

# **United Kingdom Seafarers Analysis 2005**

## **Report for Department for Transport**

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with the assistance of  
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Report commissioned under DfT Contract No PPAD 9/70/19

The Centre for International Transport Management  
London Metropolitan University  
2006

British Library Cataloguing in Publication Data.

Catalogue Record for this book is available from the British Library.

ISBN No: 1 899764 65 8

This Report was prepared by the Centre  
for International Transport Management,  
London Metropolitan University, for the  
Department for Transport under  
contract No PPAD 9/70/19.

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## **Preface**

This report is the second to be presented under the contract agreed between the Department for Transport and the Centre for International Transport Management (CITM) (contract number PPAD 9/70/19) in 2004. The contract replaced a previous arrangement, under which the CITM produced an annual review of UK Seafarer numbers, drawing from a number of different sources.

The new contract was awarded to CITM as the lead organisation, together with the UK Chamber of Shipping (UKCoS) and the Institute of Employment Research (IER).

Last year, considerable effort went into improving the quality of the data which is presented in the current report. Data sources have also been extended in a number of ways. First, the Rail, Maritime and Transport Union (RMT) has provided detailed information on the age and departmental distribution of its membership. The information was used to cross reference information from the UKCoS, collected in its 2004 survey. Second, information has been obtained from the Merchant Navy Officers Pension Fund (MNOF), which has improved the modelling of seafarer projections. Third, improved data from the Merchant Navy Training Board (MNTB) on new trainees permitted a more refined estimate of the rate of entry of cadets into the officer population. Finally, the Maritime and Coastguard Agency (MCA) has provided information on non-UK officers serving on UK registered vessels, enabling some comparisons of different national age profiles for officers. These changes have helped shape the information provided in the 2005 report. Time has also been spent in determining the most appropriate means of adjusting the data to reduce disturbance to the series during the implementation phases of the 1995 amendment to the International Convention on Standards of Training, Certification & Watchkeeping 1978 (known as STCW 95).

Key assumptions concerning wastage rates and retirement ages were reviewed in 2004. The consensus on the appropriate values to employ has meant that this year's report has used the same set of assumptions for calculating numbers and projecting future officer numbers.

The format and presentation follows that adopted in last year's report, which was significantly altered from those published under the previous contract. The emphasis now is on showing the information available in a series of statistical tables and charts, with some commentary about

methodology, data sources, definitions and assumptions. In the present report, a distinction is made between unadjusted and adjusted data. The latter refers to the process of altering the raw data to reflect known problems arising from a variety of reasons. These adjustments reflect the authors' 'most informed estimate' of the numbers of seafarers presently working at sea. The unadjusted data are also provided, so that the reader may employ alternative assumptions if deemed more appropriate. As was the case in the 2004 report, interpretation is left to the reader.

## **Acknowledgements**

The authors would like to express their gratitude to the many individuals and organisations who have assisted in the data collection and analysis used in this work. The Registry of Shipping and Seamen, based in Cardiff, and the MCA, based in Southampton, were the primary sources for the updating of the UK officer database. Particular thanks are due to Mr. M. Williams at the MCA, Southampton. He has been instrumental in allowing access to the relevant information from the MCA database. He has also provided access to data held on non UK nationals serving on UK registered vessels who hold Certificates of Equivalent Competency. We would also like to thank Ms. G. Jackson of the Merchant Navy Training Board, for help in providing aggregate information on cadet trainee numbers.

A number of people gave up their time to discuss issues or provide us with additional information for the 2004 report. They include Mr. P. McEwen, deputy Secretary General of NUMAST, Mr S. Yandell and Mr. P. Watson of the RMT, and officials of the Merchant Navy Pension Fund. We also consulted with Professor P. Marlow, Dr. S. Pettit, and Dr. V. Naim of Cardiff University Business School over the issue of wastage rates for officers, and Dr. N. Winchester of SIRC over the issue of crew age profiles and employment proportions on UK registered vessels. The 2005 report would not have the same credibility without these contributions.

Finally, we would like to acknowledge the help and guidance of the Steering Group which has monitored the progress of the research published in this report.

## **Glossary of Terms used in this report**

CEC	Certificate of Equivalent Competency
CITM	Centre for International Transport Management
CoC	Certificate of Competency
DfT	Department for Transport
GAFT	Government Assistance for Training
IER	Institute of Employment Research, Warwick University
LGU	London Guildhall University (now part of LMU)
LMU	London Metropolitan University
MCA	Maritime and Coastguard Agency
MNOPF	Merchant Navy Officer's Pension Fund
MNOPP	Merchant Navy Officer's Pension Plan
MNRPF	Merchant Navy Rating's Pension Fund
MNRPP	Merchant Navy Officer's Pension Plan
MNTB	Merchant Navy Training Board
NUMAST	National Union of Maritime, Air and Sea Transport
OERS	Optional Early Retirement Scheme
RMT	Rail, Maritime and Transport Union
RSS	Registry of Shipping and Seamen
SDS	Seafarer Documentation System
SIRC	Seafarers International Research Centre
SMarT	Support for Maritime Training Scheme
STCW 78	International Convention on Standards of Training, Certification & Watchkeeping 1978
STCW 95	International Convention on Standards of Training, Certification & Watchkeeping 1978, as amended in 1995
UKCoS	United Kingdom Chamber of Shipping

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## Executive Summary

This is the second report to be published under contract to the Department for Transport. The principal objectives of the research are :-

- to provide an estimate of the number of UK seafarers in 2005
- to provide projections of the likely future trends in UK seafarer numbers, up until 2021
- to provide a detailed breakdown of each of the seafarer categories in terms of their age profiles, department, and gender, where possible
- to review and re-examine the underlying assumptions of the estimates and projections made in the present report
- to present the data collected in a series of statistical tables with accompanying charts, with explanations and comment.

The total number of UK seafarers *active at sea*, assuming a retirement age of 62, is estimated as 26,520 consisting of

- 13,240 certificated officers
- 2,910 uncertificated officers
- 9,320 ratings
- 1,050 officer trainees

The 2,910 uncertificated officers consist of 740 technical and 2,170 hotel officers.

The 9,320 UK ratings consist of 4,350 hotel and catering 3,610 deck, 820 engine and 530 general purpose or technical.

Officer cadets *new starts* for 2004/5 totalled 540. Provisional indications are that this figure is expected to be around 600 for 2005/06.

The number of certificated officers in total - that is those who hold valid certificates and are either active at sea *or* they work in shore based jobs, assuming a retirement age of 62, is 15,770 for 2005. The proportion of certificated officers estimated to work on shore is 16%, the same assumption as in the 2004 report.

The figure of 15,770 also includes an estimated 750 officers who hold endorsements valid only for tugs or inshore craft. The corresponding figure for 2004 is 170. These figures result from the widened scope of STCW 95.

The figure of 15,770 also includes an estimate of those certificated officers who are UK nationals and who hold Certificates of Equivalent Competency (CEC). These have also been included for both 2004 (140) and 2005 (150) for the first time in this report.

Projections of certificated officers holding valid certificates and either active at sea or working in shore based jobs have also been made. The projections for certificated officer numbers in 2016 and 2021 are 8,730 and 6,910 respectively, with a retirement age assumption of 62. This compares with the current figure of 15,770 in 2005.

The key elements underpinning the projections are the estimated numbers of new trainees, trainee wastage rates, officer wastage rates, age distribution and retirement age. It is important to note that the projections are, therefore, independent of the past trends in STCW data, which have been affected by the change to STCW 95.

Detailed age distribution for certificated officers is given in Annex 2, for comparison with earlier reports. Age distributions of officers and ratings by department, derived from the 2005 UKCoS manpower survey are given in Annex 3.

Information on the principal nationalities of officers serving on UK registered vessels in 2004 is given in Annex 4. This corrects an erroneous table (8.1) published in the 2004 report. The relevant information for 2005 is provided in Section 8.

# **UK Seafarers Analysis 2005**

## **1. Introduction**

The report presents information regarding the numbers, age profiles, and qualification distributions of UK Seafarers for the year 2005. The objectives of the present study are:-

- to provide an estimate of the number of UK seafarers in 2005.
- to maintain and update the existing data base of information held on UK seafarers by London Metropolitan University.
- to provide projections of the likely future trends in UK seafarer numbers, up until 2021.
- to provide a detailed breakdown of each of the seafarer categories in terms of their age profiles, department, and gender, where possible.
- to review and re-examine the underlying assumptions concerning wastage rates for seafarers.
- to present the data collected in a series of statistical tables with accompanying charts, with explanations and comment.

## **2. Background to the research**

Previous work has been carried out in this area by the United Kingdom Chamber of Shipping (UKCoS) and the Centre for International Transport Management (CITM) for the Department for Transport and the Naval Bases and Supply Agency over the period 1997 to 2003. This work provided annual estimates of UK Seafarer with a detailed breakdown by age, gender and department, where possible, plus an annual projection of future numbers of UK certificated officers.

The objectives of the new work for the Department for Transport are set out in the introduction. In essence, this new work builds on what has been done previously by improving the quality of data, taking on board new information, and critically re-examining input assumptions. This process has led to significant improvements in the data compared to that published in earlier years.

The most significant change in this current report has been the reorganisation of the presentation of the material in Section 6, which gives the main results. The first table (6.1) now provides a summary of the total of the numbers of active UK Seafarers. This table draws from the other, more detailed tables that follow. Tables 6.2 to 6.5 now give adjusted data only for UK seafarers active at sea - unadjusted data is now presented separately in Table 6.8 together with the adjusted data, and notes which explain why the adjustments have been made. Tables 6.6 and 6.7 separate officer cadets currently in training (which are added to other seafarer categories to give overall seafarer totals) and trainee "new starts" for different categories of trainees (the majority of trainees will already be included in the seafarer totals). The adjusted series present figures which are consistent as possible from year to year and give the best absolute estimates for each category of seafarer.

As in last year's report, use has been made of the extended scope of the UKCoS manpower survey. Data on age profiles of trainees has become available, and has been utilised in the projections for officer entrants. The MCA has again provided information on those non UK officers employed on UK registered ships who hold Certificates of Equivalent Competency (CECs). This has permitted an estimate of the age profiles for a number of nationalities other than the UK.

### **3. Methodology**

#### **3.1 Definitions**

For the purposes of this report, two terms relating to seafarers are used.

##### **‘Seafarer’**

Any person who holds an officer’s Certificate of Competency, which gives the holder the *potential to work* on board a registered vessel, together with any other person who is identified as working regularly at sea (e.g. an uncertificated technical or catering officer, a trainee, or a rating). The term includes officers who hold a valid Certificate of Competency but who may be working in on-shore positions, and thus are not engaged in sea-going activity. It would also include, as a subset;

##### **‘Seafarer active at sea’**

Any seafarer identified as working regularly in a sea-going activity. This includes those certificated officers who are identified as working regularly at sea, together with uncertificated officers, trainees, and ratings, who also work regularly at sea.

The term ‘Seafarers’ will thus include a proportion of certificate holders who do not regularly go to sea, whereas the term ‘Seafarers Active at Sea’ only covers the population of individuals in regular employment in a sea-going activity.

There are many different categories of seafarers, e.g. certificated officers such as masters, chief engineers, uncertificated officers in technical and catering jobs, deck, engine, general purpose and catering ratings, and trainees entering the industry through different routes. The report provides a classification system which underpins the analysis so it is clear what the various seafarer estimates cover, and provides as comprehensive a set of estimates as possible within the present limitations of available data sources. This classification is given in Annex 1. The information provided in this report follows the main seafarer headings given in Annex 1, and forms the basis for the tables and charts presented in Section 6.

## **Determining seafarer numbers**

### **3.2 Certificated officers**

Certificated officers are those officers who hold an STCW Certificate of Competency. Under STCW, certificates are valid for 5 years and are issued under the highest unlimited capacity of 'Master', 'Chief Engineer', 'Chief Mate', 'Second Engineer', 'Officer of the Watch Deck, (OOW)', or 'Officer of the Watch, Engineer (OOW)' (MSN.1692(M), 1997). As in previous studies, the measurement of the certificated officer population is based on officers who maintain a valid Certificate of Competency, and this information has been provided electronically by the MCA from STCW records held on the Seafarer Documentation system (SDS).

It should be noted that over the period covered by this report, the STCW certification system changed from STCW 78 to STCW 95 with a transitional period operative in between. From 1<sup>st</sup> February 2002, STCW 95 certification became the only acceptable certification, when the transition from STCW 78 was completed. The process of transition involved the use of two databases; one based on the records held by the MCA under STCW 78, which had been encoded into the original LMU database, and the second, which was derived from the accumulating new STCW 95 records stored electronically on the SDS. This meant that individual officers who transferred to STCW 95 appeared in both databases during the transition period, which creates a potential problem of double counting. This problem has disappeared with the expiration of the validity of STCW 78 certificates.

The procedure adopted to extract STCW records from the MCA Seafarer Documentation System (SDS) database was as follows: -

Only those records fitting the selection criteria below, as at the census date of 30<sup>th</sup> June 2005, were included:-

1. Country of Nationality

All those registered as national citizens of the United Kingdom

2 Age

Anyone aged 16 years or more as at June 30<sup>th</sup> 2005.

3 Certification, and Revalidations

Any certificate issued, or revalidated between 1<sup>st</sup> July 2000 and 30<sup>th</sup> June 2005, and with an expiration date of no later than 30<sup>th</sup> June 2010.

The SDS system has also been used to explore the implications for officer numbers of the ‘widening’ of the qualification to include both those working in the yachting industry and those whose endorsements are valid only for working on tugs or on inshore craft. The issue is of significance because the increase in observed numbers due to their inclusion influence long term historic trends. It has been estimated that for 2005, some 750 such officers were in the total (770, retirement age 65).

The second development which utilises SDS is the incorporation into the estimates of those UK nationals who hold Certificates of Equivalent Competency rather than one issued by the MCA. The numbers are small:- in 2004, they are estimated at 142 (87 deck and 55 engineer); and for 2005 they estimated at 150 (67 deck and 83 engineer). The figures assume a retirement age of 62.

The series for certificated numbers for the period 1999-2003 have been adjusted, using a three year moving average. The reason for doing this is twofold: to smooth the disturbance to the series due to the implementation of STCW95, and also to lessen the impact of the value for 2001, which by consensus appears to be an underestimate of the likely real figure for this year. (It may be that this arose because of the issue of combining SDS data with that held by LMU on their original database).

### **3.3 Uncertificated officer numbers**

Uncertificated officers are those officers, principally in technical or catering, who are not required to hold certificates of competency. The source of the estimates of UK uncertificated officer numbers are the returns made by members of UKCoS to their annual manpower survey. There are several issues which need to be taken into account when considering the UKCoS data for these officers: individual company responses vary across the years of the survey, so

that numbers fluctuate because of differential non-response; companies in Chamber membership may vary from year to year; the membership of the UK Chamber does not represent the entire population of UK companies or those companies who employ UK certificated officers, so coverage of the population is incomplete; and companies which do respond may not have done so on a consistent basis, leading to anomalous results.

Various problems may arise as a result of the above. For example, if there is under-reporting by cruise operators then there will be a disproportionate effect on 'hotel/other' uncertificated officer totals compared to certificated officers; the inclusion of particular groups of employees which are out of scope (e.g. concessionaires) can lead to distortions (in one instance a company has increased its return for 'hotel/other' employees from 500 in 2003 to over 1,200 in 2004); the reporting of 'technical' officer may lead to inconsistent reporting where specific companies employ individuals with engineer certificates in technical posts.

To overcome these difficulties various actions were carried out. Clear anomalies in the data series to date were removed by averaging adjacent years. A 'respondent consistent basis' was used to avoid differential non-response and changes to Chamber membership - only those companies in Chamber membership in the past four years and who made at least two completed returns during that period were taken, to give a consistent time series even though the absolute level may be understated. For the latest year the results were "maximised" to cover all Chamber members (where a return has not been completed for the most recent year, the most recent return is used without adjustment) and the previous series uplifted, based on the ratio of maximised to 4 year consistent series for 2005. Finally it is assumed that Chamber member companies employ the very large majority of UK uncertificated officers (all major UK shipping companies are in membership) so the absolute level estimates derived by the above are realistic.

### **3.4 Ratings**

The primary source for ratings data in this report is also the UKCoS. Information on gender, age, and department is obtained from this source. The same data problems as described above for uncertificated officers also apply to ratings so adjustments are needed here too: clear anomalies in the data series to date were removed by averaging adjacent years. A 'respondent

consistent basis' was used to avoid differential non-response and changes to Chamber membership - only those companies in Chamber membership in the past four years and who made at least two completed returns during that period were taken; for the latest year the results were "maximised" to cover all Chamber members (where a return has not been completed for the most recent year, the most recent return is used without adjustment) and the previous series uplifted, based on the ratio of maximised to 4 year consistent series for 2005. It is assumed that Chamber member companies employ the very large majority of UK ratings, so the absolute level estimates derived by the above procedure are realistic.

Last year, the RMT provided access to the age profile of its rating members, as well as data on department, in general terms (i.e. deck, engine, catering). This proved to be very similar to that derived from the UKCoS survey, so the exercise has not been repeated this year. It would still be useful to cross-reference such information on an occasional basis.

### **3.5 Trainees**

Trainee data are currently derived from two sources, MNTB and SMarT. The MNTB data form the basis of the estimated total numbers of *new* trainees. In future it is planned to get the information needed from an improved data collection system from the administration of the SMarT scheme run by the MCA. Once this database is operational, improved information on trainee numbers, and their transition to officer certification, should be possible.

Training may take up to three years to complete, and SMarT has been used in the past and will continue to be used to estimate the total number of trainees who are *continuing* in training.

## **4. Data sources and data flows**

### **4.1 MCA Seafarer Documentation System**

There are three principal sources of data that have been used to produce the statistics. First, the MCA Seafarer Documentation System (SDS), an electronic database maintained by the MCA in Southampton, which contains records of all UK issued Certificates of Competency, together with records of Certificates of Equivalent Competency issued for service on UK registered ships. This information has been used to generate comprehensive profiles of age, department and levels of qualification for these officers. If the seafarer is qualified in more than one capacity then each of the endorsements will be recorded separately in the system. The presence of individuals holding multiple endorsements has had to be allowed for to arrive at an estimate of the number of individuals who hold valid certificates.

The MCA has provided the data in a form that permits an analysis of age profiles, qualification profiles, and departmental splits for both UK nationals, and in addition, non UK nationals holding Certificates of Equivalent Competency.

### **4.2 UK Chamber of Shipping manpower survey**

The second principal source of data is that obtained from the UKCoS manpower surveys of its membership which was re-introduced in 2002 as an annual survey. It provides the basis for the estimates of uncertificated officers (those who are not required to hold Certificates of Competency), and for rating numbers. This is also the only source of data that provides easily accessible information on the gender distribution of UK seafarers, and is a useful source of estimates for UK certificated officer numbers in UK employment (the MCA certification process in SDS data does not contain information on the nationality of the employer).

### **4.3 MNTB trainee database**

The third principal source of data used in this report is the MNTB. The MNTB has provided information on the 'new starts' for the academic/financial year 2004/5. The financial year is most appropriate time frame for trainees, because many trainees commence their course in September/October of each year, and the financial disbursements (monitored by SMarT) relate

to financial years. The data for this part of the UK Seafarer population estimates are therefore defined in terms of the financial year 2004/5, rather than the calendar year 2005.

The estimate of the remaining trainees continuing in training has been derived by deducting the MNTB figure for new trainees from the estimated total number of cadets supported by SMarT, data provided by the MCA.

#### **4.4 Data flows**

Figures 4.1 and 4.2 summarise the sources of data and how they have been used to produce the seafarer estimates in this report. The solid lines indicate primary input data, and the dotted or dashed lines indicate sources that have been used, or have the potential to be used, in producing estimates. For example, in Figure 4.1, the MCA is the dominant source of detailed information that has been employed to estimate total UK certificated officer numbers, departmental split, and age profile. The results from the UKCoS manpower survey provide supplementary information, for example on gender split. The same survey is the main source of information on uncertificated officers, as well as ratings.

Figure 4.1 shows that the primary source of information on new trainees is the MNTB, but last year NUMAST has also provided independent information on the numbers of ratings to officer conversions that are supported by the Slater Fund. It should be noted that Slater Fund supported trainees would be included in the returns made by the training colleges.

#### **4.5 Projection method**

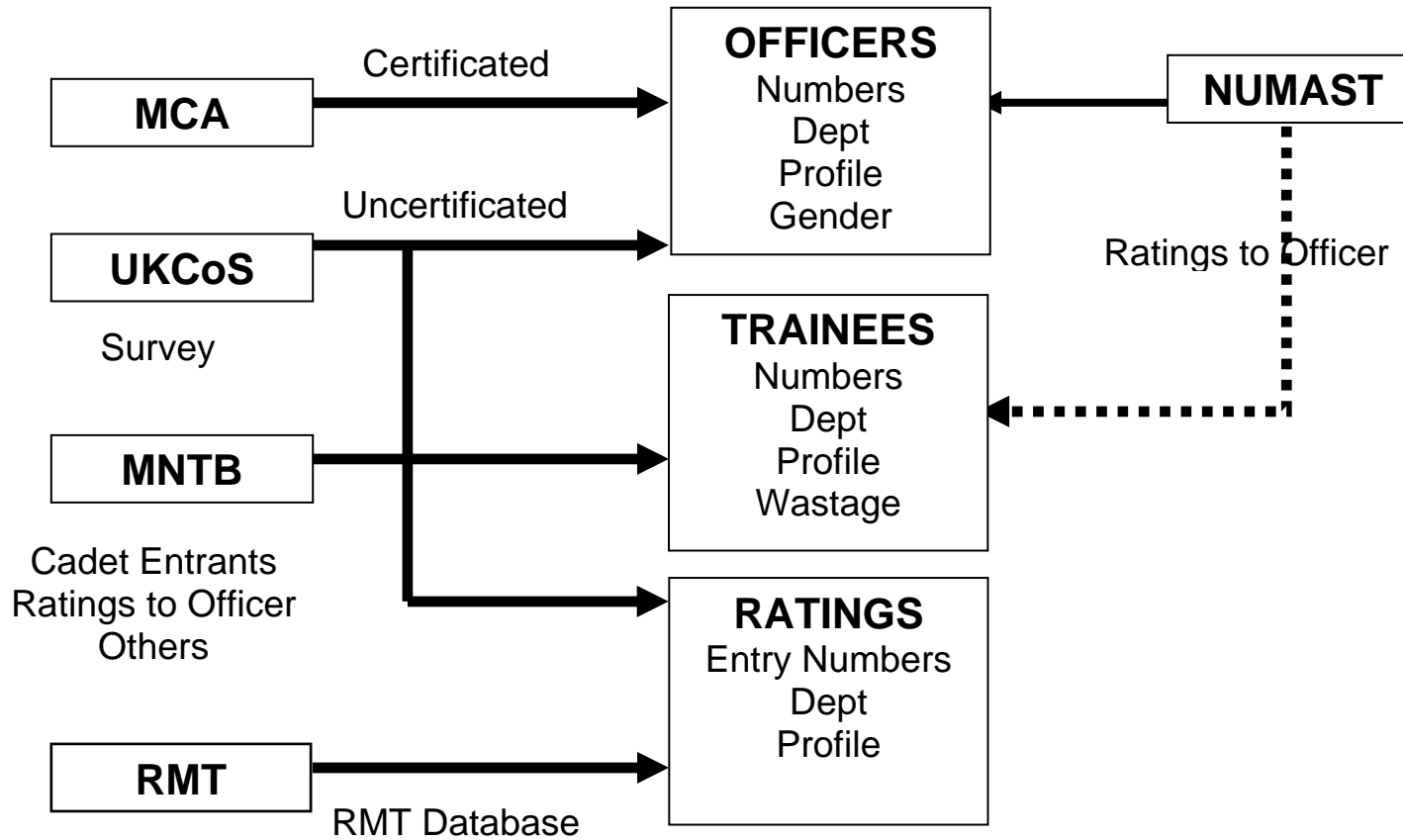
The projections produced show the total numbers of certificated officers i.e. those who are active, serving ashore, and available for work at sea. They are essentially therefore estimates of available supply.

These numbers are projected using a simple stock-flow model, linking the future numbers of certificated officers to the current levels by adding in new entrants and subtracting losses due to wastage and retirement.

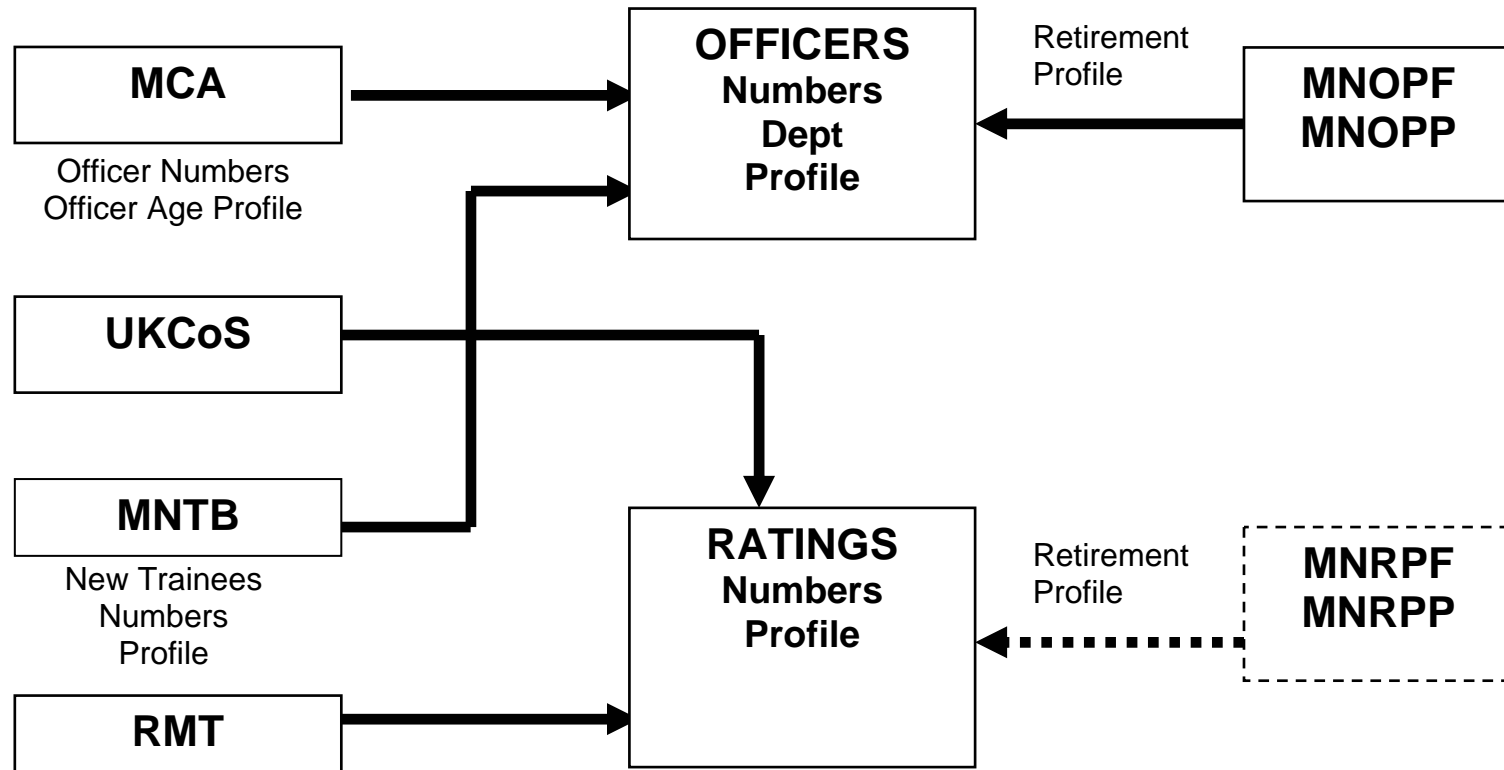
Figure 4.2 shows the data flows used to project certificated officer numbers. The existing age profile is derived from MCA data. Additional information relating to the likely age profile of new entrants, and the possible age profile of retirees, has been used from the MNTB and the MNOPP/MNOPF respectively. Updated information on retirees for 2005 has shown that there is no need to alter the distribution employed in the projection model.

Ratings projections present more of a problem—lack of information on their precise numbers, the short training time, and lack of data on exit rates mean that any projection for this group remains very speculative, and no estimates have been included in this report. Figure 4.2 shows the data flows that give estimates of the existing age profile and total numbers of UK ratings. It is hoped that, in future, information from the ratings pensions authorities will supplement that from the officers' organisation to help with retirement assumptions.

Figure 4.1 Data flow diagram for UK seafarer information, 2005



**Figure 4.2 Data flow diagram for UK seafarer projections, 2005**



## **5. Assumptions concerning ‘seafarers active at sea’, wastage rates, and retirement ages**

### **5.1 Total seafarers and ‘seafarers active at sea’**

An important distinction is made in Section 3.1 between the estimated total number of UK ‘seafarers’ and ‘seafarers active at sea’. This distinction only applies to certificated officers, not to other seafarers. The data source for certificated officers is the MCA SDS database, which holds records for all certificated officers with valid certificates. The majority of such officers work regularly at sea and are therefore ‘active at sea’, but a significant minority who hold valid certificates have shore based jobs and never, or rarely, go to sea. The main source of information for uncertificated officers and ratings, however, is the UKCoS manpower survey, and their estimates, by definition, only relate to active seafarers, so this problem does not arise

As mentioned above the majority of certificated officers holding valid certificates serve at sea. Some officers work ashore but keep their certificates up to date either because the certificate is desirable in their present employment, or because they may return to sea at some time in the future. Some officers who have revalidated subsequently leave the industry but their records remain in the SDS database until the end of the five year revalidation cycle.

The difficulty is to estimate what proportion of officers holding valid certificates are active at sea, and what proportion work on shore. There have been a number of attempts to measure these proportions and a brief outline of this work is given below.

In the original work carried out by McConville et al (1998), the assumption was made that 9% of the total certificated officer population was working on shore, based on what little evidence was then available. This proportion was applied to the total of certificated officer numbers identified in the London Guildhall University (LGU) database, constructed from MCA records.

In 1999, NUMAST sponsored a survey of its members by Glen and McConville (2000) The survey asked respondents to identify whether or not they worked mainly or routinely at sea

or on shore. The proportion of NUMAST members identified as either working routinely or mainly on shore was estimated at 7.2% (11.7% under the 'routinely' category), close to the original assumption of 9% (Glen and McConville, 2000, p.18). The 9% proportion has continued to be applied to the published Seafarers Analyses from 1997 to 2003 inclusive.

However, when officers leave the sea to work on shore they are not necessarily going to remain in NUMAST, so the estimate may be a conservative one. In 2003, Professor Gardner and his team at Cardiff (Gardner *et al*, 2003) repeated a survey first carried out in 1995, which was aimed at on-shore maritime related organisation. In their questionnaire a specific question was asked about the number of personnel holding a valid Certificate of Competency who were employed by the organisation. They estimated that 3,196 fell into this category, with a 95% confidence interval of +/- 461. When applied to the number of UK certificated officers for 2003 (17,126), this produced a proportion of 18.7% (taking the central estimate), a figure well above the 9% used by Glen *et al* (2004). There was an important non-respondent in the Cardiff University study, however; a major employer of maritime staff, many of whom probably hold valid certificates, so it is likely that the estimate of 18.7% is conservative.

An effort was made to reconcile these two estimated percentages, in discussion with Professor Marlow and his team, but no firm conclusion could be reached.

At the present time, therefore, there is no definitive estimate of the 'true' proportion of certificated officers working on shore. It can be said with reasonable confidence that the 9% figure is too low, so this figure can be taken as a conservative estimate. Using the 9% figure provides an upper limit to total numbers. It is less useful in detailed analysis however, because it is likely that seafarers who leave the sea but keep their certificates will have done so after a career lasting 10 –15 years, and this implies that the proportional adjustment should not be made uniformly across the age profile. At the other extreme, if the Cardiff estimate of 3,196 plus the 95% confidence interval is employed, an upper bound of 3,657 is derived, which represents 21.4% of the certificated UK officer total in 2003. This figure could be taken as an upper estimate of the proportion of certificated officers working on shore.

Consideration was given to further research on this issue. Careful evaluation of the likely costs of carrying out a survey of certificated officers resulted in the decision that the benefit of the research was of less value than the estimated cost. Accordingly, in the absence of any other information, in the analysis that follows it has been assumed that the proportion of officers with valid certificates but who work on shore is 16% for all ages, a mid-range assumption.

## **5.2 Wastage rate assumptions**

Wastage rate estimates are also important in generating estimated seafarer numbers, and in making projections. The two groups for which such assumptions make a critical difference to numbers and projections are trainees and certificated officers.

### **Trainee dropout rates**

For trainees, an important assumption is the figure for the numbers of trainees who commence training, but who fail to complete their courses (i.e. dropout or fail to complete successfully). This determines the number of trainees assumed to obtain their first Certificate of Competency, and then enter the population of UK certificated officers. In the past, the assumption has been made of an average 8 per cent drop out per year, although evidence suggests that the drop outs occur at two points – first, soon after entry to the course, and second, after the cadet’s first sea trip. As detailed information is not available, it has been decided to retain the 8 per cent per annum wastage rate as the ‘base case’, employed in the projection of future certificated officer numbers. The 8 per cent figure was originally derived from the GAFT data held on cadet trainees in 1995-6.

As the proposed MCA database is built up over the next few years, this assumption will be replaced with estimates derived from actual historical data.

The final assumption relating to trainees is the age of entry. In the previous research, an arbitrary assumption was made that cadets all started training at 18 and entered the officer pool at the age of 22. Thus, over time, the age profile of officers would become uniform. The age profile of cadet entrants became available for the first time for 2003-4, and this has

been employed to construct an age distribution of entrants for 2005. It should be noted that the ages of those entering via the 'ratings to officer' route have not been included. Their small number means that the year to year variation in ages may be too large to make use of just one year's data. It should be noted that this group of trainees tend to be significantly older than those entering by the 'normal' route.

### **Officer wastage rates**

There are two areas where assumptions are needed for certificated officers. The first relates to the rate at which officers leave the industry, prior to retirement; the second, the age of retirement itself, which is dealt with in the next section.

The wastage rate assumption is clearly very important for long term projections. In the past, the assumptions were; 6 per cent per annum up until 50 years of age, and then 1 per cent per annum until retirement. This assumption was reviewed last year with staff from Cardiff University. All parties thought that the 6 per cent figure was very plausible. In 'backcasting' simulations carried out as part of the 2003 Cardiff study, the 6 per cent figure was the one that produced the most accurate replication of past data – a figure of 10 per cent gave unacceptable results.

The 6 per cent assumption has therefore been retained for the 'base case', and it has been used to construct the projections for UK certificated officers from 2006 to 2021.

### **5.3 Officer retirement age**

In the 1997-2003 studies a retirement assumption of 57 was used as a lower limit with 65 as an upper limit, to be used for current and future estimates. The 'age 57' retirement assumption was consistent with the effect of an early retirement scheme (OERS) which was in operation prior to 1997 - many officers took the option to retire around the age of 57 with an enhanced pension.

Two things have changed since then. First, the MNOPF has terminated the Optional Early Retirement Scheme (OERS). Second, the MNOPF is now closed to new entrants, and in its

place is the Merchant Navy Officers Pension Plan (MNOFF). NUMAST confirmed that the typical retirement age is now 61, i.e at the 61<sup>st</sup> birthday. It should be noted that under the present MNOFF, an employee can retire at any time between 61 and 75. After 61, the employer has to agree to continuing employment, and the employee and employer can continue to make further contributions to the pension.

A retirement age of 62, (i.e. on the 62<sup>nd</sup> birthday) has been taken as the most plausible age to base calculations of seafarer numbers. This is one year later than the present official retirement age. It was decided to discontinue the previous convention of producing estimates based on an assumed age of 57 years, as this was considered unrealistic. A second assumed retirement age has also been taken for certificated officers, 65 years. This can be regarded as giving a maximum estimate, which also permits comparisons with data from previous work.

However, it is recognised that not all certificated officers will retire at the official maximum age. In 2004, the Merchant Navy Officers' Pension Fund (MNOFF) provided information on the age profile of those retirees over the past three years. This sample has been utilised to generate an empirically based probability distribution for the age of retirement, defined as the difference between date of birth and start date of the pension. It is important to note that this profile is not an estimate of the age at which an officer leaves the sea and moves on shore to work, since the officer concerned may not claim the pension until they reach the age of retirement from all occupations. Nevertheless, the use of this information means that the age profile of officers is more 'realistic' when projections of future numbers are made.

The MNOFF has provided an update on retirees for 2005. The incorporation of the new information made no statistically significant change to the 2004 age distribution of retirees, which has been employed in both the 2004 and 2005 reports.

## 6. Statistical report

This section presents the results of the analysis. Following the summary table which brings together the main results - the numbers of UK seafarers active at sea, the other tables follow the main sections of the classification of seafarers given in Annex 1, i.e. numbers of:

- certificated officers (A1)
- uncertificated officers (A2)
- ratings (B)
- officer cadets (C1)

The final table in this section gives information about *new starts* - officer and ratings trainees, conversions and pre-qualified trainees (C1, D, E)

Table 6.8 then brings together all the results, starting with the unadjusted data, and then the adjusted data with accompanying notes explaining what adjustments have been made. The highlighted figures in Table 6.8 are those used in Tables 6.1 – 6.7.

As explained in earlier sections, there are differences to the tabular presentation this year, although following broadly the same pattern as in the first report last year. The changes are designed to aid comprehension and to take account of further refinements in the estimation process, as summarised below.

First, the main tables only include estimates of UK seafarers active at sea (and in the case of certificated officers, according to two retirement assumptions). The retirement age of 62 is considered to give the most likely estimate of active seafarers and the retirement age 65 assumption gives an upper boundary. The term active at sea is defined in Section 3.1.

The data for certificated officers over the period 1999 to 2003 has been adjusted by using a three year moving average. This has been carried out to reduce the disturbance to the data series due to the change from STCW 78 to STCW 95 which caused spurious fluctuations in the raw data from year to year.

The scope of STCW 95 was widened to include officers with endorsements for tug and inshore craft only. These officers have been included for the first time in the tables for 2004 and 2005 (figures for previous years are not available). In addition, UK officers who only hold CEC's (not CoC's) have been included for the first time for 2004 and 2005.

These additions (both for tug and inshore officers and CEC i.e. 312 in 2004, 895 in 2005) affect the trend in officers for the last couple of years. Without the additions the number of officers would be declining, rather than slightly increasing.

Finally, anomalous results in the historic data series have been removed, and the figures in Tables 6.1-6,7 have been rounded to the nearest 10 seafarers to avoid spurious accuracy. The data in the Table 6.8 gives the detailed figures including the unadjusted series.

The various assumptions made in the course of the analysis are all detailed in the accompanying table notes.

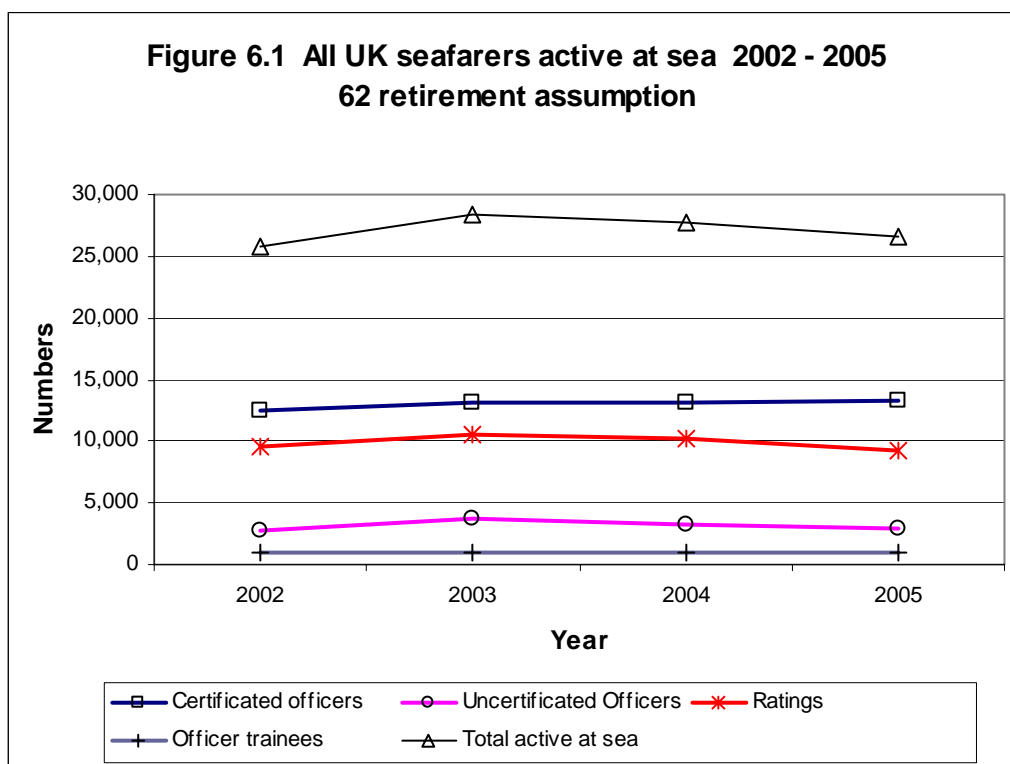
**Table 6.1 All UK seafarers <sup>3</sup>**

	2002	2003	2004	2005
<b>Adjusted data (active at sea) <sup>1,2</sup></b>				
<b>Retirement at 62</b>				
Certificated officers	12,440	13,100	13,150	13,240
Uncertificated Officers	2,750	3,750	3,260	2,910
Ratings	9,510	10,490	10,270	9,320
Officer trainees	1,010	1,000	1,030	1,050
Total active at sea	25,710	28,340	27,710	26,520
<b>Retirement at 65</b>				
Certificated officers	13,060	13,580	13,640	13,900
Uncertificated Officers	2,750	3,750	3,260	2,910
Ratings	9,510	10,490	10,270	9,320
Officer trainees	1,010	1,000	1,030	1,050
Total active at sea	26,330	28,820	28,200	27,180

Sources: see sources given for Tables 6.1, 6.2, 6.4 and 6.5.

Notes:

1. Figures are rounded to nearest 10. Actual figures are presented in Table 6.8.
2. See notes to Table 6.8 for details of adjustments made..
3. Excludes a small number of ratings trainees and pre-qualified trainees - see Table 6.8.



**Table 6.2 UK certificated officers**

	1997	1998	1999	2000	2001	2002	2003	2004 <sup>3</sup>	2005 <sup>3</sup>
<b>Adjusted data (active at sea)<sup>1, 2, 4</sup></b>									
<b>Retirement at 62</b>									
Total	14,300	13,550	13,300	12,510	12,300	12,440	13,100	13,150	13,240
of which:									
deck	6,720	6,370	6,240	6,010	5,880	6,210	6,550	6,840	6,600
engine	7,580	7,180	7,060	6,510	6,420	6,230	6,550	6,310	6,650

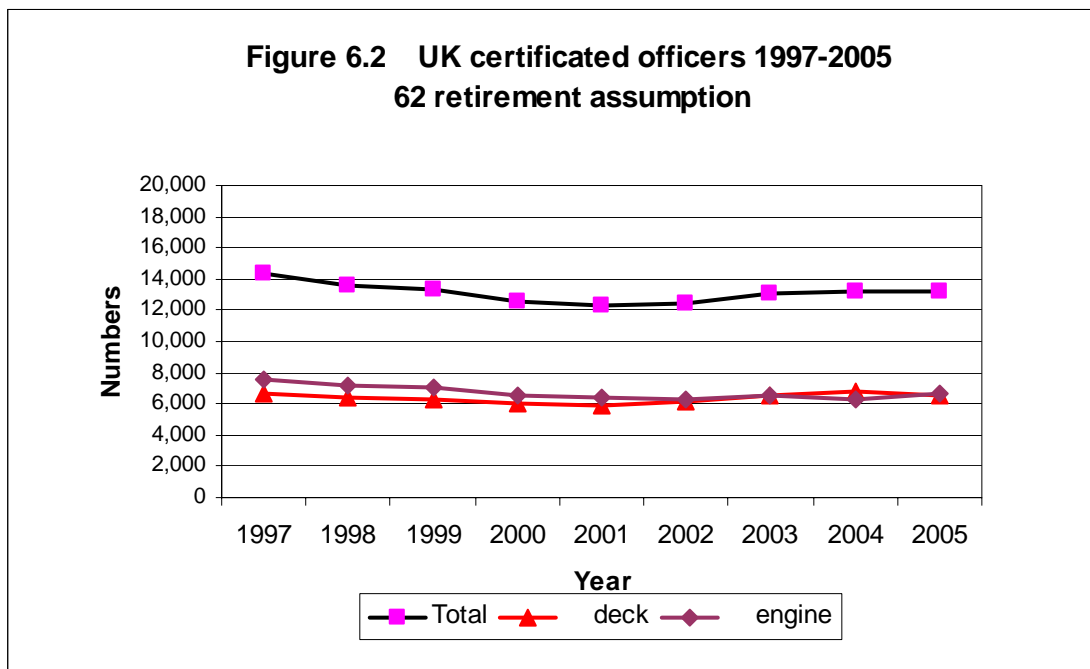
**Retirement at 65**

Total	14,400	14,580	13,920	13,100	12,880	13,060	13,580	13,640	13,900
of which:									
deck	6,770	6,850	6,530	6,280	6,150	6,520	6,790	7,100	6,920
engine	7,630	7,730	7,390	6,820	6,730	6,540	6,790	6,540	6,980

Sources: UK Seafarers Analyses 1998-2003: MCA Data 2004 onwards.

Notes:

1. Numbers rounded to nearest 10. Components may not sum to totals due to rounding.
2. Proportion of Officers not active at sea i.e. in 'on-shore' jobs assumed to be 16% for all ages.
3. Includes UK officers holding CECs and also UK officers only holding tug/Inshore craft endorsements. See Table 6.8 for details.
4. Figures for period 1999-2003 have been adjusted using a three year moving average to the series due to change from STCW75 to STCW95.



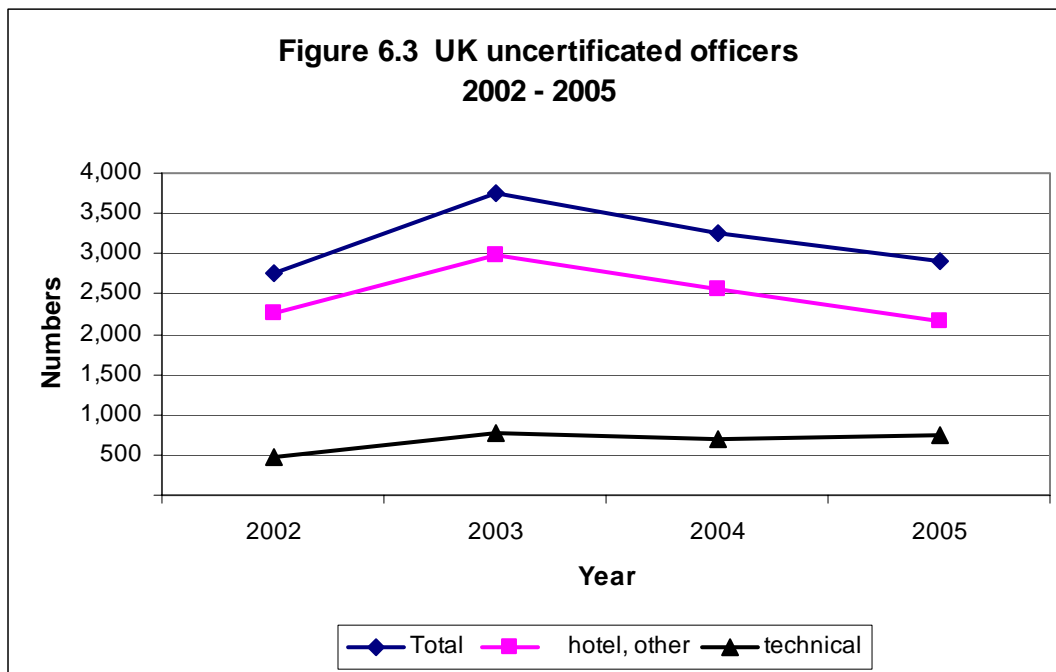
**Table 6.3 UK uncertificated officers**

	2002	2003	2004	2005
Adjusted data (active at sea) <sup>1,2</sup>				
Total	2,750	3,750	3,260	2,910
of which:				
technical <sup>3</sup>	480	760	700	740
hotel, other	2,270	2,990	2,560	2,170

Source: UKCoS manpower surveys.

Notes:

1. Numbers rounded to nearest 10. Components may not sum to totals due to rounding.
2. The adjustments made are detailed in note 3 to Table 6.8.
3. Technical includes electro-technical officers.



**Table 6.4 All UK officers**

	2002	2003	2004	2005
<b>Adjusted data (active at sea) <sup>1,2</sup></b>				
<b>Retirement at 62</b>				
Total	15,190	16,850	16,410	16,150
of which:				
deck	6,210	6,550	6,840	6,600
engine	6,230	6,550	6,310	6,650
technical	480	760	700	740
hotel, other	2,270	2,990	2,560	2,170

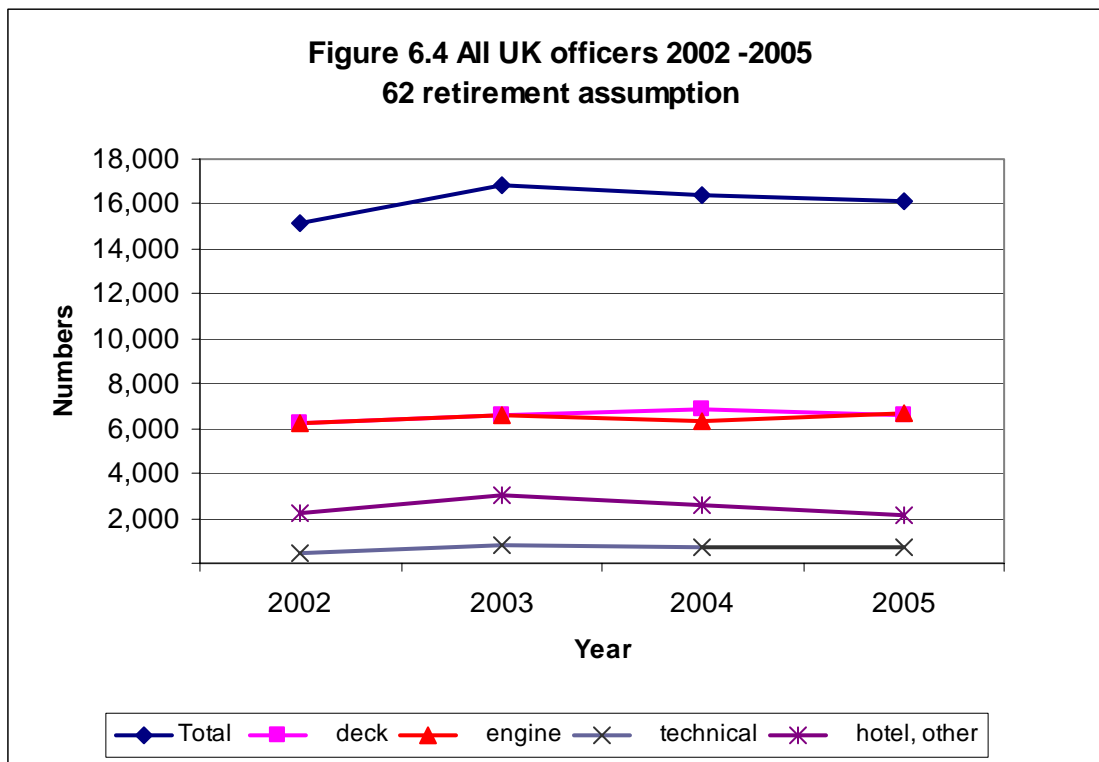
**Retirement at 65**

Total	15,810	17,330	16,900	16,810
of which:				
deck	6,520	6,790	7,100	6,920
engine	6,540	6,790	6,540	6,980
technical	480	760	700	740
hotel, other	2,270	2,990	2,560	2,170

Source: see sources given in Tables 6.2 and 6.3.

Notes:

1. Numbers rounded to nearest 10. Components may not sum to totals due to rounding.
2. Figures presented are the sum of the relevant entries in Tables 6.2 and 6.3.



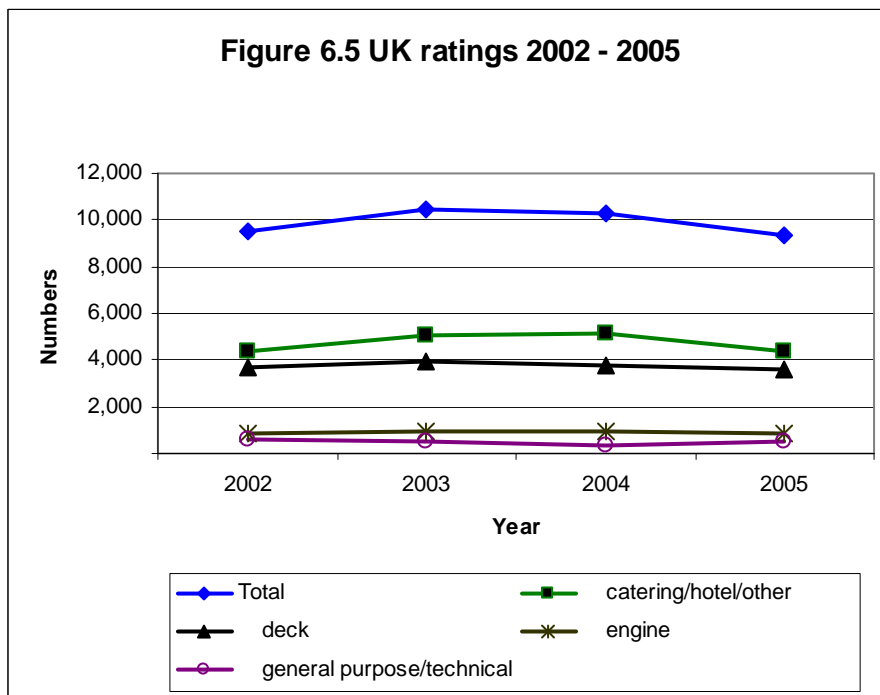
**Table 6.5 UK ratings**

	2002	2003	2004	2005
<b>Adjusted data (active at sea) <sup>1, 2</sup></b>				
Total	9,510	10,480	10,270	9,310
of which:				
deck	3,720	3,940	3,810	3,610
engine	830	970	940	820
general purpose/technical	580	510	380	530
catering/hotel/other	4,380	5,060	5,140	4,350

Source: UKCoS manpower surveys.

Notes:

1. Numbers rounded to nearest 10. Components may not sum to totals due to rounding.
2. The adjustments made are detailed in notes 3, 4 to Table 6.8.



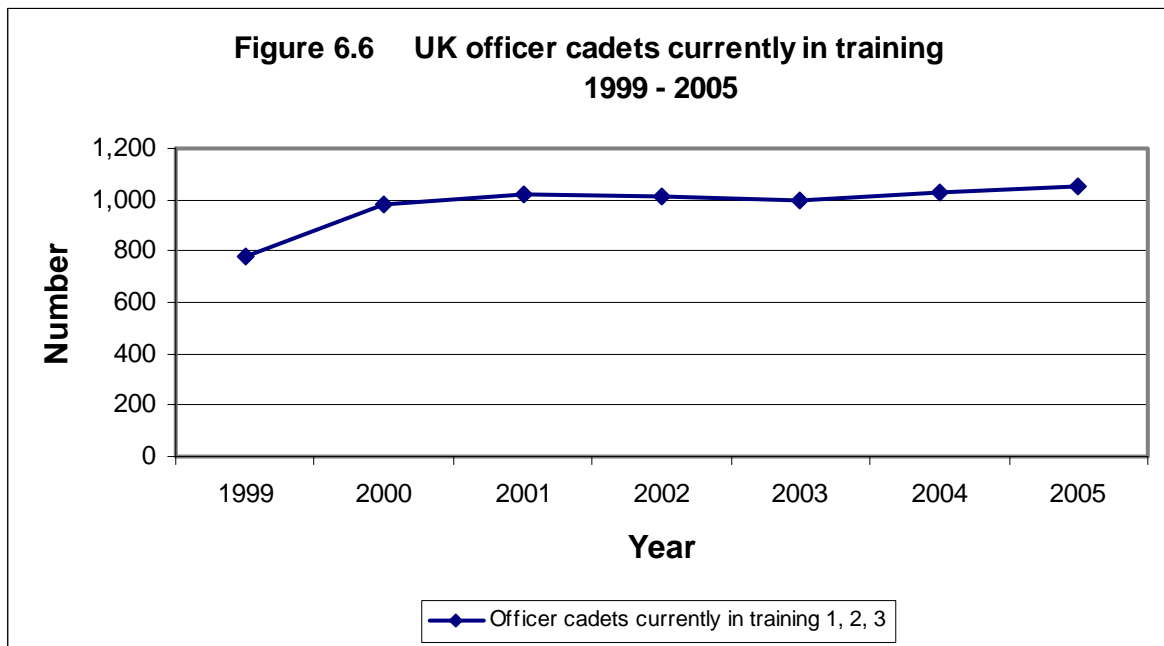
**Table 6.6 UK officer cadets currently in training**

	1999	2000	2001	2002	2003	2004	2005
Officer cadets currently in training <sup>1, 2, 3</sup>	780	980	1,020	1,010	1,000	1,030	1,050

Source: MCA.

Notes:

1. Numbers rounded to nearest 10.
2. Data for trainees are for financial years, not calendar years, e.g. 2005 represents 2004/5.
3. The figures are derived from SMarT returns; they include a small number of EU trainees where trainees are resident in the UK. RFA trainees are excluded.



**Table 6.7 Trainees in training - new starts** <sup>1, 2, 6</sup>

	1999	2000	2001	2002	2003	2004	2005
officer cadets <sup>4</sup>	500	450	480	480	600	610	540
deck <sup>5</sup>		250	270	270	290	320	280
engine <sup>2, 5</sup>		200	210	210	310	250	220
technical/dual <sup>3</sup>						40	40
rating to officer						30	20
deck						10	10
engine							10
dual purpose							
ex-fishing, RN							
deck							
engine							
dual purpose							
pre qualified						20	40
catering/hotel							
engineering etc						20	40
ratings trainees					50	40	50
deck and engine ratings						30	40
deck						20	10
engine						10	30
general purpose, technical							
catering						10	10

Sources: MCA, MNTB (and officer trainee data pre 2000 from *UK Seafarers Analysis 1999*).

Notes:

1. Numbers rounded to nearest 10.
2. The table is not complete - blank entries indicate that information is not available.
3. Data for electro-technical cadets for 2000-2003 is included in deck or engine cadets.
4. The figures are derived from both SMaRT returns and MNTB surveys; . they include RFA trainees and also a small number of EU trainees where trainees are resident in the UK.
5. 2005 figures for deck and engine officer cadets include 49 undergraduate trainees, and they have been allocated to deck and engine using the proportions in each category as for other officer cadets.
6. Data for trainees are for financial years, not calendar years, e.g 2005 represents 2004/5.

**Table 6.8 Complete data set including unadjusted figures <sup>1</sup>**

		1997	1998	1999	2000	2001	2002	2003	2004 <sup>5</sup>	2005 <sup>5</sup>	Table ref
<b>Certificated Officers</b>											
<b>62 retirement assumption</b>											
<b>UNADJUSTED</b>											
A1	Total	17,026	16,128	15,419	15,970	13,300	14,655	16,477	15,656	15,767	
	of which:										
	deck <sup>9</sup>	9,116	8,436	8,403	8,667	7,756	8,219	9,188	8,191	8,594	
	engine	7,910	7,692	7,016	7,303	5,544	6,436	7,289	7,465	7,173	
<b>ADJUSTED <sup>2</sup></b>											
	Total	17,026	16,128	15,839	14,896	14,642	14,811	15,596	15,656	15,767	
	Active at sea <sup>7</sup>	14,302	13,548	13,305	12,513	12,299	12,441	13,101	13,151	13,244	6.2
	of which:										
A11	deck <sup>9</sup>	6,722	6,367	6,240	6,006	5,879	6,208	6,550	6,839	6,596	6.2
A12	engine	7,580	7,180	7,065	6,507	6,420	6,233	6,551	6,312	6,649	6.2
A13	dual purpose <sup>8</sup>								22		
<b>Certificated Officers</b>											
<b>65 retirement assumption</b>											
<b>UNADJUSTED</b>											
A1	Total	17,144	17,356	15,897	16,464	14,395	15,125	17,126	16,244	16,554	
	of which:										
	deck <sup>9</sup>	9,156	9,208	8,674	8,942	8,252	8,458	9,573	8,499	9,057	
	engine	7,988	8,148	7,223	7,522	5,837	6,577	7,553	7,745	7,497	
<b>ADJUSTED <sup>2</sup></b>											
	Total	17,144	17,356	16,572	15,585	15,328	15,549	16,165	16,244	16,554	
	Active at sea <sup>7</sup>	14,401	14,579	13,921	13,092	12,876	13,061	13,579	13,645	13,905	6.2
	of which:										
A11	deck <sup>9</sup>	6,768	6,852	6,528	6,284	6,154	6,517	6,789	7,095	6,924	6.2
A12	engine	7,633	7,727	7,393	6,808	6,722	6,544	6,790	6,550	6,981	6.2
A13	dual purpose <sup>8</sup>								22		

**Table 6.8 Complete data set including unadjusted figures <sup>1</sup>**

		1997	1998	1999	2000	2001	2002	2003	2004 <sup>5</sup>	2005 <sup>5</sup>	Table ref
A2	<b>Uncertificated officers active at sea UNADJUSTED</b>										
	Total			976	1,684	1,704	1,778	2,136	2,799	2,541	
	of which:										
A21	technical			472	682	1,053	892	901	971	734	
A22, A23	hotel, other			504	1,002	651	886	1,235	1,828	1,807	
A2	<b>Uncertificated officers active at sea ADJUSTED <sup>3</sup></b>										
	Total						2,753	3,743	3,260	2,915	6.3
	of which:										
A21	technical						480	755	698	741	6.3
A22, A23	hotel, other						2,273	2,988	2,562	2,174	6.3
B	<b>Ratings UNADJUSTED</b>										
	Total			8,925	10,331	6,395	8,897	10,554	9,621	8,749	
	of which:										
B11	deck			2,617	2,450	1,924	2,983	3,265	3,479	3,174	
B12	engine			884	835	710	911	1,164	989	745	
B13	general purpose/technical			346	520	57	699	612	462	524	
B21	catering/hotel/other			5,078	6,526	3,704	4,304	5,513	4,691	4,306	
B	<b>Ratings ADJUSTED <sup>4</sup></b>										
	Total						9,511	10,491	10,269	9,316	6.5
	of which:										
B11	deck						3,715	3,944	3,807	3,614	6.5
B12	engine						830	973	935	818	6.5
B13	general purpose/technical						583	514	383	530	6.5
B21	catering/hotel/other						4,383	5,060	5,144	4,354	6.5

**Table 6.8 Complete data set including unadjusted figures <sup>1</sup>**

	1997	1998	1999	2000	2001	2002	2003	2004 <sup>5</sup>	2005 <sup>5</sup>	Table ref
<b>Officer cadets currently in training <sup>6</sup></b>			779	981	1,020	1,012	1,002	1,033	1,050	6.6
<b>Trainees in training <sup>6</sup> - new starts</b>			498	446	481	483	655	696	640	
	of which:									
C1	officer cadets		498	446	481	483	604	605	538	6.7
C11	deck			249	269	271	291	322	283	6.7
C12	engine			197	212	212	313	245	220	6.7
C13	dual purpose, electro-technical							38	35	6.7
	conversions									
D1	rating to officer							25	20	6.7
D11	deck							9	12	6.7
D12	engine							4	8	6.7
D13	dual purpose							12		6.7
D2	ex-fishing, RN									
D21	deck									6.7
D22	engine									6.7
D23	dual purpose									6.7
E	pre qualified trainees									
E1	catering/hotel							18	38	6.7
E2	engineering etc							18	38	6.7
	trainee ratings									
C2	deck and engine ratings						51	48	44	6.7
C21	deck							34	35	6.7
C22	engine							22	9	6.7
C23	general purpose, technical							12	26	6.7
C3	catering							14	9	6.7

Notes:

1. This table gives all the figures shown in Tables 6.1 – 6.7 (shaded) plus original (unadjusted) figures. Subsequent notes explain the basis for these adjustments. Blank entries indicate data not available.
2. The unadjusted data for certificated officers over the period 1999 to 2003 has been smoothed by using a three year moving average. Then “active at sea” is derived based on the assumption that 16% of officers with valid certificates are shore based.
3. The unadjusted CoS uncertificated officer data has been adjusted by: removing anomalies in the data by averaging adjacent years; deriving a consistent respondent data set – only those companies in Chamber membership in the past four years and who made at least two completed returns during that period were taken; then the 2005 results were “grossed” to cover all Chamber members (where a return was not completed, the most recent return was used); finally earlier years figures were uplifted based on the ratio of the grossed to the 4 year consistent series figure for 2005.
4. Adjustments for ratings were made in the same way as described for uncertificated officers in note 3.
5. Certificated officer totals for 2004 and 2005 include 142 and 150 UK officers holding CECs only (age 62 retirement assumption). Equivalent figures for age 65 retirement assumption are 154 and 161 UK officers respectively. Figures for earlier years are not available. The scope of STCW 95 was widened to include officers with endorsements for tug and inshore craft only. Figures for these have been included in 2004 and 2005 and are estimated as 141 deck, 29 engine for 2004; 428 deck, 317 engine for 2005 (age 62 retirement assumption).
6. Data for trainees are for financial years, not calendar years, e.g. 2005 represents 2004/5.
7. See section 3.1 for the definition of active at sea.
8. Dual purpose certificated officers (A13) are also included in deck or engine data (A11 or A12).
9. Deck share for active certificated officers is derived from UKCoS survey data. The shares for the individual years 1997 -2005 are as follows, respectively - 0.470, 0.470, 0.469, 0.480, 0.478, 0.499, 0.500, 0.520, 0.498

## 7. Projections of future UK certificated officers

Projections of the changes in officer numbers in the next decade have been computed, using the methodology first employed in the earlier studies. A simple model of officer entry and exit rates has been combined with the detailed age profile information generated by the MCA SDS data on UK certificated officer ages. This permits the simulation of the trend in total numbers of UK certificated officers. These can be projected using different assumptions about officer loss rates and retirement ages, together with trainee completion rates.

Given that the age profile of UK officers can be accurately drawn from the MCA SDS database, new entrants will be determined by the number of expected new trainees (from all sources), together with the expected rate of training completion. In addition, their expected life as an officer will be partly determined by the initial age of entry, which is here taken as the receipt of the officer's first Certificate of Competency, OOW Deck or OOW Engineering (or both, if dual).

It is important to emphasise here that the method of projection employed is *independent* of past trends. Whilst this may be construed by some as a weakness, in the present context it is felt to be a strength. The reason for this has been touched on earlier in the report, namely the effects on the data of the transition to STCW 95 from STCW 78, which has increased the population of certificated officers over the period 2001-2003. This coupled with the transition of data sources from the LMU 1997 database to the MCA SDS, has created some volatility in the numbers. Given the volatility, it is useful to employ a method which is unaffected by distortions in past data. On the other hand it does mean that the calibration of the assumed parameters is critical to the model's performance.

What follows briefly recaps the discussion of wastage rates to be found above, in Section 5.

The 'base case' assumption employed in this study is that new trainees leave training prior to completion at an average rate of 8 per cent per year. This figure has been

employed in previous modelling work, and is derived from the analysis of the GAFT data on cadets for 1995-6, so has an empirical base. Cadet numbers are assumed to be 600 per year, in line with recent entry rates.

The age profile of new entrants has been modelled using detailed MNTB data for 2003-4, to construct an estimated age profile of trainees. This profile has been employed to derive an aggregated probability distribution to apply to the ages of new entrants. This innovation means that the generated age profile of certificated officers for 10 or 15 years in the future, say, will reflect this age distribution, which is a more plausible profile than the one implied by the (earlier) assumption that all trainees entered the officer workforce at the same age.

The second key assumption is in the maintained 'wastage rate' of officers. In the past, this has been set at 6 per cent for the age range 20 – 50 years, and 1 per cent thereafter, until the age of retirement. As noted earlier (Section 5.2), the assumption of 6 per cent is a 'consensus' estimate that was consistent with Cardiff University's study of seafarer numbers using 'backcasting techniques'. It is of course, quite possible that the 'consensus' is incorrect:- it has been suggested that this number is too high. If indeed, the figure is larger than is actually the case, then the figure so obtained will be a conservative estimate of future seafarer numbers. The projection presented in this report retains these assumptions.

The third element in the projection model is the assumed age of retirement. As discussed earlier (Section 5.3), an assumed retirement age of 62 has been incorporated into the model. Using data provided by the MNOPF for retirees over the period 2000-2005, it has been possible to construct a probability distribution, derived from information on pension take up in the past three years, to allow for the proportions who take up their pension earlier (or later) than the official retirement age of 62.

The revised projections thus include new information on the age profiles of entrants, and on those leaving the industry. Whilst this does not make a very material difference to the projected total numbers of officers, the implied age profile for the future becomes more plausible.

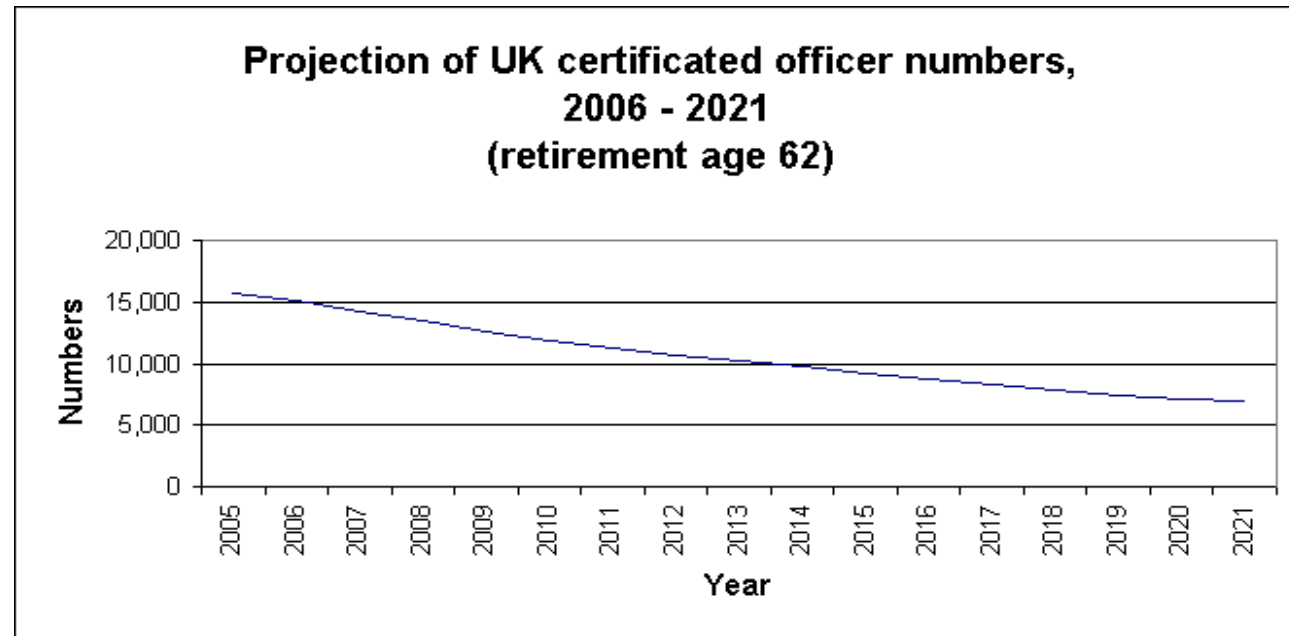
**Figure 7.1 Projection of UK Certificated Officer Numbers, 2006 – 2021**

<b>Age 62</b>	Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Total	Numbers	15,770	15,040	14,270	13,490	12,660	11,890	11,270	10,730	10,230	9,740	9,230	8,730	8,250	7,810	7,440	7,140	6,910
Deck	0.498	7,850	7,490	7,110	6,720	6,300	5,920	5,610	5,340	5,090	4,850	4,600	4,350	4,110	3,890	3,710	3,560	3,440
Engineer	0.502	7,920	7,550	7,160	6,770	6,360	5,970	5,660	5,390	5,140	4,890	4,630	4,380	4,140	3,920	3,730	3,580	3,470

<b>Age 65</b>	Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Total	Numbers	16560	15940	15230	14510	13760	13010	12300	11630	11040	10550	10050	9570	9090	8600	8170	7760	7440
Deck	0.498	8250	7940	7580	7230	6850	6480	6130	5790	5500	5250	5000	4770	4530	4280	4070	3860	3710
Engineer	0.502	8310	8000	7650	7280	6910	6530	6170	5840	5540	5300	5050	4800	4560	4320	4100	3900	3730

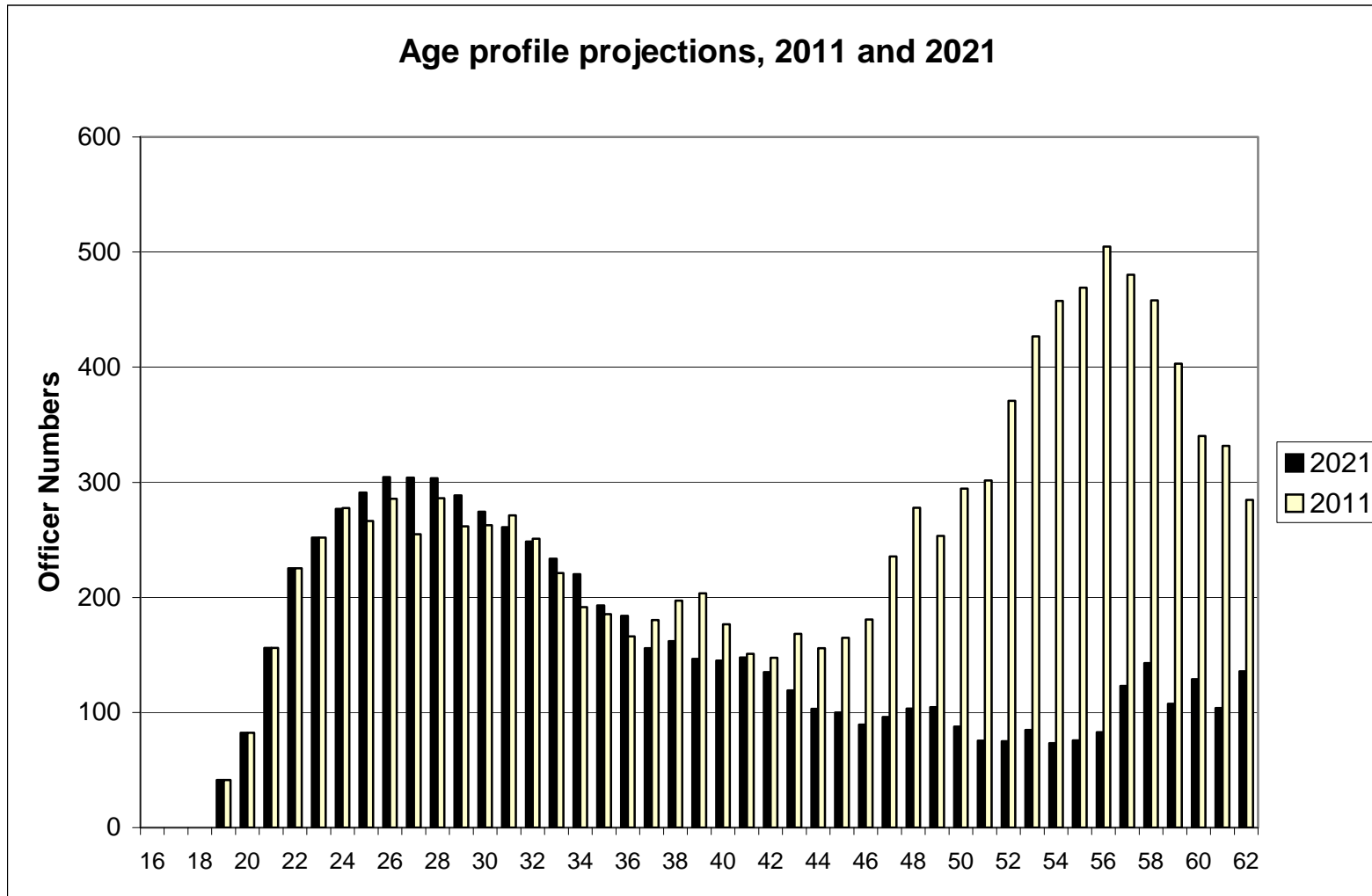
Wastage Rates	
20 < 30	0.06
30 < 50	0.06
50 plus	0.01
Cadet Entry Rates	
Input	600
Wastage	0.08
Output	430



Source: Derived by author using data supplied by the MCA

Note: Numbers rounded to nearest 10.

**Figure 7.2 Projected Age profile of UK Certificated officers in 2011 and 2021.**



Source: Derived from the Projection Model

## 8. Non UK seafarer age profiles of CEC officers on UK registered ships

The MCA have also provided information on the age profiles of officers who are foreign nationals, holding Certificates of Equivalent Competency (CECs). This information relates to all such officers who have been employed on UK registered vessels, since 1997, and their details stored on the MCA database.

**Table 8.1**  
**Distribution of non UK officers by nationality, 2005**

Country	Numbers	Percentage	Cumulative Percentage
Poland	1366	15.8	15.8
Russia	768	8.9	24.7
Philippines	766	8.9	33.6
Ukraine	675	7.8	41.4
India	668	7.7	49.1
Romania	553	6.4	55.5
Croatia	521	6.0	61.5
Bulgaria	473	5.5	67.0
Italy	438	5.1	72.1
Latvia	313	3.6	75.7
South Africa	254	2.9	78.6
Germany	197	2.3	80.9
United States of America	189	2.2	83.1
Eire	163	1.9	85.0
Canada	154	1.8	86.8
Norway	150	1.7	88.5
Lithuania	113	1.3	89.8
Sweden	112	1.3	91.1
Australia	110	1.3	92.4
Serbia & Montenegro	98	1.1	93.5
Estonia	92	1.1	94.6

Source: Derived from MCA data on officers serving on UK registered vessels.

- Notes: 1. Only those nationalities with a share of 1 per cent or more are shown.  
2. Retirement age of 65 is assumed.

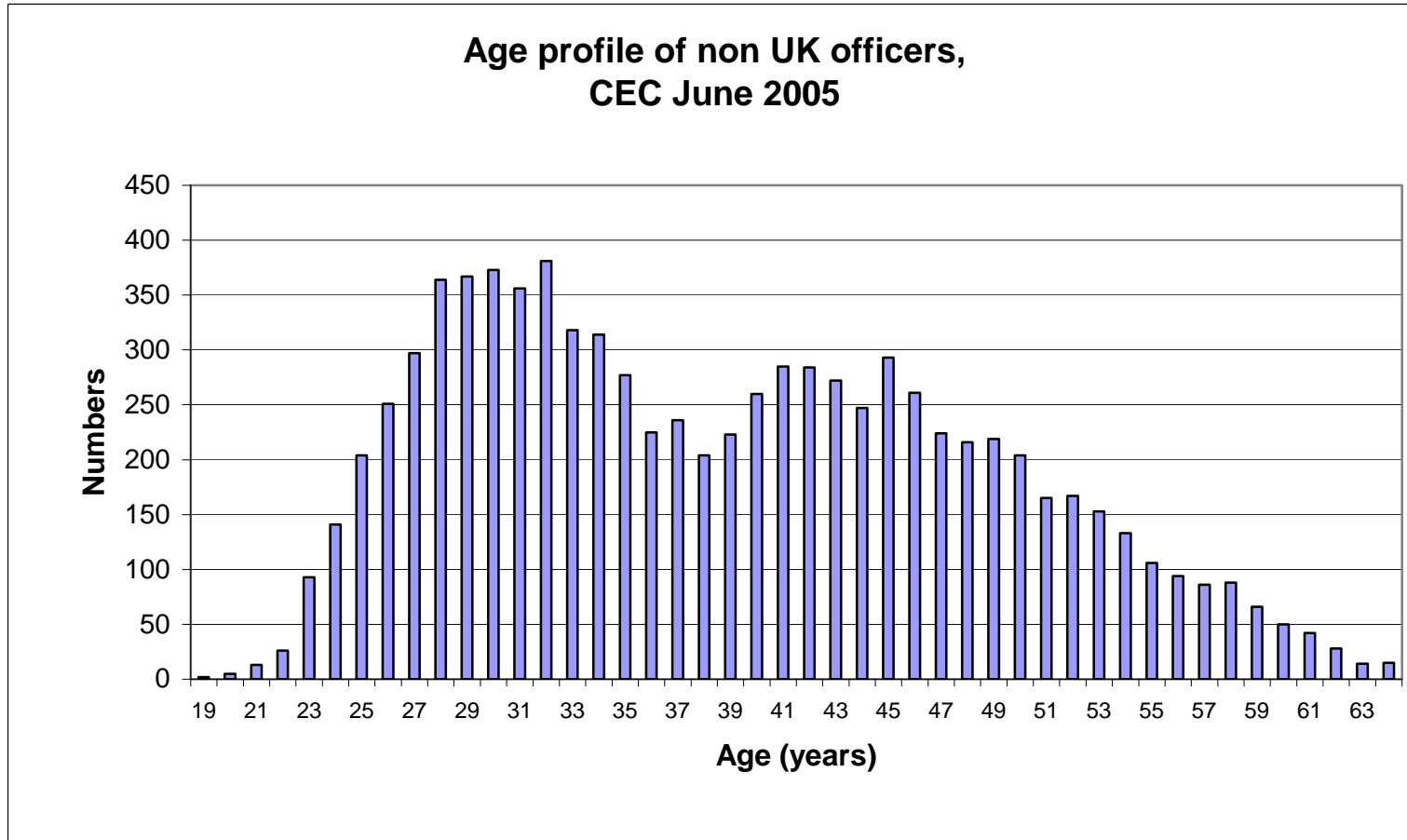
The information provided related to those officers whose certification was valid at the 30<sup>th</sup> June 2005 census date, the same criteria that was applied to the UK officer data. Age profiles were constructed for the principal nationalities identified, which were as shown in Table 8.1.

It is clear from Table 8.1 that the nationalities are quite widely dispersed, with the ten largest accounting for 81% of all officers identified in the database. They include several European countries, the largest being Poland, as well as including India and the Philippines. There is a long ‘tail’ of nationalities which have been ignored.

Age profiles for all the combined set of all such officers are shown in Figure 8.1. The age profile so described is very different from the one which defines UK officers. Figures 8.2 and 8.3 show the profiles for deck and engineer officers of all nationalities, whilst Figure 8.4 shows the age profile of all officers for the three largest, Poland, Philippines and Russia, which account for 34% of all the records, as shown in Table 8.1.

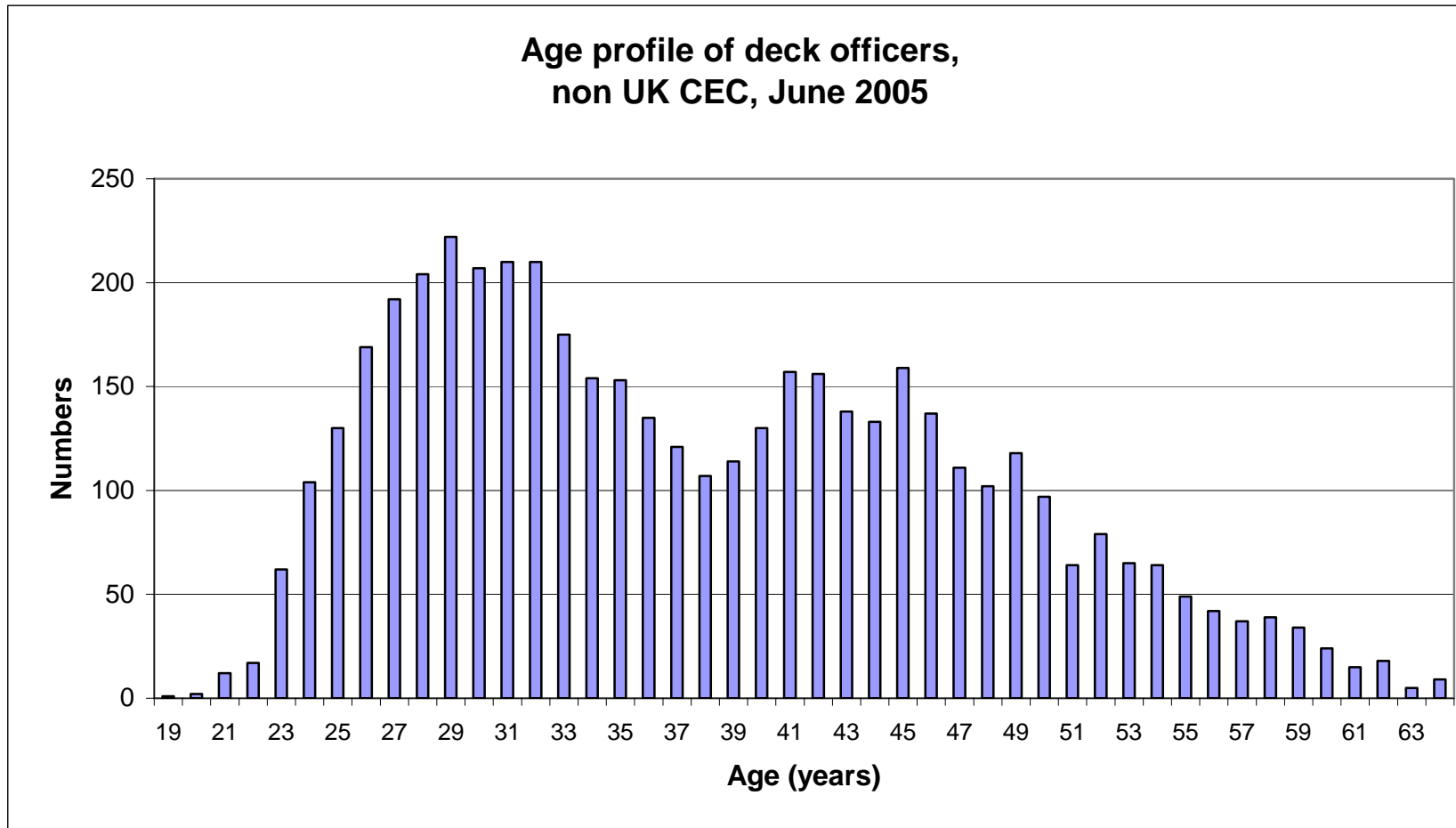
The 2004 report (Glen *et. al.* 2005) reproduced an analysis of COCs by non UK nationality instead of the nationalities of officers holding CECs. The correct version of Table 8.1 for the year 2004 is presented in Annex 3 of this report.

Figure 8.1 Age profile of non UK officers with CECs, June 2005



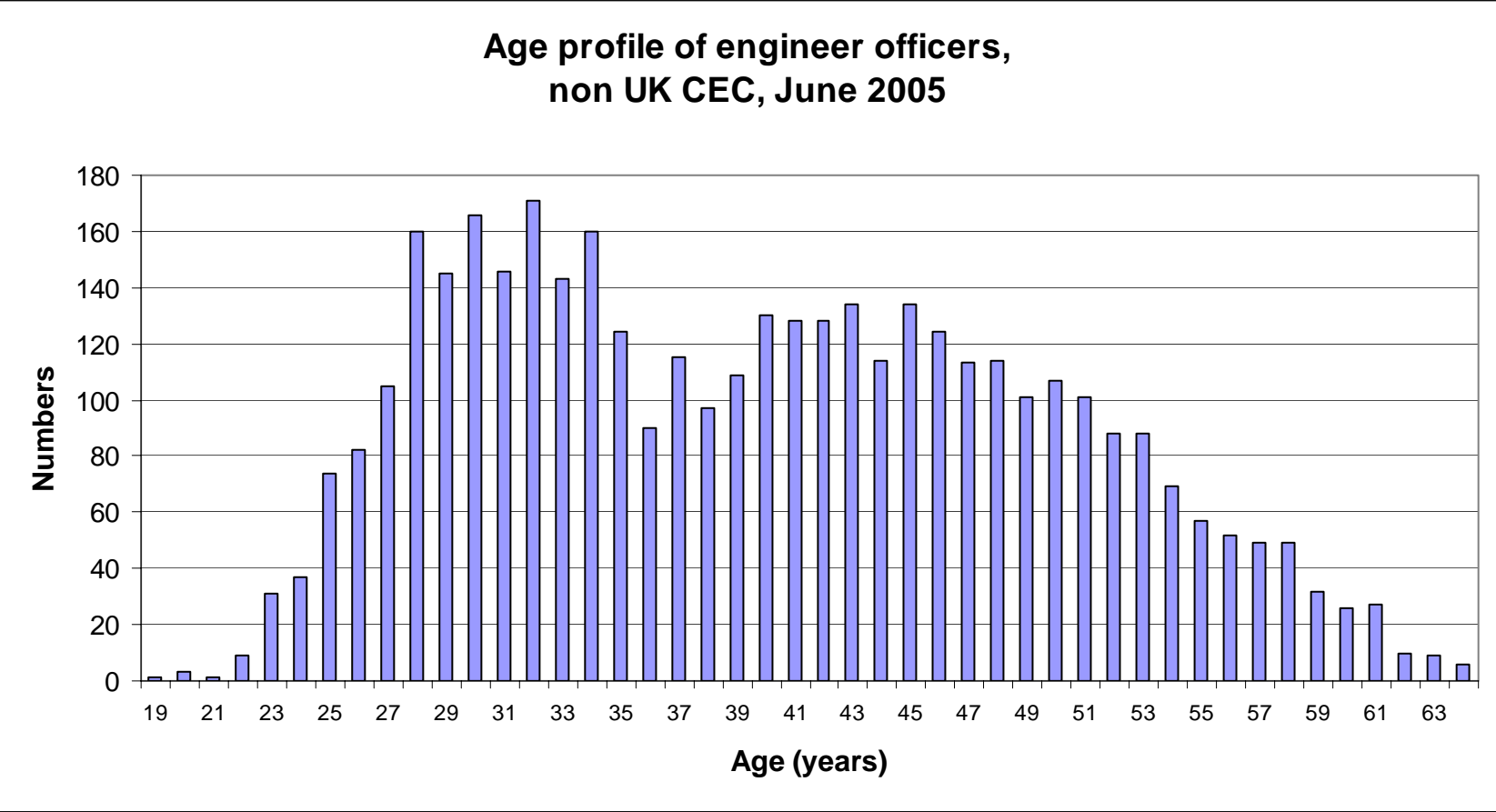
Source: derived from MCA data.

Figure 8.2 Age profile of deck officers, non UK CEC, June 2005



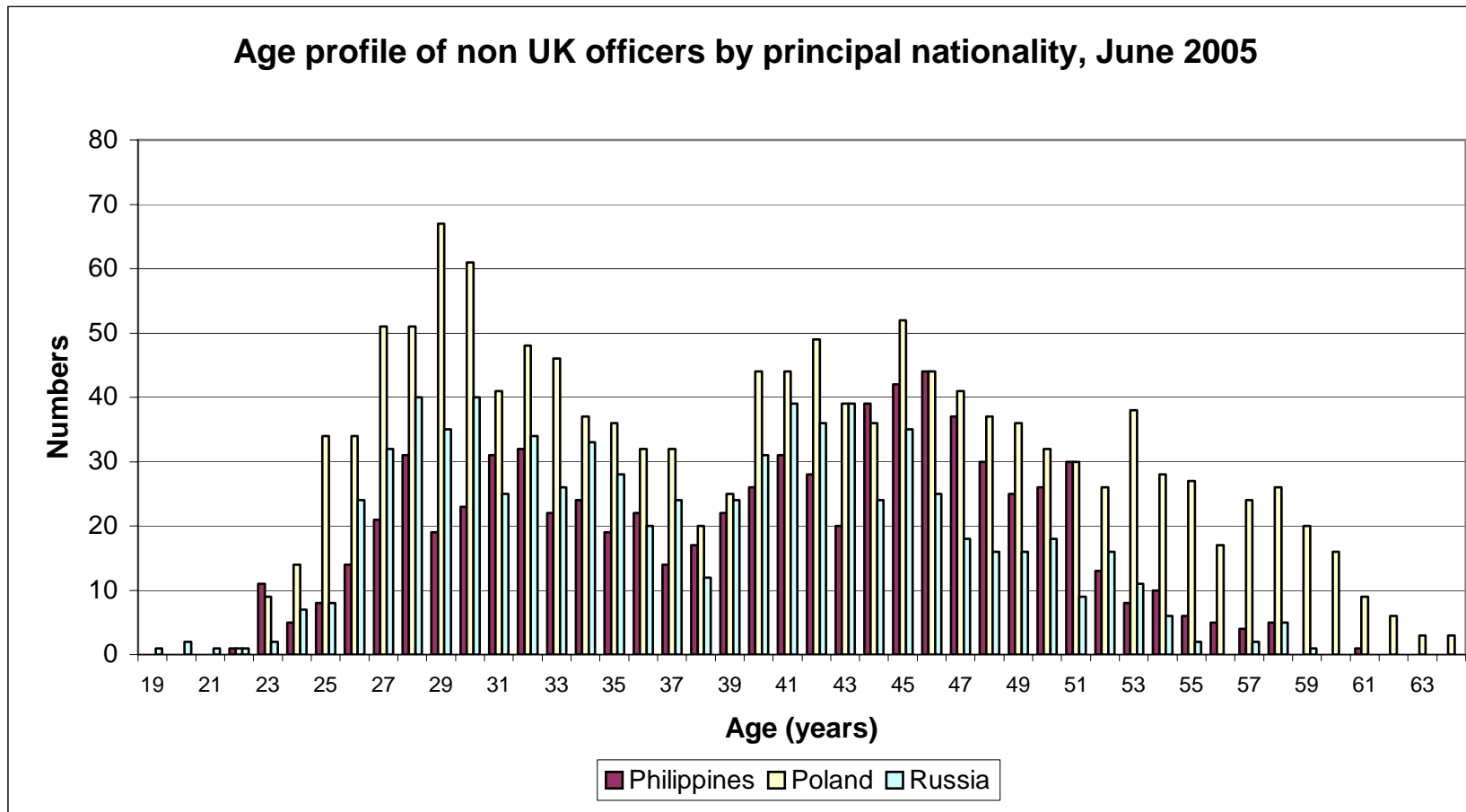
Source: derived from MCA data.

Figure 8.3 Age profile of engineer officers, non UK CEC, June 2005



Source: derived from MCA data.

Figure 8.4 Age profile of non UK officers by principal nationality, June 2005



Source: derived from MCA data.

## 9. References

Gardner B., Marlow, P., Naim, M., Nair, R. and Pettit S. (2003) *The UK Economy's Requirements for People with Experience of Working at Sea 2003*. Cardiff University, Cardiff

Glen, D. and J. McConville (2000) *Employment Characteristics of UK Seafaring Officers*. The Centre for International Transport Management, London Guildhall University, London.

Glen, D, J. Dowden, and J. McConville, (2004) *United Kingdom Seafarers Analysis 2003*. The Centre for International Transport Management, London Guildhall University, London.

Glen, D, J. Dowden, and R. Wilson (2005) *United Kingdom Seafarers Analysis 2004*. The Centre for International Transport Management, London Metropolitan University, London.

Marine Safety Agency (1997) Merchant Shipping Notice MSN.1692(M) (now a part of the MCA)

McConville, J., D. Glen, and J. Dowden (1998) *United Kingdom Seafarers Analysis 1997*. The Centre for International Transport Management, London Guildhall University, London.

## **Annex 1 Classification of seafarers**

This Annex lists the detailed categories of seafarers considered in the report. All UK merchant navy seafarers are included, and the Royal Fleet Auxiliary but not the Royal Navy. Fishermen are excluded.

### **A Officers**

A1 Certificated officers ie Masters, Chief Engineers and other certificated deck and engineering officers

Those categories listed in the Safe manning Document and required to hold statutory certificates of competency issued or recognised by the Maritime and Coastguard Agency in compliance with STCW 95.

- A11 deck
- A12 engine
- A13 dual purpose

A2 Non certificated officers ie officers not required to hold MCA deck/engineering certificates of competency but engaged to meet company-specific operational requirements e.g. electrical officers, electronic officers, electro-technical officers, refrigeration engineers; catering officers, pursers;

- A21 technical (electrical officers, electronic officers, electro-technical officers, refrigeration engineers)
- A22 other (catering officers, pursers)
- A23 hotel (individuals with equivalent officer status but without maritime training eg entertainment/hotel staff )

### **B Ratings**

B1 Deck and engine room ratings

- B11 deck
- B12 engine
- B13 dual purpose

B2 Catering ratings and other hotel service staff (especially relevant to cruise ships and the larger Ro-Ro passenger ferries)

- B21 Catering
- B22 Hotel (individuals with equivalent rating status but without maritime training e.g. entertainment/hotel staff)

## **C Trainees**

Officer cadets, apprentices, under-graduate officer trainees and rating trainees, generally with no prior relevant experience or qualifications, for whom full training is provided.

### C1 Cadets and other officer trainees

- C11 deck
- C12 engine
- C13 dual purpose

### C2 Trainee deck and engine room ratings

- C21 deck
- C22 engine
- C23 dual purpose

### C3 Trainee catering ratings

## **D Conversion/upgrading training for experienced personnel**

### D1 Rating to officer (deck/engineer) candidates

- D11 deck
- D12 engine
- D13 dual purpose (currently no seafarers in this category)

### D2 Ex fishing vessel or Royal Navy personnel

- D21 deck
- D22 engine
- D23 dual purpose (currently no seafarers in this category)

## **E Pre-qualified trainees**

Those who have obtained relevant qualifications and/or experience prior to joining and who would undergo accelerated or 'top up' training to meet industry and statutory requirements as appropriate.

### E1 Catering/hotel service staff – officers and ratings (mainly for passenger ferries/cruise ships)

### E2 Engineering, electrical, electronic, electro-technical officers (including degree-level graduates)

## **Annex 2 Detailed analysis of UK certificated officers**

For the benefit of comparability, this annex provides some of the main tables and figures that were presented in previous publications of *UK Seafarers Analysis*, but without the commentary.

**Table A.2.1**

### **Age and certificate profile of certificated officers June 2005**

	Deck	Engine	Total
Age (yrs)			
16 < 20	1	8	9
20 < 25	387	425	812
25 < 30	716	705	1421
30 < 35	700	629	1329
35 < 40	638	504	1142
40 < 45	1021	822	1843
45 < 50	1529	1157	2686
50 < 55	1567	1350	2917
55 < 60	1555	1269	2824
60 < 62	480	304	784
Total 16 to 61	8594	7173	15767

Source: derived from MCA data

Note: includes UK nationals holding either CoC or CEC qualifications

**Table A.2.2**

**Age and certificate profile of UK deck officers, June 2005  
assuming retirement age of 62**

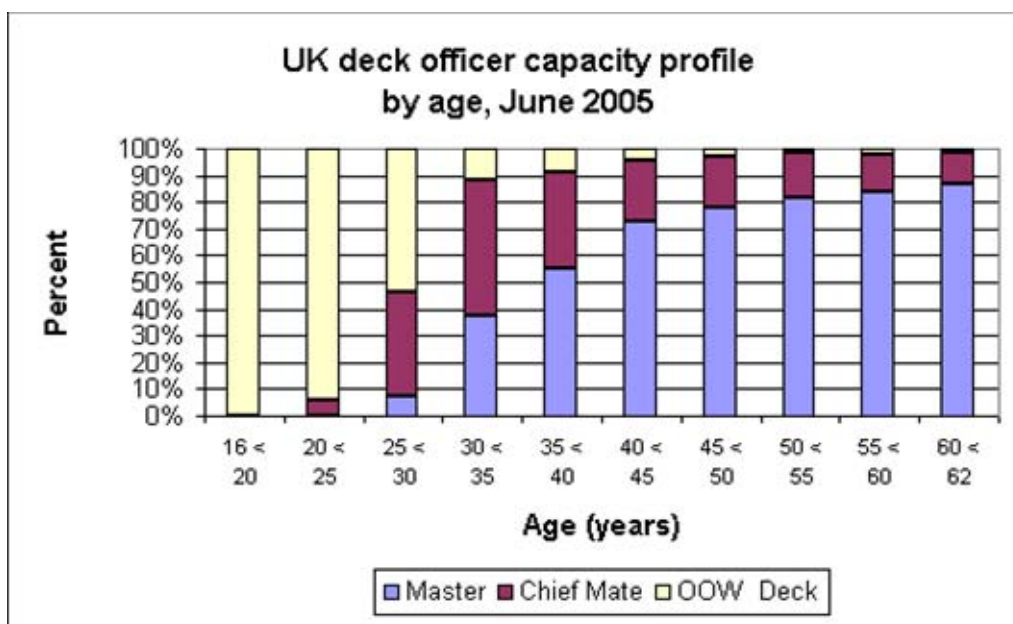
Age (yrs)	Master	Chief Mate	OOW Deck	All Deck
16 < 20	0	0	1	1
20 < 25	0	24	363	387
25 < 30	55	277	384	716
30 < 35	260	358	82	700
35 < 40	354	229	55	638
40 < 45	743	233	45	1021
45 < 50	1197	291	41	1529
50 < 55	1282	257	28	1567
55 < 60	1300	226	29	1555
60 < 62	416	58	6	480
Total 16 to 61	5607	1953	1034	8594
Percentage	65.2	22.7	12.0	100.0
Percentage 40+	88.1	54.5	14.4	71.6

Notes: 1. Records officer's highest capacity.

2. Includes 83 UK nationals holding CEC qualifications.

Source: derived from MCA data.

**Figure A.2.1**



Source: derived from Table A.2.2

**Table A.2.3**

**Age and certificate profile of UK engineer officers, June 2005  
assuming retirement age of 62**

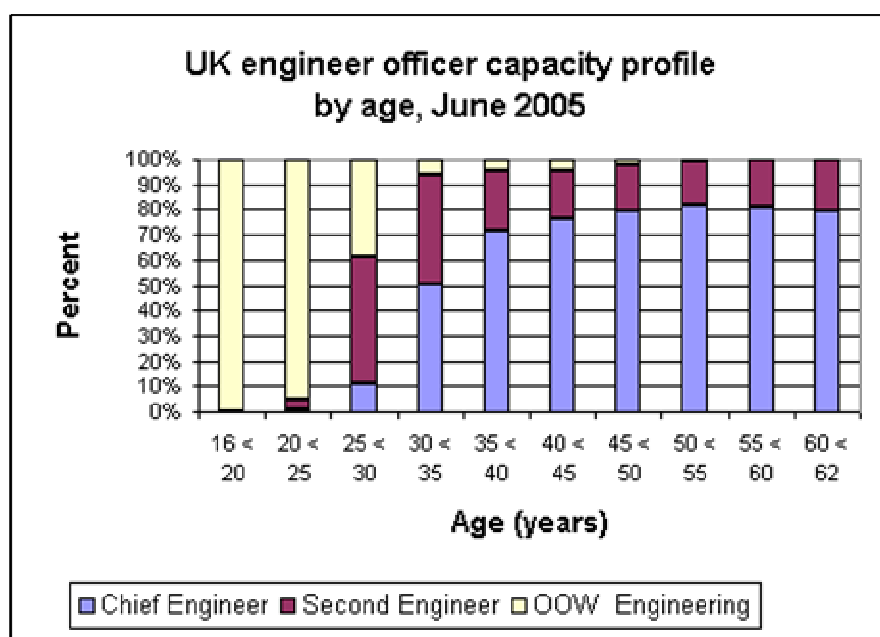
Age (yrs)	Chief Engineer	Second Engineer	OOW Engineering	All Engineers
16 < 20	0	0	8	8
20 < 25	2	18	405	425
25 < 30	76	358	271	705
30 < 35	315	276	38	629
35 < 40	361	118	25	504
40 < 45	629	152	41	822
45 < 50	920	212	25	1157
50 < 55	1103	238	9	1350
55 < 60	1031	235	3	1269
60 < 62	241	63	0	304
Total 16 to 61	4678	1670	825	7173
Percentage	65.2	23.3	11.5	100.0
Percentage 40+	83.9	53.9	9.5	68.3

Notes: 1. Records officer's highest capacity.

2. Excludes 67 UK nationals holding CEC qualifications.

Source: derived from MCA data.

**Figure A.2.2**



Source: derived from Table A.2.3.

**Table A.2.4****Age and certificate profile of UK deck officers, June 2005  
retirement age 65**

Age (yrs)	Master	Chief Mate	OOW Deck	All Deck	
16 < 20	0	0	0	1	1
20 < 25	0	24	363	387	387
25 < 30	55	277	384	716	716
30 < 35	260	358	82	700	700
35 < 40	354	229	55	638	638
40 < 45	743	233	45	1021	1021
45 < 50	1197	291	41	1529	1529
50 < 55	1282	257	28	1567	1567
55 < 60	1300	226	29	1555	1555
60 < 65	798	131	14	943	943
65+	248	36	4	288	288
Ages 16 < 65	5989	2026	1042	9057	9057
Percentage					
Percentage 40+	66.1	22.4	11.5	100.0	100.0
Ages 60 < 62	416	58	6	480	480
Total 16 to 61	5607	1953	1034	8594	8594
Percentage					
Percentage 40+	65.2	22.7	12.0	100.0	100.0
All Recorded	6237	2062	1046	9345	9345
Percentage					

Notes: 1. Record's officer's highest capacity.

2. Includes 89 UK nationals holding CEC qualifications.

Source: derived from MCA data.

**Table A.2.5****Age and certificate profile of UK engineer officers, June 2005  
retirement age 65**

	Chief Engineer	Second Engineer	OOW Engineering	All Engineers
16 < 20	0	0	8	8
20 < 25	2	18	405	425
25 < 30	76	358	271	705
30 < 35	315	276	38	629
35 < 40	361	118	25	504
40 < 45	629	152	41	822
45 < 50	920	212	25	1157
50 < 55	1103	238	9	1350
55 < 60	1031	235	3	1269
60 < 65	509	119	0	628
65+	146	37	0	183
Ages 16 < 65	4946	1726	825	7497
Percentage	66.0	23.0	11.0	100.0
Percentage 40+	84.8	55.4	9.5	69.7
Ages 60 < 62	241	63	0	304
Total 16 to 61	4678	1670	825	7173
Percentage	65.2	23.3	11.5	100.0
Percentage 40+	83.9	53.9	9.5	68.3
Total	5092	1763	825	7680
Percentage	66.3	23.0	10.7	100.0

Note: 1. Records officer's highest capacity.  
2. Includes 74 UK nationals with CECs  
Source: derived from MCA data.

## Annex 3 Results from UKCoS survey, 2005

**Table A.3.1 Age and department profile of UK officers, UKCoS survey, 2005**

Age (yrs)	Deck	Engineer	Hotel	Other	Technical	Total
16 < 20	1	3	1	0	2	7
20 < 25	176	150	73	22	8	429
25 < 30	267	273	154	75	31	800
30 < 35	248	211	171	95	22	747
35 < 40	215	152	131	80	32	610
40 < 45	385	274	120	63	35	877
45 < 50	529	413	82	54	67	1145
50 < 55	495	503	83	36	99	1216
55 < 60	486	405	87	24	77	1079
60 < 62	119	92	19	6	15	251
Total 16 to 61	2921	2476	921	455	388	7161
Percentage	40.8	34.6	12.9	6.4	5.4	100.0
Percentage 40 +	68.9	68.1	42.5	40.2	75.5	63.8
60<65	214	167	49	11	27	468
Total 16 < 65	3016	2551	951	460	400	7378
Percentage	40.9	34.6	12.9	6.2	5.4	100.0
Percentage 40 +	69.9	69.1	44.3	40.9	76.3	64.9

Source: UKCoS manpower survey 2005.

Notes: 1. Total records for UK Nationals, 7784.

2. 406 officers had no DOB data.

3. Excludes 15 Catering and 6 dual officers.

**Table A.3.2****Age and department profile of UK ratings,  
UKCoS survey, 2005**

Age (yrs)	Deck	Engine	Catering	Hotel	Technical	General Purpose	All Ratings
16 < 20	10	3	123	11	0	2	149
20 < 25	88	8	283	239	4	17	639
25 < 30	163	22	186	309	3	24	707
30 < 35	197	38	160	235	10	24	664
35 < 40	255	42	209	151	13	30	700
40 < 45	374	59	273	149	23	64	942
45 < 50	368	61	260	95	14	51	849
50 < 55	352	65	195	57	10	47	726
55 < 60	348	75	185	45	2	40	695
60 < 62	95	18	46	12	1	13	185
Total 16 to 61	2,250	391	1,920	1,303	80	312	6,256
Percentage	36.0	6.3	30.7	20.8	1.3	5.0	100.0
Percentage 40+	68.3	71.1	49.9	27.5	62.5	68.9	54.3
60 < 65	166	33	72	20	4	19	314
Total 16 to 65	2,321	406	1,946	1,311	83	318	6,385
Percentage	36.4	6.4	30.5	20.5	1.3	5.0	100.0
Percentage 40+	69.3	72.2	50.6	27.9	63.9	69.5	55.2

Source: UKCoS manpower survey 2005.

Notes: 1. Total records for UK ratings, 6,791.

**Table A.3.3****Gender analysis of UK officers and ratings,  
UKCoS survey 2005****UK Officers**

	Percent	
	Male	Female
Deck	98.40	1.60
Engine	99.54	0.46
Technical	99.34	0.66
Catering/Hotel/Other	60.11	39.89
Total	90.17	9.83

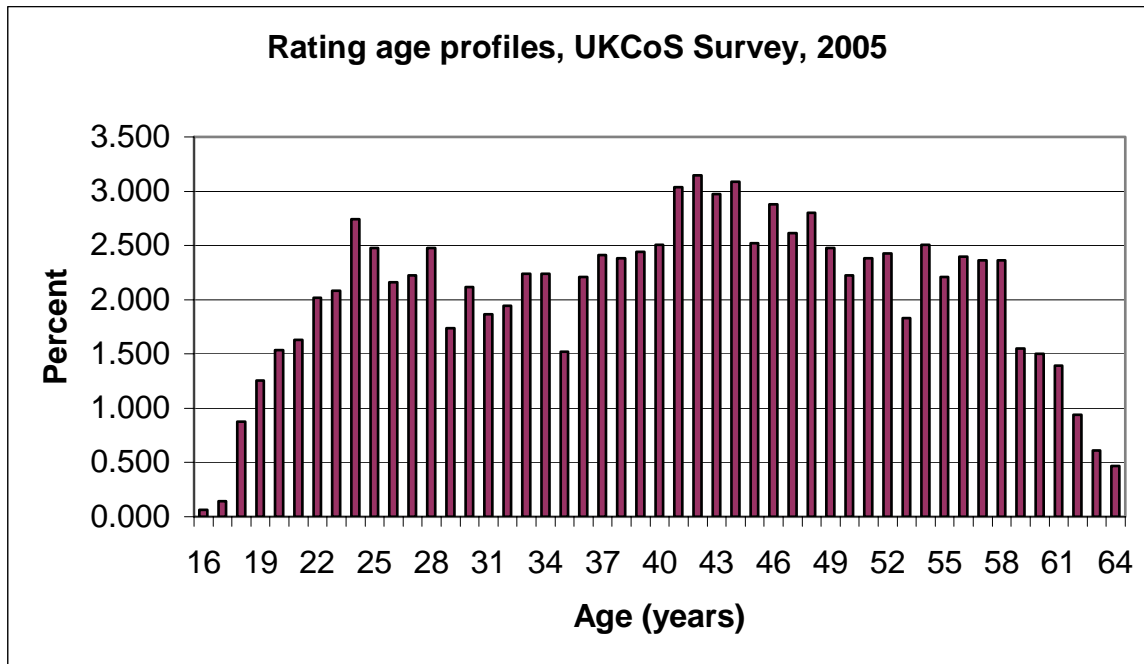
**UK Ratings**

	Percent	
	Male	Female
Deck	98.97	1.03
Engine	99.54	0.46
General Purpose	100.00	
Technical	95.24	4.76
Catering/Hotel/Other	68.06	31.94
Total	82.67	17.33

Source: UKCoS manpower survey, 2005.

**Figure A.3.1**

**Age profiles of UK ratings derived from the UKCoS survey, 2005**



Source: UKCoS manpower survey 2005.

## **Annex 4. Principal nationalities of non UK officers who have served on UK registered vessels, 2004 (correction)**

Table A.4.1 provides the correct information about the principal nationalities of non UK officers who have served at least once on a UK registered vessel, and as a consequence, have a Certificate of Equivalent Competency (CEC) which is stored on the MCA SDS database. This replaces Table 8.1 in the 2004 Analysis, which provided information on non UK nationals who hold Certificates of Competency issued by the MCA. Such officers have no necessary connection to the UK registered fleet.

The correct information for 2005 is presented in section 8, table 8.1.

**Table A.4.1**  
**Distribution of non UK officers by nationality, 2004**

Country	Numbers	Percentage	Cumulative Percentage
Poland	883	14.7	14.7
Russia	515	8.6	23.3
India	509	8.5	31.8
Croatia	440	7.3	39.2
Philippines	421	7.0	46.2
Romania	421	7.0	53.2
Ukraine	378	6.3	59.5
Bulgaria	373	6.2	65.8
Italy	325	5.4	71.2
Latvia	238	4.0	75.2
Germany	219	3.7	78.8
South Africa	144	2.4	81.2
Sweden	144	2.4	83.6
Canada	120	2.0	85.6
Norway	116	1.9	87.6
Eire	110	1.8	89.4
Australia	88	1.5	90.9
Lithuania	72	1.2	92.1
Estonia	57	1.0	93.0

Source: Derived from MCA data on officers serving on UK registered vessels.

- Notes: 1. Only those nationalities with a share of 1 percent or more are shown.  
 2. Retirement age of 65 is assumed.  
 3. This table is provided to replace table 8.1 of the 2004 report which provide information on COC's, not CECs, in error.