

Employment trends in all sectors related to the sea or using sea resources

Germany



European Commission
DG Fisheries and Maritime Affairs

An exhaustive analysis of employment trends in all sectors related to sea or using sea resources

Country report – Germany

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1.0 Summary

The sectors in the maritime cluster are of particular relevance for the German economy for two key reasons:

- Its reliance on raw materials from outside its own borders
- Its export dependence

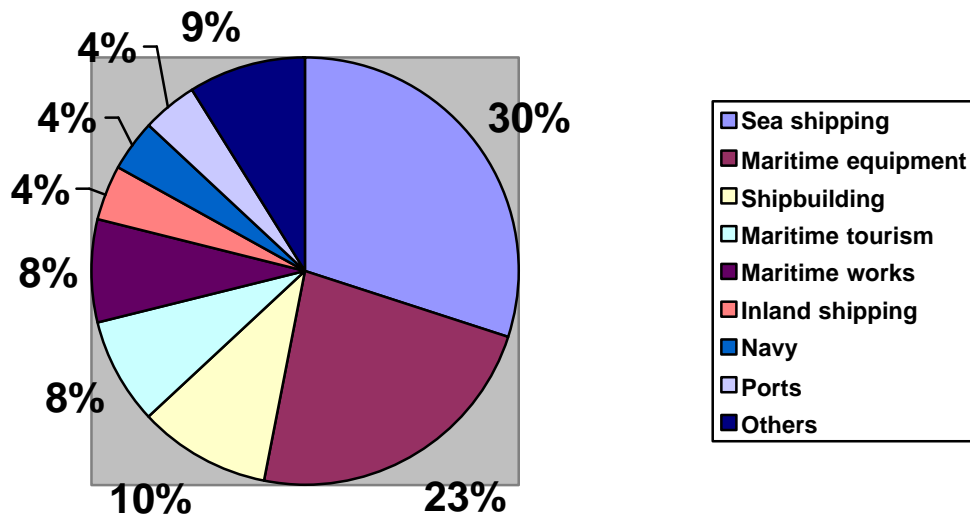
Inland and ocean shipping lanes provide the key transport routes for raw materials coming into the country and for commercial goods being exported to Europe and elsewhere. Around 95% of intercontinental and 62% of inter-European commercial transport takes place by sea, helping to reduce congestions on the roads. Commercial shipping and the operations of ports are key growth sectors for the German economy.

The global economy witnessed significant growth rates over the last two years, which are set to continue in 2006. With global economic growth at 4.3% (2004) and an expansion in global commerce by 7.6%, more goods are being transported via ports, oceans and inland waterways, thus assisting in the growth potential of this sector. As German exports have increased, so has the level of goods exported by sea. Nearly 20% of German import and export activity is handled by German seaports.

According to a recent study¹ the maritime cluster in Germany (including maritime tourism but excluding fishing and the exploitation of fish products) has an annual turnover of 35.8 billion Euro (2003), constituting 2% of national GDP. It is estimated to employ 277,000 people directly. Of these, 27% work in shipping, seaports and related services and most of the remaining employees are active in shipbuilding and supply to the shipbuilding industry. The chart below shows the share of different sectors in Germany's maritime cluster. Almost all sectors have seen a sustained trend towards growth. Even in the shipbuilding industry, which has been on a downward trend for a significant number of years, recent signs have been encouraging, but remain highly cyclical and volatile to external competition. In the remainder of this chapter we analyse economic and employment trends in the respective maritime sectors.

¹ Michael Jarowinsky (MC), Joachim Brodda (BALance Technology Consult Germany); *Potenzialstudie für die maritime Wirtschaft in Schleswig Holstein und Deutschland*, 2005

Figure 1.1 Economic share of different sectors



Source: J Brodda, M Jarowinsky; *Potenzialanalyse zur nationalen und International maritimen Wirtschaft, 2005*

This study concluded that total employment in sea related activities, as defined in this study, amounts to 229,342. Marine equipment is by far the largest sector making up nearly a third of all employment. This is followed by recreational boating, shipbuilding, navy and maritime works constituting 10-11% of total employment each.

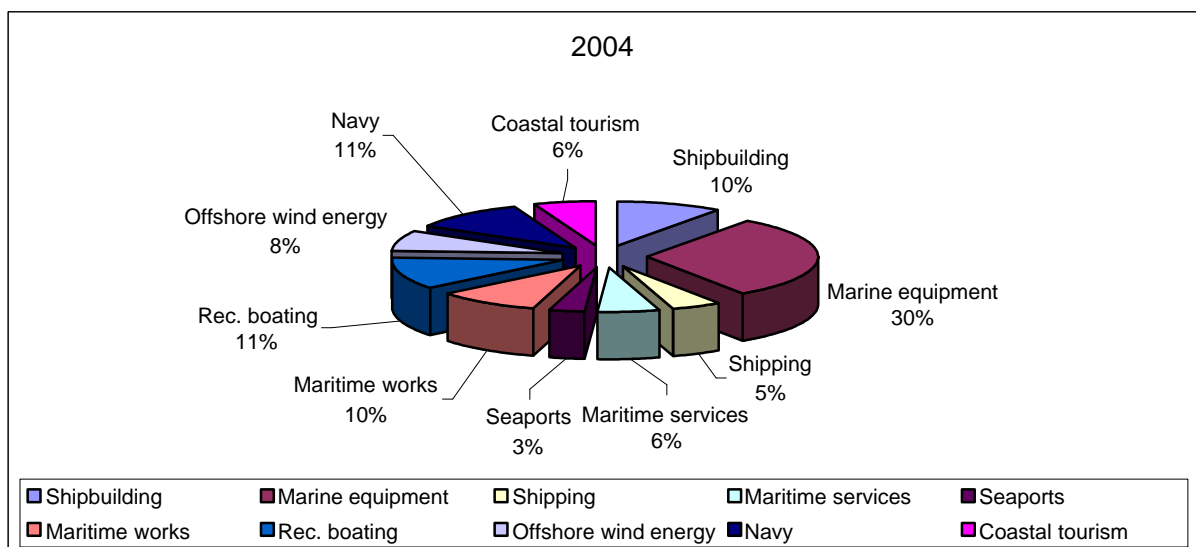


Table 1.1 Employment in sea related sectors, 1995-2005/6

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005/6
Shipbuilding	-	-	-	-	-	25,939	-	24,329	23,807	22,982	-
Marine equipment ¹	-	-	58,700	-	-	-	-	-	70,000	70,000	-
Shipping	14,606	-	13,774	13,804	10,861	11,838	12,216	11,207	10,542	10,801	-
Maritime services	-	-	-	-	-	-	-	-	-	-	13,720
Seaports	-	-	-	-	-	-	-	-	-	-	7,500
Maritime works	-	-	-	-	-	-	-	-	-	22,160	-
Rec. boating	-	-	-	-	-	-	-	-	-	26,900	-
Offshore wind energy	-	-	-	-	-	-	-	17,220	-	-	-
Navy	-	-	-	-	-	-	-	-	-	-	24,559
Coastal tourism	-	-	-	-	-	-	-	-	-	13,500	-

Source: ECOTEC Research & Consulting, 2006

¹ This also includes some maritime services.

2.0 Shipbuilding

Shipbuilding encompasses many different activities, which will be covered in this section. They include merchant, naval and recreational shipbuilding as well as repair, maintenance and conversion. Despite a decline in employment in this sector and a reduction in the number of vessels built since its heyday, the German shipbuilding industry remains important to the domestic economy. Germany remains the number one shipbuilding nation in Europe and globally is 4th only to South Korea, Japan and China. Germany's share in the global shipbuilding industry was 3.4% in 2004¹. Competition in the shipbuilding industry has increased significantly, particularly with the cheap production of standard "off the peg" vessels in South Korea and more recently in China. German shipyards are therefore increasingly concentrating on the delivery of high quality, specialised vessels.

In the context of the significant expansion in the South Korean and Chinese shipbuilding industries, the European shipbuilding association (CESA) has analysed future requirements in worldwide shipbuilding capacity. CESA expects global capacity to grow to 31.2 million cgt. by 2010. Seen against the background of the OECD's assessment of an annual requirement of 22.8 million cgt in newbuilt vessels, it can be assumed that for the foreseeable future, shipbuilding capacity will outstrip demand, leading to a further wave of global competition, which could have a detrimental impact of European shipyards.

Following the EU's failure to persuade the WTO to bring action against South Korea for what it perceives to be illegal state subsidies for its shipyards, it is likely that the market for very large standard vessels (particularly container ships and oil tankers) will continue to shift to Asia, with European and German shipyards forced to compete in R&D and therefore investment intensive areas and the building of specialised vessels. Data from 2004 shows that demand for large container ships and oil tankers has increased most significantly, while demand for smaller vessels has largely remained limited. This includes a decline in demand for cruise ships, which make up 14% of shipbuilding activity in Germany. At the end of 2004, there were outstanding orders on the books for 2,410 vessels. 80% of orders for new ships were placed with shipyards in South Korea. Japan provided the largest demand for new vessels (20%), followed by Germany (12%) and Denmark (8%).

Without significant state intervention from national or European policy makers, it is unlikely that this situation will change in the years to come.

¹ Flottenkommando, Fakten und Zahlen zur maritimen Abhängigkeit der Bundesrepublik Deutschland, Jahresbericht 2005, Marine

The year 2004 has been a boom year for international shipping, which was reflected in a significant number of new orders. This was buoyed by overall economic growth, mainly driven by developments in the USA and China. By comparison, the German economy continued to display disappointing growth at only 1.7%. Internal demand remained weak and export continued to provide the strongest motor for growth in the economy. Unemployed remains high and public finances are in deficit, which has a negative impact on the shipbuilding industry as public orders are cancelled or reduced.

Over the last 20 years, the German shipbuilding industry has declined from a peak of 136 vessels produced in 1985 to 61 in 2004. The table below shows developments in production in German shipyards over the last 20 years.

Table 2.1 Developments in production in German shipyards, 1985 - 2004

Year	Internal demand		Export		Total	
	Number	qt	Number	Gt	Number	qt
1985	120	461,444	16	184.714	136	646.158
1990	49	326,829	36	291.426	85	618.255
1995	57	442,010	36	657.657	93	1.099.667
1999	37	384,423	30	419.731	67	804.154
2000	33	303,356	30	672.722	63	976.078
2001	29	449,725	24	657.233	53	1.106.958
2002	31	434,637	37	847.997	68	1.282.634
2003	24	215,150	38	782.839	62	997.989
2004	33	433,862	28	543.379	61	977.241

Source: Flottenkommando, *Fakten und Zahlen zur maritimen Abhängigkeit der Bundesrepublik Deutschland, Jahresbericht 2005, Marine*

Despite the overall historical decline, over the last 5 years, output has been relatively stable and in 2004 German shipyards reported a 5.1% increase in turnover to 4.5 billion Euro compared with the previous year (this includes new build, repairs, maintenance and conversion¹). Commercial vessels made up 60% of turnover, followed by naval vessels (20-25%), repairs and conversions 12-15% and 5% for inland vessels, boats and yachts.

The table 2.2 below shows turnover for the last three years by region (Land) of production. In 2004, around 63% of production is of container ships, followed by ferries and passenger ships 23.1%. Forward order books for the coming 2-3 years are relatively healthy with 86 vessels on order.

¹ Flottenkommando, *Fakten und Zahlen zur maritimen Abhängigkeit der Bundesrepublik Deutschland, Jahresbericht 2005, Marine*

Table 2.2 Turnover in the shipbuilding sector by Land

Land	2002 (million Euro)	%	2003 (million Euro)	%	2004 (million Euro)	%
Schleswig-Holstein	980	19	1111	26	1151	25
Hamburg	1232	24	533	12	586	13
Mecklenburg-Vorpommern	894	17	1180	27	974	22
Bremen	526	10	156	4	426	9
Niedersachsen	1297	25	992	23	1066	24
Other Lander	294	6	333	8	321	7
Total	5223		4305		4524	

Source: Flottenkommando, *Fakten und Zahlen zur maritimen Abhängigkeit der Bundesrepublik Deutschland, Jahresbericht 2005, Marine*

Although German shipyards performed relatively well in the global market over the last few years, there is a concern that the future is uncertain in the context of increasing global competition and Asian producers catching up with European shipyards in terms of quality and technology content. Research and development and projection for IPR on key innovations is therefore crucial. Germany has seen particular demand for ships offering a high standard of environmental safety (e.g. double hull vessels, hydrogen fuel cell propulsion) and must continue to strengthen its position and co-operation with other countries in developing such technologies to underpin its market position.

2.1 Employment trends

Employment in the German shipbuilding industry relates both to direct employment in shipyards as well as indirect employment among suppliers to the shipbuilding industry. When looking at this it should be borne in mind that recent years have seen an increasing trends towards outsourcing in the sector, with external contractors fulfilling tasks previously delivered by shipyards in-house. Such developments are not easily captured in the statistics.

Direct employment in German shipyards has declined by around two thirds since 1990 (see table below) and even during recent years and a period of fairly healthy order books, this decline has continued. Employment in the sector stood at 22982 in 2004, a decline of 3.5% from the previous year. Notably, employment data diverge between different sources. While the annual report on maritime trends published by the German navy provides direct employment data for 2004 at 22982 employees; data gathered by researchers at the University of Bremen (Institut für Arbeit und Wirtschaft) on behalf of the IG Metall (the main trade union representing workers in the sector) provides a lower employment figure of 19582 staff in 2004 with a further 3.1% decline to 18980 in 2005.

CESA data for Germany reflect the higher figure of 22982 for 2004. Discrepancies could result from different data gathering methodologies.

Table 2.3 Direct employment in German shipyards, 1990 - 2004

Land	Number of employees in December					Change in %
	1990	2000	2002	2003	2004	
Schleswig-Holstein	8.791	7.224	5.855	5.502	5.386	-2,1
Hamburg	7.103	2.997	2.895	2.833	2.573	-9.2
Mecklenburg-Vorpommern	26.341	5.551	5.587	5.791	5.781	-0,2
Bremen	6.989	1.946	1.715	1.571	1.355	-13,7
Niedersachsen	8.460	6.413	6.532	6.187	6.149	-0,6
Other Lander	4.997	1.808	1.745	1.923	1.738	-9,6
Total	62.681	25.939	24.329	23.807	22.982	-3,5

Source: Flottenkommando, *Fakten und Zahlen zur maritimen Abhängigkeit der Bundesrepublik Deutschland, Jahresbericht 2005, Marine*

Over the past 15 years, the most significant decline in employment can be found in Mecklenburg-Vorpommern, largely linked to the transition to a market economy in this new “Land” following re-unification. In more recent years, the Bremen shipyards have suffered the most significant declines in percentage terms. The highest share of employment with 31.6% is in Germany’s largest shipyard group Thyssen Krupp Marine Systems; followed by Johs L. Meyer (13.9%) and Aker Ostsee (12.5%).

There are currently 33 shipyards wholly specialised in the construction of inland vessels. A further 5 yards derive a significant part of their income from this source. It is estimated that 2,000 employees are engaged, largely by SMEs, in this sector. This part of the German shipbuilding industry has seen a growth over recent years, which is likely to continue.

Indirect employment in the industry supplying shipbuilding is closely linked to the fate of German shipbuilding, but also supplies foreign shipyards. The global market in supply to the shipbuilding sector is estimated to have an annual turnover of around 65 billion Euros. Amongst this, the turnover of German suppliers to the sector is around 8.3 billion Euro per annum, of which around 63% is aimed at the export market. Around 75% of orders relate to commercial shipping, 22% to public orders for the armed forces and 3% to the supply of marine technology.

The supply sector is dominated by SMEs employing around 70,000 staff, not all of which are located in coastal areas. Indeed nearly 50% of supplies to the shipbuilding industry are located in the landlocked Lander of Baden-Württemberg, Bavaria, and Northrhine-

Westphalia. A study by the Bremen Institut für Seeverkehr und Logistik (ISL) estimated that 12% of employment - or 8600 jobs - in the supply industries are linked to shipbuilding in South East Asia¹.

2.2 Employment projections

While direct employment in shipyards is set to continue to decline, employment in the supply industry has seen a rise in recent years (5.2% in 2004) as it is not entirely dependent on supply to German shipyards.

However, at the same time as overall employment in German shipyards is declining, a recent survey shows that over 42% of yard owners report difficulties in recruiting white collar workers while just over 21% experienced difficulties in hiring blue collar workers¹¹.

2.3 Skills and training

The German shipbuilding industry has a good tradition of exchange between scientific institutions, shipyards and supplier companies which informs the provision of training curricula (particularly for engineers) and the development and constant updating of skills. Shipyards tend to have close ties with their local community (often with several generations of one family working in a particular yard) and often have educational programmes working with local schools to encourage young people to seek careers in the sector. Work experience programmes are available for pupils as well as placements for students on a variety of courses at University. However, the industry continues to struggle with a poor image, which can result in skill and staff shortages particularly among highly skilled engineers and technicians who are often freely mobile across the EU. Together with CESA and their partners at European level, they are therefore working to improve the perception of careers in the shipbuilding industry, demonstrating its high technology content and new skill requirements, particularly in the area of computer assisted design and technology.

Another perception, which is often difficult to overcome is that of an industry in decline. This is a perception particularly widely held among blue collar staff, where many jobs have been disappearing. However, many shipyards are located in areas, which are otherwise deprived and therefore have significant spare capacity of labour.

¹ Institute for Shipping and Logistics, Bremen, 2004.

¹¹ <http://www.iaw.uni-bremen.de/downloads/ShipbuildingEuropeTholenLudwigFolien130905.pdf>

3.0 Marine equipment

As stated above the marine equipment supply sector in Germany is dominated by small and medium sized companies which operate in a global market, with a significant share of employment dependent on exports to the Asian shipbuilding sector and elsewhere. This sector has benefited from the overall increase in shipping activity and the worldwide growth in shipbuilding (despite an historical decline in Germany). Between 2003 and 2004 alone, the German marine equipment sector saw an increase in turnover by 5.3% to 8.7 billion Euro. An export rate of 64% demonstrates the importance of external trade for this sector. In 2004, 41% of foreign orders came from Asia, with 23% from China also (followed by Korea with 10%). In the same year, 30% of foreign orders came from the EU countries. Supplies of equipment for the offshore oil and gas industry also continued to increase as a result of strong growth in demand, particularly from China, and high energy prices, which stimulated investment.

Research by the German Engineering Federation (VDMA) shows that most companies in the marine equipment sector in Germany expected to see a further growth in incoming orders in the coming years. Indeed 80% expected to see a growth in orders from abroad, while 60% also anticipated increasing domestic demand. However, industry experts cite the cyclical nature of the shipbuilding sector, increasing competition from Asia and other non-EU countries, as well as dollar/euro exchange rate problems as key threats to the sector.

3.1 Employment trends

Employment trends in this sector have been positive, as a result of its healthy market position and the increase in demand in recent years. High quality production and R&D investment have helped to maintain jobs in Germany. In terms of precise employment data, this is one of the more difficult sectors to capture, as it overlaps with other sectors which are defined differently in different publications. Some statistics, for example, include offshore technology and marine technology and it is unclear where the delimitation takes place. For example, VDMA argues that there are approximately 70,000 individuals employed in the German marine equipment industry in 2003/04 (taken to include shipbuilding suppliers and offshore technology). Estimations have also been received that the industry employed 58,700 persons in 1997. The study by Brodda and Jarowinsky, on the other hand, states that the maritime supply industry employed 66,400 individuals in 2003, while the offshore wind industry employed 1,000 staff. A position paper on marine

technology published by VDMA, VSM and GMT in 2004^I argues that the shipbuilding, marine equipment and marine technology cluster together employ around 100,000 individuals in Germany.

3.2 Employment projections

As indicated above, employment projections for this sector are positive because of an expected increase in demand in the domestic and global market. German suppliers have increased their presence in Asia in recent years to service this market, but have so far largely succeeded in maintaining employment in Germany because of the high level of technology content and specialisation required.

3.3 Skills and training

VDMA identifies a particular shortage of experts for design and service, the latter in particular in relation to an increasingly globalised market. Employer organisation are working with suppliers and training institutions to seek to address this skills gap. However, because of the large number of SMEs in the sector (around 1300), it is more difficult to standardise and implement provision than in the shipbuilding sector where large employers predominate.

4.0 Shipping

Germany has 390 commercial shipping companies controlling a fleet of 2,647 ships of which just over 20% (551) operate under a German flag. A further 1,632 operate under bareboat-charter regulations and 464 under foreign flags in foreign registers. The share in the German-controlled commercial fleet operating under a German flag or under bareboat charter has increased from 1,452 to 2,183 between 1999 and 2005. Although there has been an overall decline in the number of ships under a German flag, their number increased by 88 between 2004 and 2005 as a result of an agreement reached at the National Maritime Conference in 2004^{II}.

The German commercial shipping industry runs 6.6% of the global commercial fleet and 5% of total transport tonnage (only 1.3% and 0.9% of this respectively is operated under a German flag). At the same time, German commercial shipping operators control the largest container fleet worldwide, owning over 30% of container capacity.

^I Meerestechnik: Meer als eine Alternative: Fakten, Wachstumspotenziale, Umsetzungen, GMT, VDMA, VSM

^{II} <http://www.bmwi.de/Redaktion/Inhalte/Pdf/Publikationen/Dokumentationen/4-nationale-maritime-konferenz-dokumentation-544,property=pdf,bereich=bmwi,sprache=de,rwb=true.pdf>

Inland shipping is an important sector for the German economy, with German shipping lanes making up 50% of the key inland water arteries. It is a crucial sector connecting the seas with the commercial centres on the interior of the European landmass. In 2004, 235.9 million tons of goods were transported on 7,436 km of inland waterways in Germany. Just under 35% of this was moved in ships flying a German flag (In 1991 this figure was 44.4%). Container transport by inland waterways in particular increased by 18% compared with 2003. The main transport artery is the river Rhine linking Germany with the low countries. In 2004, there were 2773 inland vessels for the transport of goods and passengers (978 of these purely for passenger transport).

In 1998, Germany reformed its legislation governing support for the shipping industry. Key elements of the “Gesetz zur Sicherung des Schifffahrtsstandorts Deutschland” of 1.1.1999 are the reduction of personnel costs and the introduction of the German tonnage tax.

A key element of this tax is the introduction of the right to choose the basis on which profit is calculated for commercial vessels engaged in international transport. Shipping operators can select either to be taxed on the basis of income or on the basis of the storage capacity of their vessel. The latter allows for tax to be determined on the basis of tonnage capacity rather than income. This selection can be fixed for ten years making it easier for companies to plan ahead. This new system has led to a reduction in the tax burden for many shipping operators. In addition, the new law also frees operators from some of the obligations with regards to social insurance costs linked to employment.

4.1 Employment trends

In 2004, 10,801 staff were employed on board vessels registered in Germany, of these 7,286 were German nationals. There has been a steady decline in the number of seamen employed on board German vessels since 1990 as the table below demonstrates.

Table 4.1 Employment in the shipping sector, 1990 - 2004

Year	German seafarers			Foreign seafarers			Total
	Vessels under German flag	Vessels under foreign flags	Total	Vessels under German flag	Vessels under foreign flags	Total	
1990			11,262			4,590	15,852
1995			10,248			4,358	14,606
1997			8,751			5,023	13,774
1998			8,305			5,499	13,804
1999			6,905			3,956	10,861
2000	6,670	980	7,650	4,116	72	4,188	11,838

Year	German seafarers			Foreign seafarers			Total
2001	6,494	1,210	7,704	4,454	58	4,512	12,216
2002	6,096	1,358	7,454	3,701	52	3,753	11,207
2003	5,835	1,521	7,356	3,130	56	3,186	10,542
2004	5,861	1,425	7,286	3,466	49	3,515	10,801
Of which fishing vessels			2				2

Source: Flottenkommando, *Fakten und Zahlen zur maritimen Abhängigkeit der Bundesrepublik Deutschland, Jahresbericht 2005, Marine*

The majority of German seafarers work on board ship in leadership of highly skilled technical occupations while foreign workers are more likely to be employed as labourers, as demonstrated in the table below. Women make up only 3.6% of personnel on board ship, with the majority of these working in catering and associate professions.

Table 4.2 Occupational structure of employment by nationality and sex

Occupation	Germans	Foreign workers	Total	Women
Captains, officers, other employees				
Captains	950	10	960	0
Nautical officers	916	379	1,295	29
Assistants to nautical officers and trainees	13	2	15	1
Technical officers	1,072	224	1,296	4
Assistants to technical officers and trainees	26	2	28	
Communications officers	5	0	5	
Electricians and assistants	113	151	264	
Works overseers	21	2	23	
Personnel on deck				
Skilled workers and associate personnel	1,054	1,361	2,415	13
Trainees	80	0	80	
Machinists				
Skilled workers and associate personnel	229	534	763	1
Other ships personnel				
Ship's technician	394	48	442	3
Trainees	360	15	375	14
Employees/workers				

Occupation	Germans	Foreign workers	Total	Women
Catering staff	490	590	1,080	180
Other staff	475	220	695	135
Employers and spouses	1,552	9	1,561	30
Total	7,750	3,547	11,297	410
Of which fisheries	1,889	81	1,970	20

Source: Flottenkommando, *Fakten und Zahlen zur maritimen Abhängigkeit der Bundesrepublik Deutschland, Jahresbericht 2005, Marine*

As a result of the agreements made at the National Maritime Conference in 2004 and the re-flagging of a significant number of ships, the number of German seamen working on German-flagged carriers has increased. At the end of 2004, 7750 German seamen worked on such carriers. A further 3547 seamen worked on German vessels flying foreign flags.

The table below shows developments in the number of companies, vessels and employees directly engaged in transport on inland waterways.

Table 4.3 Developments in the number of companies, vessels and employees in the inland waterways sector

Year	Number of inland shipping companies	Number of vessels	Number of employees
1996	1382	3343	8613
1998	1294	3267	8140
1999	1370	3406	8596
2000	1370	3822	8057
2001	1340	3768	7750
2002	1232	2868	7689
2003	1191	2773	7690

Source: Flottenkommando, *Fakten und Zahlen zur maritimen Abhängigkeit der Bundesrepublik Deutschland, Jahresbericht 2005, Marine*

Of the 1,191 companies operating shipping on Germany's inland waterways, 310 are engaged in passenger transport. Their annual turnover amounts to approximately 180 million Euros and transports 15 million passengers per year. The BöB (Bunderverband öffentlicher Binnenhäfen) estimates that around 400,000 jobs depend directly or indirectly on inland shipping ports. 47% of this is considered to be direct employment as the table below demonstrates.

Table 4.4 Total direct and indirect employment related to inland shipping ports

Economic area	Direct employment	Indirect employment	Total	% share of sector
		Suppliers consumer		

Economic area	Direct employment	Indirect employment Suppliers	consumer	Total	% share of sector
Manufacturing	69,125	58,680		125,805	33
Construction	17,068	4,689		21,737	6
Commerce	8,990	14,010	38,018	61,019	16
Transport	51,156	39,971		91,127	24
Other services	34,466	50,120		84,587	22
Total	180,806	165,451	38,018	384,275	100
% share of inland port related employment	47%	43%	10%	100%	

Source: Flottenkommando, *Fakten und Zahlen zur maritimen Abhängigkeit der Bundesrepublik Deutschland, Jahresbericht 2005, Marine*

4.2 Employment projections

Although the number of individuals employed on board vessels under a German flag has increased in recent years as a result of government measures, the number of German seafarers has continued to decline. Representatives of seafarers argue that despite support for the training of German seafarer made available by the public employment services (Bundesagentur für Arbeit) many shipping companies continue to recruit foreign workers on lower salaries and terms and conditions. Trade unions would like to see stronger enforcement of existing requirements of equal treatment of seafarers. Ver.di in particular points to a new agreement on global working conditions for seafarers reached at the ILO's maritime conference in February 2006 which it calls a "Bill of rights for seafarers". However, it is unclear whether such conventions can stop the trends towards the recruitment of non-EU seafarers on board vessels flagged in the European Union.

4.3 Skills and training

According to studies carried out by the ETF and ECSA there is a significant shortage of trained officers in Europe. The 1996 ETF/ECSA study forecast a shortage of 11230 deck officers and 9430 engineering officers, as well as 4850 dual purpose officers in Germany. This figure now appears a significant overestimate even when considering total vacancies registered by German shipping companies with the public employment services. As mentioned above, a significant number of vacancies arising are being filled with non-German nationals, which poses a further problem for the image of a sector which is suffering from what many young people perceive to be unattractive working conditions, particularly as a result of young absences from home, making family life difficult.

5.0 Seaports

Seaports provide a wide variety of functions, acting primarily as a focal point for the movement of goods from sea to inland waterways or to rail and road and vice versa. However, they also provide storage, logistical solutions, administrative and other services. The services provided by harbours in relations to the logistics of getting goods from sender to their destination have been changing, with the advance of more integrated systems and the associated decline of the more “traditional” harbour functions related to the movement of goods. Automation has also played a significant part in the changing functions of port services. At the same time, the increasing emphasis on the movement of goods by sea and inland waterways rather than by road (to ease congestions and reduce the environmental impact of road transport) has led to an increasing demand for port services.

Between 2004 and 2005, the total of goods turned over in German seaports increased by 6.6% to 263.3 million t¹. There were significant differences in the performance of different harbours, with the harbours of Cuxhaven, Nordenham and Wilhelmshaven seeing the most significant increases while the ports of the Baltic sea (with the exception of Lübeck, Stralsund and Wismar) saw some significant declines. 61.2% of this goods trade related to movements within the European Union. At the same time, German harbours clearly benefited from the country’s strong export position not only with its European neighbours but in particular with the USA, China and other Asian markets.

With regard to future developments, the German ministry of transport estimates that the volume of goods turned over by German seaports will continue to increase by around 4.4% per annum over the next 2-3 years. Germany’s central position and important role, particularly in the export of goods and the increasing emphasis on the development of sea transport solutions are considered to provide positive impulses for the future. Of further benefit are considered to be:

- Plans by the government to invest in 15 significant infrastructure projects with the aim of improving transport links to and from certain seaports, thus rendering them more competitive.
- Ongoing support for the national maritime conference. This has been meeting annually to discuss key policy concerns of the maritime cluster.
- Support for the competitive position of German seaports in the global context and the removal of perceived unfair advantages available to ports in other countries. In particular, industry representatives would like to see a lowering of tax of transport fuels;

¹ Zentralverband deutscher Seehaefen, Annual Report 2004/05

and the reduction of tariffs on the use of inland waterways and on heavy goods vehicles.

- Further support for transport routes in the Baltic sea.

5.1 Employment trends

Direct employment in German seaports has declined significantly and continuously over the last 20 years. This is largely due to the technological and logistical changes set out above, but is also linked to outsourcing and a linked increase in indirect employment in the sector. While German seaports still employed over 15,000 people in 1986, this number has declined by approximately half in by 2006, with employment standing around 7,500. The largest share of this employment is taken by the large ports of Hamburg and Bremen/Bremerhaven with around 4,000 and 1,800 employees respectively. Industry representatives, however, are keen to point out that seaports employ around one tenth of all total employees in the logistics sector in Germany. The figure of 300,000 direct and indirect employees in the sector is therefore often quoted. With the positive trends affecting the sector it is considered likely that this number will rise in the years to come.

There are approximately 830 German maritime pilots.

5.2 Skills and training

Technological and logistical changes require the constant updating of skills in the sector. However, industry representatives voiced no particular concerns in relation to skill or labour shortages in the sector.

6.0 Maritime services

The term “maritime services” does not have resonance in the German context and no aggregated data is available for this sector as such.

The German Maritime Authority (Wasser-und Schifffahrtsverwaltung des Bundes) employs 13,000 staff in 7 regional offices, 139 water and maritime transport offices and in 4 federal agencies in:

- die Bundesanstalt für Wasserbau (BAW) in Karlsruhe (federal agency for waterborne construction)
- die Bundesanstalt für Gewässerkunde (BfG) in Koblenz (federal agency for maritime research)

- das Bundesamt für Seeschifffahrt und Hydrographie (BSH) in Hamburg und Rostock (federal agency for maritime transport and hydrography)
- die Bundesstelle für Seeunfalluntersuchung (BSU) in Hamburg (federal agency for the investigation of accidents at sea)

There are approximately 20 universities and further education institutes in Germany delivering specific vocational and ongoing education of maritime activities. Many of these institutes work in partnership with social partners and private sector organisations to ensure the training they deliver is adapted to the practical requirements of employment in the maritime sector. They therefore employ external staff as well as a core team of teaching staff. It is therefore difficult to estimate the exact number of staff in maritime education in Germany, but figures are likely to be in the hundreds. This does not count training and the number of trainers provided by organisations in house.

Table 6.1 Employment in the maritime service sector, 2006

Sector	Employment
German Maritime Authority	13,000
Maritime education and training	500
Sea emergency	60
Support vessels	160
Total	13,720

7.0 Navy

In 2005, the German navy employed 24,559 soldiers (of which 1,581 are women) and 3,831 civilians and operates 89 ships/boats as well as 88 seaplanes and helicopters.

8.0 Offshore supply

After the closure of Germany's only offshore oil platform "Schwedeneck-See" in the Baltic Sea by RWE in 2000, Germany no longer has any significant offshore extraction activities. There are two platforms for the extraction of gas in the North Sea. Germany however is a major player in offshore engineering in Europe.

9.0 Offshore wind energy

Germany is one of the most successful EU markets for wind power. Together with Spain and Denmark, it accounts for nearly 80% of all wind power capacity installed in the EU.

The strength of the sector relies in research and development as well as design and production, with German technology used in many other EU countries as well as in the US and beyond. The market has been growing significantly for a number of years and is only slightly hampered in its export potential by high production costs. The future of wind energy in Germany is bright, particularly with continuing strong opposition to the use of nuclear energy among the population.

9.1 Employment

Growth in employment in the sector has been considerable with employment nearly doubling between 2000 and 2002. The table below shows the level of employment in different parts of the sector.

Table 9.1 Employment in the wind energy sector

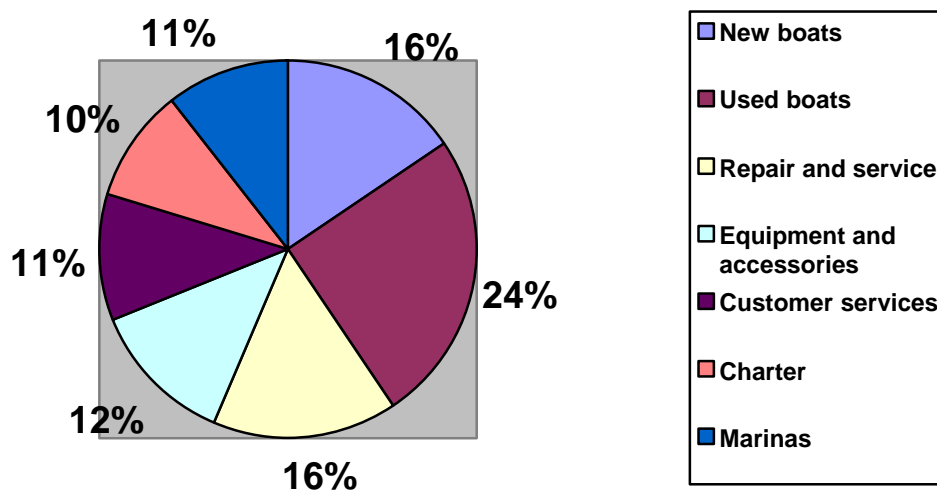
Turbine Manufacturing	Wind Turbine Installation	Maintenance Activities
10,439	5,771	1,010

Source: EWEA, 2005

Europe-wide projections by the EWEA predict strong growth in employment in this sector.

10.0 Recreational boating

The recreational boating industry in Germany is primarily classified into the following segments with a respective market share as demonstrated in the figure below:



The BWVS (Bundesverband Wassersportwirtschaft e.V.) 2004 Annual Report provides the following estimate of the number of companies active in the different sectors:

Sector	Number of companies
New and used boats	500
Building of recreational boats	450
Equipment and accessories	1650
Electronics	700
Motor manufacturers and importers	15
Repair and service	1400
Fuelling stations for boats	150
Services	900
Insurance	40
Technical services	100
Schools/training	450
Agents	175
Charter	60
Marinas	2250
Commercial moorings	300
Local authority owned marinas	1800
Providers of watersport facilities	55

Source: BWVS, Annual report 2004

Around 6.34 million people in Germany take part in recreational boating activities. This does not only apply to coastal areas but also to landlocked counties with access to lakes and other watersport facilities. It is estimated that boating (as well as waterskiing, diving and other water sport activities) have significant growth potential, which will also impact on employment in the sector (see good practice below).

However, this is a sector which is highly dependent on the availability of disposable income and economic confidence, which has been rather lacking in Germany in recent years. While there has been a small increase in turnover in the sector (from 1.647 million Euro in 2000 to 1.708 million Euro in 2003), this increase by no means matches the boom in the sector in other countries. German businesses in general benefit from a rather strong export position which protects them from lean years in the domestic market. This also applies to manufacturers in the boating sector, who were able to benefit from increases in export sales while the domestic market proved flat or declined.

Compared with the previous year, in 2003, the sector involved in the production of new boats saw an 8.4% increase in turnover. The market in used boats was stable while the equipment and accessories segment grew by 3%. Particular growth can be found in the provision of more powerful motors as well as the provision of networked communication technology for boats as people are increasingly keen to stay in touch with family and

friends as well as work while on the water. Companies involved in servicing boats benefited from the good weather in 2003 and saw their turnover increase by 2.8% as more people used their boats to benefit from the sunshine. Charter companies on the other hand saw a small decline in turnover (0.8%) particularly in regards to travel to the Mediterranean region (with the exception of Croatia).

According to a survey carried out by BWVS, confidence in the sector is improving after a significant dip in confidence in 2002 and the forecast for the future is therefore considered to be one of growing demand both domestically and for the export markets.

10.1 Employment

It is estimated that around 26,900 individuals are employed in the recreational boating sector, which breaks down as follows:

Sector	Number of employees
Boat building	5720
Marine engine manufacture	855
Marine equipment manufacturing	4750
Trade and service providers	15,600

Source: British Marine Federation

The BWVS provides a more conservative estimate of 22,000 jobs directly linked to the sector which is largely characterised by very small enterprises with less than 20 staff.

10.2 Skills and training

According to the BWVS the sector is facing a number of new challenges including:

- Increasing customer service orientation (customers wanting all-round service to enable them to simply use their boat without requiring any maintenance from them in the limited time they have available).
- Increasing standardisation in the manufacture of recreational boats.
- Introduction of a certification system of traders in the sector.

These trends have led to the introduction of a new qualification “specialist for boat servicing” taught in seven modules with significant elements of practical experience.

The industry as well as individual clubs are always seeking to introduce more people to boating and other watersports. For example, 2003 saw the organisation of the first “watersport day” entitled “GO BOATING”. Another successful initiative was organised by

the Ministry of transport which enabled individuals to try boating on certain waters without the usually required licences. As a result this encouraged a significant number of individuals to pursue this sport and to obtain the relevant licences.

11.0 Coastal tourism

Coastal tourism in Germany affects only the following Länder, als the rest of the country is landlocked:

- Lower Saxony
- Schleswig-Holstein
- Mecklenburg-Vorpommern

The city states of Hamburg and Bremen are also relevant as a result of their close proximity to the sea.

Coastal in Germany has an annual turnover of 2.8 billion Euros¹ and employs around 13,500 individuals.

12.0 Fisheries

At the end of 2003, 2,343 individual were employed directly on fishing vessels, with a further 9,249 employees working in the largely small and medium sized companies utilising fish products.

13.0 Maritime works

According to the study carried out by Brodda and Jarowinsky (2005)^{II} some 8% of staff in the maritime industries are employed in the maritime works sector. This constitutes a total of some 22,160 jobs.

On the basis of interviews with Detlef Hegemann GmbH about the German dredging industry, employment in this sector was in decline until 2001/2002 when the demand for dredging works started to steadily increase again. The demand is predicted to increase by approximately 5% per year, however, this does not automatically lead to similar increases in employment as advanced automation is increasing productivity.

^I Michael Jarowinsky (MC), Joachim Brodda (BALance Technology Consult Germany); *Potenzialstudie für die maritime Wirtschaft in Schleswig Hostein und Deutschland*, 2005

^{II} Potenzialanalyse zur nationalen und International maritimen Wirtschaft,

Availability of highly skilled, specialised personnel is of outmost importance for the sector as the crew can only consists only of specialised personnel. Untrained individuals cannot be deployed on board and currently the sector is finding it difficult to attract people to work on board.