups are provided in Table 5.

Table 5. Stakeholder details and contacts

Name	Organisation	Contact details
Ms. Kuhlmann	FIshery Port-Betriebsgesellschaft mbH	http://www.fbg-bremerhaven.de/index.php?id=34
Mr. Parlevliet	Doggerbank Seefischerei GmbH / Parlevliet & Van der Plas B.V.	http://www.parlevliet-vanderplas.nl/niederlassungwiedergave.php?pageid=6
Mr. Brandt	Staatliches Fischereiamt Bremerhaven	http://www.bremerhaven.de/buergerservice/aemter-einrichtungen/andere-dienststellen/staatliches-fischereiamt-bremerhaven.9337.html
Mr. Samúelsson	Bremerhavener Fischauktions GmbH	http://www.fischauktion.de/de/kontakt/index.phtml
Mr. Limberg	Bremerhavener Gesellschaft für Investitionsförderung und Stadtentwicklung mbH	http://www.bis-bremerhaven.de/sixcms/list.php?page=start&main=http://www.bis-bremerhaven.de/sixcms/detail.php?id=16118&menu=8817&sub=16118
Mr. Vogt	Senator für Wirtschaft und Häfen	http://www.wirtschaft.bremen.de/sixcms/detail.php?gsid=bremen02.c.730.de
Mr. Hintze	Industrie- und Handelskammer Bremerhaven	http://www.bremerhaven.ihk.de/

7. Qualitative interpretation and analysis

7.1 Key events and drivers of change

Demographic aspects

Though the city of Bremerhaven's population has been in steady decline since the late 1960s, the surrounding area has seen an increase. Given that many live in the surrounding area and work in Bremerhaven, a decline should not be viewed as a decline in the labour pool. The foreign population of Bremerhaven, at almost 10 %, is higher than the average in Germany overall. Mirroring the rest of Germany, the largest immigrant group in Bremerhaven is Turkish. Unlike the rest of the country, however, the next largest immigrant group is Portuguese. As the community members in the focus group explained, this group has a long history of working in the processing sector, though there numbers have declined in the recent years.

Economic aspects (all sectors)

Bremerhaven's economy has always been linked to its port activities. The city's port is the fourth-largest in Europe with 5.5 million Twenty-foot equivalent units (TEU) of cargo handled (2008). With the economic downturn, the port authority recorded a 20 % decrease (to 4.4 million TEU) in container handling in 2009; car exports in particular fell sharply by 40 %.

Bremerhaven's maritime activities, especially logistics and transport, are backed by cooperation with education and science institutions related to this industry. Human capital and know-how are of high importance to the city's future.

Bremerhaven is home to Germany's largest concentration of fish and food processing with European-wide importance. Easy transport connections make it possible to import raw material, mostly frozen fish by containers but also fresh fish by plane. The traditional fish processing sector diversified in recent years, especially producing and processing frozen food.

Fisheries and aquaculture aspects

Catching sub-sector

There is no longer any significant catching sector in Bremerhaven, despite its importance as a processing centre in Europe, ranking fourth overall. In this sense, it is an interesting case of a community divorced from its original beginnings as a port with a catching sector.

Ancillary sub-sector

In most communities, the fortunes of the ancillary sub-sector are largely driven by, and follow, the fortunes of the catching sector. In Bremerhaven, since there is no significant catching sector, the ancillary sector is also quite limited.

Aquaculture sub-sector

There is no aquaculture activity in Bremerhaven, though a project began this year (2010) to investigate future possibilities. They possible expansion of activities into aquaculture is debated among members of the community, with not everyone convinced of the need.

Governance aspects

Though the processing firms are independent from one another and work as one would expect in a market economy, there is work to strengthen the cooperation among institutes. In particular, the Alfred Wegener Institute for Polar and Marine Research, the University of Bremerhaven and the biotechnology centre Bio Nord have begun to research and work together to strengthen the fisheries (processing sector) in Bremerhaven.

7.2 Adaptation

Demographic aspects

Bremerhaven is a large city and Germany's second largest port. Though the statistics make it appear the population is falling, in fact the population is moving across the border into other areas; there is still a large labour pool. Given its size and available infrastructure and educational opportunities, there is less emigration than seen in the other German case study. The immigrant population is higher than in the rest of Germany, as is the unemployment level of these foreign-born residents, which causes a strain on the society and social sector.

Economic aspects (all sectors)

Bremerhaven did see a decline in numbers of enterprises during the economic downturn, though the businesses in 2010 were back up to the 2006 numbers and thus show they have managed to bounce back.

There was a great amount of effort put into regional development starting in 2006 with a larger amount of money being poured into infrastrcuture and programs. Some of these include:

- Promotion of the Fraunhofer Institute for Wind Energy and Energy System Technology IWES in Bremerhaven
- Future in Work (ZiB) – Careers co-ordination and advice office for women
- Support for the Institute for Marine Resources (imare) – pilot phase
- Offshore wind power development project in Bremerhaven
- Offshore wind power development project in Bremerhaven: 2nd construction phase
- Promotion of the science themes period
- Promoting the "*Wissenswelten*" (knowledge worlds) campaign

Local leaders are looking to not only strengthen and emphasize their maritime strengths, but are also branching out to other sectors such as sustainable energy and technological development. The commercial centre is also in the process of being revitalised and museums have been built to build on increasing tourism. Leaders are particularly interested in capturing the "day-tripper" market, taking advantage of the city's location in the region and providing more options for tourists.

Fisheries and aquaculture aspects

Catching sub-sector

With only four boats registered in Bremerhaven the catching sector is all-but-non-existent. Industry (processing) do feel that though the catching and processing sectors are completely divorced from one another that it would be to everyone's benefit if the catching sector was strengthened.

Processing sub-sector

- There is an increasing demand for fresh fish products from the auction for the processors, though there are no significant landings from the catching sector.
- Increased emphasis on the quality of products.

Ancillary sub-sector

As noted above, there is hope for the rise of non-fisheries sector ancillary services related to the wind energy sector. Currently in phase two, there is potential for additional opportunities for many ancillary sub-sector business types to earn additional income. Such activities represent an adaptive strategy to minimise risk of over-dependency on the fishing/maritime sector. Ancillary sub-sector businesses also ensure that they keep up to speed with various technological developments in the industry.

Governance aspects

Local processing and maritime sector representatives are active participants in a number of regional and EU level organisations (i) three Regional Advisory Councils, the Advisory Committee on Fisheries and Aquaculture (ACFA), the European Association of Producer Organisations (EAPO).

7.3 The future

In the future, Bremerhaven has a vision for a sustainable processing and fish supply chain activities, and transport cold chain, for its catching, processing and ancillary sub-sectors resilient to fluctuations in catches/landings and markets, an upturn in sector activity and an increase in employment. It is also very much hoped that the adaptive measures described above for non-fishing sector activities will help to reduce the risk to the community associated with fluctuations in the fishing sector and over-reliance on it.

Facing structural difficulties and the vanishing of the local fishing fleet at the beginning of the 21st century, Bremerhaven's fish industry managed to secure its international importance as one of Europe's largest fish processing and cold storage centres. The concentration of large processing and manufacturing corporations as well as numerous enterprises specialised in fish manufacturing, handing and all kinds of fish supply chain activities, make the location very attractive and competitive. Especially the close cooperation with institutions in the fields of blue-biotechnology, food science and quality improvement resulted in an innovative environment enabling new high quality product developments as well as diversification. In order to secure growth and to compensate the decrease of local landing, the fish processing sector expanded its activities to frozen food processing thus achieving synergies and increased capacity utilisation.

Discussions with the community stakeholders uncovered a number of priority areas for the processing and maritime sectors which need to continue to be addressed, and which correspond with the community's vision of a sustainable and viable sector.

Port management and development

Although there are no information available on Bremerhaven's economic dependency to its port, the three largest sectors (especially: private services, corporate services and trade/transport) are apparently directly related to maritime logistic activities and trading businesses. This suggests that the port is of predominant importance and will certainly keep that position in the future.

To strengthen its advantageous position in maritime activities, Bremerhaven continues investment in education and science.

With the future in mind, the University of Bremerhaven and the Alfred Wegener Institute for Polar and Marine Research is cooperating closely with the local industry in order to maintain its position as a centre for logistics and food processing. If these institutes are able to build upon the momentum in place currently, Bremerhaven should manage to continue on pace with its goal of being a technological centre by 2020.

Innovation Centre

The processing sector has responded to the need for adding value to products, and to support innovation in the sector through working closely with institutions in the fields of blue-biotechnology, food science and quality improvement. The institutes include:

- The Alfred Wegener Institute for Polar and Marine Research,
- The University of Bremerhaven, and
- Bio Nord (a biotechnology centre located at the harbour area)

Such close collaboration and group research has resulted in an innovative environment enabling new high quality product developments as well as diversification.

Price

Sales and purchase prices for fish products are key to the profitability and viability of the industry in Bremerhaven. In addition to the proposed innovation centre which would serve to increase quality, value-added and prices, the industry would like to see EFF support in the future being available for transnational/multi-State initiatives focussing on market and price issues. This would require flexibility in Operational Programmes, and the ability to work collaboratively with other countries and Member States.

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

Bremerhaven has seen a huge amount of public intervention in the last decade. Beginning in 2000, a major community initiative programme ("URBAN II 2000 – 2006") was launched specifically to address Bremerhaven's structural weaknesses. Running through 2006, the main objective of this program was to stabilize the economic and social development and to make the area competitive compared with locations outside the city.

These aims were achieved via the following strategic goals:

- Strengthening economic prosperity and employment
- Promoting equality of opportunity, social inclusion and renewal, strengthening of people's sense of identification with the area
- Protecting and improving the environment and the recreation function
- Boosting the competitiveness, functionality and attractiveness of the area
- Reviving historically valuable functions and infrastructure.

The main infrastructural project under this development included the Technology Park flagship project, using up 55 % of the EDRF funds (5,630,832€ matched with national funds). Another smaller infrastructural project included the development of the bank of the River Geest (4.5 %, or 454,000€, matched with national funds). It should be noted that these projects are all funded through governments with private contributions being almost non-existent.

During the same time, the Federal state of Bremen funded, with a major assistance from the EU, the "Ziel-2 Program" that aimed to improve both Bremen's and Bremerhaven's economic competitiveness (diversity), transport access, service business industry, environment and the cities' social problems. The total fund for Bremen and Bremerhaven amounted to exactly 235,924,000 Euros (funded by the Federal State of Bremen, European Fund for Regional Development (EFRE) and the German state).

Of the 80 million Euros provided to Bremen and Bremerhaven by the Federal State of Bremen and EU structural funds, Bremerhaven itself received 60 % of these funds (48m €).

As a part of this is the revitalisation of the commercial sector and the building and renovation of museums, particularly the Climate House and the maritime centre Schaufenster Fishery Port. Like the Climate House, the harbour area has become a tourist destination, in this case with a number of restaurants and shops in renovated fishery buildings. These are located in the old harbour area, the same location as BioNord (research centre).

In qualitative discussions, stakeholders emphasised the successful investments in recent years which have made the city more attractive. The maritime project "Schaufenster Fishery Port" is one example of how an old and used industrial area can be transformed into a touristic attraction and meeting point for residents. The city's authorities have several additional promising projects under consideration but are currently searching for ways to finance them. Without financing, the future of such projects is uncertain.

7.5 Conclusion

In conclusion, this report has demonstrated a number of clear trends and important factors with regards to the processing sector and wider economy in Bremerhaven. Facing structural difficulties and the vanishing of the local fishing fleet at the beginning of the 21st century, Bremerhaven's fish industry managed to secure its international importance as one of Europe's largest fish processing and cold storage centres. The concentration of large processing and manufacturing corporations as well as numerous enterprises specialised in fish manufacturing, handing and all kinds of fish supply chain activities, make the location very attractive and competitive. Especially the close cooperation with institutions in the fields of blue-biotechnology, food science and quality improvement resulted in an innovative environment enabling new high quality product developments as well as diversification. In order to secure growth and to compensate the decrease of local landing, the fish-processing sector expanded its activities to frozen food processing thus achieving synergies and increased capacity utilisation.

Of vital importance in Bremerhaven's success in reaching this point was having a strategic, long-term plan with structural funds to support their efforts. Very little private investment went into these developments, particularly in the beginning years, and success has been the result of the availability of structural funds.

Future challenges for the fish processing industry will most likely centre on the international competition from countries with lower labour and production costs as well as possible rising prices of raw material. Nevertheless, the overall opinion of the local authorities is fairly positive since the industry heavily invests in product innovation and development, meeting the changing consumer demand successively deciding for high quality fish products with a sustainable origin.

The current EFRD programme (50 % funding by the European Union) will improve Bremerhaven's economic competitiveness, infrastructure and accessibility, which certainly will positively affect the fish processing industry in the fields of raw material supply and distribution. Nevertheless, despite its advantageous conditions for fish processing, an increase in local fishing fleet capacity is not expected. The funds put towards commercial development and technological innovations have been well used and Bremerhaven has great potential to continue on the positive track it is currently on.

As stated previously, the infrastructure of the fish and food-processing sector is presumed to be extremely competitive. However, Bremerhaven as a whole still needs to improve its infrastructure and reduce structural deficits, especially its high unemployment rate, transport vehicle accessibility, and population decline.

Social issues such as unemployment, particularly among foreign groups, however, will continue to be an important issue in Bremerhaven and one which must be addressed in the near future.