Seafarer statistics 2011:

Projections of UK Seafarers from 2011-2031

In this section a simple model of officer entry and exit rates is combined with the detailed age profile information generated by the MCA SDS data on UK certificated officer ages. This permits the simulation of the trend in total numbers of UK certificated officers. These can be projected using different assumptions about officer loss rates and retirement ages, together with trainee completion rates.

It is important to note that the method of projection employed is independent of past trends, in order to avoid distortions in past data caused by changes in data sources. However this does mean that the calibration of the assumed parameters is critical to the model's performance.

Cadet entry numbers have been assumed to be 800 per year, a little lower than the actual entry figures in the last few years, except in 2009/10. This is a key assumption, in terms of its effect on the results.

It is assumed that new trainees leave training prior to completion at an average rate of 8 per cent per year. This figure has been employed in previous modelling work, and is derived from the analysis of GAFT data on cadets for 1995-6.

The age profile of new entrants has been modelled using detailed MNTB data for 2003-4, to construct an estimated age profile of trainees. This profile has been employed to derive an aggregated probability distribution to apply to the ages of new entrants. This means that the generated age profile of certificated officers for 10 or 20 years in the future, say, will reflect this age distribution, which is a more plausible profile than the assumption that all trainees entered the officer workforce at the same age. It should be noted that the ages of those entering via the 'ratings to officer' route have not been included. Their small number means that the year to year variation in ages may be too large to make use of just one year's data. It should be noted that this group of trainees tend to be significantly older than those entering by the 'normal' route.

The second key assumption is in the maintained 'wastage rate' of officers. This has been set at 6 per cent for the age range 20 – 50 years, and 1 per cent thereafter, until the age of retirement. These assumptions are 'consensus' estimates that are consistent with Cardiff University's study of seafarer numbers using 'backcasting techniques'. It is quite possible that the 'consensus' is incorrect - it has been suggested that this number is too high. If the assumed figure is larger than is actually the case, then the projections so obtained will be conservative estimates of future seafarer numbers (Gardner, BM, Marlow, PB, Naim, MM, Nair, R, Pettit, SJ. "The UK economy's requirements for people with experience of working at sea 2003". Report for the DfT, UKCoS, and the Marine Society, Contract no. PPAD9/70/15, Cardiff Business School, Cardiff University, 2004. 114pp.).

The final element in the projection model is the assumed age of retirement. Using data provided by the Merchant Navy Officers' Pension Fund (MNOPF) for retirees over the period 2000-2007, it has been possible to construct a probability distribution, to allow for the proportions who take up their pension earlier (or later) than the official retirement age of 62. It is important to note that this profile is not an estimate of the age at which an officer leaves the sea and moves on shore to work, since the officer concerned may not claim the pension until they reach the age of retirement from all occupations. Nevertheless, the use of this information means that the age profile of officers is more 'realistic' when projections of future numbers are made. The MNOPF data were last updated in 2007, which made only minor differences to the modelled age distribution of retirees.

The assumptions underlying the present projection remain the same as last year. The base year (now 2011) has been adjusted slightly to exclude officers with CECs or with endorsements for tugs & inshore craft or yachts only, since these enter the population by routes other than UK training courses. The deck and engine split of officers, previously based on information from the Chamber of Shipping manpower survey, is now based on the actual split for all certificated officers in the relevant age range in the base year.

Forecast sensitivity to input assumptions

Table 3.2 shows the impact on the forecast numbers of varying each of the main input assumptions (individually) by 25 per cent. For example, a 25 per cent increase in the assumed officer wastage rate reduces the forecast numbers in 2020 by about 9%.

The table shows that the two most significant assumptions are the cadet entry numbers and the officer wastage rates prior to retirement. Variations in cadet wastage rates have less impact.
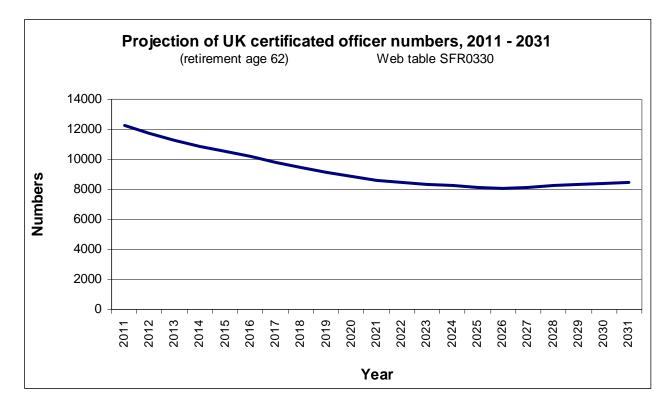

Projection of UK certificated officer numbers, 2011 - 2031
(retirement age 62)   Web table SFR0330

Table SFR0310 Projection of UK certificated officers for 2011-2031

Age 62	Year	2011	2016	2021	2026	2031
Total	Numbers	12,240	10,172	8,630	8,099	8,491
Deck	0.51	6,234	5,180	4,395	4,125	4,324
Engineer	0.49	6,006	4,992	4,235	3,974	4,166
Age 65	Year	2011	2016	2021	2026	2031
Total	Numbers	13,191	10,946	9,248	8,420	8,588
Deck	0.55	7,205	5,979	5,052	4,599	4,691
Engineer	0.45	5,986	4,967	4,197	3,821	3,897

Input Assumptions

Cadet Entry Rates			Wastage Rates	
Input	800		At ages 20 < 30	0.06
Wastage	0.08		At ages 30 < 50	0.06
Output	573		At age 50 plus	0.01

Notes:

1. Deck/engine split assumed to remain fixed at 2011 ratio.

2. Numbers in table may not sum to 1 due to rounding

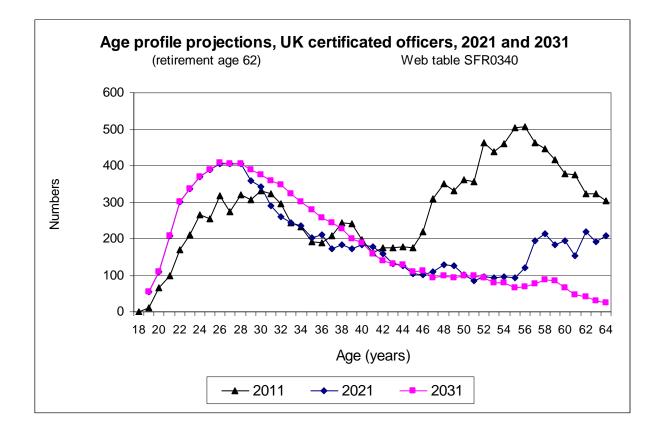**Age profile projections, UK certificated officers, 2021 and 2031**
(retirement age 62)   Web table SFR0340

Table SFR0320: Forecast Sensitivity: Effect of a 25 per cent change in modelling assumptions on 2021 forecast

Model assumption	Sensitivity testing:			% change in 2021 forecast:		Elasticity
	Low	Base	High	Low	High	
Cadet entry numbers	600	800	1,000	-12.8	12.8	0.51
Cadet wastage rate	0.060	0.080	0.100	4.6	-4.3	-0.18
Officer wastage rate	0.045	0.060	0.075	9.8	-8.8	-0.37
Base case scenario forecast for 2021 (officer numbers)					8,630	

Source: Derived from projection model

Useful links

Seafarer statistics section of the Department for Transport web site:
http://www.dft.gov.uk/statistics/series/seafarers/

Seafarer Statistics 2011 release:
http://assets.dft.gov.uk/statistics/releases/seafarer-statistics-2011/seafarer-statistics-2011.pdf

Seafarer statistics technical note:
http://assets.dft.gov.uk/statistics/series/seafarers/seafarer-statistics-technical-note.pdf