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Maritime Charities Funding Group

UK Seafarers' Demographic Profile

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OXFORD BROOKES UNIVERSITY

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Contents

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Maritime Charities Funding Group

UK Seafarers' Demographic Profile

1 Introduction

The Maritime Charities Funding Group (MCFG) commissioned the Institute of Public Care (IPC) at Oxford Brookes University to undertake a project to provide the MCFG with a UK demographic profile of the naval service, merchant navy and fishing fleet personnel and their dependants from 1945 to 2050. The start date was chosen to cover the huge decline in naval personnel following the end of World War II, and the anticipated decline in the number of veterans from that era in the coming years.

In response to the changing profile and perceived continuing decline in the numbers of seafarers and their dependants, the project sought to develop current and future demographic profiles of the three elements of the seafaring workforce and their dependants from 1945 to 2050. Where possible, information on age, gender, ethnicity, disability and health has been included. The aim was to obtain a clear picture of how the demographic profile is changing; and to use the available data to develop a credible and accessible dataset which can be used to inform service planning, decisions about the use of resources, and other activities by a wide range of stakeholders, including grant makers and service providers. It is however important to emphasise that the projections are dependent on the assumptions used in the model. The further into the future they go, the more speculative they become.

The project follows and in part builds on an unpublished previous study by Kathleen Baster of the University of Hertfordshire in 2007 which was commissioned by the MCFG. This earlier work was reported in the MCFG's wide ranging 2007 'Supporting seafarers and their families' report. The work by Baster provided projections up to 2020.

For both projects, the availability of data in some areas has placed constraints on the ability to project into the future. Consequently, different approaches have been adopted for some groups involving assumptions about flows of people into, and out of, the three seafaring groups. Changing the assumptions would generate changes in the projections.

The project brings together data from a number of sources including published reports and surveys, activity and pension data, and the views of experts. We are grateful to those who have taken the time to provide data and comments on the project.

2 Methodology

2.1 Initial scoping

The initial scoping stage of the project involved a number of conversations with experts in the field on future trends in the maritime workforce in the UK to help develop thinking about likely trends in numbers between now and 2050 across the three workforce groups in the component countries of the UK. These interviews also helped to identify additional sources of relevant data. A list of organisations contacted is provided in Appendix 1.

2.2 Data collection and analysis

Following a review of the earlier MCFG study and other relevant literature, data were collected and assessed in terms of quality and reliability. Where appropriate, the data were then synthesised to obtain demographic data for past, present and future numbers of seafarers and their dependants.

Where there were gaps in the data, national data were used instead, for example: on life expectancy from the Office of National Statistics; on prevalence of ill-health and disability from prevalence rates used in the POPPI[1] and PANSI[2] information systems to develop projections for data on health and disability. The completed data set is available in a set of Excel files which accompany this report.

2.3 Overview of the data

A number of issues affected the projections:

- **Differences between the demographic past, present and future profiles** of the three different seafarer populations. For example, numbers in the Royal Navy have fallen as a result of the government's Strategic Defence Review, while there has been a slight rise in recruitment to the Merchant Navy, and numbers in the Fishing Fleet appear to have stabilised.
- **New groups of seafarers** - cruise ship staff in entertainment, and non-standard vessels such as super-yachts are resulting in new groups of seafarers about whom relatively little is known.
- **A variety of factors have been identified which may affect future recruitment and seafarer numbers. These might include:**
    - Royal Navy, Royal Marines and Royal Fleet Auxiliary (MN): changes in future government policy on defence and security.

[1] www.poppi.org.uk
[2] www.pansi.org.uk

  - Merchant Navy: changes in world trading patterns; future ship design; changes in manning levels; increased usage of non-UK national crews; changes in the flag composition of commercial shipping.
  - Fishing industry: changes to fishing stocks and fishing quotas; usage of non-UK national seafarers on UK registered fishing fleet boats.

- **Factors affecting the longevity of ex-seafarers** – occupational and other factors affect the life expectancy of serving and ex-seafarers. For example, commercial fishing is Britain's most hazardous occupation, whilst merchant seafaring is regarded by some as second only to this. Seafaring has other unique health issues. Outside customs controlled limits, there is easy access to duty free tobacco. There have always been a lot of smokers at sea and some merchant seafarers have heavy long-term nicotine dependency. Alcohol consumption, mainly shore-based binge drinking (as many ships are 'dry') is an issue for some groups of seafarers. The seafaring lifestyle is often quite sedentary, with little opportunity, or incentive, for good exercise (although the Royal Navy has given fitness a higher profile in recent years). This can affect fitness.
- **Changing patterns of need** -The demographic information, within this report, is important when it comes to predicting future numbers. Nevertheless it is also important to take into account changes in statutory provision of welfare, health and social care, pension arrangements, employment opportunities etc, all of which may seriously affect the lives of people eligible for support. A lot of these factors are impossible to predict.
- **Retirement age consistency** – retirement ages differ across the three populations. This report has focused on age, rather than retirement age.
- **Double-counting** –some seafarers move between the three types of seafaring work leading to the likelihood of some double-counting. For example, some Royal Navy personnel join the Merchant Navy after discharge, although the numbers are thought to be low; and some Fishing Fleet personnel move to the Merchant Navy or vice versa.
- **The timespan of the results** - the project aimed to develop a profile over a 105 year timespan up to 2050. Projecting 36 years into the future involved making assumptions about future recruitment and staffing levels, as well as life expectancy.
- **The availability of data** - Some data were not available, while other data were not sufficiently detailed. This was a particular issue with the Fishing Fleet where data on inflows and outflows are not available, and to a lesser extent with the Merchant Navy. Data on adult and child dependents are also unavailable for the Fishing Fleet, and limited for the Merchant Navy. This meant that in some areas projections are

based on a series of assumptions. We have tried to be clear about the assumptions made and the rationale for them.

The report begins with the Royal Navy, followed by the Merchant Navy, and lastly the Fishing Fleet. Projections relating to serving and former numbers and their dependants are presented in each section, along with health and disability. There is an overarching discussion of health and disability issues in a final section, covering some of the research across all three groups. The conclusion considers the implications of the results of the study and changing patterns of need for future service provision.

Numbers have been rounded up or down to the nearest ten so 27 becomes 30 and 23 becomes 20 to avoid misleading accuracy. However, there are some exceptions where the actual numbers are small.

Section A

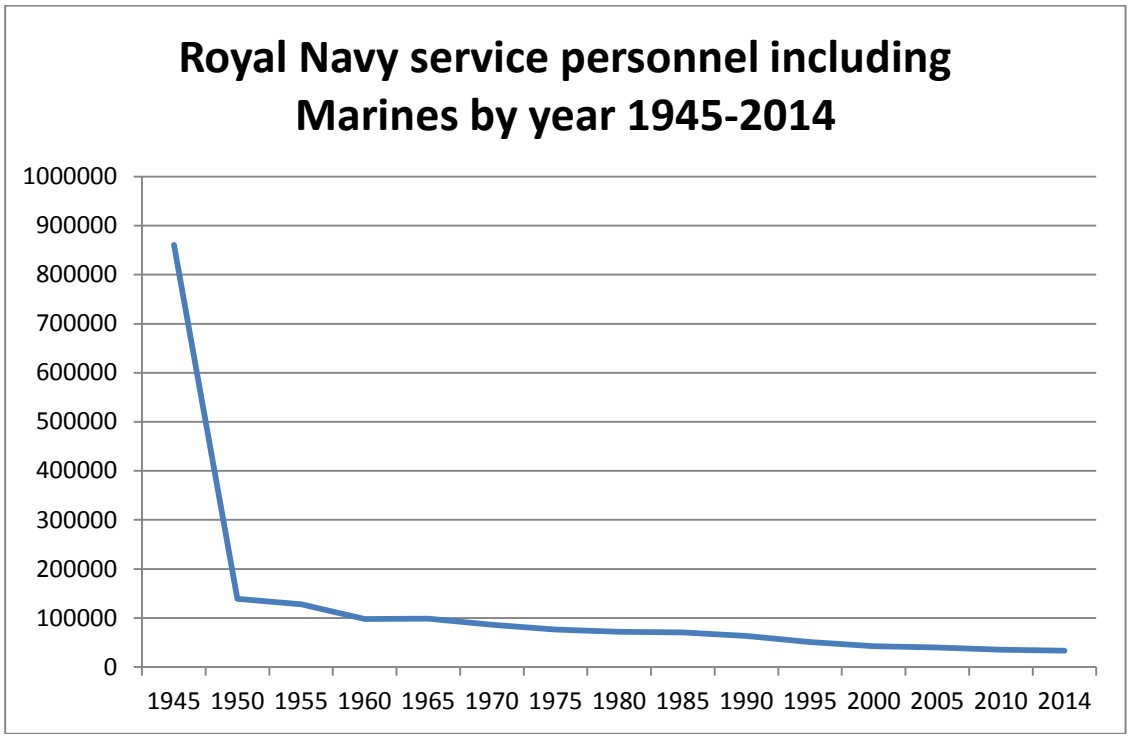
3 Royal Navy

Data on the Royal Navy are provided regularly by the Defence Statistics section of the Ministry of Defence (DASA). DASA figures are for UK Regular Forces (including both Trained and Untrained personnel) and exclude Full Time Reserve Service personnel and mobilised reservists.

3.1 Serving in the Royal Navy

Data have been obtained on the numbers serving in the Royal Navy since 1945 and are presented in the graph below (see Appendix 2 for the full table). The numbers fell dramatically in the first two years after the end of World War 2 from 861,000 to 197,000, and have continued to fall steadily since then to 2012, with a total of 33,330 in 2014 (Figure 1).

Figure 1



Data from 1974 are available broken down between officer and other ranks and for some years by gender (see Table 1).

Table 1: Royal Navy service personnel including Marines from 1975 to 2014

Year					Total
	Officers		Other ranks		
	Male	Female	Male	Female	
1975	10,000	500	62,500	3,200	76,200
1980	9,700	400	58,400	3,400	71,900
1985	9,600	400	58,100	3,300	70,400
1990	9,700	400	49,800	3,200	63,200
	Officers		Other ranks[3]		
1995	8,800		42,100		50,900
2000	7,660		35,190		42,850
2005	7,730		32,210		39,940
2010	6,660		28,850		35,500
2011	6,620		28,800		35,420
2012	6,410		26,880		33,290
2013	6,940		27,020		33,960
2014	6,800		26,530		33,330

Sources: Defence Statistics 1992, UK Defence Statistics 2000, DASA Annual Personnel Report (revised) April 2013; April 2014

The reduction in the number of ratings has been steeper than the fall in the number of officers, due in part to changes in ships and technology. Officers now represent 20% of RN personnel, compared with 14% in 1975.

There are some concerns about the accuracy of the data as different figures appear in different documents, and there is some within year variation.

3.2 Age profile of serving RN seafarers

The age profile of serving RN regular forces is provided below with comparable data for 2006 (drawn from the earlier MCFG report[4]). The proportion in different age categories is also presented:

[3] From 2009 'ratings' is used instead of 'other ranks'.
[4] Baster K (2007) *The Maritime Charities Funding Group Research project*, University of Hertfordshire.

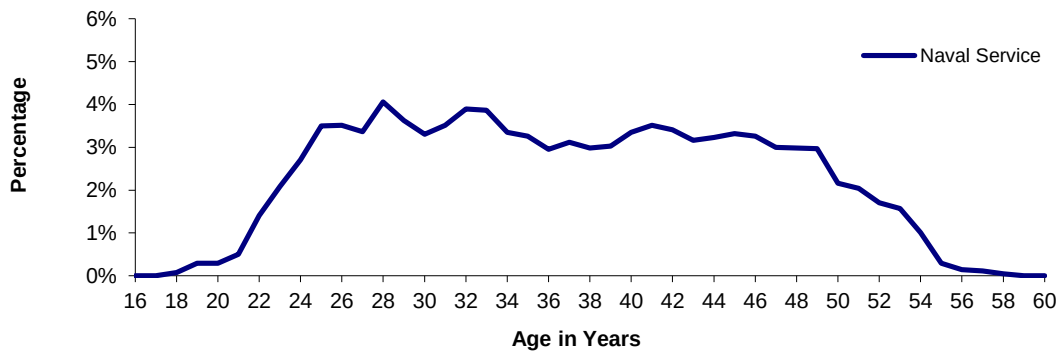
Table 2: UK RN Regular Forces by Age at 1 April 2006 and 2014[5]

Age	2006		2014	
	Number	Percent	Number	Percent
Under 18	2,820	7.1	140	0.4
18-19			790	2.4
20-24	9,250	23.5	6,900	20.7
25-29	7,130	18.1	8,320	25.0
30-34	6,280	15.9	6,000	18.0
35-39	7,030	17.9	4,010	12.0
40-44	4,240	10.8	3,640	10.9
45-49	2,060	5.2	2,460	7.4
50-54	539	1.3	1,020	3.1
55 and over	50	0.1	60	0.2
Total	39,380		33,330	

Table 2 indicates that the age profile of serving personnel in the Royal Navy regular forces has risen over the last seven years with a growing proportion of personnel aged 40 or above (currently 21%). There has been an increase in the 25-34 age group, and a decline in numbers below age 20; which reflects a reduction in recruitment, in line with the reduction in total strength following the 2010 Strategic Defence Review.

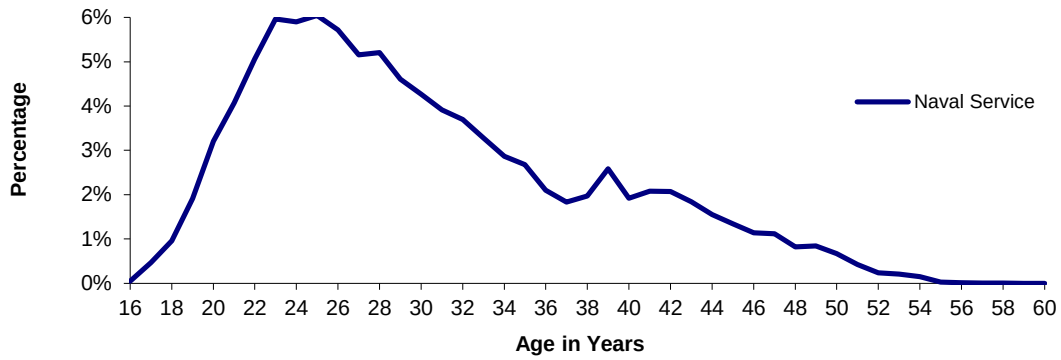
In the previous MCFG study (Baster, 2007), officers were identified as a significantly older population than other ranks. This continues to be the case (Graphs 1 & 2) with the great majority of other ranks aged below 36, while officers are more evenly distributed between ages 24 and 50.

Graph 1: UK Regular RN Officer Strengths by Age at 1 April 2014



[5] DASA UK Armed Forces Annual Personnel Report April 2014, MoD.

Graph 2: UK Regular RN Other Ranks Strength by Age at 1 April 2014



Source: DASA Armed Forces Personnel Report, 2014

3.3 Gender and ethnic origin

Table 3 provides a breakdown of current numbers in terms of gender and ethnic origin in 2000 and 2014, indicating that while the proportion of ethnic minorities appears to have increased significantly, the proportion of women RN seafarers has increased more slowly (although from a higher baseline).

Table 3: UK RN Regular Forces at 1 April 2000 and 2014 by ethnic origin and gender

	BME[6] 2000	BME 2014	Female 2000	Female 2014
Officers	1.0%	1.8%	6.7%	10.0%
Other ranks	0.9%	3.9%	8.2%	8.8%
Total	0.9%	3.5%	7.9%	9.1%

Source: DASA Armed Forces Annual Personnel Report April 2014

3.4 Former RN seafarers under and over retirement age

The Centre for Future Studies report in 2011[7] estimated that across the three services, there were 4.6 million veterans[8]. If we assume that 14% of veterans had served in the Royal Navy (in line with the findings of the Royal

[6] BME – Black and Minority Ethnic
[7] Centre for Future Studies (2011) Legion welfare in the 2010s: a decade of change, Royal British Legion.
[8] Veteran here is defined as anyone who has previously served in any of the following ways and is eligible for welfare assistance from RBL: the UK Armed Forces, both Regular Forces (including National Service or the Home Guard), or Reserve/Auxiliary Forces; the Mercantile Marines in hostile waters; the Allied Civil Police Forces; full-time, in uniform for a Voluntary Aid Society in direct support of the Armed Forces; or as British subject serving under British command in the forces of an allied nation.

British Legion report in 2005[9]), this would indicate that the total number of Royal Navy/Marines and RNR/RNVR/RMR veterans in 2010 was 644,000. More recently, the Royal British Legion (RBL) has commissioned a large survey of tri-service veterans which indicates that there are in the region of 380,000 ex-RN/Marines, including 30,000 RNR/RNVR/RMR veterans[10]. This figure, although considerably lower than the 2010 figure, is considered by RBL to be more reliable due to a larger sample size. It reflects the passing of the World War II generation in recent years.

The RBL survey provided an age profile for the veteran population including reservists[11]. Applying the proportions in each age group to the estimated total of 380,000 naval veterans in 2014 generates the following age distribution for former RN seafarers (Table 4).

Table 4: Assumed age distribution of naval veterans in 2014 based on estimated age distribution of RN veterans (RBL)

Age group	%	Number
Under 35	5	19,000
35-44	9	34,200
45-54	12	45,600
55-64	19	72,200
Sub-total	45	171,000
65-74	20	76,000
75-84	20	76,000
85+	15	57,000
Sub-total	55	209,000
Total	100	380,000

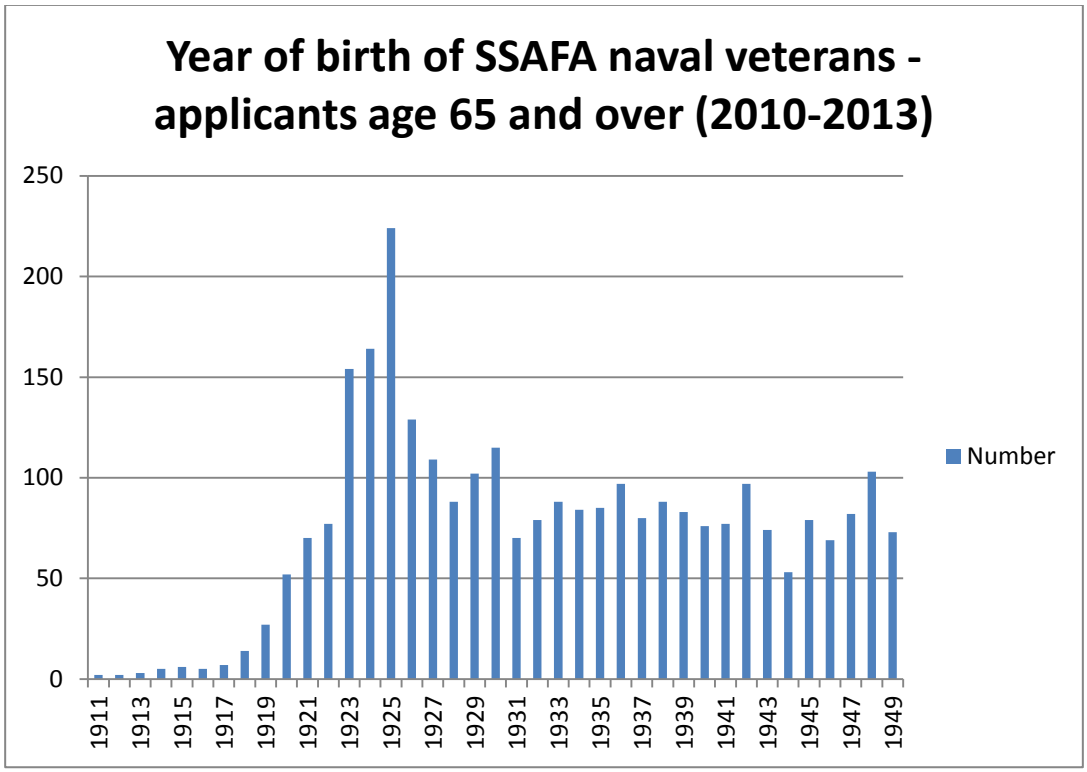
Table 4 indicates that 55% of naval veterans are aged 65 or above reflecting the larger numbers of naval veterans in previous decades. This is similar to an analysis of applications by naval veterans to SSAFA[12] since 2010: 53% of veterans were aged 65 or above. An analysis of the SSAFA data indicates a concentration of veterans in later old age with a peak number aged 85-89 (Figure 2). SSAFA consider that the age range of applicants is biased to the higher age group, as the very old are more likely

[9] RBL (2005) Profile of the Ex-Service Community in the UK, RBL
[10] Compass Partnership (2014) A UK Household Survey of the Ex-Service Community 2014, FIMT, National Lottery, Compass Partnership.
[11] Reservist veterans are a small number of total veterans – although this may change in the future as government policy envisages an increase in the number of reservists.
[12] SSAFA is a charitable organization set up to help former and serving members of the United Kingdom British Armed Forces and their families or dependants.

to require help. It is also likely to reflect the passage of the war-time cohort through time. Someone aged 85 in 2010 would have been 20 years old in 1945.

These estimates do not provide separate officer and rating figures. Given the higher number of ratings in the serving RN, it is expected that they also comprise a greater number of former RN.

Figure 2[13]



Source: SSAFA

In terms of gender, just under 18% of SSAFA applicants aged 65 and over are female. This may reflect the lower lifetime earnings of women compared with men, and therefore greater likelihood of needing financial or other support in old age, given that the proportion of women in the RN is just over 9% in 2014. A third (33%) of applicants are widows or other adult dependants according to the SSAFA data.

A third source of data on former RN numbers is pension data although due to exclusions and other factors, the data are not complete. There are 57,700 former RN with deferred pensions under 65 years old, (70% of whom are aged between 40 and 60[14]), about one-third of the estimate based on the RBL data.

[13] Does not include widows or widowers of veterans.
[14] Personal communication with DBS Vets-Pensions 12/6/14.

Because naval personnel reach an initial pension point after they reach age 40 and have 18 or more years' service when an early departure payment becomes payable, and can therefore retire at a range of ages, we have not divided the former population between under retirement age and over retirement age, but have instead focused on age itself.

3.5 Projected RN numbers

3.5.1 Serving RN

Securing Britain in an Age of Uncertainty – the Strategic Defence and Security Review, published by the Coalition Government in October 2010, envisages a reduction in numbers to a target of 30,000 naval personnel by 2015, and assumes that by 2020, the UK will require a Royal Navy of 29,000 personnel. It appears that projections of future numbers are no longer commissioned by the MoD. However, in the context of the Review, it seems likely that numbers will not alter significantly. It is reasonable to assume that numbers will remain constant from 2020 to 2050 as the figure of 29,000 is seen as a minimum level to provide national security.

A range of factors, such as the next Strategic Defence Review in 2015, and new ships coming on stream (eg HMS Queen Elizabeth with a planned crew of 679 sailors) may influence future numbers. Assuming that planned targets are achieved and maintained, projected estimates are provided for 2014 – 2050 in Table 5 below.

3.5.2 Age profile of serving RN seafarers

To estimate the projected age distribution of serving RN personnel, the proportionate age distribution of the intake and outflow of personnel in 2014 was applied to the numbers in each age group in 2014 and each successive year up to 2050. However, the result of this was that from 2025 onwards, there were no serving RN seafarers in some age groups. From discussions with the RN, it is clear that recruitment and retention practice is continually reviewed and adjusted to avoid this actually happening. It has therefore been assumed instead that the age distribution of current numbers will remain constant over time, with total numbers in line with the 2010 SDR (Table 5). The limitation of this approach is that it does not reflect cohort effects as intake years pass through the system, however, it is assumed that the age distribution of serving RN has stabilised following previous rounds of redundancies.

Table 5: Actual and projected numbers by age group of serving RN assuming relative age distribution remains constant 2014-2050

	2014	2015	2020	2025	2030	2035	2040	2045	2050
Under 18	140	120	120	120	120	120	120	120	120
18-19	790	720	700	700	700	700	700	700	700
20-24	6,900	6,200	5,990	5,990	5,990	5,990	5,990	5,990	5,990
25-29	8,320	7,500	7,240	7,240	7,240	7,240	7,240	7,240	7,240
30-34	6,000	5,400	5,210	5,210	5,210	5,210	5,210	5,210	5,210
35-39	4,010	3,600	3,470	3,470	3,470	3,470	3,470	3,470	3,470
40-44	3,640	3,270	3,160	3,160	3,160	3,160	3,160	3,160	3,160
45-49	2,460	2,210	2,150	2,150	2,150	2,150	2,150	2,150	2,150
50-54	1,020	920	900	900	900	900	900	900	900
55+	60	60	60	60	60	60	60	60	60
Total	33,330	30,000	29,000	29,000	29,000	29,000	29,000	29,000	29,000

Note=Projection is based on planned reductions set out in Strategic Review 2010.

3.5.3 RN intake and outflow

Outflow from UK RN Regular Forces includes personnel leaving the Services, deaths, recalled reservists on release (see Table 6).

Table 6 - UK Regular RN Forces Outflow by Age, 2013/14[15]

Age	2013/14			
	Officers	Other ranks	Total	Outflow %
Under 18	-	40	40	1.1%
18-19	-	180	180	4.7%
20-24	30	770	800	21.1%
25-29	50	710	760	20.1%
30-34	50	390	440	11.6%
35-39	50	270	320	8.4%
40-44	80	560	640	16.9%
45-49	90	240	330	8.7%
50-54	120	110	230	6.1%

[15] DASA Armed Forces Annual Personnel Report April 2014, MoD.

Age	2013/14			
	Officers	Other ranks	Total	Outflow %
55 and over	30	-	30	0.8%
Total	520	3,270	3,790	100

A peak for officers' outflow is around 50, where normal retirement age for certain ranks is age 50; while outflow for other ranks peaks between 20 and 29 with a second peak around 40.

Table 7 presents the flows of personnel over the last 6 years. From 2010 to 2013, intake averaged 2,500, but intake has now increased. Outflows in recent years have been high due to the implementation of the Strategic Defence Review, but in 2013-14 have reduced. After three rounds of redundancies, outflows have now stabilised according to the RN[16]. However, the figures indicate that recruitment and retention may be adjusted year by year to take account of changing contexts and to maintain strength.

Taking a three year average for the 2007/8 to 2009/10 – the years before the Strategic Review where numbers were reasonably constant, indicates that the average outflow was 10.8% of the total personnel complement. It is assumed that the rate of outflow will stabilise in following years at a slightly lower level of 10%.

Table 7: Royal Navy intake and outflow – 2007/8-2012/13

	2007/8	2008/9	2009/10	2010/11	2011/12	2012/2013	2013/14[17]
Strength at start of period	38,850	38,560	38,340	38,730	37,660	35,540	33,960
Intake (+)	4,040	4,240	4,130	2,550	2,220	2,770	3,180
Outflow (-)	4,330	4,440	3,720	3,630	4,320	4,350	3,790
Strength at end of period	38,560	38,340	38,730	37,660	35,540	33,960	33,330

[16] Personal communication with IPC.
[17] DASA Annual Personnel Report April 2014

In Table 7, strengths at the end of the period may not equal the sum of the strength at the beginning of the period and intervening intake and outflow. According to DASA, this is due to movements between the three Armed Services.

3.6 Former RN – both under and over 65

To estimate the numbers of former RN personnel by age over time, the RBL based estimates in Table 4 were used for the age distribution of former RN seafarers, and the outflow from serving RN was added, and then the age specific mortality rates were applied. Mortality rates are assumed to be the same as standard mortality rates, provided by ONS.

In this way, it is possible to project forward estimates for the numbers of former RN personnel across all ages (Table 8).

Table 8 and Figure 3 illustrate how the total number of former RN personnel is likely to decline between 2014 and 2050 to about 40% of current levels. The current proportion of former RN aged 85 and over is more than seven times that in the general population. As a proportion of total numbers, those aged 65 and over will decrease from around 55% to 42% over the whole period; while the proportion of former RN personnel aged 85 and over (estimated at 15% in 2014) is projected to decline to 14% by 2020 and to 8% by 2050. Baster (2007) expected the number of former RN aged 85 and over to peak in 2015, while the current figures indicate that the population has already peaked.

Numbers of former RN are concentrated between age 65 and 85. The RBL based data suggest that there are currently 57,000 former RN personnel aged 85 and over. By 2020, numbers aged 85 and over are projected to have fallen to a little over 43,600; and by 2030 to 24,000, less than half the current estimate. The numbers thus indicate that deaths of former naval personnel will significantly outnumber new entrants into the community of former naval personnel. The 85+ age group appears to have peaked and the final National Service generation is dying out.

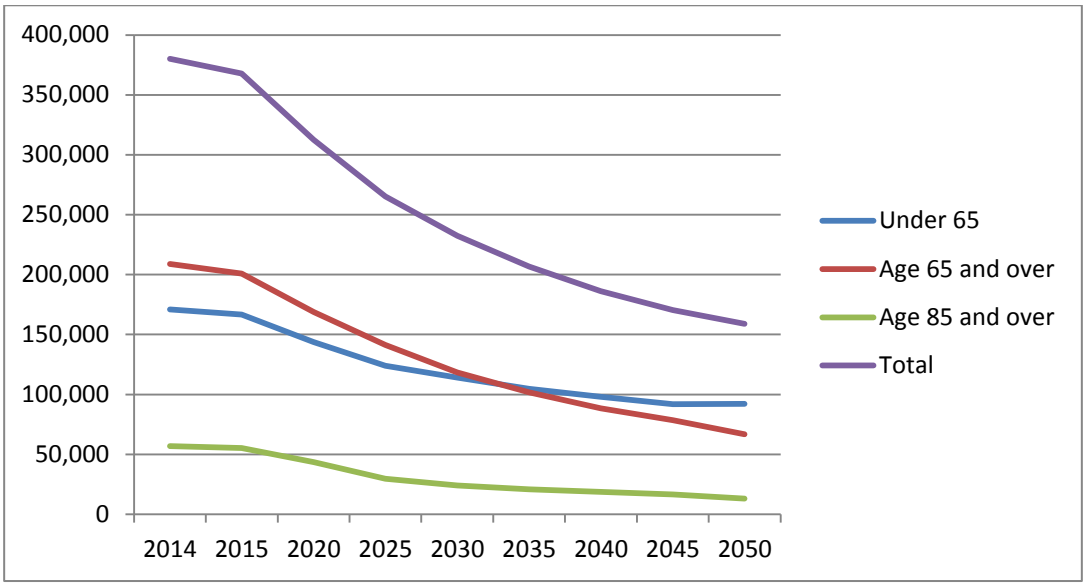
The projected baseline total figure for former RN in 2015 is approximately 129,000 lower than the projection for 2015 provided in Baster's 2007 report for MCFG. However, the 2007 report was based on the earlier RBL survey and therefore had a higher baseline. RBL consider the 2014 survey to be more reliable as it is based on a larger sample.

The zero number for former RN aged 95 and over is due to no respondents in this age group responding to the RBL survey. It can be assumed that there will be some people in this age group, although few of them are likely to be alive by 2020.

Table 8: Projected distribution of former RN personnel – 2014-2050

	2014	2015	2020	2025	2030	2035	2040	2045	2050
Under 20	2,530	2,030	160	150	150	150	150	150	150
20-24	3,170	3,900	4,030	2,080	2,080	2,080	2,080	2,080	2,080
25-29	6,650	6,720	7,070	7,020	5,080	5,070	5,070	5,070	5,070
30-34	6,650	7,150	9,270	9,470	9,420	7,480	7,480	7,480	7,480
35-39	17,100	15,330	8,690	10,710	10,910	10,860	8,940	8,930	8,930
40-44	17,100	17,650	17,000	10,340	12,350	12,540	12,500	10,580	10,580
45-49	22,800	22,000	19,540	18,780	12,200	14,180	14,370	14,320	12,430
50-54	22,800	22,960	22,820	20,330	19,570	13,100	15,050	15,240	15,190
55-59	36,100	33,300	23,000	22,800	20,380	19,640	13,340	15,240	15,430
60-64	36,100	35,770	32,050	22,180	21,980	19,670	18,930	12,900	14,720
65-69	38,000	37,050	33,580	30,070	20,830	20,630	18,470	17,760	12,120
70-74	38,000	37,070	33,420	30,300	27,080	18,800	18,600	16,670	16,000
75-79	38,000	36,430	31,210	28,140	25,530	22,750	15,840	15,660	14,060
80-84	38,000	35,270	26,990	23,150	20,870	18,960	16,800	11,780	11,600
85-89	28,500	26,270	19,880	15,300	13,160	11,860	10,800	9,440	6,730
90-94	28,500	24,080	11,320	8,560	6,590	5,670	5,110	4,650	4,060
95+	0	4,820	12,450	5,770	4,250	3,220	2,750	2,480	2,250
Total 65+	209,000	200,990	168,850	141,280	118,300	101,880	88,380	78,430	66,810
Total 85+	57,000	55,170	43,640	29,630	24,000	20,750	18,670	16,570	13,040
Total	380,000	367,790	312,470	265,140	232,420	206,650	186,290	170,430	158,880

Figure 3: Projected numbers of former RN personnel from 2014 to 2050



An actuarial study for the WRENS Benevolent Trust estimated a somewhat steeper decline between 2010 and 2050 than the estimates presented here. However, this is likely to reflect the age profile of members of the Trust with no new members since 1993.

3.7 Royal Navy dependants

The number of RN dependants has been estimated based on MoD, SSAFA and data from the Office of National Statistics (ONS) on household composition[18].

No recent official statistics exist on how many Service children are in the country, but MoD surveys in 2006 and 2008 revealed that 48% of Naval Service personnel had children, with more officers having children (56%) than the other ranks (45%). This indicated that there were 18,060 Naval parents, and an estimated 35,350 Naval children – equivalent to 94% of serving RN. This figure is much higher than the ONS figure and has been applied to calculate the number of children of serving RN. This could be due in part to the younger age profile of RN personnel, compared with the general population and therefore the greater likelihood that they will have dependent children. For former RN, where the ONS provides a rate for households with 3 or more children, it has been assumed there are three children in the household. The figures will therefore underestimate the total number of children.

[18] ONS indicates that 15.2% of all households have 1 dependent child, 12.6% have two dependent children, and 4.5% have three or more dependent children.

Table 9 and Figure 4 below provide estimates of the numbers of dependants for serving and former RN personnel. Where it is assumed that RN family composition will correspond with the general population, this may not necessarily be the case. In recent years, the number of widows and widowers has declined steadily reflecting wider, national trends in the decline of marriage, while numbers of partnerships are unlikely to have changed.

SSAFA data indicate that about 30% of applicants are widowed partners of RN personnel. The numbers of widows aged 65 and over in the projections has been assumed to be 30% of the number of former RN aged 65 and over. The table provides a guide to the approximate numbers.

The 2014 RBL survey estimated that 14% of the total ex-RN community were dependent children (aged 0-15), equivalent to 98,000 dependent children. The RBL figure is slightly above the estimate based on ONS data presented in Table 9 which covers children aged 0-17 years old (92,000). The RBL survey estimated that 33% of the total ex-RN community were dependent adults including widows and widowers, equivalent to 231,000, however the actuarial calculations in the RBL report indicate a higher figure of 301,000 than the estimate in Table 9 based on ONS and SSAFA data (265,000).

Table 9 indicates that the overall number of serving and former RN dependent adults is expected to decline fairly steeply from an estimate of nearly 220,000 in 2014 to less than 100,000 by 2050, while the number of dependent children in is expected to decline more gradually from 123,000 to just under 77,000.

Figure 4: Projected number of dependants of serving and former RN personnel

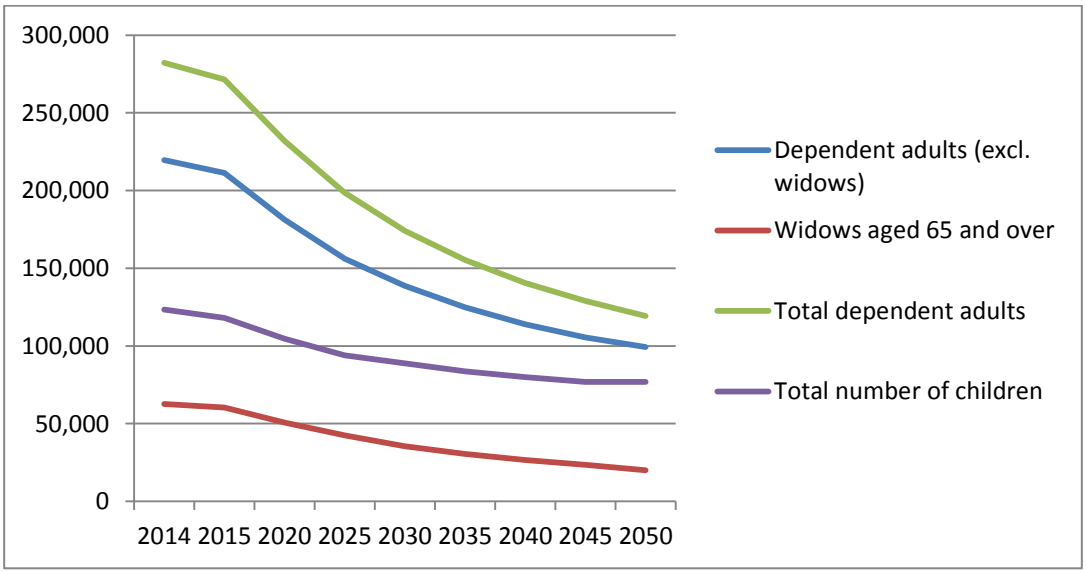


Table 9: Projected number of dependants of RN personnel

Dependants	%	2014	2015	2020	2025	2030	2035	2040	2045	2050
Serving RN										
Dependent adults	52.2	17,400	15,660	15,140	15,140	15,140	15,140	15,140	15,140	15,140
Children	94.0	31,330	28,200	27,260	27,260	27,260	27,260	27,260	27,260	27,260
Former RN under 65										
Dependent adults	52.2	89,260	87,070	74,970	64,660	59,570	54,690	51,110	48,020	48,060
Children	53.9	92,170	89,900	77,410	66,760	61,510	56,470	52,770	49,590	49,620
Former RN aged 65+										
Dependent adults	54.0	112,860	108,540	91,180	76,290	63,880	55,020	47,730	42,350	36,080
Widows aged 65+	30.0	62,700	60,300	50,650	42,380	35,490	30,570	26,510	23,530	20,040
All RN										
Dependent adults (excl. widows)		219,520	211,260	181,290	156,090	138,590	124,840	113,970	105,510	99,270
Widows aged 65+		62,700	60,300	50,650	42,380	35,490	30,570	26,510	23,530	20,040
Total adult dependents		282,220	271,560	231,940	198,470	174,080	155,410	140,480	129,040	119,310
Total number of children		123,500	118,100	104,670	94,020	88,770	83,730	80,030	76,850	76,880

Note: Dependent adults is based on households with one dependent adult

Source: ONS, 2013, MOD and SSAFA data

The recent RBL survey (2014) indicates that including adult dependants but excluding children, in 2014, there are 651,000 people in the ex-RN community. They project a fall to 471,000 in 2020, 396,000 in 2025, and 307,000 in 2030.

The Royal Navy and Royal Marines Children's Fund found a number of challenges which Service children can have to deal with above and beyond those of their peers[19], including:

- Stresses and strains on children when their parent is away – 83% of Naval spouses say their children find it difficult when their serving father or mother has to go away for long periods of time.
- Impact of moving homes, schools and communities – More than 20,000 Service families are on the move each year.
- Dealing with parental illness or injury – Many Service personnel return to their families with physical injuries or mental scars which inevitably have both short and long-term impacts on the family's emotional, functional and financial well-being.
- Dealing with divorce and family breakdown – 70% of Service spouses say that military operations have had a negative impact on their relationships, and sometimes the Service lifestyle can place so much strain on relationships that it leads to family breakdown and divorce.

In 2013, the Royal Navy and Royal Marines Children's Fund helped nearly 2,000 children[20], 44% of them from serving families. The annual report identified an upward trend in need.

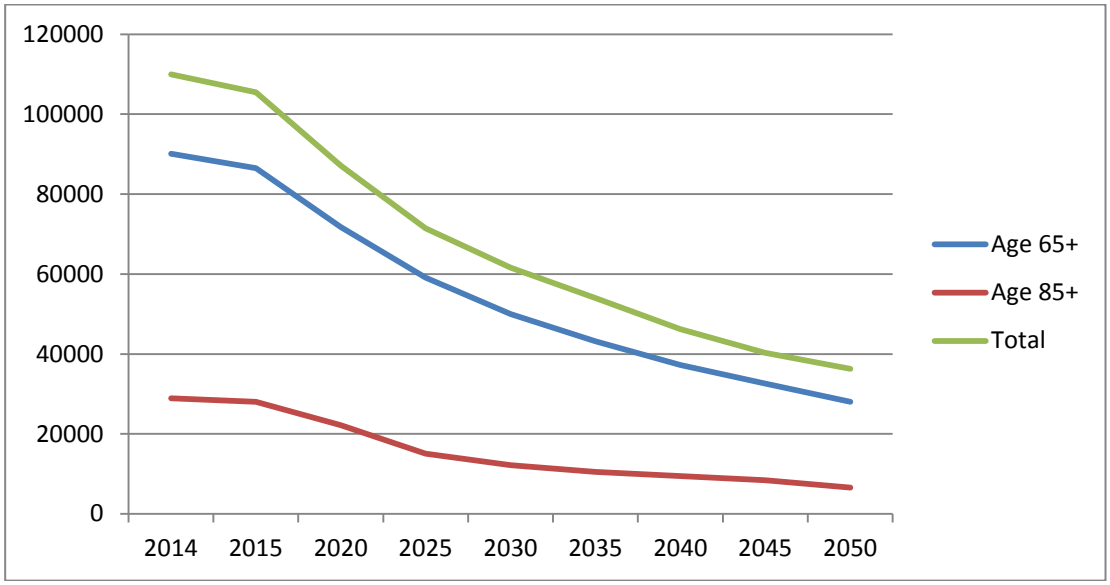
3.8 RN limiting long-standing illness and limitations with Activities of Daily Living

Projections for the numbers of former RN personnel with a limiting long-standing illness were estimated by applying the percentages at different ages reported in the English Longitudinal Study of Ageing (Wave 5) data from 2010/11 to the projected distribution shown at Table 8 (Table 10 and Figure 5). The prevalence rates[21] used are those reported for men, as the majority of former RN personnel in the higher age groups are men. This is likely to be an under-estimate as a higher proportion of women report limiting long-standing illness – across all age groups. As mentioned earlier, women compose 9% of the current RN workforce.

[19] The Royal Navy and Royal Marines Children's Fund (2009) Overlooked Casualties of Conflict.
[20] Royal Navy and Royal Marines Children's Fund (2013) Fourteenth Annual Review, RNRMC.
[21] Prevalence is the proportion of people in a population who have a particular condition at a specified point in time, or over a specified period of time. The numerator includes not only new cases, but also old cases (people who remained ill during the specified point or period in time).

The figures indicate that there were nearly 110,000 former RN personnel aged 55 and above with a limiting long-standing illness in 2014, reducing by more than 40% to 61,000 by 2030, and to around 36,000 in 2050.

Figure 5: Projected numbers of former RN aged 55+ with a limiting long standing illness



Projections for the numbers of former RN personnel with one or more limitations with an Activity of Daily Living[22] were estimated in the same way: using the prevalence of limitations with an Activity of Daily Living among men at different ages and applying them to the projected distribution shown in Table 8 (Table 11 and Figure 6). Prevalence rates were based on those reported in the English Longitudinal Study of Ageing (Wave 5) data from 2010/11.

The numbers of former RN personnel experiencing limitations with Activities of Daily Living are currently estimated at over 66,000, with more than half of these aged 80 and over. Numbers are projected to fall by more than a half between 2014 and 2035 when an estimated 32,000 will have limitations with one or more Activities of Daily Living.

[22] Activities of Daily Living are defined as routine activities that people tend do every day without needing assistance. There are six basic ADLs: eating, bathing, dressing, toileting, transferring (walking) and continence.

Figure 6: Projected numbers of former RN aged 55+ with one or more limitation with an Activity of Daily Living

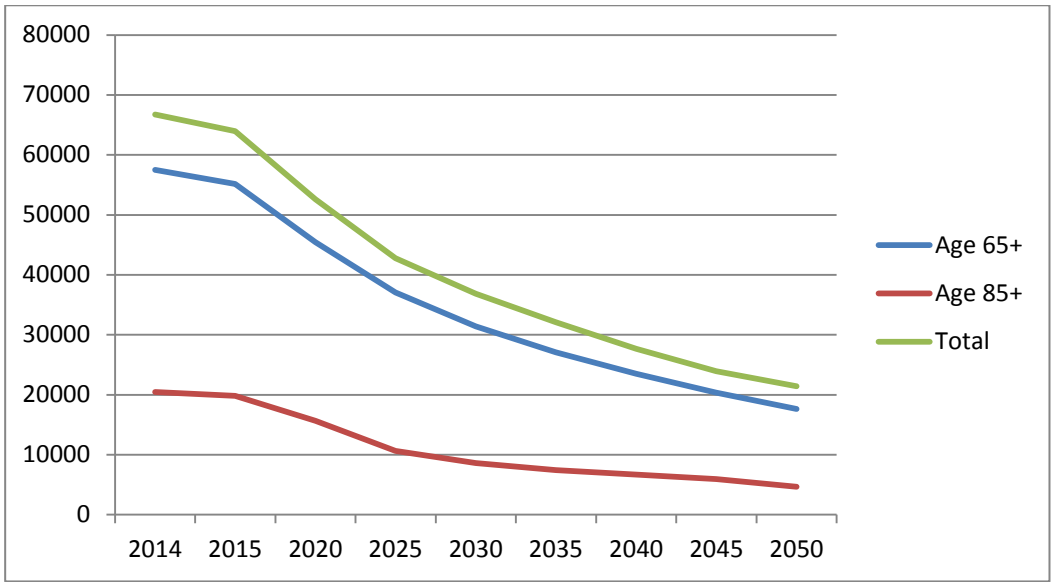


Table 10: Projected numbers of former RN personnel with limiting long-standing illness by age

Age group	Prevalence rate	2014	2015	2020	2025	2030	2035	2040	2045	2050
55-59	24.3%	8,770	8,090	5,590	5,540	4,950	4,770	3,240	3,700	3,750
60-64	30.6%	11,050	10,950	9,810	6,790	6,730	6,020	5,790	3,950	4,500
65-69	31.4%	11,930	11,630	10,550	9,440	6,540	6,480	5,800	5,580	3,810
70-74	34.0%	12,920	12,600	11,360	10,300	9,210	6,390	6,330	5,670	5,440
75-79	44.7%	16,990	16,290	13,950	12,580	11,410	10,170	7,080	7,000	6,290
80-84	50.8%	19,300	17,920	13,710	11,760	10,600	9,630	8,530	5,980	5,890
85+	50.8%	28,960	28,030	22,170	15,050	12,190	10,540	9,480	8,420	6,620
Total		109,920	105,500	87,140	71,460	61,630	54,000	46,260	40,290	36,300

Prevalence rates based on ELSA Wave 5

Table 11: Projected numbers with one or more limitation with an Activity of Daily Living by age

Age	Prevalence rate	2014	2015	2020	2025	2030	2035	2040	2045	2050
55-59	11.4%	4,120	3,800	2,620	2,600	2,320	2,238	1,520	1,740	1,760
60-64	14.1%	5,090	5,040	4,520	3,130	3,100	2,773	2,670	1,820	2,080
65-69	16.0%	6,080	5,930	5,370	4,810	3,330	3,301	2,960	2,840	1,940
70-74	21.0%	7,980	7,790	7,020	6,360	5,690	3,947	3,910	3,500	3,360
75-79	24.6%	9,350	8,960	7,680	6,920	6,280	5,596	3,900	3,850	3,460
80-84	35.0%	13,640	12,660	9,690	8,310	7,490	6,805	6,030	4,230	4,160
85+	35.9%	20,460	19,810	15,670	10,640	8,620	7,450	6,700	5,950	4,680
Total		66,720	63,980	52,570	42,770	36,830	32,110	27,680	23,930	21,440

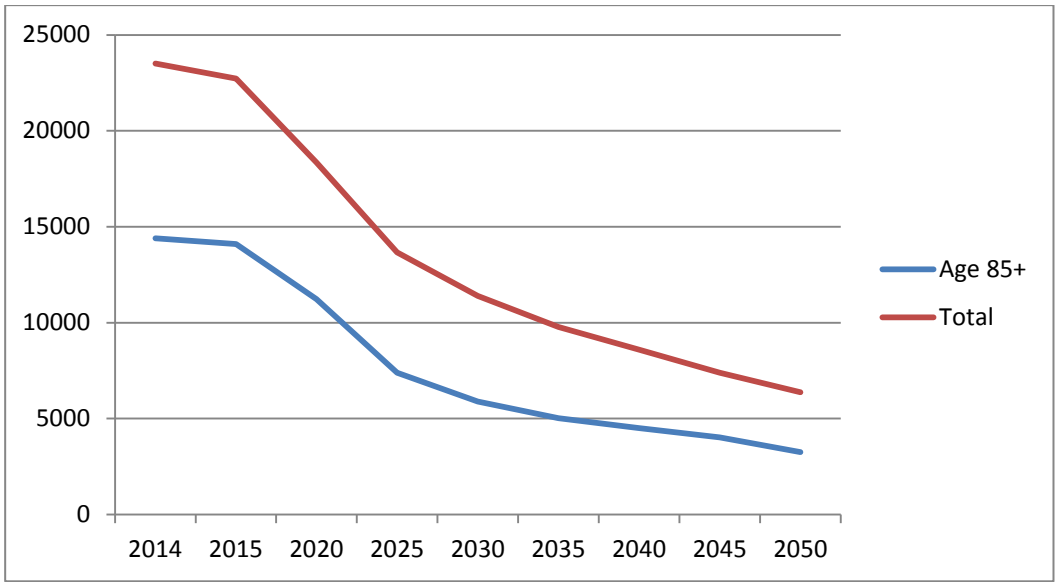
Prevalence rates based on ELSA Wave 5

3.9 Dementia

Projected numbers of former RN seafarers with dementia were estimated by applying the age-specific rates from the European Community Concerted Action on the Epidemiology and Prevention of Dementia (EURODEM) study[23]. The rates for men have been used.

There are an estimated 23,500 former RN seafarers with dementia at present. The number is projected to fall steeply between 2015 and 2025, with a more gradual decline to around 6,300 in 2050 (Table 12 & Figure 7). In contrast, the numbers of older people in England with dementia are projected to increase by 62% between 2014 and 2030[24].

Figure 7: Projected numbers of former RN with dementia aged 65+



[23] Luengo-Fernandez, R., Leal, J. and Gray, A. (2010) *Dementia 2010: The economic burden of dementia and associated research funding in the United Kingdom*. Report produced by the Health Economics Research Centre, University of Oxford for the Alzheimer's Research Trust.
[24] POPPI, http://www.poppi.org.uk

Table 12: Projected numbers of former RN with dementia aged 65+

Age group	Prevalence rate	2014	2015	2020	2025	2030	2035	2040	2045	2050
65-69	2.17%	830	800	730	650	450	450	400	390	260
70-74	4.61%	1,750	1,710	1,540	1,400	1,250	870	860	770	740
75-79	5.04%	1,920	1,840	1,570	1,420	1,290	1,150	800	790	710
80-84	12.12%	4,610	4,280	3,270	2,810	2,530	2,300	2,040	1,430	1,410
85-89	18.45%	5,260	4,850	3,670	2,820	2,430	2,190	1,990	1,740	1,240
90-94	32.1%	9,150	7,730	3,630	2,750	2,120	1,820	1,640	1,490	1,310
95+	31.58%	-	1,520	3,930	1,820	1,340	1,020	870	780	710
Total		23,500	22,720	18,350	13,670	11,400	9,780	8,600	7,390	6,370

Prevalence rates based on Eurodem study

3.10 Medical discharges and mental health

During the five year reporting period 2008/09-2012/13, a total of 1,612 Naval Service personnel were medically discharged, at an overall crude rate of 8.6 per 1,000 personnel[25]. In 2012/13, the crude rate was 12.2: for officers 3.9 per 1,000 and for other ranks 14.3 per 1,000 (Table 13). Rates are higher for women than men.

Musculoskeletal disorders and injuries were the most common principal cause of medical discharge from the Naval Service during the reporting period (937 cases, or 58% of all cause coded Naval Service medical discharges). Mental and behavioural disorders (176 cases, or 11% of all cause coded Naval Service medical discharges) was the second most common principal cause of medical discharge.

Table 13: UK Naval Service medical discharges by age and rate per 1,000 personnel

	2008/09		2009/10		2010/11		2011/12		2012/13	
	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate
Under 20	~	2.0	~	2.5	~	2.1	~	1.7	~	5.6
20-24	53	6.1	48	5.4	56	6.4	83	10.2	70	9.1
25-29	49	6.1	51	6.1	77	8.9	128	14.9	104	12.4
30-34	33	6.5	29	5.7	48	9.0	100	17.6	102	17.4
35-39	53	7.9	33	5.3	58	9.9	69	13.4	75	16.2
40-44	13	3.0	24	5.6	26	5.9	54	12.0	45	10.4
45-49	8	3.4	12	4.9	16	6.3	24	9.2	25	9.7
50+	~	2.9	~	3.6	~	5.5	~	10.9	~	4.3
Male	185	5.3	181	5.2	243	7.0	395	11.8	377	11.8
Female	31	8.5	25	6.8	47	12.9	75	21.9	53	16.3
All	**216**	**5.6**	**206**	**5.3**	**290**	**7.5**	**470**	**12.8**	**430**	**12.2**

The rates of patients assessed with a mental health disorder were Royal Navy (21.5 per 1,000 strength) and Royal Marines (15.4 per 1000 strength)[26]. The Royal Marines had the lowest rate of mental disorders compared to the other Services.

[25] Annual Medical Discharges in the UK Regular Armed Forces 2008/09 - 2012/13, MoD 2013
[26] UK Armed Forces mental health: Annual Summary & Trends Over Time, 2007/08 - 2012/13, MoD 2013

These rates could be applied to projected future numbers of serving personnel to generate a forecast of numbers likely to be medically discharged in future years and experiencing mental health disorders.

A Scottish scoping review[27] (2012) found that: differences in need exist between older and younger veterans. It was widely held that Army personnel fare worst on demobilisation than personnel from the other two service arms. The authors suggest that it may be that the Navy provides more opportunities for the development of skills and experience which are transferable to the civilian domain. They comment that: 'Naval personnel also seem to be keen on reunions and on the maintenance of contacts with former comrades through "Navy News" and "Rum and Ration"'.

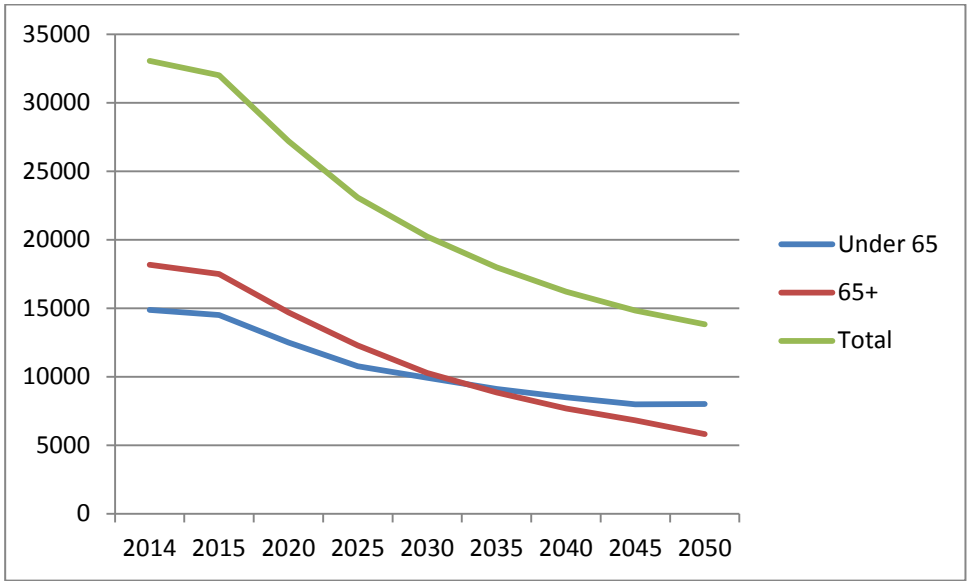
A review of research for Forces in Mind by the Mental Health Foundation in 2013 concluded that the majority of serving and ex-Service personnel have relatively good mental health. Much of the existing evidence is focused on a minority of serving and ex-Service personnel who experience mental health problems; the most frequent being common mental health problems (e.g. depression or anxiety). The rates for these are broadly similar to the general population[28]. However, at present, the long-term effects of the operational stress from the Telic and Herrick campaigns is not yet known. A study by the King's College Centre for Military Research is monitoring the effect of these campaigns is in its third and final stage.

3.11 Drug and alcohol problems

The Adult Psychiatric Morbidity survey in 2007 found that 8.7% of males were dependent on alcohol. Applying this rate (which is likely to be low for the RN) to former RN personnel, indicates that there are over 33,000 with a dependence on alcohol (Table 14 and Figure 8). This is projected to fall by more than a third to 23,000 in 2025, and then fall below 14,000 by 2050. However, while the rate is likely to be higher than the general population, it is also likely that projected numbers in the very highest age groups are over-estimates as people who are dependent on alcohol are likely to die at younger ages. According to one research study, 15% of Royal Navy respondents were classed as problem drinkers[29].

[27] Klein S, Alexander D & Busuttl W (2012) Scoping Review: A Needs-Based Assessment and Epidemiological Community – Based Survey of Ex-Service Personnel and their Families in Scotland, Scottish Government.
[28] Semele, C (2013) The mental health of serving and ex-Service personnel: A review of the evidence and perspectives of key stakeholders, Forces in Mind/Mental Health Foundation.
[29] Henderson, A, Langston V & Greenberg N (2009) Alcohol misuse in the Royal Navy, Vol;59, pp25–31, *Occupational Medicine*.

Figure 8: Projected numbers of former RN personnel dependent on alcohol



3.12 Other research

Legion welfare in the 2010s[30] identified the key drivers of change in the welfare of the serving and former armed forces in terms of: the state of UK economy leading to a decline in the funding of public services; devolution of power and responsibility for welfare to local authorities and voluntary sector; and an ageing society placing increasing strain on the NHS and adult social care. Between 2010 and 2020, a squeeze on real incomes was anticipated, with cuts in welfare and benefits increasing the pressure on third sector organisations. These conclusions appear equally pertinent today.

The report suggested it is likely that current gaps in meeting social need will widen and the number of gaps will increase, and particular needs will emerge. There will be a need for a long-term strategic view; and a greater degree of collaboration in order to harness collective resources. According to the report's authors, about one-third of those supported by the RBL require more than one intervention. In the future, they anticipate that while numbers may decrease, the need for interventions may increase. The most vulnerable groups are identified as those aged 75 and over in poor health, living alone, those in financial distress, those needing home care support, low-income families with dependent children, and young families dependent on welfare state support.

[30] Centre for Future Studies (2011) Legion welfare in the 2010s: a decade of change, RBL.

Table 14: Projected numbers of former RN personnel dependent on alcohol

Age group	Prevalence rate	2014	2015	2020	2025	2030	2035	2040	2045	2050
Under 65	8.7%	14,880	14,510	12,500	10,780	9,930	9,120	8,520	8,000	8,00
65+	8.7%	18,180	17,490	14,690	12,290	10,290	8,860	7,690	6,820	5,810
Total		33,060	32,000	27,190	23,070	20,220	17,980	16,210	14,830	13,820

Prevalence rates based on Adult Psychiatric Morbidity

3.13 Geographical spread of serving RN personnel

Table 15 below provides details of the geographical spread of serving RN personnel by region in 2013. The great majority of serving personnel are in the South-West, South-East and Scotland.

Table 15: Regular RN forces by region as at 1 July 2013[31]

	Officers	Other ranks	Total
North West	30	130	160
North East*	10	20	20
Yorkshire and the Humber	20	110	130
East Midlands	40	100	140
West Midlands*	110	170	290
East of England	310	400	710
Greater London	310	110	420
South East*	2,260	7,910	10,180
South West	2,840	13,680	16,520
Wales*	20	110	120
Scotland	540	3,720	4,260
Northern Ireland	10	0	10
Total	6,500	26,460	32,960

* Columns do not sum due to rounding

Note: The figures are based on Service personnel's stationed location and not their location of residence - where personnel work isn't necessarily where they live. Personnel deployed on operations to an area away from their stationed location are shown against their most recent stationed location.

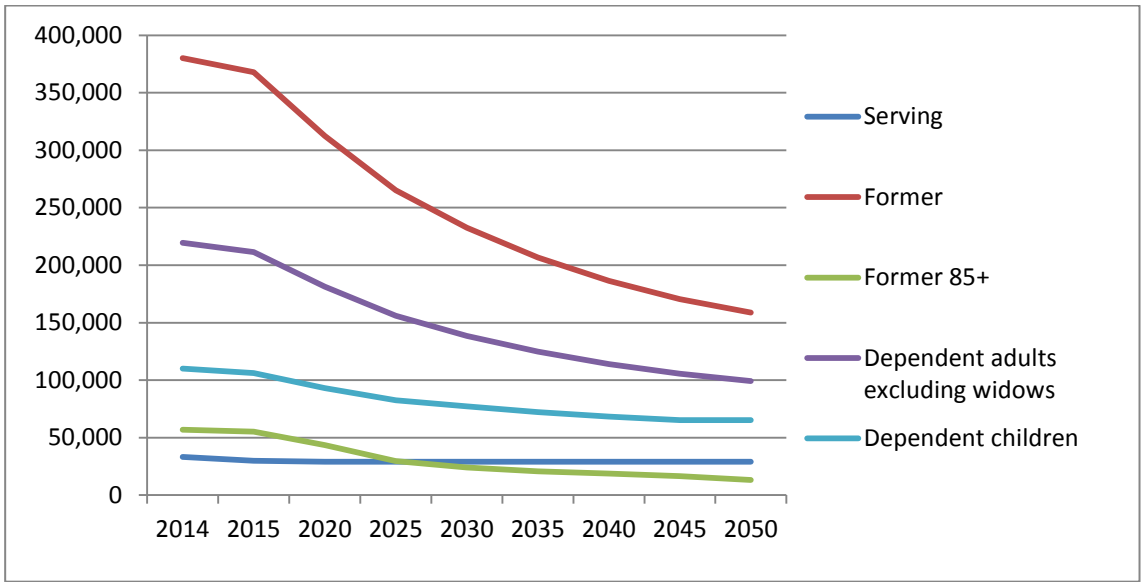
3.14 Geographical spread of former RN personnel

An analysis of data provided by the Royal Naval Association of members of their Shipmates campaign (a welfare and social association which is open to former RN personnel) indicates that the highest concentrations of members are in the following postcode areas: Portsmouth, Plymouth, Glasgow, Bath, Exeter, Kirkcaldy, Southampton, Newcastle, Nottingham, Liverpool, Cardiff, and Dorchester.

[31] MoD Statistical release, August, 2013: Table 2.1b Strength of UK Regular Forces stationed in the UK by Country and Region as at 1 July 2013

An analysis of applications to SSAFA between 2010 and 2013 indicate a similar concentration around areas where people have been stationed. The places where the greatest numbers of applicants came from were: Plymouth, Gosport, Birmingham, Glasgow and Liverpool. This appears to indicate that a significant proportion of former RN personnel remain close to the locations where they have been stationed.

3.15 Summary



There are 33,330 serving RN seafarers in 2014. After the planned reduction to 29,000 by 2020, assuming the numbers proposed in the Strategic Defence Review are maintained, then the number of serving RN is unlikely to change between 2020 and 2050. Currently, 22% of serving RN are aged 40 or above.

The projections indicate a continuing decline in the number of former RN from 380,000 in 2014 to 159,000 in 2050. More than half of naval veterans (55%) are aged 65 or above, more than one-third are aged 75 and above, and 15% are aged 85 or above. Between 2014 and 2050, the number of former RN aged 65 and over is projected to fall by 68%, and the number of former RN aged 85 or above is projected to fall by 89%.

The projected decline in the number of dependent children between 2014 and 2050 appears to be the least steep, reducing by 38%. The number of former RN widows is projected to drop to about one-third of the current number between now and 2050.

However, the fall in the oldest groups of former RN and in the numbers of dependent adults and children will not be as steep as that projected by Baster in 2007.

Thus based on numbers alone, the level of need for care and support will decline considerably. However, other changes in the wider economy and society for example in terms of statutory services and welfare may contribute to a growing need for care and support among a reduced population.

Section B

4 Merchant Navy

The ILO Maritime Labour Convention 2006, effective in the UK from August 2014, defines a seafarer as 'any person who is employed or engaged or works in any capacity on board a ship to which this Convention applies where a ship means a ship other than one which navigates exclusively in inland waters or waters within, or closely adjacent to, sheltered waters or areas where port regulations apply'. This definition does not include members of the Royal Fleet Auxiliary.

The Merchant Navy Welfare Board has provided some internal guidelines, for others to use, to define a British Merchant Navy seafarer as any person, of UK nationality (which includes Crown Dependencies - the Channel Isles and Isle of Man - and British Overseas Territories (e.g. Gibraltar, Falkland Islands), or living in the UK and who is serving, or has served, at sea in any capacity aboard a merchant vessel irrespective of the country of registry or ownership. This includes, but is not limited to, passenger liners, ferries, container ships, tankers, bulk carriers, and refrigerated cargo ships, Royal Fleet Auxiliaries (or their equivalent), coasters, specialist ships (e.g. deep sea tugs, salvage vessels, oil support vessels, lighthouse tenders etc.), plus large charter yachts with paid crew members.

In normal circumstances, vessels and craft working in the confines of rivers and estuaries e.g. harbour tugs, launches, self-propelled barges and excursion boats, or those belonging to the RNLI, do not constitute part of the Merchant Navy (MN), although some will employ former members of the MN.

While demand for British MN officers is expected to remain high over the coming years; the decline in the number of ratings is anticipated to continue, reflecting the relative ease with which they can be substituted by cheaper foreign workers[32]. Studies of the seafaring workforce note the decline in the British shipping industry due to changes in the pattern of trade, smaller crew numbers, globalisation, containerisation and other increasingly large vessels, low-wage foreign competition, and a low level of retention of experienced seafarers (although retention is considered to have improved in recent years and may improve further with the extension of tonnage tax training provisions to ratings and the launch of a ratings apprenticeship scheme).

[32] Deloitte/Oxford Economics (2011) *An independent review of the economic requirement for trained seafarers in the UK: Final report to DfT and Review Panel*, Deloitte/Oxford Economics.

A survey by Nautilus (Nautilus International is the maritime trade union for officers in the UK, Netherlands and Switzerland)[33] of seafarers obtained responses from 1,200 members, including: passenger ferries 9%, cruise ships 8%, large yachts and superyachts 2%, RFA 5%, offshore support vessels 23%, container ships 6%, carriers 9%, crude oil tankers 6%, freight ferries 3%, general cargo ships 1%, and other 29%. This indicates the range of vessels on which MN seafarers are employed, and the growth of groups in the MN working on cruise ships in retail, entertainment and other employment – some of whom will not qualify for support from some maritime charities due to limited length of service.

One estimate cited by Deloitte and Oxford Economics indicates that more than half of deck and engine officers (57%) in the UK shipping industry are non-UK personnel, and nearly three-quarters (73%) of deck and engine ratings are non-UK personnel. Some of these non-UK personnel working in the UK shipping industry may seek help from UK maritime charities.

The report by Deloitte and Oxford Economics projects an average increase of 3% per annum in UK shipping sector employment between 2010 and 2021, from 98,034 to 136,660 (including non-UK personnel). Deloitte and Oxford Economics found that a consistent set of data on UK shipping[34] was only available back to 2002, following the introduction of the tonnage tax.

Many British MN seafarers, especially officers, are employed through manning agents, sailing on vessels under various flags and conditions. Some of these will not be included in government statistics, (particularly uncertificated officers and ratings). According to one crewing agency, 24% of the crew on their books were British, while Nautilus found 8% of respondents to their 2010 membership survey were working through crewing agencies and 32% through third party ship managers.

Since the late 1970s, many UK owned ships have been registered outside the UK. However, according to Maritime UK, since 2000, as a result of the tonnage tax, the UK owned fleet has increased almost three-fold, and the UK registered fleet increased by a factor of 6. The UK's registered share of the world fleet has been stable since 2004 at approximately 2 per cent in terms of number of vessels and gross tonnage.

[33] Nautilus International (2010) Q&A – A Nautilus International Survey of Seafarers' Living and Working Conditions, Accessed on-line 1.1.14 @ http://content.yudu.com/Library/A1nb2g/ShipboardSocialCondi/resources/index.htm?referrerUrl=http%3A%2F%2Fwww.yudu.com%2Fitem%2Fdetails%2F145295%2FQ-A---Seafarer-Living-and-Working-Conditions

[34] Deloitte and Oxford Economics refer to 'UK shipping' to refer to UK registered (or flagged) ships.

4.1 Length of service

Some MN charities require a minimum length of service at sea of 10 or even 20 years for an applicant to be eligible for support. A Nautilus survey in 2010 indicated that 83% of respondents had been in the MN for more than 10 years, with another 10% working for between 5 and 10 years. Nigel Palmer from the Maritime Skills Alliance cites an average length of service for those entering the industry as cadets and ultimately qualifying as certificated officers of 7 to 11 years[35] in his evidence to the Transport Committee[36]; while a report on a recent European survey (based on over 1,800 responses from trainees, active and ex-seafarers) advised employers to assume a maximum length of service of 10-15 years[37]. More than 20% of trainees and active seafarers expected to be working at sea until retirement, while more than one quarter of ex-seafarers had served at sea for 10-15 years. However, as Nigel Palmer observed commenting on the availability of reliable data: '*Record keeping is one of the issues we have as an industry'*.

Many MN seafarers, particularly officers, take their skills ashore to work in the maritime industry. There are no statistics available for these personnel.

4.2 Serving MN seafarers

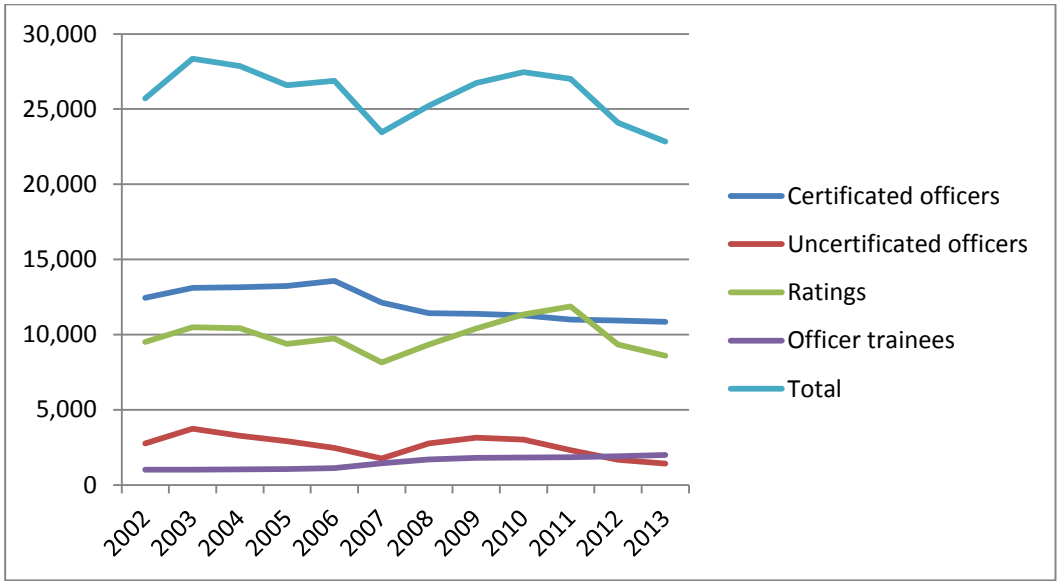
The Department for Transport provides annual data on the number of seafarers employed on UK registered and/or owned ships. The Department draws on the UK Chamber of Shipping's membership survey which collects information on the number and type of seafarers employed by their members. These surveys have been annual since 2002. They provide the basis for the estimates of uncertificated officers (officers who are not required to hold Certificates of Competency) and ratings. According to DfT, 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 DfT comment that this achieves virtually complete coverage of seafarers employed by Chamber members. However, not all UK seafarers will be employed by Chamber members, nevertheless the numbers employed elsewhere are thought by DfT to be small (although some organisations debate this). DfT statistics also pick up certificated officers working on non-UK registered vessels through statistics on holders of UK Certificates of Competency.

[35] Cadetships are normally for 4 years, after which cadets become qualified officers.
[36] House of Commons Transport Committee (HC 630) Sessions 2013-14, Q64. Accessed on-line 1.4.14 @ http://www.publications.parliament.uk/pa/cm201314/cmselect/cmtran/630/131118.htm
[37] ETF & ECSA (20134) Maritime Career Path Mapping 2013 Update. Accessed on-line 1.4.14 @ https://www.nautilusint.org/News-and-Events/Shared%20Documents/Career_Mapping_Report_2013.pdf

According to DfT[38], the total number of UK seafarers active at sea in 2013 is estimated to have been 22,830 (Table 1). In Table 1, the most recent data have been combined with the study by Baster (2007) for MCFG, Chamber of Shipping and Nautilus data to give the numbers of serving MN seafarers from 1950 to 2013.

The figures indicate considerable fluctuation across all groups, but an overall decline of 11% between 2002 and 2013 (Figure 1). The most marked decline in recent years appears to be in the number of uncertificated officers. This was heavily influenced by a sharp drop in uncertificated officers reported by one of the largest UK shipping companies in 2013, following a 27 per cent decrease from 2011 to 2012 mainly due to another large company transferring their operations out of the UK. The majority of MN seafarers are officers: ratings make up less than 40% of UK MN seafarers active at sea.

Figure 1: Numbers of MN seafarers active at sea 2002-2013



[38] DfT (2014) Seafarer statistics, 2013. DfT.

Table 1: All UK MN seafarers active at sea[39] from 1950 to 2013

	Certificated officers	Uncertificated officers	Ratings	Officer trainees	Total
1950					140,000
1960					140,000
1970					100,000
1976	33,310		25,020	7,700	66,030
1980	25,060		22,900	6,350	54,310
1985	14,630		18,330	2,150	43,880
1989	7,890		9,950	420	18,260*
1997	14,300	-	-	-	-
1998	13,550	-	-	-	-
1999	13,310	-	-	780	-
2000	12,510	-	-	980	-
2001	12,300	-	-	1,020	-
2002	12,440	2,750	9,510	1,010	25,720
2003	13,100	3,740	10,490	1,002	28,340
2004	13,150	3,260	10,430	1,030	27,870
2005	13,240	2,910	9,380	1,050	26,590
2006	13,570	2,460	9,750	1,110	26,890
2007	12,130	1,760	8,150	1,430	23,460
2008	11,420	2,760	9,330	1,700	25,210
2009	11,390	3,150	10,400	1,800	26,740
2010	11,280	3,020	11,340	1,830	27,460
2011	11,000	2,320	11,880	1,840	27,010
2012	10,930	1,680	9,330	1,900	24,100
2013	10,840	1,410	8,590	1,990	22,830

Source: DfT Table SFR110 (2014), Baster (2007), General Council of British Shipping and Nautilus International

* It is not clear why this figure is so much out of kilter with the overall trend.

Note: some data are missing from 1989 to 2002.

[39] DfT define active at sea as: "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 review by Deloitte and Oxford Economics suggested that in 2010 there were a total of 98,000 seafarers in the UK shipping industry, *including non-UK workers*, marking a 10% annual increase following three years of subdued growth after the 2007 financial crash. On average, they found employment in the UK shipping industry had grown by an annual rate of 7.4% between 2004 and 2010. Deloitte and Oxford Economics scaled up the DfT figures by a factor of 1.34 in 2010 yielding a higher estimate of UK MN seafarers active at sea of 32,734 in 2010[40]. Deloitte and Oxford Economics scaled up the data because they considered the DfT figures not to be fully comprehensive, although becoming more representative.

The proportion of certificated officers assumed by DfT (in January 2014) not to be active at sea (i.e. shore-based) is 16% for all ages (assuming an average retirement age of 62). This would be equivalent to 2,065 certificated officers in 2013 (compared with around 2,500 in 2005 according to Baster). It is worth noting a trend for officers to work beyond 62, according to some of those interviewed for this report.

The increase in the number of officer trainees has largely been ascribed to the influence of the tonnage tax. In 2013, there were 780 entrants under the SMarT1 scheme.

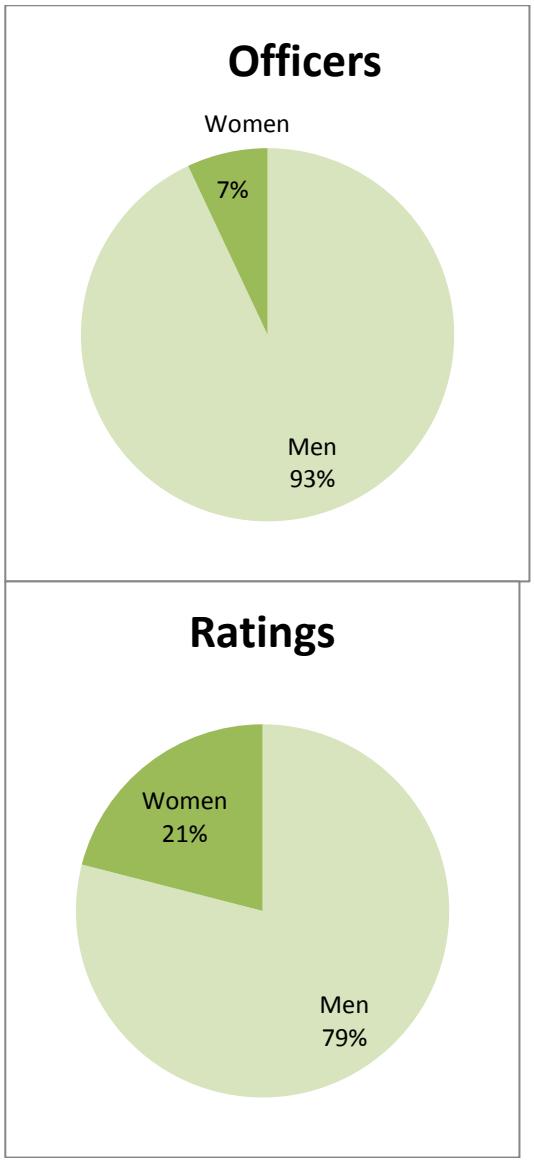
Many ratings are semi-skilled experienced workers who do not hold certificates of competence. Other personnel without specialist maritime training, such as entertainment, hotel, and catering staff also mostly have rating status. Over half (53%) of ratings in 2013 were employed in catering/hotel/other categories, 37% as deck ratings and the remainder in the technical departments. Ratings are largely employed in the Royal Fleet Auxiliary, or by the cruise and ferry industry which can result in large fluctuations in numbers.

A review of government support for maritime training[41] in 2011 predicted that the number of deck and engineer officers coming from the UK to meet UK industry needs was likely to fall from 11,200 to 7,300 between 2011 and 2021 (a fall of 35%). The report concluded that in the absence of any action to tackle shortages, there would be unmet demand for around 3,500 UK deck and engineer officers at sea by 2021.

In terms of the gender composition, 21% of ratings are women and 7% of officers are women (Charts 1 and 2). There are no data on ethnic origin of UK MN seafarers. Information on gender and ratings was not included in the Baster report.

[40] Deloitte/Oxford Economics (2011) Table 12.3c.
[41] Independent Panel (2011) Review of Government Support for Maritime Training. Accessed on-line 1.4.14@ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/3697/independent-review-on-maritime-training.pdf

Charts 1 & 2: Proportion of male and female UK MN Officers and Ratings



4.2.1 Age profile of serving MN seafarers

The DfT statistics provide a breakdown of the age profile of officers and ratings (see Table 2). This indicates that there are just over 24,000 serving MN seafarers, of whom the majority are officers.

The total figure differs from that in Table 1 for reasons that are not clear but presumably relate to the source and construction of DfT tables. DfT issue a note of warning that the data on uncertificated officers and ratings comes from the Chamber of Shipping (CoS) membership survey. As mentioned earlier, a proportion of UK national seafarers however will be employed by companies which are not represented by the CoS. (There is a lack of information about the size of this group). Furthermore, while the overall

coverage of employment by CoS members is good, some details are incomplete or difficult to interpret, which may lead to some inaccuracies in the final results. Combining this consideration with the fact that some types of employment tend to be genuinely highly volatile, year to year variations in the statistics should be treated with caution, and the results used rather as a general guide to broad levels of employment.

Table 2: Age profile of serving Certificated and Uncertificated UK MN Officers and Ratings in 2013

Age (yrs)	Certificated Deck Officers	Certificated Engineer Officers	Uncertificated Officers	Ratings	Total	Total %
Under 21	20	30	20	160	210	1.0
21 – 25	580	530	90	730	1,920	9.2
26 – 30	990	680	180	680	2,520	12.1
31 – 35	830	650	170	500	2,150	10.3
36 – 40	600	450	120	470	1,630	7.8
41 – 45	570	390	160	560	1,670	8.0
46 – 50	700	530	160	720	2,110	10.1
51 – 55	1,100	830	190	840	2,960	14.1
56 – 60	1,200	1,050	130	670	3,040	14.5
61 – 64	630	630	70	360	1,680	8.0
65+	530	310	20	170	1,020	4.9
Unknown			410	2,760	3,170	
Total	**7,720**	**6,060**	**1,690**	**8,600**	**24,060**	**100%**

Source: DfT Tables SFR0210, SFR0220, SFR0230, SF0240.

Overall, nearly 60% of serving MN seafarers are aged 40 or above, although the data on ratings age distribution is unknown for more than a quarter of them. An analysis of RMT membership data is provided in Appendix 3 which indicates that more than 70% of members are aged 40 and above, fairly close to the information from DfT in Table 2.

4.3 Former MN seafarers under and over 65

The number of former MN seafarers was estimated making use of data from the Merchant Navy pension funds.

There are four funds: Merchant Navy Officers Pension Fund (MNOPF), Merchant Navy Officers Pension Plan (MNOPP), Merchant Navy Ratings Pension Fund (MNRPF) and the MNRPP. The MNRPP was set up in 2001

to replace the MNRPF and then wound up in 2010, to be replaced by the MNR Group Personal Pension. However, a recent survey by Nautilus in 2010 of members found that 75% had pension plans compared with 89% in 2001[42] indicating that pension scheme membership has declined. Almost 46% said their employers contributed to their pension plans. Of the total 1,200 respondents, 20% were MNOPF members (39% in 2001), 5% MNOPP members and 2% had a Maritime Stakeholder Plan. Those with no provision said they were either dependent on savings or investment in property. Some had been victims of pension fund collapses.

The fall in membership of the MN and other pension schemes will have implications for future needs, as former MN seafarers are consequently likely to have greater need of financial support in later life. In addition, there has been no discretionary increase in pension payments for some time, and some seafarers will not have accrued much overall due to limited length of service. Some may also not have a full National Insurance contribution history so will not receive a full state retirement pension. An international survey by Nautilus in 2014[43] reports that '*Pensions are of particular concern to seafarers in the UK and the Netherlands as the majority of them are over 50 and worried about how they will support themselves and their families when they do retire from the sea*'.

4.3.1 Officers

The MNOPP opened in 1996 to provide a defined contribution scheme to Merchant Navy officers. It is characterised as an industry-wide, multi-employer, occupational pension scheme, and remains open to new members. The MNOPF opened in 1938 to provide defined benefits to Merchant Navy officers. It is also characterised as an industry-wide, multi-employer, occupational pension scheme. On 5 April 1978, the Old Section was closed and kept separate to a New Section set up on 6 April 1978. As of 1 November 1996, the New Section was also closed to new members.

Data provided by the officers' pension funds in 2013 indicate that there are: 1,394 active officers who are members of one of these pension funds, 22,219 former officers who are deferred members (including some who are over retirement age); and 19,597 who are pensioner members. The number of active officer members is about 13% of the current number of certificated officers in the DfT data set (although it may include some shore-based members), compared with 25% membership in the Nautilus survey. At the time of Baster's study, it was assumed on the basis of weaker data that 70% of MN officers were contributing to a pension scheme.

[42] Nautilus (2010) Q & A – A Nautilus survey of seafarers' living and working conditions. Accessed on-line 1.4.14 @ http://content.yudu.com/Library/A1nb2g/ShipboardSocialCondi/resources/index.htm?referrerUrl=http%3A%2F%2Fwww.yudu.com%2Fitem%2Fdetails%2F145295%2FQ-A---Seafarer-Living-and-Working-Conditions

[43] Nautilus (2014) Pensions Survey, Nautilus.

To estimate the number of former MN officers, the age distribution of deferred and pensioner members has been used and the numbers scaled up by a factor of 4 for those aged 20-39, by a factor of 2.5 for those aged 40 to 49, and by a factor of 1.5 for those aged 50 and above. The scaling assumes 25% membership for those aged up to 39 reflecting the current average, and assumes 40% membership for those aged 40 to 49 reflecting the membership levels in 2001, and two-thirds membership for those aged 50 and over who are likely to have begun work in the MN before the introduction of the defined contribution scheme in 1996. The resulting age distribution is presented in Table 3 and Figure 2.

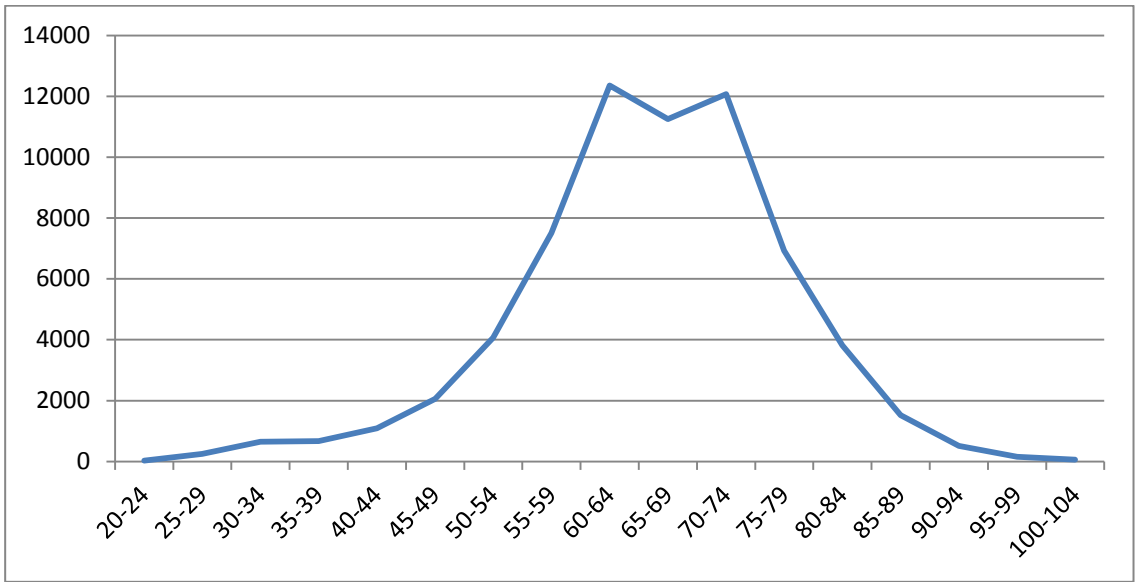
Table 3: Age distribution and number of former MN Officers – based on deferred and pensioner members

Age	Actual members	Scaling factor	Scaled up numbers	Age distribution %
20-24	8	x4	32	0.05
25-29	63	x4	252	0.39
30-34	163	x4	652	1.00
35-39	168	x4	672	1.03
40-44	435	x2.5	1,087	1.67
45-49	822	x2.5	2,055	3.16
50-54	2,711	x1.5	4,066	6.26
55-59	5,007	x1.5	7,510	11.56
60-64	8,234	x1.5	12,351	19.01
65-69	7,501	x1.5	11,251	17.31
70-74	8,044	x1.5	12,066	18.57
75-79	4,616	x1.5	6,924	10.65
80-84	2,547	x1.5	3,820	5.88
85-89	1,015	x1.5	1,522	2.34
90-94	343	x1.5	514	0.79
95-99	100	x1.5	150	0.23
100-104	42	x1.5	63	0.10
Total	41,816		**64,985**	100.00

Source: Actual numbers based on MNOPF & MNOPP data

The great majority of active officer pension fund members are men: 1,343 compared with 52 women.

Figure 2: Age distribution and number of former MN Officers – based on deferred and pensioner members



The table indicates that 28,675 former MN officers are aged below 65; and 56% of former MN officers are aged 65 and over. However, the figures would be sensitive to the assumed proportion of officers who are members of the pension funds.

4.3.2 Ratings

The MNRPF opened in 1978 to provide defined benefits to Merchant Navy Ratings. It is characterised as an industry-wide, multi-employer, occupational pension scheme. As of 31 May 2001, the Fund has been closed to new members and to future accrual. The membership rate for the MNRPF is likely to be lower than the officers' funds. Data on the MNRPP were not obtained but there are believed to be between 900 and 1,000 members.

Data provided by the MNRPF pension fund indicate that there are 1,317 active members[44], 16,380 deferred members, and 7,008 pensioner members. The number of active rating members is about 15% of the current number of ratings in the DfT dataset.

The great majority of active ratings pension fund members are men: 1,171, compared with 146 women.

[44] 'Active' refers to members still in the employment of an organisation which participates in the MNRPF though not contributing.

Before 1978 most ratings did not belong to a pension fund. In 1960 there were 140,000 seafarers, of which one source estimates 65%-70% (90,000>) were ratings. In 1970 it had reduced to 100,000, of which probably 50%-60% were ratings. As the MNRPF was only established, in 1978 - 36 years ago - there are now and will be in the foreseeable future, many ratings and their dependants who are not known to the pension fund, but are eligible for charitable help.

The number of MNRPF members below the age of 40 is very low due to the closure of the MNRPF in 2001, and it was considered unsuitable for scaling up. Equally, there are former ratings with twenty or more years' service who left the MN before the establishment of the MNRPF who will not show up in the available data, most of whom will have no pension provision. Therefore, to estimate the number of former MN ratings, we have:

- Assumed that between the ages of 16 and 40, 8% per year of serving ratings become former seafarers, equivalent to 203 out of 2,540 in 2013. This is the same rate of wastage used for cadets in the Deloitte study. Assuming a constant rate of wastage over the 24 years from 16-40, this would mean 4,872 former ratings are currently in this age group (24x203).
- Used the 2013 age distribution of serving ratings to estimate how the figure of 4,872 is distributed across the age range of 16-40.
- Used the actual numbers of deferred and pensioner members in the age ranges 40 to 54, reflecting the period when the MNRPF was open (1978-2001).
- Used the estimates of officer numbers for ages 55 up, assuming similar numbers of ratings and officers aged 55-64 and a ratio of 1.5 ratings to 1 officer for ages 65 and over, reflecting the higher proportion of ratings in the MN up to the 1970s.

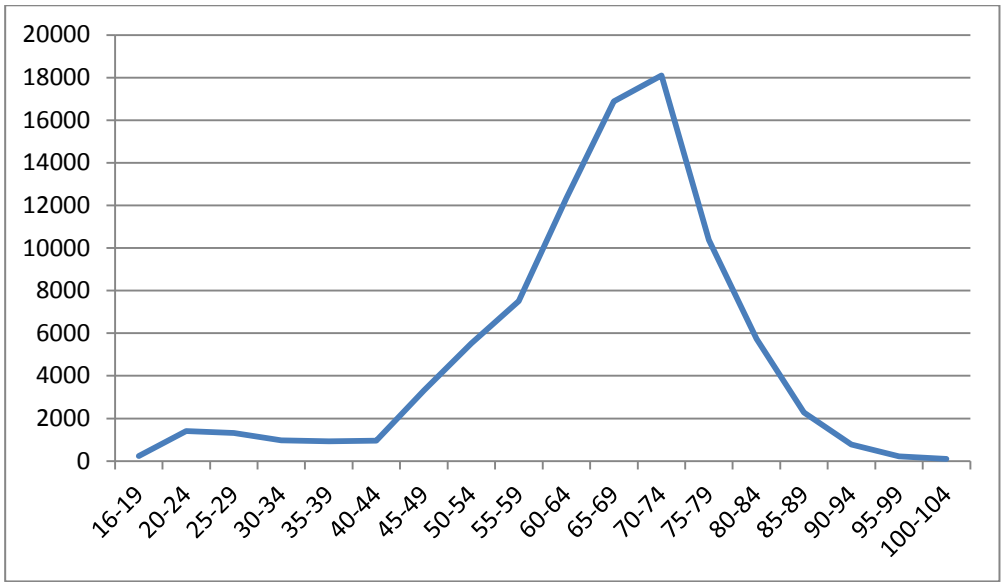
The age distribution and estimated number of former MN ratings pension fund members is set out below (Table 4 and Figure 3).

Table 4: Age distribution and number of former MN Ratings – based on deferred and pensioner members and scaling from Table 3

Age	Actual members	Assumed number	Scaling factor of officers' estimate	Scaled up from Table 3	Overall estimate numbers	Overall estimate %
16-19		242			242	0.3
20-24		1,414			1,414	1.6
25-29		1,316			1,316	1.5
30-34	4	974			974	1.1
35-39	125	926			926	1.0
40-44	965				965	1.1
45-49	3,322				3,322	3.7
50-54	5,527				5,527	6.2
55-59	3,478		x1	7,510	7,510	8.4
60-64	2,527		x1	12,351	12,351	13.9
65-69	2,818		x1.5	16,877	16,877	19.0
70-74	1,732		x1.5	18,099	18,099	20.3
75-79	1,300		x1.5	10,385	10,385	11.7
80-84	759		x1.5	5,730	5,730	6.4
85-89	465		x1.5	2,283	2,283	2.6
90-94	292		x1.5	771	771	0.9
95-99	116		x1.5	225	225	0.3
100-104	3		x1.5	95	95	0.1
Total	23,433	4,872		74,325	**89,011**	**100.0**

Source: Actual numbers based on MN pension funds data.

Figure 3: Age distribution and number of former MN Ratings – based on deferred and pensioner members



This would mean 61% of the total would be aged 65 and over, indicating a peak in the 70-74 age group (apart from the slight bump in the 20-29 age groups). The total is a little over 24,000 more than the officer total.

As with the estimate of former MN officer numbers, these figures are sensitive to the assumptions upon which they are based.

4.3.3 Officers and ratings

Combining the tables for former officers and ratings, indicates that there are an estimated 63,220 former MN seafarers under 65, and 90,770 aged 65 and over – a total of just below 154,000 in 2014 (Table 5). This compares with Baster's estimate for 2005 of a combined total of 123,640 former MN seafarers, mainly due to higher estimated numbers of former ratings in the current figures. Within these figures, no account has been taken of the length of service. For some ex-seafarers this may be very minimal and preclude them meeting the eligibility criteria of most maritime charities.

Table 5 – Estimated numbers of former MN Officers and Ratings

Age	Estimated numbers of former MN officers	Estimated numbers of former MN ratings	Total estimated numbers
16-19	-	240	240
20-24	30	1,410	1,450
25-29	250	1,320	1,570
30-34	650	970	1,630
35-39	670	930	1,600
40-44	1,090	970	2,050
45-49	2,060	3,320	5,380
50-54	4,070	5,530	9,590
55-59	7,510	7,510	15,020
60-64	12,350	12,350	24,700
65-69	11,250	16,880	28,130
70-74	12,070	18,100	30,170
75-79	6,920	10,390	17,310
80-84	3,820	5,730	9,550
85-89	1,520	2,280	3,810
90-94	510	770	1,290
95-99	150	230	380
100-104	60	100	160
Total	**64,990**	**89,010**	**154,000**

The Deloitte and Oxford Economics study estimated that there were 13,990 former MN seafarers of working age in 2010 in maritime related employment. It did not estimate a total figure for former MN seafarers of working age.

4.4 Projected MN Numbers

Both the DfT and Deloitte and Oxford Economics provided some projections of future numbers of MN seafarers.

As part of their independent review of the economic requirement for trained seafarers in the UK, Deloitte and Oxford Economics completed a projection of UK seafarer numbers from 2010 to 2021 – both active at sea and in other employment.

Their estimates assume that:

- For UK officers, outflow from the shipping workforce is 6% per annum up to the age of 61, with an outflow of 34% from 62 to 70 and an assumed cut off at that point.
- For UK ratings, outflow from the shipping workforce is 6.75% per annum to age 61, with an outflow of 26% from 62 to 70 and assumed cut off at that point.

The report assumed the number of officer cadets would remain steady in the future at 800 per annum, with a drop-out rate of 8% per annum during the four year training period. A small number of other new officers will transfer from being a rating.

The projected total number of UK MN seafarers 'active at sea' from 2010 to 2021 is set out in Table 6 using the Deloitte/Oxford Economics estimates. Their calculation of numbers active at sea is based on a scaled up version of DfT figures, and are therefore higher than those for 2010 to 2013 in Table 1, and potentially an overestimate. However, they anticipate that their estimates and those of the DfT will converge over time due to changes in recording. Deloitte/Oxford Economics' data indicate a steady fall in total numbers of active MN seafarers over the next 10 years, while the numbers of ex-seafarers in maritime related employment is projected to increase.

Table 6: Projected numbers of UK MN seafarers active at sea and ex-seafarers in maritime related employment

Year	Number active at sea	Number in maritime related employment of ex-seafarers
2010	32,730	13,990
2011	32,090	14,090
2012	31,490	14,050
2013	30,830	14,040
2014	30,290	14,060
2015	29,810	14,120
2016	29,390	14,180
2017	29,010	14,250
2018	28,660	14,330

Year	Number active at sea	Number in maritime related employment of ex-seafarers
2019	28,330	14,420
2020	28,040	14,500
2021	27,770	14,590

Source: Deloitte/Oxford Economics

The Department of Transport has made projections for future numbers of Certificated Officers which assume retirement at 62 or 65 (Table 7 and Figure 4). Assuming a retirement age of 62, total numbers will decline from 12,240 in 2011 to 8,490 in 2031; while a retirement age of 65 leads to a projected decline to 8,590 in 2031.

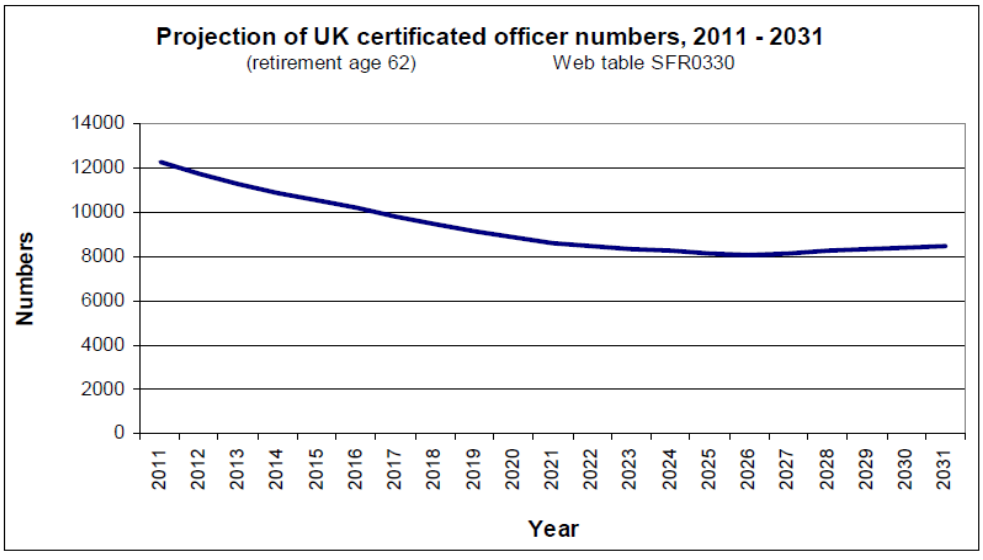
Table 7: DfT projected numbers of Certificated Officers from 2011 to 2031

Year	Numbers (assuming retirement at 62)	Numbers (assuming retirement at 65)
2011*	12,240	13,190
2016	10,170	10,950
2021	8,630	9,250
2026	8,100	8,420
2031	8,490	8,590

Source: DfT SFR 0310

* Figure for 2011 based on different DfT source table from Table 1.

Figure 4: DfT projected numbers of Certificated Officers from 2011 to 2031 assuming retirement at 62



The DfT emphasise that they anticipate the reduction in numbers will "bottom out" around 2026, after a decline of around 29%. This is based on the large number of officers aged over 50 who will retire over that time. Whilst there are no projections for uncertificated officers or ratings, it is not unreasonable to expect that there will be a similar decline. If certificated officers remain a little under half of the total number of serving MN personnel, then it is not unreasonable to expect that the total numbers of UK MN seafarers employed would be around 20,000 by 2031.

More recently, the DfT has stopped producing projections of numbers of MN seafarers, with a greater focus on shipping instead.

To estimate projected serving seafarer numbers from 2013 to 2050 involves looking at existing numbers, and annual inflow and outflow figures. In terms of inflow, the figure of 800 new cadets per year is used in the Deloitte report. For ratings, analysis of the ratio between serving officers and cadets to ratings in the last 4 years, indicates an average of 60:40 (officers and cadets to ratings or 800:533). An inflow of ratings has therefore been assumed in similar proportions, spread evenly over age ranges 18-22. Any changes in recruitment numbers in the future would affect the inflow, serving and outflow numbers.

The outflow rates used in the Deloitte report have been adjusted to estimate a combined officer and rating figure, the numbers have then been applied to generate projected numbers active at sea between 2021 and 2050 in Table 8 below. To generate a projected age distribution for serving MN seafarers in 2021, the current age distribution (Table 2) was applied to the total figure projected for numbers active at sea in 2021 (Table 6). From 2021 forwards, the age distribution has been estimated following the assumptions about outflow made in the Deloitte/Oxford Economic report: between age 16 and 19 outflow is assumed to be 8% per annum; while between age 20 and 61, it is assumed outflow is at 6.25% per annum, rising to 30% per annum from then until 70 when there is a cut off. These rates are also similar to those used by Baster, although she assumed a wastage rate of 1% after age 50 which seems unlikely – Nautilus found most officers consider retiring between ages 55 and 64[45].

The projected numbers of serving MN are presented in Table 8 below and totals in Figure 5.

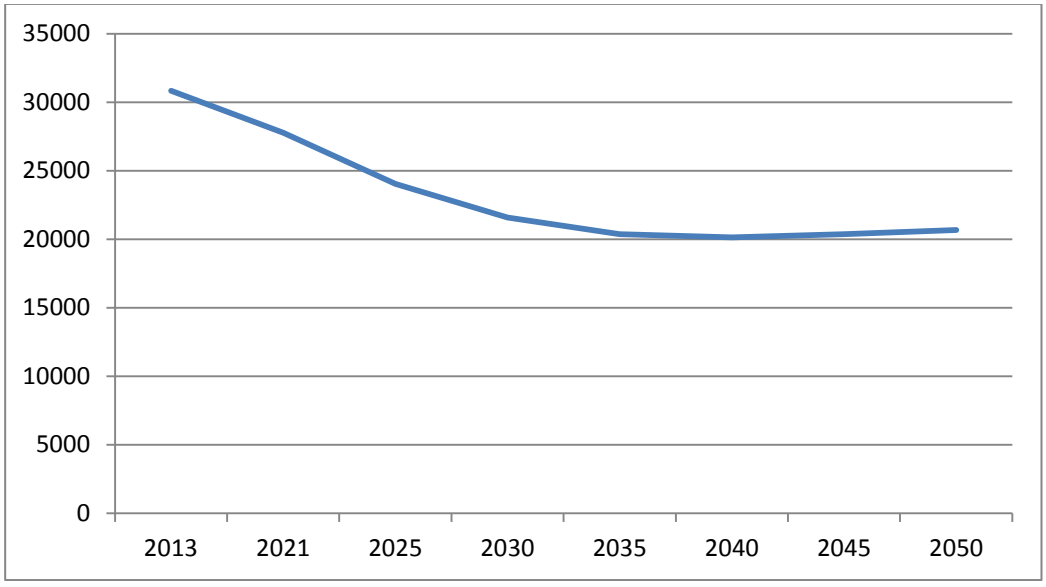
[45] Nautilus (2014) op cit.

Table 8: Projected numbers by age group of serving MN based on Deloitte's model up to age 69

	2013[46]	2021[47]	2025	2030	2035	2040	2045	2050
16-20	310	280	2,740	2,840	2,840	2,840	2,840	2,840
21-25	2,830	2,550	3,010	5,160	5,240	5,240	5,240	5,240
26-30	3,720	3,350	2,190	2,430	3,990	4,050	4,050	4,050
31-35	3,170	2,850	2,510	1,580	1,760	2,890	2,930	2,930
36-40	2,410	2,170	2,100	1,820	1,150	1,280	2,090	2,120
41-45	2,460	2,210	1,680	1,520	1,320	830	920	1,520
46-50	3,110	2,800	1,800	1,220	1,100	950	600	670
51-55	4,360	3,930	2,340	1,310	880	800	690	440
56-60	4,490	4,040	3,050	1,690	950	640	580	500
61-64	2,480	2,230	2,060	1,450	750	430	310	290
65-69	1,500	1,350	570	570	400	210	120	80
Total	30,830	27,770	24,040	21,590	20,370	20,142	20,358	20,670

By comparison, Baster (2007) projected fewer than 20,000 serving MN in 2015.

Figure 5: Projected numbers of serving MN based on Deloitte's model up to age 69



[46] Estimate based on Deloitte/Oxford Economics projections – see Table 6 above.
[47] Current age distribution (Table 2) has been applied to the total figure projected for numbers active at sea in 2021 (Table 6) to generate a projected age distribution for serving MN seafarers in 2021.

The projection indicates a step change in numbers in the 16-20 age bracket due to the assumption that the inflow of an estimated 800 cadets a year is spread equally over the ages of 16-19; and the inflow of an estimated 533 new ratings a year is spread over ages 18-22. This also generates high numbers in the 21 to 25 age bracket from 2030 onwards. Correspondingly the proportion of older serving MN is projected to drop significantly. Spreading the age distribution of the inflow differently would affect these figures. Equally changes in recruitment and retention policies would affect these figures.

The approach indicates a steady fall in numbers from 2013 forwards, with a slight increase projected in the 2040s. Given the significant effect of the tonnage tax on numbers of MN seafarers, it is possible that another policy or tax change at some point in the future could have an equally significant influence on the number of UK MN seafarers in either an upwards or downwards direction.

4.5 Former MN both under and over 65

To estimate the numbers of former MN personnel by age over time, we have used the estimates in Tables 3 and 4 for the age distribution of former MN seafarers, and added the outflow from serving MN (using Deloitte's age specific rates), and then applied the age specific mortality rates. Mortality rates are assumed to be the same as standard mortality rates, provided by ONS. MNOPF actuarial data indicate that officers' life expectancy has improved significantly and has more or less caught up with that of the general population. The ratings pension fund was only open to new members between 1978 and 2001 and therefore does not provide a suitable data set. In this way, it is possible to project forward estimates for the numbers of former MN personnel across all ages (Table 9).

The majority of Merchant Navy officers, either in retirement now, or shortly due to retire, will have adequate pension provision. Many officers are now employed on short-term contracts which make joining a pension scheme very difficult. Some serving on foreign flag vessels, appointed through an overseas manning agent, will also not be paying NICs. The individual needs of these people and of many former ratings will almost certainly be considerable.

The current numbers of former MN appear to be highest in the 70-74 age group, with 3.6% of the former MN population aged 85 and over, higher than the proportion in the general population (2%).

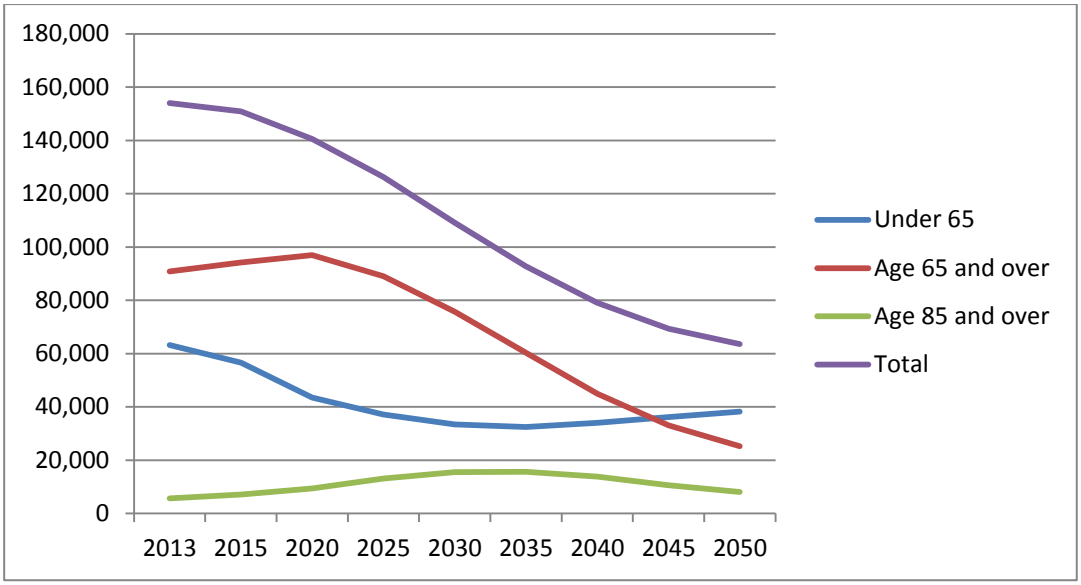
Table 9 indicates that by 2050, the total number of former MN seafarers is projected to be about two-fifths of current estimated levels in 2013. The total number of former MN seafarers is projected to decline continuously between now and 2050.

The number aged 65 and over is projected to continue rising from 2013 to a peak in 2020, before falling quite steeply; while the number of former MN seafarers aged 85 and above, although a small proportion of the total, is projected to continue rising until 2030 before it starts to decline (Figure 6). Between 2013 and 2030, the number of former seafarers aged 85 and over is projected to increase by more than 275%. Many in this group are likely to need high levels of care and support.

Table 9: Projected distribution of former MN seafarers – 2013 – 2050

	2013	2015	2020	2025	2030	2035	2040	2045	2050
Under 20	240	150	40	250	250	250	250	250	250
20-24	1,450	1,250	590	740	1,790	1,790	1,790	1,790	1,790
25-29	1,570	1,950	2,250	1,400	1,780	3,350	3,350	3,350	3,350
30-34	1,630	2,020	3,030	3,230	2,010	2,570	4,520	4,520	4,520
35-39	1,600	1,930	2,900	3,860	3,920	2,440	3,140	5,360	5,360
40-44	2,050	2,170	2,670	3,510	4,430	4,400	2,750	3,530	5,930
45-49	5,380	4,390	2,990	3,300	3,940	4,820	4,730	2,950	3,800
50-54	9,590	8,340	5,430	3,760	3,710	4,200	5,060	4,920	3,070
55-59	15,020	13,250	9,480	6,440	4,250	3,950	4,340	5,160	4,990
60-64	24,700	21,170	14,180	10,700	7,300	4,660	4,130	4,400	5,180
65-69	28,130	27,040	22,510	15,370	12,050	8,260	5,110	4,300	4,430
70-74	30,170	28,250	25,630	21,410	14,220	11,250	7,720	4,750	3,960
75-79	17,310	20,800	23,770	21,580	17,980	11,930	9,450	6,480	4,000
80-84	9,550	11,070	15,610	17,620	16,000	13,240	8,790	6,980	4,780
85-89	3,810	4,740	6,450	9,120	10,000	9,090	7,390	4,920	3,920
90-94	1,290	1,640	2,040	2,780	3,930	4,310	3,920	3,180	2,120
95-99	380	528	710	880	1,200	1,690	1,860	1,690	1,370
100-104	160	176	230	300	380	520	730	800	730
Total aged 65+	90,770	94,230	96,940	89,060	75,750	60,290	44,970	33,100	25,310
Total age 85+	5,620	7,080	9,430	13,080	15,500	15,610	13,890	10,590	8,130
Total	154,000	150,850	140,500	126,250	109,120	92,740	79,010	69,320	63,540

Figure 6: Projected numbers of former MN in different age groups 2013-2050



Baster's report projected a lower total number of former MN in 2015, but also predicted a continuous decline in overall numbers with the population aged 62 and over peaking in 2018. Baster's study did not attempt to estimate the numbers of former MN in the oldest age groups.

4.6 Superyachts

Whilst there have always been some UK nationals employed as crew in the "large yacht sector", the number of these vessels has increased greatly in recent years. It is believed that a high proportion of these personnel come from the UK or Commonwealth, but there are few statistics available. Globally there are an estimated 33,000 crew employed on yachts, of whom 2.9% are employed in the UK sector although it is unclear if these are UK nationals[48]. The Superyacht Intelligence Agency defines a superyacht as being 30 metres (98 feet) or more. The superyacht fleet has grown consistently over time from just over 1,000 in 1985 to an estimated 4,800 in 2014. Whilst the rapid growth that the fleet encountered in the last decade is not expected to continue, there is no question that the fleet will continue to grow. The requirements of the Maritime Labour Convention and Standards of Training, Certification and Watch-keeping (STCW) are likely to have a growing influence on the sector.

An estimated 2,000 young people enter a year, but turnover is high with many working for one to three years, especially in the case of crew such as housekeepers, chefs, stewards, etc. Although they must be considered part

[48] Economic Analysis of the Superyacht Industry (2012) SuperyachtIntelligence.com and personal communication with Lars Lippuner – Warsash Superyacht Academy.

of the MN, their short length of service means that many are unlikely to be eligible for support from many maritime charities. Because of the nature of this sector many will serve at sea for several years, but almost certainly few will have any pension provision.

4.7 Merchant Navy Dependants

The number of MN dependants has been estimated based on national household data and pensions data. There are some data available from pension funds and grant giving organisations.

The MN Ratings Pension Fund reports 2,073 pensioner members who are widow(er)s or dependants and 45 deferred members in the widow(er)s or dependant category. The MN Officers Pension Fund reports 6,605 pensioner members who are widow(er)s or dependants. These numbers are in addition to the figures for former MN pensioners reported in section 4.3 which excluded widow(ers) or dependants. In recent years, the number of widows and widowers had declined steadily reflecting wider, national trends in the decline of marriage, while numbers of partnerships are unlikely to have changed.

Between 2008 and 2013, more than 60% of grants on the MNWB database were to people age 60 and over, and just over a quarter of this 60% have been to adult dependants. Their figures demonstrate that there has been a significant reduction in numbers of regular grants to older beneficiaries of around 20% over the five year period. The number of children supported has remained largely unchanged.

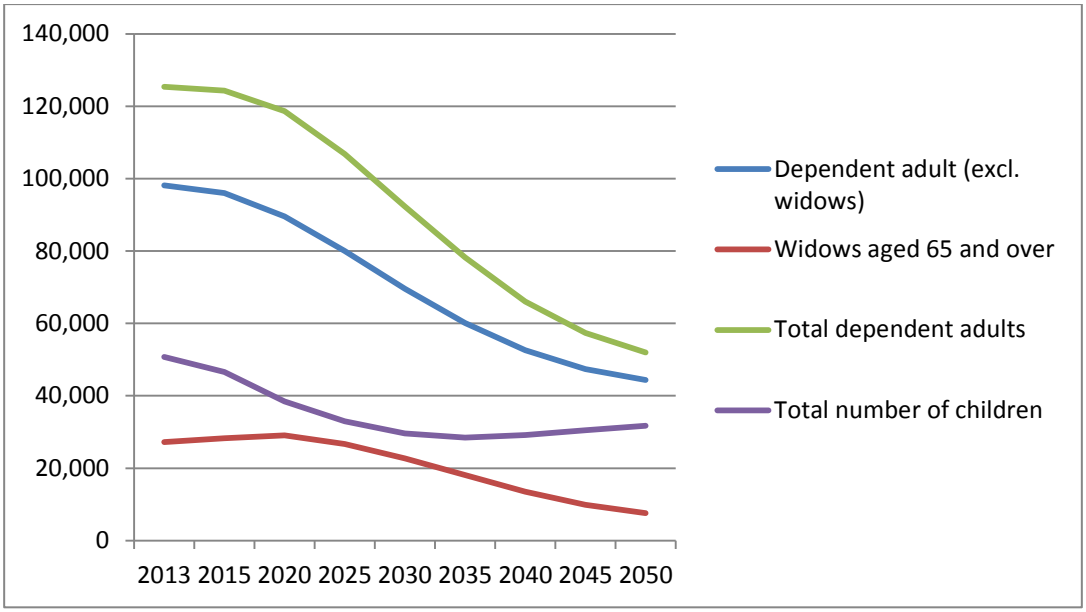
To estimate the family composition of MN seafarers, both serving and former, data have been applied from the Office of National Statistics on household composition and pension data. Where the ONS provides a rate for households with 3 or more children, it has been assumed there are three children in the household[49]. The figures will therefore underestimate the total number of children. Based on MN pensions data and similar figures for the RN, it has been assumed that about 30% of applicants are widowed partners of MN personnel. The numbers of widows aged 65 and over in the projections has been assumed to be 30% of the number of former MN aged 65 and over.

Table 10 and Figure 7 below provide estimates of the numbers of dependants for serving and former MN personnel, based on national household and pension data. Where it is assumed that MN family composition will correspond with the general population, this may not necessarily be the case. However, it provides a guide to the approximate numbers.

[49] ONS indicates that 15.2% of households have 1 dependent child, 12.6% have two dependent children, and 4.5% have three or more dependent children.

The table indicates that the overall number of dependent adults is expected to decline steadily over the coming decades to less than half the current figure; while the number of dependent children is projected to decline up to 2035 before starting to increase gradually.

Figure 7: Projected number of dependants of serving and former MN personnel 2013-2050



Baster projected the number of dependent adults in 2015 at 71,530 – more than 50,000 lower than the current calculations and a much lower number of children: 22,350 compared with over 46,500 in 2015 in the current projections. This is likely to be due to the lower numbers of former MN in Baster's report.

Table 10: Projected number of dependants of MN personnel

Dependants	%	2013	2015	2020	2025	2030	2035	2040	2045	2050
Serving MN										
Dependent adults	52.2	16,090	15,560	14,500	12,550	11,270	10,630	10,510	10,630	10,790
Children	53.9	16,620	16,070	14,970	12,960	11,640	10,980	10,860	10,970	11,140
Former MN under 65										
Dependent adults	52.2	33,000	29,560	22,740	19,410	17,420	16,940	17,770	18,910	19,960
Children	53.9	34,080	30,520	23,480	20,040	17,990	17,490	18,350	19,530	20,610
Former MN aged 65+										
Dependent adults	54.0	49,020	50,880	52,350	48,090	40,900	32,560	24,280	17,870	13,670
Widows aged 65+	30.0	27,230	28,270	29,080	26,720	22,730	18,090	13,490	9,930	7,590
All MN										
Dependent adults (excl. widows)		98,110	96,000	89,580	80,050	69,590	60,130	52,570	47,410	44,410
Widows aged 65+		27,230	28,270	29,080	26,720	22,730	18,090	13,490	9,930	7,590
Total dependent adults		125,340	124,270	118,660	106,770	92,320	78,220	66,060	57,340	52,000
Total number of children		50,700	46,590	38,450	33,000	29,620	28,470	29,210	30,500	31,750

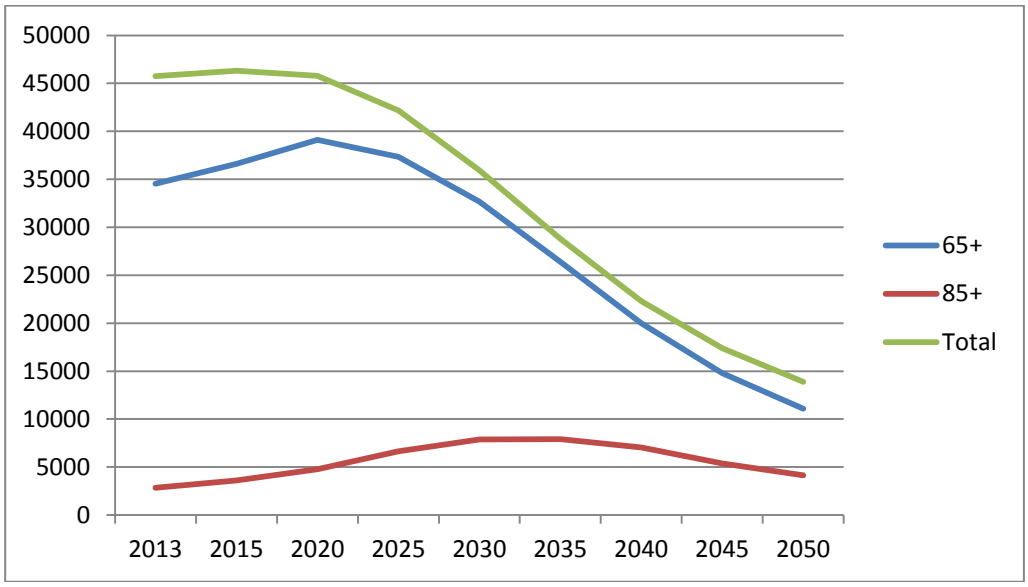
Note: Dependent adults is based on households with one dependent adult

4.8 MN limiting long-standing illness and limitations with Activities of Daily Living

Projections for the numbers of former MN personnel with a limiting long-standing illness were estimated by applying the percentages at different ages reported in the English Longitudinal Study of Ageing (Wave 5) data from 2010/11 to the projected distribution shown at Table 9 (Table 11 and Figure 8). The percentages used are those reported for men, as the majority of former MN seafarers in the higher age groups are men. This is likely to be an under-estimate as a higher proportion of women report limiting long-standing illness – across all age groups – and more than 20% of serving MN ratings are female.

The figures indicate that there were over 34,500 former MN seafarers aged 65 and over with a limiting long-standing illness in 2013, projected to rise to over 39,100 in 2020, before falling steeply to a little over 11,000 by 2050. The numbers aged 85 and over with a long-standing limiting illness are projected to continue rising until 2035 before declining more gradually up to 2050.

Figure 8: Projected numbers of former MN aged 55+ with limiting long-standing illness



Projections for the number of former MN seafarers with one or more limitations with an Activity of Daily Living[50] were estimated in the same way by applying the percentages at different ages reported in the English

[50] Activities of Daily Living are defined as routine activities that people tend do every day without needing assistance. There are six basic ADLs: eating, bathing, dressing, toileting, transferring (walking) and continence.

Longitudinal Study of Ageing (Wave 5) data from 2010/11 to the projections in Table 9 (Table 12 and Figure 9).

The numbers of former MN personnel aged 65 and over experiencing limitations with Activities of Daily Living are currently estimated at over 20,500. Total numbers are projected to peak in 2020 before declining steeply to less than 8,500 in 2050. However, the number aged 85 and above experiencing limitations with Activities of Daily Living is projected to continue rising until 2035 before declining steadily to 2050.

Figure 9: Projected numbers of former MN aged 55+ experiencing limitations with Activities of Daily Living

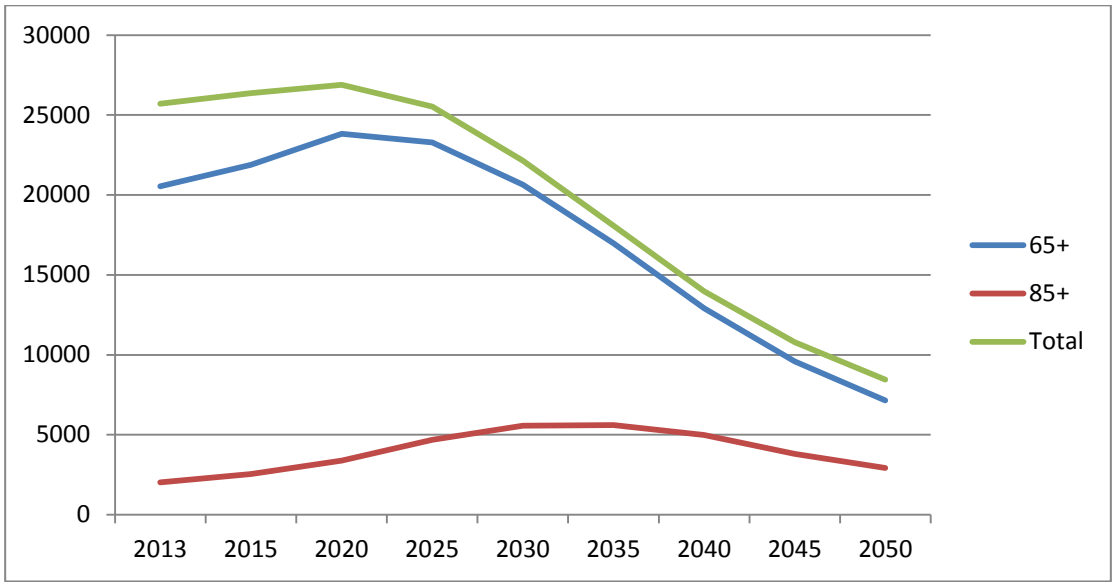


Table 11: Projected numbers of former MN personnel with limiting long-standing illness by age

Age group	Prevalence rate	2013	2015	2020	2025	2030	2035	2040	2045	2050
55-59	24.3%	3,650	3,220	2,300	1,560	1,030	960	1,050	1,250	1,210
60-64	30.6%	7,560	6,480	4,340	3,270	2,230	1,430	1,260	1,350	1,580
65-69	31.4%	8,830	8,490	7,070	4,830	3,780	2,590	1,600	1,350	1,390
70-74	34.0%	10,260	9,600	8,710	7,280	4,830	3,830	2,620	1,620	1,350
75-79	44.7%	7,740	9,300	10,630	9,650	8,040	5,330	4,230	2,900	1,790
80-84	50.8%	4,850	5,620	7,930	8,950	8,130	6,730	4,470	3,550	2,430
85+	50.8%	2,860	3,600	4,790	6,650	7,880	7,930	7,060	5,380	4,130
Total		45,740	46,310	45,770	42,190	35,920	28,790	22,300	17,390	13,880

Prevalence rates based on ELSA Wave 5

Table 12: Projected numbers with one or more limitation with an Activity of Daily Living by age

Age group	Prevalence rate	2013	2015	2020	2025	2030	2035	2040	2045	2050
55-59	11.4%	1,710	1,510	1,080	730	490	450	490	590	570
60-64	14.1%	3,460	2,960	1,990	1,500	1,020	650	580	620	730
65-69	16.0%	4,500	4,330	3,600	2,460	1,930	1,320	820	690	710
70-74	21.0%	6,340	5,930	5,380	4,500	2,990	2,360	1,620	1,000	830
75-79	24.6%	4,260	5,120	5,850	5,310	4,420	2,940	2,330	1,600	990
80-84	35.9%	3,430	3,970	5,600	6,330	5,750	4,750	3,160	2,510	1,720
85+	35.9%	2,020	2,540	3,380	4,700	5,570	5,600	4,990	3,800	2,920
Total		25,710	26,360	26,890	25,520	22,150	18,080	13,980	10,790	8,450

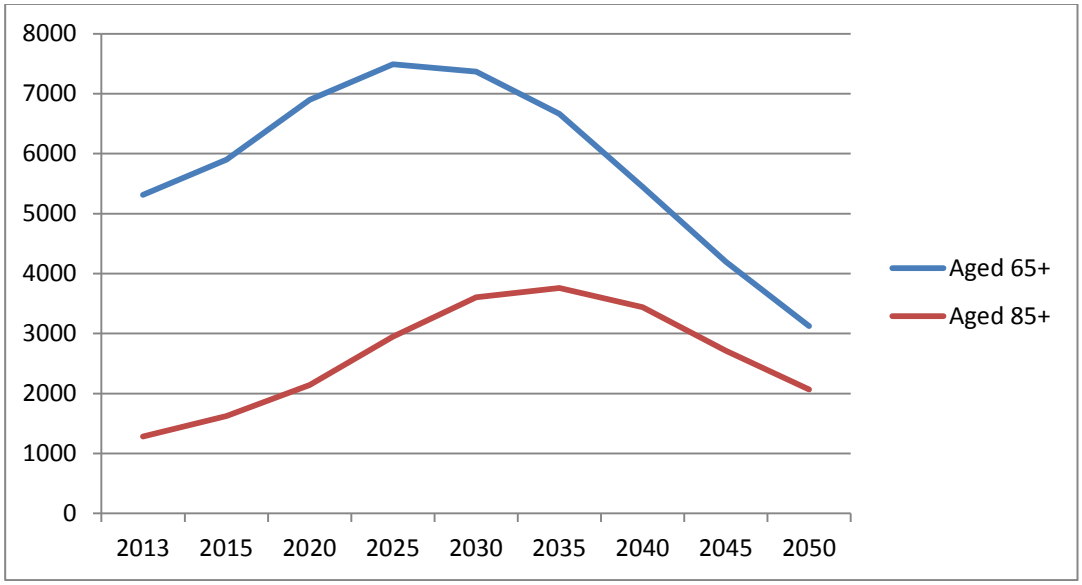
Prevalence rates based on ELSA Wave 5

4.9 Dementia

Projected numbers of former MN seafarers with dementia were estimated by applying the age-specific rates from the European Community Concerted Action on the Epidemiology and Prevention of Dementia (EURODEM) study[51]. The rates for men have been used.

There are an estimated 5,300 former MN seafarers with dementia at present. The total number is projected to peak in 2025 at nearly 7,500 (nearly 40% above the current level), before falling to 3,100 in 2050 (Table 13 & Figure 10), while the number of former MN seafarers with dementia aged 85 and over is projected to peak in 2035 at 3,700 before falling to less than 2,100 in 2050, reflecting the passage of the cohort through time.

Figure 9: Projected numbers of former MN with dementia aged 65+



[51] Op.cit.

Table 13: Projected numbers of former MN seafarers with dementia

Age group	Prevalence rate	2013	2015	2020	2025	2030	2035	2040	2045	2050
65-69	2.17%	610	590	490	330	260	180	110	90	100
70-74	4.61%	1,390	1,300	1,180	990	660	520	360	220	180
75-79	5.04%	870	1,050	1,200	1,090	910	600	480	330	200
80-84	12.12%	1,160	1,340	1,890	2,140	1,940	1,600	1,070	850	580
85-89	18.45%	700	870	1,190	1,680	1,850	1,680	1,360	910	720
90-94	32.1%	410	530	660	890	1,260	1,380	1,260	1,020	680
95+	31.58%	170	220	300	370	500	700	820	790	660
Total		5,310	5,900	6,900	7,490	7,370	6,660	5,450	4,200	3,130

Prevalence rates based on Eurodem study

4.10 Alcohol dependence

The Adult Psychiatric Morbidity survey in 2007 found that 8.7% of males were dependent on alcohol. Applying this rate (which is likely to be low for the MN) to former MN seafarers, indicates that there are about 13,400 with a dependence on alcohol (Table 14 & Figure 11). However, while the actual numbers are likely to be higher (due to the historically higher prevalence of alcohol dependence associated with some groups of seafarers), it is likely that projected numbers in the very highest age groups are over-estimates as people who are dependent on alcohol are likely to die at younger ages. While total numbers are expected to decline steadily from now to 2050, the numbers aged 65 and over are projected to peak at over 8,400 in 2020 before falling to a little more than a quarter of the peak level by 2050, and the numbers below 65 are expected to decline to around 2,800 in 2035, before starting to rise gradually to 3,300 in 2050.

Figure 11: Projected numbers of former MN dependent on alcohol

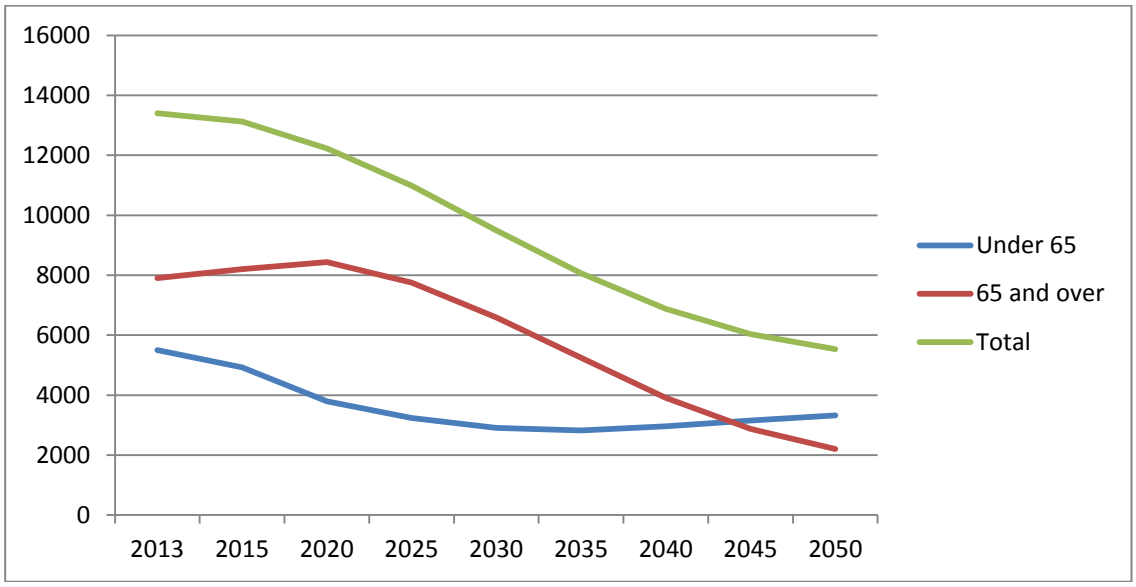


Table 14: Projected numbers of former MN seafarers dependent on alcohol

Age group	Prevalence rate	2013	2015	2020	2025	2030	2035	2040	2045	2050
Under 65	8.7%	5,500	4,920	3,790	3,230	2,900	2,820	2,960	3,150	3,330
65+	8.7%	7,900	8,200	8,430	7,750	6,590	5,250	3,910	2,880	2,200
Total		13,400	13,120	12,220	10,980	9,490	8,070	6,870	6,030	5,530

Prevalence rates based on Adult Psychiatric Morbidity survey, 2007

4.11 Geographical location of beneficiaries

The Merchant Navy Welfare Board provided details of the location of beneficiaries of merchant navy charities' grants between 2008 and 2013. The main post town areas where beneficiaries came from are:

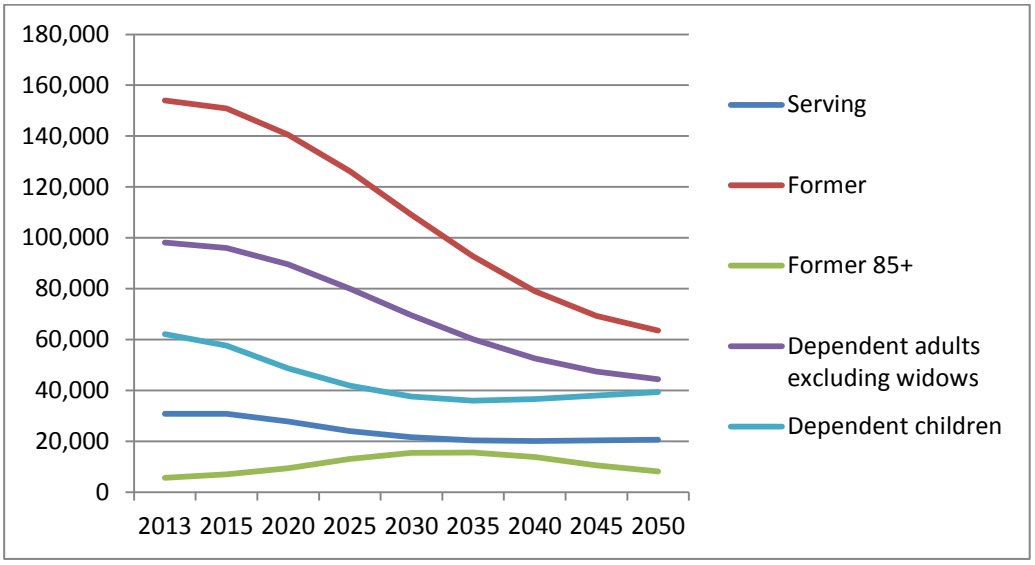
- Hull
- Aberdeen
- Doncaster
- Liverpool
- Newcastle
- Norwich

Followed by smaller but significant numbers from:

- Blackpool
- Plymouth
- Cardiff
- Glasgow
- Chester
- Inverness
- Paisley
- East London
- Belfast
- Torquay
- Truro
- York

However, postcodes will cover wider areas than the post town in the postcode and some beneficiaries may come from other seafaring groups.

4.12 Summary



There were an estimated 30,000 serving MN seafarers in 2014. Overall 60% of serving MN seafarers are aged 40 or above. Numbers of serving MN are projected to continue to decline for some years before stabilising in the 2030s, due to the previous history of decline in the workforce.

Unlike former RN, the numbers of former MN aged 85 and over are projected to continue to grow to a peak in 2035. Between 2013 and 2035, the number of former seafarers aged 85 and over is projected to increase by more than 275%. Many in this group are likely to need high levels of care and support. However, the number of former seafarers aged 65 and over will fall steadily from 2020, reducing by 2050 to 72% of the number in 2013.

The number of MN widows is also projected to increase to 2020, while the number of dependent children is projected to decline until 2035.

There are estimated to be over 63,220 former MN aged under 65 and 90,770 aged 65 and above. The figures for former MN are significantly higher than Baster's projections (154,000 compared with 124,000), largely due to assuming a higher proportion of former MN outside the existing pensions schemes than Baster's model. Following from this, the numbers of children and adult dependants are also higher than Baster's figures.

The fall in membership of the MN and other pension schemes will have implications for future needs, as former MN seafarers are consequently likely to have greater need of financial support in later life. In addition, there has been no discretionary increase in pension payments for some time, and some seafarers will not have accrued much overall due to limited length of service, particularly ratings. Other changes in the wider economy and society, for example, in terms of statutory services and welfare may

contribute to a growing need for care and support among a reduced population.

Section C

5 Fishing Fleet

5.1 Serving FF seafarers

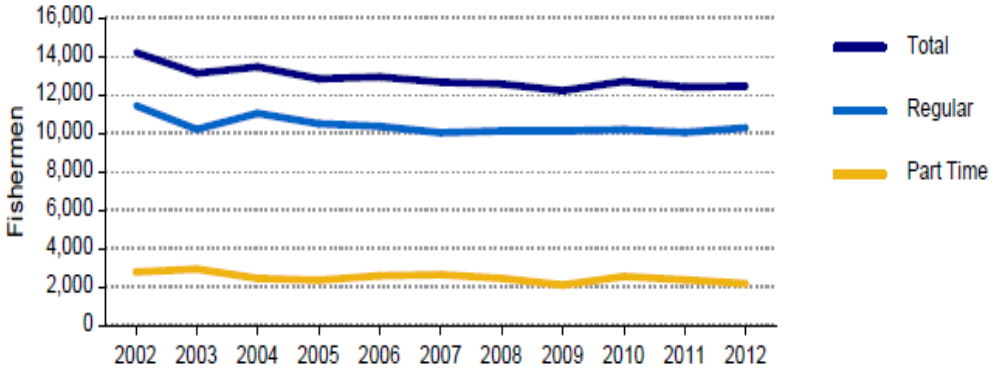
Data on the number of people working in the fishing fleet (FF) are limited. An additional complication is around definitions, as there are many people whose work at sea is occasional and intermittent. Based on their knowledge of the sector, the Fishermen's Mission considers that there are significant numbers of casual and seasonal fishermen that are not captured by the official statistics, for example over 1,100 UK fishermen in Northern Ireland.

According to the Marine Management Organisation, there were around 12,150 fishermen in 2013. Numbers decreased steadily to 12,830 in 2005, since when they have stabilised (Figure 1). Part-time fishermen account for 17 per cent of the total.

The decrease in fishermen numbers was associated with reductions in fleet size, as well as decreased fishing opportunities. However, since 2011 the number of regular fishermen has increased by 2 per cent.

In 2012, the UK fishing industry had 6,406 fishing vessels compared with 7,578 in 2002, a reduction of 15 per cent[52]. However, the number of vessels has also stabilised in recent years.

Figure 1: Number of fishermen on UK registered vessels 2002-2012



Source: MMO, 2013

[52] Radford L (ed) (2013) UK Sea Fisheries Statistics 2012, Marine Management Organisation.

UK fisheries administrations have operated four decommissioning exercises between 2001 and 2009. The decommissioning exercises aimed to withdraw some capacity and effort from UK fisheries to help ensure a sustainable future, and to allow vessel owners to take a business decision on whether to remain in the fishery industry under the terms of fishery management plans.

Statistics on the number of FF seafarers are drawn from surveys carried out by the Marine Management Organisation in England, the Welsh Assembly Government, the Department of Agriculture and Rural Development in Northern Ireland, Marine Scotland and Marine Scotland Science. The number of women in the fishing fleet is understood to be very small.

The MMO provides data on the number of people in the fishing fleet over time (Table 1). The data indicate that the total number has been between 12 and 13,000 for the last decade.

Table 1: Number of UK fishermen: 1938 to 2012

Year	Regular	Part-time	Total
1938	39,380	8,440	47,820
1948	38,830	8,820	47,650
1960	22,010	6,250	28,250
1965	19,600	6,270	25,870
1970	17,480	3,960	21,440
1975	17,060	5,070	22,130
1980	16,800	6,510	23,310
1985	15,960	6,260	22,220
1990	No data		
1995	16,060	3,920	19,990
2000	12,400	3,250	15,650
2001	12,145	2,810	14,960
2002	11,440	2,760	14,210
2003	10,200	2,920	13,120
2004	11,020	2,430	13,450
2005	10,490	2,340	12,830
2006	10360	2,580	12,930
2007	10,310	2,570	12,870

Year	Regular	Part-time	Total
2008	10,030	2,590	12,610
2009	10,130	2,080	12,210
2010	10,170	2,530	12,700
2011	10,040	2,370	12,410
2012	10,280	2,160	12,450

Source: MMO 2013

From 2010, revised guidance was issued to ports in England and Wales on the classification of regular and part-time fishermen leading to improved recording of fishermen numbers.

5.2 Serving FF seafarers age distribution

For the 2007 report for MCFG, Baster was able to obtain an age profile of current fishing fleet workforce from the Marine Management Organisation's predecessor[53]. These data are not collected by the MMO anymore; however a large sample survey of the crew of 13% of the Scottish fleet has provided data on the age distribution of serving FF seafarers[54]. There is limited information about the number of FF seafarers entering or leaving the occupation.

The Scottish survey found a relatively stable workforce, particularly among British crew members and those holding more senior positions. The Scottish survey found that 7.7% of the total FF workforce was from the EU (ie non-UK) and 19.6% from outside the EU. Correspondingly, there are UK FF seafarers working on overseas boats, particularly American and Canadian boats.

In order to project the number of serving FF seafarers and to project future numbers of working FF seafarers and former seafarers, the age distribution of the Scottish survey has been used to calculate the spread of serving UK FF seafarers. This would indicate an age distribution as set out in the table below:

[53] Marine Fisheries Agency, UK Sea Fisheries Statistics 2005.
[54] Marine Analytical Unit (2014) *Scottish Sea Fisheries Employment, 2013*, Marine Scotland Science.

Table 2: Assumed age profile of serving FF seafarers in 2012

Age (yrs)	Total %	Estimated total
Under 21	6	750
21 - 30	23	2860
31 – 40	21	2610
41 – 50	27	3360
51 – 60	18	2240
61+	5	620
Total	**100**	**12,450**

5.3 Former FF seafarers under and over 65

There was no recent information about the number of former FF seafarers either under or over retirement age. In the absence of reliable data, the approach has been to:

- Take the data on historic numbers working as FF (Table 1) and assume a steady rate of change between the years for which numbers are available from 1955 onwards. (Starting in 1955 would cover people starting at 16 in that year who would be 75 in 2014).
- Assume an annual overall wastage rate of 8% (similar to the overall annual rate for MN personnel). Although in reality this will vary between ages, without data on the actual age distribution of former FF seafarers, an overall figure has been used. Age specific wastage rates are used below to project outflows from serving FF seafarers.
- Total the numbers estimated to have left since 1955 to provide an estimate for the overall number of former FF seafarers.

This generates a total number of former FF seafarers of 98,850, considerably higher than the total of 56,120 in Baster's 2007 figure[55] for the former FF seafarer population of whom 27,500 were aged 60 and over. A key input to these figures was an educated guess by the Fishermen's Mission. It is understood that their current view is that the 2007 overall figure was probably low.

While mortality is not reflected in the outlined approach in the absence of age profile information, male life expectancy in the UK was 62 years in 1945. The resulting overestimate in numbers will be offset by those who

[55] Baster (2007)

may nonetheless be over 75 years old but are excluded by the 1955 start date assumption.

The next step is to estimate the age distribution of this overall figure. In the absence of any age data on former FF, the MN age distribution has been applied to the former FF estimate. This generates the following age distribution (see Table 3 below).

Table 3: Age distribution and number of former FF seafarers

Age	Age distribution based on MN figures %	Estimated age distribution of former FF seafarers
Under 20	0.16	150
20-24	0.94	930
25-29	1.02	1,010
30-34	1.06	1,040
35-39	1.04	1,030
40-44	1.33	1,320
45-49	3.49	3,450
50-54	6.23	6,160
55-59	9.75	9,640
60-64	16.04	15,860
65-69	18.27	18,060
70-74	19.59	19,360
75-79	11.24	11,110
80-84	6.20	6,130
85-89	2.47	2,440
90-94	0.83	830
95-99	0.24	240
100-104	0.10	100
Total		98,850

Source: Based on estimated MN age distribution and applied to FF total.

The table indicates that there are an estimated 40,580 former FF seafarers aged below 65; and 58,270 former FF seafarers are aged 65 and over. However, this assumes a similar age profile to that of MN former seafarers.

5.4 Projected serving FF seafarers numbers

Since 2005, the number of working FF seafarers (full and part-time) has fluctuated between 12,000 and 13,000. Due to the lack of information about entry and exit numbers, it is not possible to make a detailed projection of numbers beyond an assumption that numbers seem likely to remain level, having been reasonably steady over the most recent five years for which the data are available.

The Fishermen's Mission considers that the UK fishing industry is now about the right size and is unlikely to change much. According to Seafish, numbers of serving FF have been fairly steady since 2005, although larger vessels often employ foreign personnel. The Fishermen's Mission notes a modest increase in foreign crew since 2007, mainly from the EEA countries, although the industry is trying to reverse this trend. The recent Scottish survey found that more than a quarter of Scottish crews were not British (27%), nearly 20% of the total number of Scottish FF were from non-EU countries.

The Fishermen's Mission expects that numbers of beneficiaries will increase over the next 10 years, and then decline steeply to level out at a more stable population. The Mission supports grandchildren and even great grandchildren, particularly where a death at sea has occurred. The Fishermen's Mission is developing its outreach services and expects that this will give it a better picture of the level of need. The Shipwrecked Mariners Society are currently working with actuaries looking at current numbers of beneficiaries and assumptions about the future. They also anticipate a steady increase in numbers for another 10 to 15 years before numbers start to decline

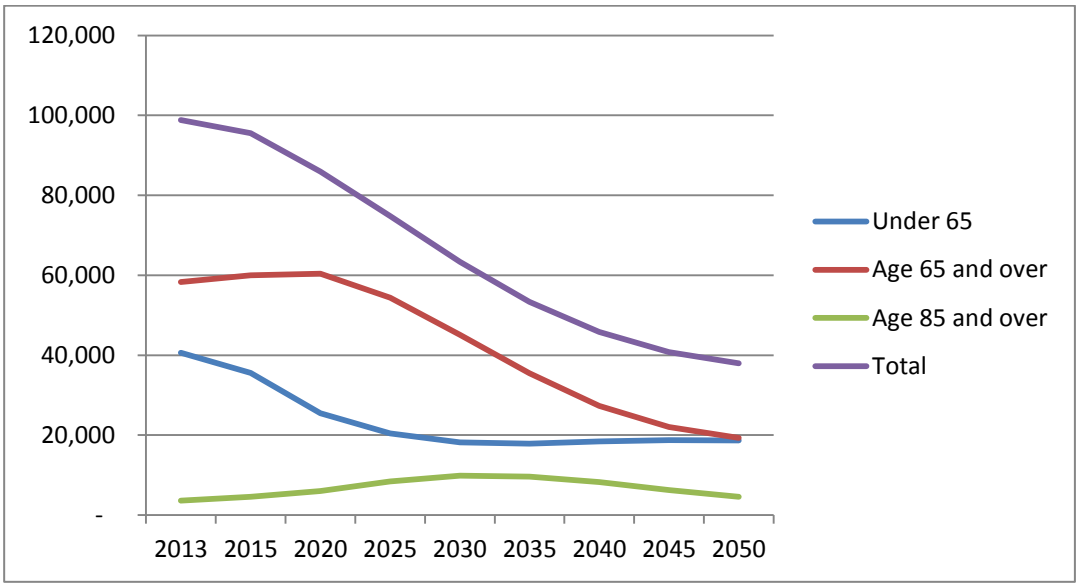
The factor most likely to influence future numbers is the state of the fish stocks in UK waters, fishing quotas and, related to this, the size of the fishing fleet. It is assumed that these will stay at current levels.

5.5 Projected former FF seafarers numbers

The starting point for the estimate of the projected number of former FF seafarers between now and 2050 was the estimated number and age distribution of former FF seafarers. Assuming a similar outflow from the current workforce to that assumed for MN personnel, ie, 6% per annum to age 59, rising to 30% at age 60-63 and the remainder leaving at 64; and applying ONS age specific mortality rates, the projected numbers of former FF seafarers between now and 2050 are provided in Table 4 below. It should be emphasised that a large number of assumptions have been built into this projection. As the FF projections are largely based on assumed similarities with MN in terms of age distribution of former FF seafarers in 2013, and outflows, due to the limited availability of reliable FF seafarer data, it should be noted that the trends are similar to those for the MN.

Figure 2 below indicates that (based on the assumptions outlined above) the number of former FF seafarers is projected to decline steadily over time from nearly 99,000 to just below 38,000.

Figure 2: Projected numbers of former FF seafarers 2013-2050



However, the numbers of former FF seafarers over 65 are projected to continue increasing slightly up to 2020 from a current estimate of 58,300 before declining increasingly steeply in the 2020s to an estimated total of about 19,300 in 2050. The number of former FF seafarers aged 85 and over is expected to increase continuously from an estimate of 3,600 in 2013 to nearly 9,900 in 2030, before starting to decline. This increase in the 85 plus age group is striking and will put significant demands on services for former FF seafarers.

Table 4: Projected age distribution of former FF seafarers – 2013-2050

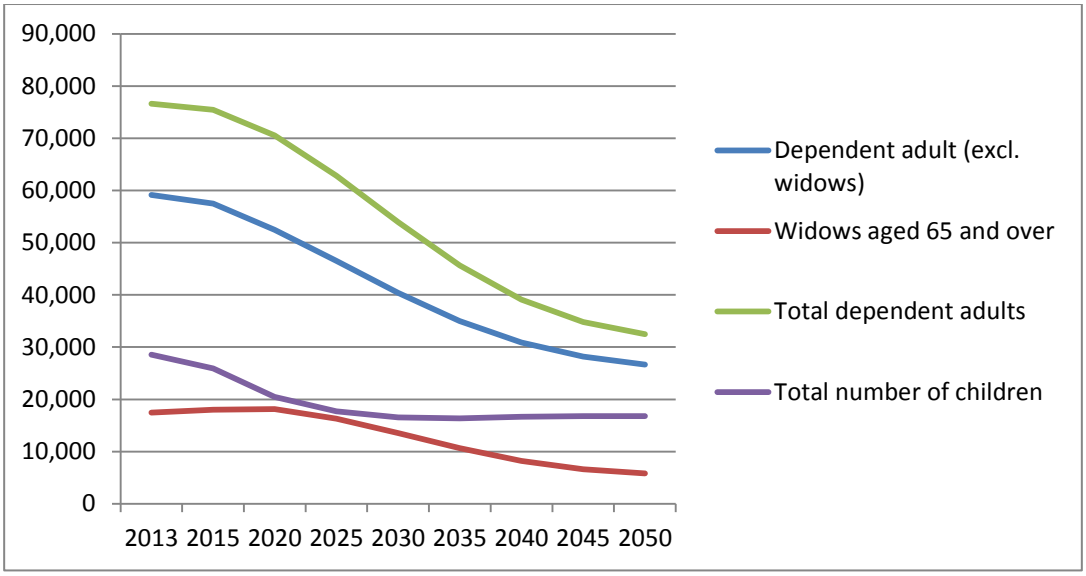
	2013	2015	2020	2025	2030	2035	2040	2045	2050
Under 20	160	120	50	50	50	50	50	50	50
20-24	930	760	390	320	320	320	320	320	320
24-29	1,010	1,150	1,180	810	740	740	740	740	740
30-34	1,040	1,190	1,560	1,600	1,220	1,150	1,150	1,154	1,150
35-39	1,030	1,190	1,580	1,940	1,980	1,610	1,540	1,540	1,540
40-44	1,320	1,380	1,600	1,980	2,350	2,380	2,010	1,940	1,940
45-49	3,450	2,790	1,860	2,070	2,460	2,820	2,850	2,490	2,420
50-54	6,160	5,210	3,200	2,290	2,500	2,880	3,230	3,260	2,900
55-59	9,640	8,280	5,410	3,450	2,560	2,770	3,140	3,490	3,520
60-64	15,860	13,520	8,680	5,920	4,050	3,200	3,400	3,750	4,080
65-69	18,060	17,030	13,890	9,350	6,760	5,000	4,210	4,400	4,730
70-74	19,360	17,960	15,360	12,500	8,420	6,090	4,500	3,800	3,970
75-79	11,110	13,350	15,110	12,930	10,490	7,070	5,110	3,780	3,200
80-84	6,130	7,110	10,020	11,200	9,580	7,720	5,220	3,770	2,790
85-89	2,440	3,040	4,140	5,850	6,340	5,440	4,310	2,930	2,120
90-94	830	1,050	1,310	1,780	2,520	2,730	2,340	1,860	1,260
95-99	240	340	450	570	770	1,090	1,180	1,010	800
100-104	100	110	150	200	240	330	470	510	440
Total age 65+	58,270	59,990	60,430	54,370	45,120	35,470	27,340	22,050	19,310
Total age 85+	3,610	4,550	6,050	8,400	9,880	9,590	8,300	6,300	4,610
Total	98,850	95,570	85,920	74,800	63,350	53,380	45,780	40,790	37,980

5.6 Fishing Fleet Dependants

To estimate the family composition of FF seafarers, both serving and former, we have applied data from the Office of National Statistics on household composition. Where the ONS provides a rate for households with 3 or more children, it has been assumed there are three children in the household[56]. The figures will therefore underestimate the total number of children. We have estimated the numbers of widows aged 65 and over using the same assumptions made for RN and MN widows based on pension data where 30% of pension applicants are widowed partners of personnel. The numbers of widows aged 65 and over in the projections has been assumed to be 30% of the number of former FF seafarers aged 65 and over

Table 5 and Figure 3 below provide estimates of the numbers of dependants for serving and former FF seafarers. Where it is assumed that FF family composition will correspond with the general population, this may not necessarily be the case. It is assumed that serving FF seafarer numbers remain constant between now and 2050. In recent years, the number of widows and widowers has declined steadily reflecting wider trends in the decline of marriage, while numbers of partnerships are unlikely to have changed. The table provides a guide to the approximate numbers.

Figure 3: Projected number of dependants of serving and former FF seafarers 2013-2050



The table indicates that the overall number of dependent adults is expected to decline steadily from just over 59,000 in 2013 to less than 27,000, while

[56] ONS indicates that 15.2% of households have 1 dependent child, 12.6% have two dependent children, and 4.5% have three or more dependent children.

numbers of dependent children are projected to decline until 2035 before rising gradually to 2050.

Table 5: Projected number of dependants of FF seafarers

Dependants	%	2013	2015	2020	2025	2030	2035	2040	2045	2050
Serving FF										
Dependent adults	52.2	6,500	6,500	6,500	6,500	6,500	6,500	6,500	6,500	6,500
Children	53.9	6,710	6,710	6,710	6,710	6,710	6,710	6,710	6,710	6,710
Former FF under 65										
Dependent adults	52.2	21,180	18,570	13,310	10,670	9,510	9,350	9,620	9,780	9,750
Children	53.9	21,870	19,180	13,740	11,010	9,820	9,660	9,940	10,100	10,060
Former FF aged 65+										
Dependent adults	54.0	31,470	32,400	32,630	29,360	24,370	19,150	14,770	11,910	10,430
Widows aged 65+	30.0	17,480	18,000	18,130	16,310	13,540	10,640	8,200	6,620	5,790
All FF										
Dependent adults (excl. widows)		59,150	57,470	52,440	46,520	40,380	35,000	30,890	28,190	26,670
Widows aged 65+		17,480	18,000	18,130	16,310	13,540	10,640	8,200	6,620	5,790
Total dependent adults		76,630	75,470	70,570	62,830	53,920	45,640	39,090	34,810	32,460
Total number of children		28,580	25,890	20,450	17,720	16,530	16,370	16,650	16,810	16,770

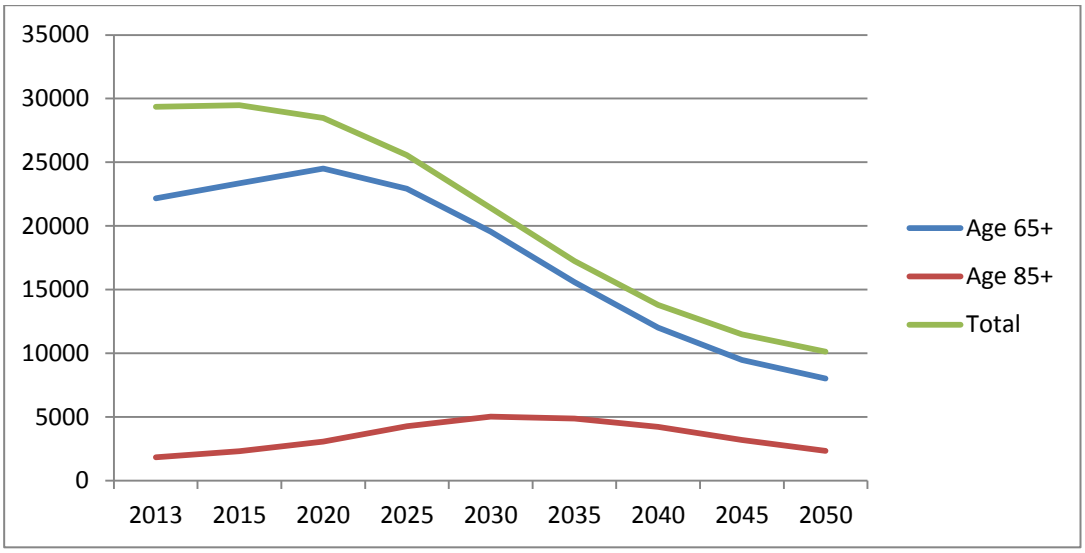
Note: Dependent adults is based on households with one dependent adult

5.7 FF seafarers limiting long-standing illness and limitations with Activities of Daily Living

Projections for the numbers of former FF seafarers with a limiting long-standing illness were estimated by applying the percentages at different ages reported in the English Longitudinal Study of Ageing (Wave 5) data from 2010/11 to the projection distribution in Table 4 (Table 6 and Figure 4). The percentages used are those reported for men, as the great majority of former FF seafarers are men.

The figures indicate that there were over 22,100 estimated former FF seafarers aged 65 and over with a limiting long-standing illness in 2013, rising to 24,500 in 2020, before falling to just over 8,000 by 2050. Numbers aged 85 and over with a limiting long-standing illness are projected to increase from 1,800 in 2013 to 5,000 in 2030 before falling steadily to around 2,300 in 2050.

Figure 4: Projected numbers of former FF seafarers aged 55+ with limiting long-standing illness



Projections for the number of former FF seafarers with one or more limitations with an Activity of Daily Living were estimated in the same way by applying the percentages at different ages reported in the English Longitudinal Study of Ageing (Wave 5) data from 2010/11 to the projected numbers of former FF seafarers (Table 7 and Figure 5).

The number of former FF seafarers experiencing limitations with Activities of Daily Living is currently estimated at over 29,000. Total numbers are projected to increase slightly to a peak in 2015, before falling more rapidly to over 10,000 in 2050.

Table 6: Projected numbers of former FF seafarers with limiting long-standing illness by age

Age gp	Prevalence rate	2013	2015	2020	2025	2030	2035	2040	2045	2050
55-59	24.3%	2,340	2,010	1,310	840	620	670	760	850	860
60-64	30.6%	4,850	4,140	2,660	1,810	1,240	980	1,040	1,150	1,250
65-69	31.4%	5,670	5,350	4,360	2,940	2,120	1,570	1,320	1,380	1,490
70-74	34.0%	6,580	6,110	5,220	4,250	2,860	2,070	1,530	1,290	1,350
75-79	44.7%	4,970	5,970	6,760	5,780	4,690	3,160	2,290	1,690	1,430
80-84	50.8%	3,110	3,610	5,090	5,690	4,870	3,920	2,650	1,920	1,420
85+	50.8%	1,830	2,310	3,070	4,270	5,020	4,870	4,220	3,200	2,340
Total		29,360	29,490	28,470	25,570	21,420	17,250	13,810	11,480	10,130

Prevalence rates based on ELSA Wave 5

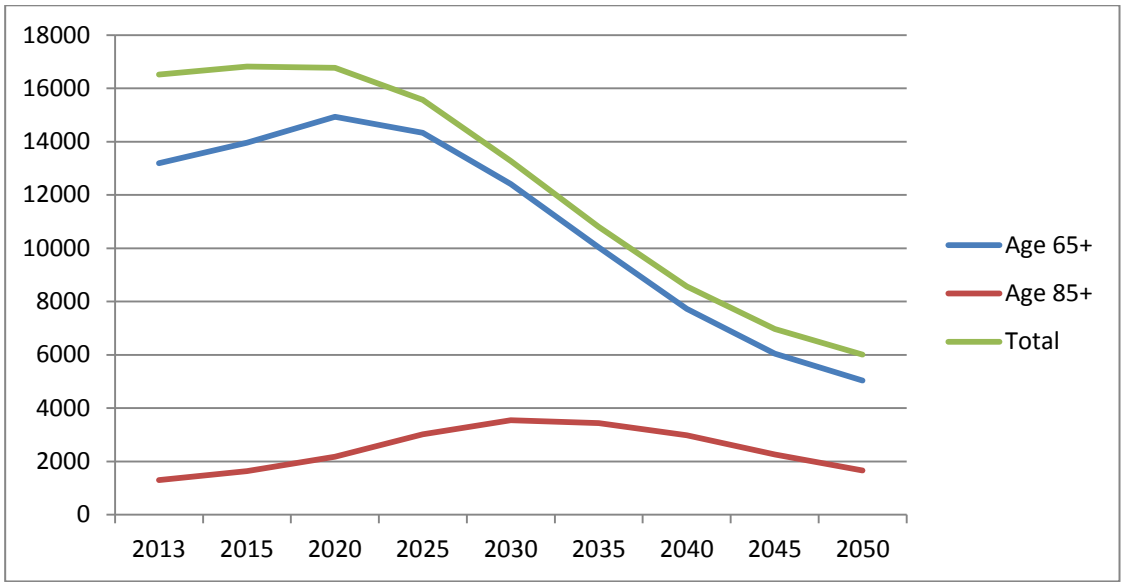
Table 7: Projected numbers of former FF seafarers with one or more limitation with an Activity of Daily Living by age

Age gp	Prevalence rate	2013	2015	2020	2025	2030	2035	2040	2045	2050
55-59	11.4%	1,100	940	620	390	290	320	360	400	400
60-64	14.1%	2,240	1,910	1,220	840	570	450	480	530	580
65-69	16.0%	2,890	2,730	2,220	1,500	1,080	800	670	700	760
70-74	21.0%	4,070	3,770	3,230	2,630	1,770	1,280	950	800	830
75-79	24.6%	2,730	3,290	3,720	3,180	2,580	1,740	1,260	930	790
80-84	35.9%	2,200	2,550	3,600	4,020	3,440	2,770	1,870	1,350	1,000
85+	35.9%	1,300	1,630	2,170	3,020	3,550	3,440	2,980	2,260	1,660
Total		16,520	16,820	16,770	15,560	13,280	10,800	8,570	6,970	6,010

Prevalence rates based on ELSA Wave 5

While the numbers with a ADL limitation aged 65 and over are projected to peak in 2020, before declining steeply up to 2050, the numbers of those aged 85 and over with are projected to continue rising to a peak of over 3,500 in 2030 before declining more gradually to 2050.

Figure 5: Projected numbers of former FF seafarers aged 55+ experiencing limitations with Activities of Daily Living



5.8 Dementia

Projected numbers of former FF seafarers with dementia were estimated by applying the age-specific rates from the European Community Concerted Action on the Epidemiology and Prevention of Dementia (EURODEM) study[57]. The rates for men have been used.

There are an estimated 3,400 former FF seafarers with dementia at present (Table 8). The total number is projected to peak in 2025 at around 4,700, before falling steeply to just below 2,000 in 2050, while the numbers of former FF seafarers with dementia aged 85 and over is projected to continue increasing steadily to 203-35 to over 2,200 before falling to less than half that number in 2050 (Figure 6).

[57] Op.cit.

Figure 6: Projected trends in dementia in former FF seafarers 2013-2050

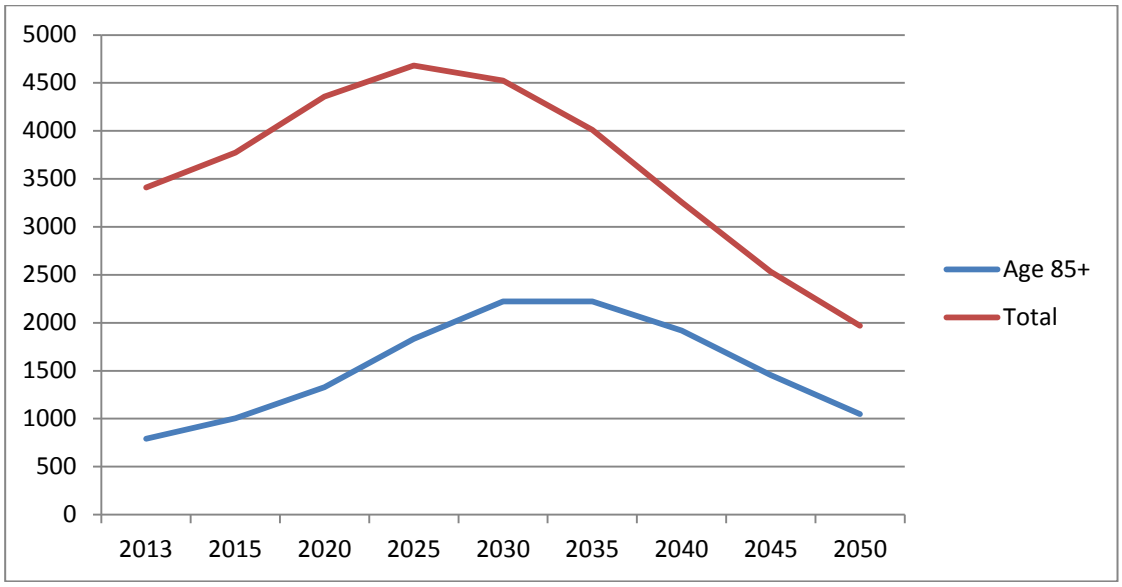


Table 8: Projected numbers of former FF seafarers with dementia aged 65 +

Age	Prevalence rate %	2013	2015	2020	2025	2030	2035	2040	2045	2050
65-69	2.17%	390	370	300	200	150	110	90	100	100
70-74	4.61%	890	830	710	580	390	280	210	180	180
75-79	5.04%	560	670	760	650	530	360	260	190	160
80-84	12.12%	740	860	1,210	1,360	1,160	940	630	460	340
85-89	18.45%	450	560	760	1,080	1,170	1,000	800	540	390
90-94	32.1%	270	340	420	570	810	880	750	600	410
95-99	31.58%	80	110	140	180	240	340	370	320	250
100+	31.58%	30	40	50	60	80	110	150	160	140
Total		3,410	3,770	4,360	4,680	4,520	4,010	3,260	2,530	1,970

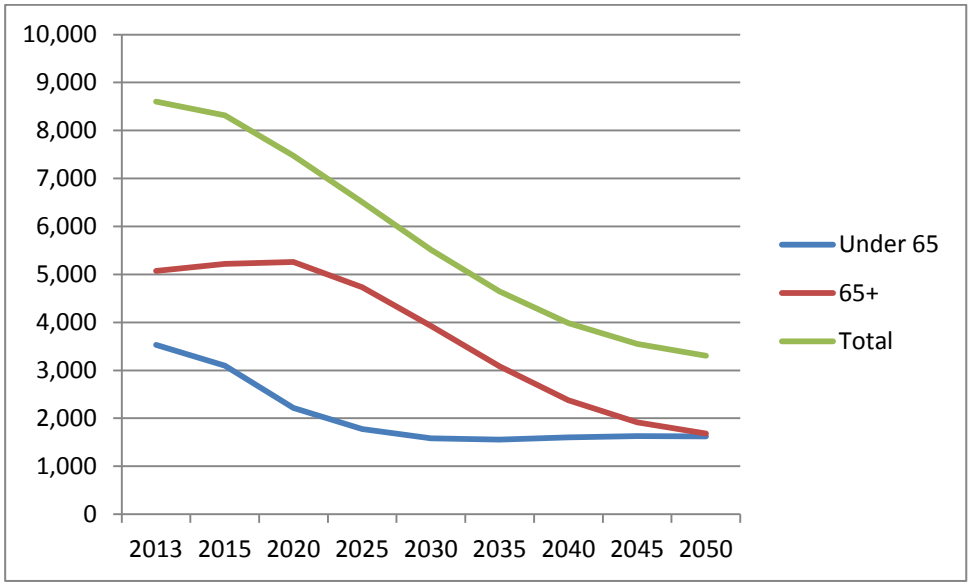
Prevalence rates based on Eurodem study

5.9 Alcohol problems

The Adult Psychiatric Morbidity survey in 2007 found that 8.7% of males were dependent on alcohol. Applying this rate (which is likely to be low for the FF) to former FF seafarers, indicates that there are over 6,100 estimated with a dependence on alcohol (Table 9). The number of former FF seafarers dependent on alcohol is projected to decline steadily from 8,600 in 2013 to just over 3,300 in 2050 (Figure 7). The numbers aged 65 and above are projected to continue rising slightly from around 5,100 in 2013 to a peak of nearly 5,300 in 2020 before falling steadily to around 1,700 in 2050. The number of former FF seafarers dependent on alcohol in younger age groups is expected to fall up to 2035 when the number is projected to start to rise.

However, these figures are likely to underestimate the actual prevalence of alcohol dependency among former FF seafarers; nevertheless, it is likely that projected numbers in the very highest age groups are over-estimates as people who are dependent on alcohol are likely to die at younger ages.

Figure 7: Projected number of former FF seafarers dependent on alcohol



Some qualitative research in Scotland indicated that drug dependency is also a problem among some fishing communities[58] (Williams, 2008). Williams' respondents often believed the drug problem had started because dealers targeted the relatively rich young pelagic fishermen, and the problem then spread from there to become another aspect of the decline of

[58] Williams, R (2008) *Changing Constructions of Identity: Fisher Households and Industry Restructuring*, Newcastle University, unpublished PhD Thesis

the industry. However, it is not known whether this is widely spread, or specific to north east Scotland.

Table 9: Projected numbers of former FF seafarers dependent on alcohol

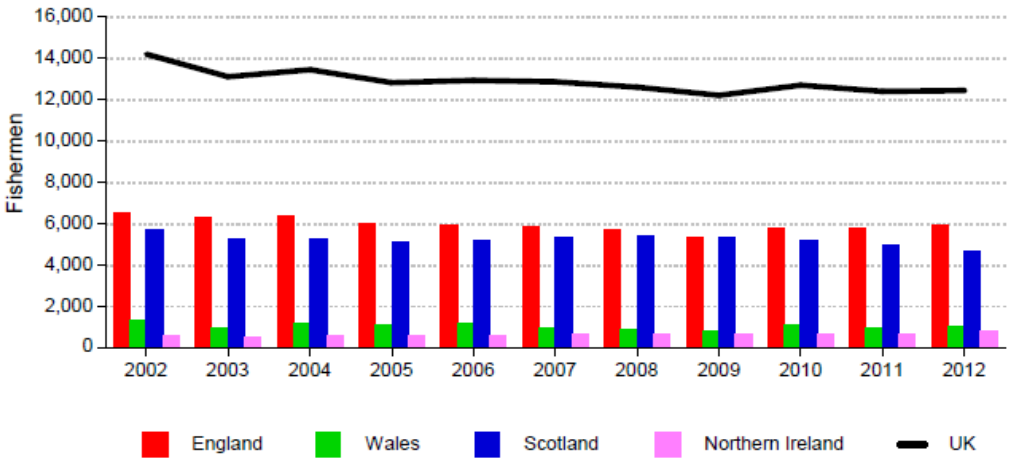
Age	Prevalence rate %	2013	2015	2020	2025	2030	2035	2040	2045	2050
Under 65	8.7%	3,530	3,100	2,220	1,780	1,580	1,560	1,600	1,630	1,620
65+	8.7%	5,070	5,220	5,260	4,730	3,930	3,090	2,380	1,920	1,680
Total		8,600	8,320	7,480	6,510	5,510	4,640	3,980	3,550	3,300

Prevalence rates based on Adult Psychiatric Morbidity survey, 2007

5.10 Geography

In terms of geographical spread, according to the MMO, in 2012, 5,900 serving FF seafarers were based in England (down 9 per cent since 2002), 1,000 in Wales (down 25 per cent), 4,700 in Scotland (down 18 per cent) and 800 in Northern Ireland (up 32 per cent) (Figure 7).

Figure 8: Number of fishermen in the UK: 2002 to 2012



Source: MMO, 2013

Milford Haven is the administration port with the largest number of fishermen in the UK; just over one third of these (34%) are part-time. Plymouth is the administration port with the largest number of fishermen in England; and the largest number of part-time fishermen is found on vessels administered by Poole. Fraserburgh has the largest number of fishermen in Scotland; however, the largest number of part-time fishermen is found on vessels administered by Shetland. The three UK ports with the largest numbers of vessels (Newlyn, Milford Haven and Poole) are three of the top four ports with the most fishermen[59].

Appendix 4 provides a map of the location and number of fishermen across the UK.

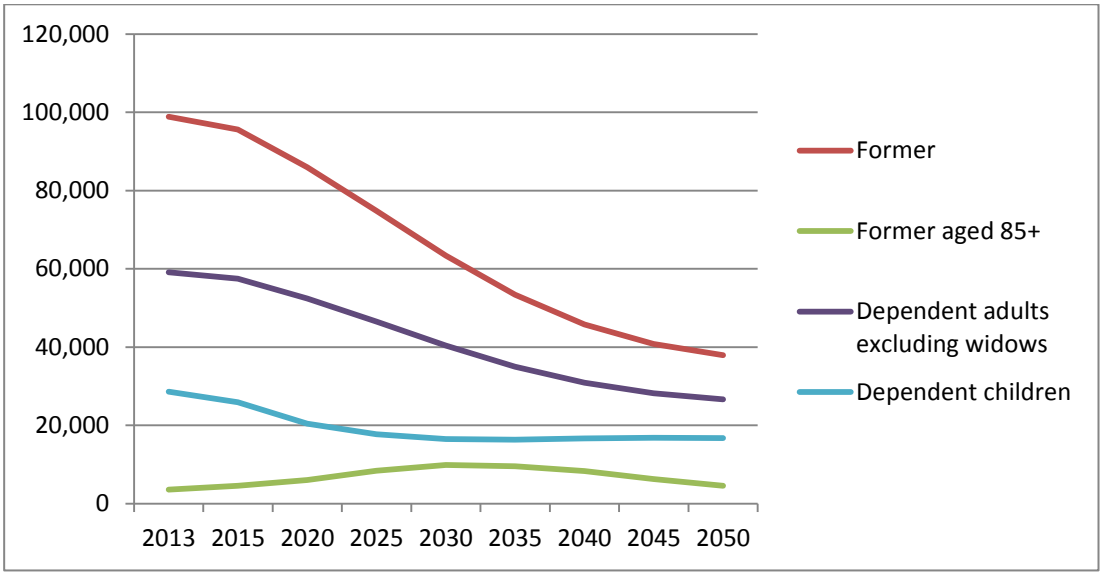
The key ports in terms of fishermen numbers by administration port are:

- England: Plymouth, Poole, Newlyn
- Wales: Milford Haven
- Scotland: Fraserburgh, Ayr, Lerwick
- Northern Ireland: Belfast

[59] MMO (2013) UK Sea Fisheries Statistics 2012.

Numbers employed on Scottish based vessels are provided by region in Appendix 5 (other data were not available).

5.11 Summary



There were 12,150 serving FF seafarers in 2013. It is estimated that 50% of serving FF seafarers are aged 40 or above. Current numbers of FF seafarers have stabilised, but the previous history of decline means that the overall numbers of former FF seafarers are likely to decline for several decades into the future.

There are an estimated 40,580 former FF seafarers aged below 65; and 58,270 former FF seafarers are aged 65 and over. In comparison, Baster (2007) projected a total of 53,000 former FF seafarers in 2013.

The numbers of former FF seafarers over 65 are projected to continue increasing slightly up to 2020 from a current estimate of 58,300 before declining increasingly steeply in the 2020s to an estimated total of about 19,300 in 2050. The number of former FF seafarers aged 85 and over is expected to increase continuously from an estimate of 3,600 in 2013 to nearly 9,900 in 2030, before starting to decline. Although absolute numbers are small in comparison with the former RN, this increase of more than 275% in the 85 plus age group up to 2030 is striking and will put significant demands on services for former FF seafarers and their dependants.

Lacking any occupational pension scheme, former FF seafarers are likely to be the group of seafarers in greatest need in the years between now and 2050. Other changes in the wider economy and society, for example, in terms of statutory services and welfare may contribute to a growing need for care and support among a reduced population.

Section D

6 Research on seafarers' health

Most of the research in this section relates to studies of the Merchant Navy and Fishing Fleet. However, some of the issues raised relating to physical hazards for example, may be equally relevant to the Royal Navy.

Research by Mackay and Wright[60] has shown that working at sea is one of the most hazardous occupations, presenting specific health and safety concerns for seafarers that are often long term, including:

- exposure to toxic and carcinogenic materials that are responsible for many chronic illnesses (ILO, 2004)
- physical hazards on board ship include noise, vibration, excessive heat and cold and harmful radiation from the sun; and seafarers are particularly prone to back injuries, affected by the motion of the ship (ILO, 2004)
- mental health problems can arise, related to the conditions of onboard life, as well as prolonged absence from home, and high levels of stress have been reported, associated with poor sleep quality, noise and workload (ILO, 2004)

Mackay and Wright report many physical and psychosocial hazards of working at sea described by the seafarers interviewed for their study. Accidents or minor injuries, particularly trips, falls, cuts and burns, were viewed as commonplace by some seafarers, or an "inevitable part of the job" when the sea was rough. Musculo-skeletal problems were mentioned by all types of seafarers, such as back pain, joint and knee problems and hernias. Several interviewees had problems with arthritis, which they attributed to the movement of the ship and the damp working conditions. Added to these health problems is the fact that appropriate healthcare is not always immediately available and, particularly for more minor injuries or health complaints, seafarers would have to wait until they had reached the next port before they could obtain appropriate treatment.

Carter has summarised much of the international literature that can be extrapolated to UK[61]. He found that there is some evidence that fatal accident rates remain higher than those in the general population when seafarers are ashore. In terms of morbidity, many of the risks from working

[60] Mackay S and Wright T (2008) Seafarers in a global world: the changing needs of seafarers for advice, support and representation, WLRI Working Paper 3.
[61] Carter T (2010) Mapping the knowledge base for maritime health: 3 illness and injury in seafarers, International Maritime Health (open access at http://czasopisma.viamedica.pl/imh/issue/archive, Vol 62, No 4 (2011).

at sea, notably those from trauma, cease immediately. Carter noted that others may persist, and identified a number of studies of cancer mortality, some with associated morbidity data, which have identified continuing risks. Several studies have found lung cancer excesses associated with cases of mesothelioma, indicating effects from asbestos, although smoking is also relevant. Others have shown excess risk associated with work on chemical tankers, suggesting a role for chemical exposure, especially where there are also increases in leukaemia or lymphoma.

There was a consensus among most interviewees that seafaring was not a healthy way of life, with the main lifestyle hazards being: alcohol, smoking, drugs, lack of exercise and poor fitness, poor diet, isolation, loneliness and boredom. Research shows that prolonged absence from home causes problems in maintaining family relationships, and that relationship breakdowns may be higher for seafarers (Thomas 2003)[62]. The interviewees spoke of particular needs for family support in maintaining contact with families when at sea.

In a survey of over 1,200 working age seafarers by McCalman et al[63], 56% reported an injury or illness which had prevented them from working (excluding coughs and colds), and many of these reported being off work for a significant period of time. The most common health conditions reported were conditions affecting the back and neck (25% of those reporting an injury/illness), broken bones (15%) and other injuries (15%). Musculo-skeletal issues were particularly common.

Overall, it is clear that seafaring, particularly in the fishing fleet and the Merchant Navy is a risky occupation and that the health needs of serving and former seafarers are likely to be higher than their shore bound contemporaries. Evidence of the risks associated with particular seafaring work is presented below.

6.1 Health and the Merchant Navy

Mackay and Wright[64] identify specific health and safety concerns for Merchant Navy personnel, including:

- high death rates for accidents at work in the merchant fleet (between seven and 20 times greater than for shore-based workers even in the safest national fleets) (Roberts, 2000)[65]

[62] Thomas, M. (2003) *Lost at sea and lost at home. The predicament of seafaring families*, Cardiff, Seafarers International Research Centre.
[63] McCalman L, Shafrir A, Cowie H, Crawford J, & Ritchie P (2011) *Seafarers' Health Care - Health care needs and access to health care among merchant seafarers and fishermen of working age based in the UK*, IoM.
[64] Mackay S and Wright T (2008) Seafarers in a global world: the changing needs of seafarers for advice, support and representation, WLRI Working Paper 3

- high mortality from cancers, cirrhosis, pancreatic and other alcohol-related diseases were found among British merchant seafarers (ILO, 2004)[66]
- obesity has been identified as a problem for UK seafarers, and traditionally there have been limited opportunities for Merchant Navy personnel to take part in physical activity, as well as a social life revolving around the bar in the past (Leonard, 2003)[67]

6.2 Health and the Fishing Fleet

Mackay and Wright[68] also identify a number of specific health concerns for people working on the fishing fleets, including:

- Fatal accident rates among UK deep-sea trawlermen were found to be 20 times greater than for coal miners by one study (Matheson et al, 2001).[69]
- Less is known about the levels of occupational illness among FF seafarers, who have no mandatory health screening, but common illnesses identified include: gastrointestinal, respiratory and skin diseases, psychiatric or neurological conditions, with acute depression the most common, and some were alcohol-related (Matheson et al, 2001).
- According to Lawrie et al (2001)[70], fishermen display high risk taking behaviour, with higher rates of smoking, poorer diets and poorer health knowledge than the general population.
- Among physical hazards mentioned were accidents, in the worst cases leading to deaths of colleagues, but more commonly damage to limbs, with several fishermen recalling incidents when colleagues had lost parts of fingers through catching them in fishing nets. Accidents or minor injuries, particularly trips, falls, cuts and burns, were viewed as commonplace by some seafarers, or an “inevitable part of the job” when the sea was rough.

[65] Roberts, S. (2000) ‘Occupational mortality among British merchant seafarers (1986-1995)’, *Maritime Policy & Management*, 27: 3: 253-265.
[66] ILO (2004) *The Global Seafarer: Living and working conditions in a globalized industry*, Geneva: International Labour Organisation.
[67] Leonard, J.F. (2003) *A Comparison of the Causes and Rates of Early Retirement upon Medical Grounds in personnel of the Royal Fleet Auxiliary Service with those in the Royal Navy*, Thesis for the Diploma of Membership of the Faculty of Occupational Medicine.
[68] Mackay S and Wright T (2008) Seafarers in a global world: the changing needs of seafarers for advice, support and representation, WLRI Working Paper 3
[69] Matheson, C., Morrison, S., Murphy, E., Lawrie, T., Ritchie, L. and Bond, C. (2001) ‘The health of fishermen in the catching sector of the fishing industry: a gap analysis’, *Occupational Medicine*; 51: 5: 305-11.
[70] Lawrie T, Matheson, C Ritchie L, Murphy E & Bond C (2004) The health and lifestyle of Scottish fishermen: a need for health promotion, Health Educ. Res., Aug. 19,4, pp373-9.

- Other physical hazards reported by Mackay and Wright's interviewees included loss of circulation to the hands (said to be common among FF seafarers).

In a convenience sample of 210 fishermen in 3 ports in the south-west of England, Grimsmo et al found a high rate of occupational injuries – in particular a large number of hand injuries – in the sample population[71].

More worrying still, an analysis of 160 deaths from work-related accidents in the UK fishing industry from1996 to 2005, found that 86 arose from incidents involving fishing vessels and 74 were from personal accidents, with a fatal accident rate of 102 per 100,000 fishermen-years. The authors concluded that commercial fishing is by far the most hazardous occupation in Britain.[72]

Another study identified fatigue as a problem for fishermen. Eighty-one fishermen were surveyed to establish the extent of fatigue in British fishermen. Whilst the authors note that the results cannot be considered representative of the British fishing population, 60% believed their personal safety had been at risk because of fatigue at work, and 16% had been involved in a fatigue related accident[73].

[71] Grimsmo-Powney H, Harris, EC, Reading I, & Coggon D (2010) *Occupational Health Needs of Commercial Fishermen in South-West England*. Occup Med (Lond) 60 (1) pp49-53 first published online September 21, 2009 doi:10.1093/occmed/kqp137.
[72] Roberts S E, (2010) Britain's most hazardous occupation: Commercial fishing, Accident Analysis and Prevention 42, pp44–49.
[73] Allen P, Wellens B & Smith A (2010) Fatigue in British fishermen, Int Marit Health 2010; 61, 3, pp154–158.

7 Conclusion

The collection and analysis of demographic data on the serving and former seafaring population and their dependants is constrained by gaps in the data and issues of quality and reliability in relation to some aspects of these populations. In addition, a series of assumptions have been made in some areas in order to fill gaps in the data and project forward to 2050. A third caveat is the possibility for a range of factors to affect future populations in ways which cannot be foreseen in 2014.

From the available data, the Royal Navy appear to comprise the largest group of serving seafarers (33,000), followed by the Merchant Navy (30,000) and the fishing fleet (12,000). Thus the total serving seafaring population is estimated to be over 75,000.

The collection of data on past numbers indicates that the numbers of all three groups have reduced considerably since 1945, and that change in the size of the populations is likely to continue due to the wide range of factors that affect total numbers. In recent years, the number of RN personnel has reduced due to the Strategic Defence Review, although there has been a slight increase since 2012; while the reduction in the number of MN seafarers appears to have slowed, due in part to the tonnage tax and an increase in the number of officer trainees. The fishing fleet also appears to have stabilised in recent years, although some further slight reductions seem likely.

The tables below draw together key projections contained within the report. By far the largest group of former seafarers are the RN group, followed by the MN group which appears to be less than half the size of the former RN, and former FF seafarers – the smallest group projected to number less than 100,000 in 2015.

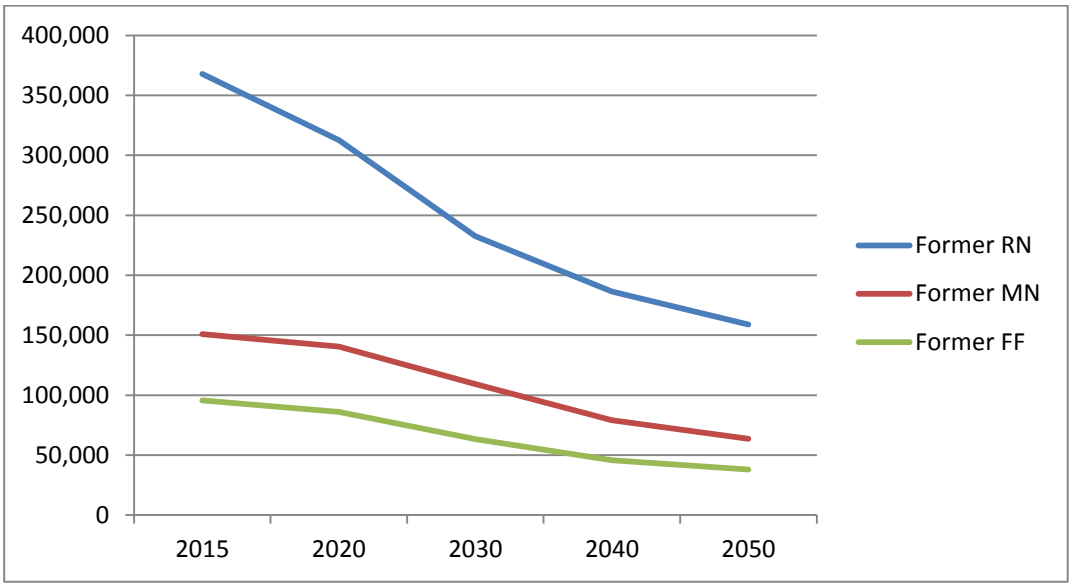
Former seafarers and all dependants

RN	2015	2020	2030	2040	2050
Former	367,790	312,470	232,420	186,290	158,880
Former 85+	55,170	43,640	24,000	18,670	13,040
All adult dependants (incl. widows)	271,560	231,940	174,080	140,480	119,310
Dependent children	118,100	104,670	88,770	80,030	76,880

MN	2015	2020	2030	2040	2050
Former	150,850	140,500	109,120	79,010	63,540
Former 85+	7,080	9,430	15,500	13,890	8,130
All adult dependants (incl. widows)	124,270	118,660	92,320	66,060	52,000
Dependent children	46,590	38,450	29,620	29,210	31,750

FF	2015	2020	2030	2040	2050
Former	95,570	85,920	63,350	45,780	37,980
Former 85+	4,550	6,050	9,880	8,300	4,610
All adult dependants (incl. widows)	75,470	70,570	53,920	39,090	32,460
Dependent children	25,890	20,450	16,530	16,650	16,770

The line chart below shows the projected change in numbers of former RN, MN and FF seafarers.



In terms of the former seafaring population, the number of former RN seafarers is projected to decline steadily over the coming years across all ages, as the World War II and National Service generation passes on. Among the former MN and FF seafarers, although a decline in total numbers is projected, within these totals, further rises in the numbers aged 65 and over, aged 75 and over, and particularly 85 and above are projected. Numbers of former MN and FF seafarers aged 85 and over are projected to increase by more than 275% between now and the 2030s,

while in the RN, the number of former seafarers aged 85 and above has already peaked.

The oldest former seafarers are the group most likely to need help and support from maritime charities. They are key drivers of demand for care and support services. The projected increase in numbers in terms of the over-75s and over-85s among the MN and FF groups, highlights the need for providers to understand how they can meet the needs of frailer seafarers whether through the provision of services themselves, or working in partnership with commissioners or other providers.

Least is known about the dependants of the three seafarer groups. The numbers of dependants across all seafaring groups are expected to continue to decline from the present to 2050 (although numbers of dependent children are projected to increase in the late 2040s). The numbers of adult dependants and widows correspond in relative size to the size of the different seafarer groups. Wider contextual changes such as welfare reform and continuing public sector austerity measures are likely to create a range of needs for help and support among the adult and child dependants of seafarers. The projections in this report suggest that the demand for services will still be there, as suggested in Baster's 2007 report, and this is backed up by the higher numbers of adult dependants.

However, the main beneficiary group will continue to be men. Not only are seafarers vulnerable to specific health problems and conditions associated with their time at sea, but many, particularly former FF and some MN seafarers will have limited or no occupational pension provision. Recent evidence from the International Longevity Centre also highlights concerns about the growing generation of older men that are facing a future of increased isolation[74], partly because the number of older men outliving their partner is expected to grow, as male life expectancy increases faster than female life expectancy.

A number of factors will interact and affect the projections made in this report. Continuing increases in longevity will increase the size of all the ex-seafarer populations, while further changes in pension age could reduce the need for support in old age. Changes in health and social care policy and provision will also affect levels and type of need. It is not known how much prevalence rates for some diseases may reduce over time due to improvements in medical treatment, or equally, the extent to which new problems related to obesity or other emerging health problems may create new demands. For example, new treatments for dementia or new forms of care provision may emerge between now and 2050 which affect the level and kind of needs of ex-seafarer populations.

[74] ILC (2014) Isolation: The emerging crisis for older men, ILC.

Charities cannot hope to address all those in need who are eligible for support, and it is likely that requests for help will continue to represent only a proportion of those who may need help. The analysis of the demographic data indicates that there will be a continuing need for charitable help and support, particularly among the oldest former MN and FF seafarers for many years to come. Within the wider context of welfare reform, austerity measures affecting health and social care, and apparently low membership of occupational pension schemes among some groups of seafarers, although the overall numbers may decline, the level of need may actually increase.

Appendix 1 – Organisations contacted

The following organisations were contacted as part of the study:

- Department of Transport – Maritime and Coastguard Agency
- Office of National Statistics – including Census data
- Ministry of Defence - DASA
- Her Majesty's Revenue and Customs (tax data)
- Government Actuary's Department
- Welsh Assembly Government
- Department of Enterprise, Trade and Investment, Northern Ireland
- Scottish Government
- Marine Management Organisation
- UK Chamber of Shipping
- Service Personnel and Veterans Agency
- Association of Royal Naval Officers
- Royal Naval Association
- Royal Naval Benevolent Trust
- Royal British Legion
- SSAFA
- WRVS
- Merchant Navy Officers Pension Fund
- Merchant Navy Ratings Pension Fund
- Merchant Navy Welfare Board
- Merchant Navy Training Board
- Shipwrecked Fishermen and Mariners Royal Benevolent Society
- Royal National Mission to Deep Sea Fishermen
- Seafish
- Scottish Fishermen's Federation
- Seafarers UK
- Nautilus International
- National Union of Rail, Maritime and Transport Workers
- UK Sailing Academy
- Crewing agents

Appendix 2 – Royal Navy service personnel by year

Royal Navy service personnel including Marines[75][76] by year

Year	Total
1945	861000
1946	371000
1947	197000
1948	142000
1949	145000
1950	139,300
1951	138,000
1952	145,000
1953	146,000
1954	134,000
1955	128,000
1956	122,000
1957	116,000
1958	107,000
1959	102,000
1960	98,000
1961	95,000
1962	94,000
1963	96,000
1964	98,000
1965	99,000

[75] Defence Statistics 1992
[76] UK Defence Statistics 2000

Year	Total				
1966					98,000
1967					97,000
1968					93,000
1969					90,000
1970					86,000
1971					83,000
1972					82,000
1973					81,000
1974					78,000
	Officers		Other ranks		
	Male	Female	Male	Female	
1975	10,000	500	62,500	3,200	76,200
1980	9,700	400	58,400	3,400	71,900
1985	9,600	400	58,100	3,300	70,400
1986	9,600	400	54,800	3,100	67,900
1987	9,800	400	53,400	3,000	66,500
1988	9,800	400	52,400	2,900	65,500
1989	9,700	400	51,400	3,100	64,600
1990	9,700	400	49,800	3,200	63,200
1991	9,700	500	48,200	3,700	62,100
1992	9,600	500	47,900	4,100	62,100
	Officers		Other ranks		
1995	8,800		42,100		50,900
1996	8,400		40,000		48,300
1997	8,000		37,200		45,100
1998	7,800		36,800		44,500
1999	7,700		36,000		43,700
2000	7,660		35,190		42,850

Year	Total		
2001	7,760	34,660	42,420
2002	7,780	33,850	41,630
2003	7,790	33,750	41,540
2004	7,770	33,110	40,880
2005	7,730	32,210	39,940
2006	6,800	28,820	35,620
2007	6,790	28,040	34,830
2008	6,620	28,430	35,050
2009	6,690	28,330	35,020
2010	6,660	28,850	35,500
2011	6,620	28,800	35,420
2012	6,410	26,880	33,290
2013	6,940	27,020	33,960
2014[77]	6,800	26,530	33,330

[77] DASA Annual Personnel Report September 2014

Appendix 3 – RMT Membership age distribution

Age	%
16-19	0.4
20-24	4.0
25-29	6.8
30-34	8.0
35-39	8.1
40-44	11.9
45-49	14.9
50-54	18.8
55-59	15.3
60-64	9.6
65+	2.3
Total	4,116

Appendix 4: Number of fishermen employed on Scottish based vessels, by region: 2012

Region	Total employed in fishing
Aberdeenshire	1,220
Angus	53
Argyll & Bute	530
City of Aberdeen	14
City of Edinburgh	2
Dumfries and Galloway	225
East Lothian	60
Eilean Siar, Orkney & Shetland	1,157
Fife	165
Highland	668
Inverclyde	13
Moray	184
North Ayrshire	36
Scottish Borders	104
South Ayrshire	316

(1) Source: 2012 Annual Population Survey
Note: Data for other areas were not available.

Appendix 5: Fishermen numbers by administration port: 2012