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**Economic and financial
performance of the UK
English Channel fleet:
1994-95 to 1996-97**

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Economic and Financial Performance of the UK English Channel fleet, 1994-95 to 1996-97.

Introduction

The Channel fishery (ICES sub-regions VIId and VIIe) is a multispecies multigear fishery dominated by sole, plaice and high value shellfish species such as lobster and scallops. Commercial activity in the fishery is predominantly undertaken by fishers from the UK and France, although vessels from other EU countries (such as Belgium) and the Channel Islands are also active in the fishery. While the fishery is not large in terms of the total volume of catch, landings into the UK from the Channel fisheries represent about 40 per cent of the value of landings into England and Wales.

The UK side of the English Channel is diverse in terms of both type of fishing activity and range of species targeted. In excess of 2000 UK boats operate within the English Channel. These boats are subject to three levels of regulation administered by local Sea Fisheries Committees, the Ministry of Agriculture, Fisheries and Food (MAFF) and the European Union.

The UK side of the English Channel fishery is dominated by small boats with roughly 75% of the fleet being 10 metres or less. However, in terms of catch the small boats are less significant than their numbers suggest. The bulk of the value of catch (60%) is taken by boats between 10 and 30 metres in length. The key gear types utilised by the UK Channel fisheries are beam trawl, otter trawl, pelagic/mid-water trawl, dredge, line, nets and pots. Catch composition is therefore diverse and includes highly valued benthic species such as sole and plaice, whiting, cuttlefish, angler fish, cod, hake and bass as well as a diverse range of shell fish including scallops and oysters and species such as lobster and edible crab. For further details on the UK side of the English Channel see Pascoe, Robinson and Cogan (1996).

Despite the regional importance of the fishery, little is known about the economic and financial performance of the fishers themselves. Hence, management of the fishery has focused on the biological status of the resource. While biological sustainability is a necessary precondition for a sustainable fishery, the economic sustainability of the fishers is also of importance if the fishery is to persist.

An economic survey of UK fishers along the English Channel was first conducted in 1994-95 (Pascoe, Robinson and Cogan 1996). This report extends this data to include financial and economic information for the financial period covering 1995-1997. Equivalent financial and economic data has also been collected from French fishers along the English Channel (see Boncoeur and Le Gallic 1998). Both surveys have been conducted as part of a larger project to examine the bioeconomic interactions in the fishery. The aim of the project is to develop a model of the fishery encompassing the biological and economic interactions that occur in the UK and French component of the Channel fisheries. The UK survey, undertaken during early 1997 collected information on the costs and earnings of a variety of different fishing activities for the financial year 1995-96 and 1996-97.

The purpose in this report is to present the key findings of the UK survey in three key areas fishing behaviour, financial performance and economic performance.

Survey methodology

The survey was undertaken during early 1998. The aim of the survey was to collect financial data pertaining to the financial years 1995-96 and 1996-97. An objective of the survey was for data collected to extend previous financial information collected from UK fishers operating in the English Channel for the financial year 1994-95. Further the financial information collected was to be commensurate with data collected from the French fishers operating in the English Channel for the purposes of developing a bioeconomic model of the English Channel fishery. The survey questionnaire used was therefore based on the questionnaire previously used by Pascoe, Robinson and Coglan (1996) with minor adjustments.

Similarly the survey methodology followed that of the previous financial survey of UK fishers in the English Channel. This previous sample had been drawn from all licensed fishing boats registered in ports between Folkestone and Newlyn in 1995 using a stratified random sample to minimise sample bias. A full discussion of this methodology is presented in Pascoe, Robinson and Coglan (1996).

A sample of 100 boats was selected from the boat register. The sample was stratified by port, size and engine power. The definition of size class was changed from the earlier survey undertaken by CEMARE. This was to ensure that the results could be comparable between the French and the UK surveys. The final size classes were agreed at a co-ordination meeting in the last reporting period.

In the first survey information was collected from only 77 boats whereas the target sample was 100. Additional boats were therefore interviewed to make up for this shortfall. Boats previously surveyed were approached to be re-interviewed along with an additional set of boats (about 30). Most of the fishermen interviewed in the previous survey were again willing to co-operate, although a small proportion had left the fishery or were unable to be contacted. A number of boats were only able to provide data for one of the two years. The distribution of the final sample in terms of size class and main gear type used is presented in Table 1.

Also in Table 1 is the sample distribution for the earlier survey (1994-95) for comparison. The data from the original survey were re-classified to be consistent with the new survey.

Table 1 Distribution of sample

Size	1994-95	1995-96	1996-97	Gear	1994-95	1995-96	1996-97
< 6 metres	6	14	13	beam trawl	13	10	26
6-8 metres	19	17	16	dredge	2	3	3
8-10 metres	21	22	23	otter trawl	19	15	16
10-12 metres	15	16	14	pelagic trawl	1	5	4
12-20 metres	3	12	12	line	5	10	9
>20 metres	13	13	26	nets	13	26	22
				pots	23	25	24
				dive	1		
Total	77	94	104		77	94	104

General results

Presentation statistics

The key results presented in the report are the mean values of the variables and their associated relative standard errors. The relative standard error (RSE) is an indicator of the degree of confidence in the sample estimate. Mean values and RSEs are not reported for groups with less than three observations. This is to both protect the confidentiality of participants as well as to ensure the statistical integrity of the results.

Identifying trends in the data

Over time it may be possible to identify a trend through observing patterns in the mean values. However a degree of caution needs to be exercised. It is important not to place too much weight on trends identified from mean values alone. Differences in mean values may arise as a result of differences in boat characteristics of the sample in each year. While attempts were made to collect information for each year from the same boats, not all boats operated in each of the three years. Some boats interviewed in the first survey had left the fishery or could not be contacted. New boats were brought into the survey to increase the sample size. As a result, the mean values presented are based on a different set of boats each year. Changes between years may reflect the changes in the sample structure rather than a true change in average costs or revenues. Furthermore all the figures are presented in current prices. No account has been taken of price changes for either inputs or outputs (i.e. catch).

An indication of the strength of an apparent trend is given by the relative standard error. High values for the RSE will place doubt on what may appear a clearly identifiable trend.

Boat characteristics and fishing behaviour

The physical characteristics of the boats in the sample are presented in Table 2. The definition of the size classes has changed from the previous survey in order to be consistent with a similar survey undertaken on the French side of the Channel. The results of the French survey are published in Boncoeur and Le Gallic (1998).

From the table, it can be seen that the characteristics of the sample changed considerably across the survey period. For the under 6 metre boats, average days fished appeared to decrease between 1994-95 and 1996-97. The average length of the boats were fairly similar in all three years, but the engine power varied, with the sample in the middle year being characterised by more powerful boats.

For the 6-8 metre boats, the average age increased across the survey period while engine power (and correspondingly vessel capacity units, VCUs) decreased. The average boat in the sample was roughly 50 per cent older in 1996-97 than in 1994-95 and roughly half the size. This may affect the average costs and revenues, making comparisons between years for this boat group difficult.

For the 8-10 metre group, the only major difference in characteristics over the three years is the average age of the boat. This more than doubled between 1994-95 and 1995-96 in the sample, but was similar in 1996-97 to the original survey period. This is

not likely to have a major effect on costs or earnings, with the possible exception of maintenance costs and average capital values.

For the 10-12 metre boat group, the only major difference between the three years was the number of days fished. This is a behavioural rather than physical characteristics, so is not likely to affect the interpretation of changes in revenues and costs between years.

For the boats in the 12-20 metre and >20 metre size classes, average engine power in 1996-97 was substantially less than in 1994-95. This may affect the average costs and earnings of the boats, so comparing the results between these years may be difficult.

The average capital value of the boat, imputed value of the licence and total capital (boat plus licence) is given in Table 3. The imputed licence values were based on estimates of the value of the vessel capacity units and estimates to the values of track records for different types of boats. These values were collected in the survey.

The average boat capital values for the smallest size class (<6 metres) appeared to decrease between 1994-95 and 1996-97. However, the imputed licence value for this group increased substantially resulting in a similar total value of capital across the survey years. For boats under 10 metres, the average value of total capital were similar across the three years of the survey. However, for boats greater than 10 metres, total capital tended to increase. This increase was largely due to an increase in the value of the licence (i.e. VCUs and track record).

Table 2. Physical characteristics of the boats in the survey

	< 6 metres						6 - 8 metres						8 - 10 metres					
	1994-95		1995-96		1996-97		1994-95		1995-96		1996-97		1994-95		1995-96		1996-97	
	Mean	RSE %	Mean	RSE %	Mean	RSE %	Mean	RSE %	Mean	RSE %	Mean	RSE %	Mean	RSE %	Mean	RSE %	Mean	RSE %
AGE	16.0	91	16.9	12	18.3	12	15.8	66	19.0	11	22.7	13	19.4	51	38.7	68	21.4	13
Power (Kw)	14.4	42	23.6	28	16.8	20	52.0	61	37.7	19	33.0	20	102.5	34	91.4	12	93.9	11
Length (M)	5.5	13	5.7	8	5.2	2	7.2	6	7.3	4	7.0	2	9.3	10	9.3	2	9.4	1
VCU	18.6	28	23.6	28	15.9	8	43.4	34	37.8	14	33.2	18	78.1	24	74.4	7	72.2	28
Crew	1.4	126	0.5	30	0.5	30	0.7	104	0.5	44	0.5	44	1.0	48	1.2	18	1.2	18
days fished	180.2	27	141.3	9	137.3	10	153.2	42	182.4	11	185.5	11	186.5	26	191.1	6	190.2	7
Trip length			1.0	0	1.0	0			1.0	0	1.0	0			1.0	21	1.1	15

	10 - 12 metres						12 - 20 metres						>20 metres					
	1994-95		1995-96		1996-97		1994-95		1995-96		1996-97		1994-95		1995-96		1996-97	
	Mean	RSE %	Mean	RSE %	Mean	RSE %	Mean	RSE %	Mean	RSE %	Mean	RSE %	Mean	RSE %	Mean	RSE %	Mean	RSE %
AGE	17.6	71	12.3	12	12.5	15	24.1	31	17.9	17	17.1	21	27.7	27	35.4	13	28.7	8
Power (Kw)	144.9	25	110.3	12	117.3	10	190.0	9	167.3	16	139.8	8	428.1	27	368.7	12	349.9	9
Length (M)	11.6	6	10.7	3	11.1	1	15.3	5	16.4	8	14.3	4	26.0	8	24.7	4	25.7	2
VCU	114.5	19	107.1	10	108.5	9	162.0	4	169.1	13	161.8	20	330.8	17	285.6	15	350.3	10
Crew	1.6	39	1.7	20	1.7	20	2.6	60	2.5	17	2.5	17	4.0	18	4.2	7	4.2	7
days fished	211.4	21	172.0	6	167.2	7	189.0	27	207.8	7	205.9	6	254.5	10	192.0	8	231.4	3
Trip length			1.0	0	1.0	0			2.0	43	2.1	35			4.0	21	4.3	12

Table 3. Capital values

	< 6 metres						6 - 8 metres						8 - 10 metres							
	1994-95		1995-96		1996-97		1994-95		1995-96		1996-97		1994-95		1995-96		1996-97			
	Mean	RSE	Mean	RSE	Mean	RSE	Mean	RSE	Mean	RSE	Mean	RSE	Mean	RSE	Mean	RSE	Mean	RSE		
	%		%		%		%		%		%		%		%		%			
Boat capital	6151	14	3046	18	3039	20	14692	14	11856	18	11276	18	26733	17	24936	22	24437	18		
Imputed licence	844	12	2460	6	2390	6	1966	9	5151	12	4987	12	6777	19	11234	8	10837	8		
Total Capital	6996	13	5506	11	5428	12	16658	13	17007	15	16263	15	33510	16	36170	17	35274	14		
	10 - 12 metres						12 - 20 metres						>20 metres							
	1994-95		1995-96		1996-97		1994-95		1995-96		1996-97		1994-95		1995-96		1996-97			
	Mean	RSE	Mean	RSE	Mean	RSE	Mean	RSE	Mean	RSE	Mean	RSE	Mean	RSE	Mean	RSE	Mean	RSE		
	%		%		%		%		%		%		%		%		%			
Boat capital	72523	21	62799	14	68959	15	142412	15	117797	19	157107	15	343249	14	327227	23	418669	11		
Imputed licence	12567	14	40741	10	38240	9	19414	1	52789	9	62916	7	24067	7	131032	14	150826	7		
Total Capital	85090	19	103540	11	107200	12	161826	13	170586	15	220023	12	362824	14	458259	19	569496	9		
	Beam trawl						Otter trawl						Dredge				Pelagic trawl			
	1994-95		1995-96		1996-97		1994-95		1995-96		1996-97		1995-96		1996-97		1995-96		1996-97	
	Mean	RSE	Mean	RSE	Mean	RSE	Mean	RSE	Mean	RSE	Mean	RSE	Mean	RSE	Mean	RSE	Mean	RSE	Mean	RSE
	%		%		%		%		%		%		%		%		%		%	
Boat capital	315137	15	182045	46	208894	24	38650	20	71746	19	70760	19	148430	69	149136	67	71655	42	73542	50
Imputed licence	24185	6	73376	38	80609	20	10637	15	32945	22	31363	22	64305	53	65260	52	31846	22	31135	27
Total Capital	334028	14	255422	43	289503	22	49287	18	104691	19	102124	19	212735	63	214397	62	103501	34	104677	41
	Lines						Nets						Pots							
	1994-95		1995-96		1996-97		1994-95		1995-96		1996-97		1994-95		1995-96		1996-97			
	Mean	RSE	Mean	RSE	Mean	RSE	Mean	RSE	Mean	RSE	Mean	RSE	Mean	RSE	Mean	RSE	Mean	RSE		
	%		%		%		%		%		%		%		%		%			
Boat capital	6817	53	17006	28	16695	31	29322	40	24752	29	29325	39	21915	30	22072	59	22043	62		
Imputed licence	3063	72	11435	27	11105	29	4859	38	15310	28	13131	33	2536	19	8893	27	8457	30		
Total Capital	9880	49	28441	26	27800	28	34181	40	40062	27	42456	37	24451	29	30965	49	30500	52		

Financial performance by boat size

Key financial indicators are the level of revenue, running costs, crew costs, fixed costs and boat income. Revenue is the value of the catch landed¹. Running costs are the short term variable costs, including fuel, ice, bait, food and marketing levies. Crew costs are the payments to employed crew (excluding skipper), generally derived as a share of net revenue (revenue less running costs). Fixed costs are the short run fixed costs. These are costs that do not vary with the level of fishing activity by an individual boat, such as administration and insurance costs². However, these costs may vary between different sizes of boats. Boat income is a financial profit measure derived by subtracting the total cash costs from revenue.

Financial performance indicators

The financial breakdown of the sample by size class is given in Table 4.

Revenue

Class sizes 10-12 metres and below have all experienced an apparent reduction in mean revenue over the period 1994-1997. The greatest fall in mean revenue was experienced by 8-10 metre boats. In the case of boats less than 6 metres and 10 -12 metres this apparent decline in revenue can be attributed to the fact that total days fished fell (Table 2). This, however, was not the case for 6-8 metres and 8-10 metres boats which increased fishing days. Falling revenue for these size classes may possibly be explained by a fall in VCUs resulting in smaller catches. However, total running costs as percentage of revenue remained fairly constant over the three survey periods therefore throwing doubt on this reasoning.

Another possible explanation for the fall in revenue in size classes 6-8 metres and 8-10 metres could be changes in catch composition. Potters dominated the early survey whilst the latter survey was characterised by an increase in netters relative to potters. However, netters have experienced an apparent increase in mean revenue whilst potters have experienced an apparent decline in mean revenue.

Boats in size classes 12-20 metres and greater than 20 metres have experienced an apparent increase in mean revenue of approximately the same magnitude as each other over the survey period. In the case of 12-20 metres boats this apparent increase in revenue can be explained by an increase in days fished. In the case of boats greater than 20 metres there was an apparent increase in mean revenue despite a decline in days fished and a decline in VCUs of approximately 44 per cent. To a certain extent however this can be explained by changes in the sample boats over the survey periods.

Running Costs

Running costs vary with the level of activity. Fuel, food and ice costs are affected by the number of days fished, while levies (which include market levies, agent fees and Producer Organisation (PO) levies) are determined as a percentage of the value of the landed catch. The smaller boats in the fleet characteristically operate static gear near to

¹ In some cases, the fishers also used their boats for fishing charters. The income derived from this was also included in the boat revenue. This was relatively uncommon and did not form the main part of the fishing income.

² There is a further category of costs that do not neatly fall into either fixed or variable costs. For example, boat repairs may vary with the level of activity but regular maintenance is necessary irrespective of fishing activity. Similarly, gear costs may increase with activity, but gear can be lost at any time requiring replacement. Harbour dues for some boats may be related to the level of their activity. For the purposes of this analysis, these costs are assumed to be fixed.

shore compared with the larger boats which tend to use mobile gear therefore operating further away from the shore. Hence, running costs are positively related to boat size.

With the exception of 12-20 metres size class there was an apparent decline in total running costs for all class sizes. Size classes 12-20 metres and greater than 20 metres have no mean bait costs recorded in the survey year 1994/5. However, extrapolating mean bait costs back from values recorded in 1995/96 and 1996/97 does not change the apparent trend in total mean running costs in these two class sizes.

There was an apparent increase in mean fuel costs for boats less than 6 metres, 6-8 metres and 12-20 metres. In all three cases total days fished also increased. However, as stated above 12-20 metres boats were the only class size to experience an increase in total running costs.

In the case of boats less than 6 metres, mean fuel costs increased by approximately 55 per cent and mean bait costs fell by approximately 99 per cent. The increase in mean fuel costs for 6-8 metre boats was approximately 8 per cent and again there was an apparent reduction in mean bait costs. Increases in mean fuel costs and reductions in mean bait costs for the smaller class sizes and, most notably the those boats less than 6 metres can be explained by changes in the fishing activities of smaller boats in the sample. As mentioned above the latter survey was characterised by an increase in netters relative to potters. It would not be unreasonable to assume that potters would have experienced lower fuel cost but higher bait cost when compared to netters. Table 6 supports this reasoning.

Crew costs

While a number of boats employed skippers, the majority of boats were owner-operated (Pascoe, Robinson and Cogan 1996). Costs of skippers have therefore been excluded to enable a comparison to be made across all boats on the basis of owner-operator equivalent costs. Returns to the skipper (whether owner operator or employed) are included in the mean financial profit measure.

Crew costs were the actual payments to crew, although a small number of crew were paid a proportion of gross revenue. There was an apparent decline in mean crew costs for class sizes less than six metres, 6-10 metres and 8-10 metres. Since crew are generally paid a proportion of net revenue, this apparent decline is consistent with the decline in mean revenue for these class sizes.

There was an apparent increase in mean crew costs in class sizes 10-12 metres, 12-20 metres and greater than 20 metres. This apparent trend is consistent with an apparent increase in mean revenue in these size classes.

Fixed Costs

Fixed costs are those costs that do not vary within a year with the level of fishing activity of the individual boat, but may vary across boat sizes. Fixed costs includes costs of repairs and maintenance (both boat and gear as well as gear replacement), harbour dues, interest payments, insurance costs, equipment hire and administration costs.

Mean fixed costs appear to be relatively constant over the three survey periods for class sizes less than 6 metres, 6-10 metres, 8-10 metres and 10-12 metres. An increase in mean fixed costs for class size 12-20 metres and greater than 20 metres appears to be driven principally by an increase in mean repairs and maintenance for these two class sizes.

Boat Income

Boat income is a financial profit measure derived by deducting total running costs, crew costs and fixed costs from gross revenue. It is essentially the return to the owner of the boat, and includes a return to their own labour as well as a return on their investment.

There was an apparent decrease in mean boat income for size classes less than 6 metres, 6-8 metres, 8-10metres and 10-12 metres. Of these it appears that the greatest reduction in mean revenue, a fall of approximately 50 per cent, was experienced by boats less than 6 metres and in the 10-12 metre size class.

There was an apparent increase in mean boat income for 12-20 metres and greater than 20 metres class sizes. In the latter case mean boat income more than doubled. Hence, it appears that the financial performance of larger boats in the fishery has improved over the survey period. In comparison, the smaller boats appear to be performing less well financial than they were at the start of the survey period.

Economic performance indicators

The distinguishing feature of an economic indicator is that it includes all costs that are generated by the activity of a particular size class or gear type, exclusive of all redistributive payments such as interest or hire charges. In this sense economic indicators take into consideration the real resource costs of the activity. This is distinct from financial indicators that measure the viability solely in terms of commercial profitability. The assumptions underlying the economic indicators reported below are discussed in detail in Pascoe, Robinson and Cogan (1996).

The key economic performance indicators by class size are given in Table 4. Revenue and running costs are as previously defined. Fixed economic costs have been adjusted so as not to included interest payments or rental charges and appropriate allowance has been made for economic depreciation (i.e. the loss in selling price of the asset not offset by repairs and maintenance). Labour costs have been increased and now consist of both crew payments and an imputed skipper cost. Further discussion of these adjustments can be found in Pascoe, Robinson and Cogan (1996).

Full equity profits and rates of return to capital

Full equity profits are taken as revenue less economic costs. As the costs include all returns to labour, full equity profit is a measure of the economic return to the capital in the fishery. The rate of return to capital is the ratio of full equity profit to capital value. As an explanatory indicator of economic performance it offers more than if either full equity profit or capital value are considered in isolation. The rate of return can be compared with an expected rate of return to determine whether or not the boat is covering its opportunity cost. Rates of returns greater than the opportunity cost of capital are generally considered to be indicative of the level of resource rent in the

fishery. Two values for the opportunity cost of capital are presented. An opportunity cost of capital of 10 per cent is assumed for UK fishers (Pascoe, Robinson and Coglan 1996). However for the purposes of drawing comparisons between these data and those collected on French fisheries in the English Channel an opportunity cost of capital of 5.7 per cent is also considered. This rate of return is the risk free rate of return in France.

There is an apparent decline in mean full equity profit for class sizes less than 6 metres, 8-10 metres and 10-12 metres. Whilst there is an apparent downward trend in the mean full equity profit in class size 12-20 metres mean full equity profits did substantially increase from £13590 in 1994-95 to £21127 in 1995-96 before falling to £10004 in 1996-97. There is an apparent decline in mean full equity profit in 6-8 metres class size over years 1994-95 and 1995-96, mean full equity profits rising in 1996-97. The greatest apparent fall in mean full equity profit were experienced by 8-10 metres and 10-12 metre class sizes. The reduction in mean full equity profits in these class sizes was approximately 77% and 96% respectively.

There is an apparent increasing trend in mean full equity profit in the size class greater than 20 metres. For this class size mean full equity profit increased by approximately 300%.

Comparing the rates of return to capital against the expected rate of return it can be determined whether a boat is covering its opportunity cost. Overall the rates of return for all class sizes fell over the survey period.

Assuming an expected rate of return of 10 percent class sizes less than 6 metres and 6-8 metres were covering opportunity costs of capital and capital including license for all three survey years.

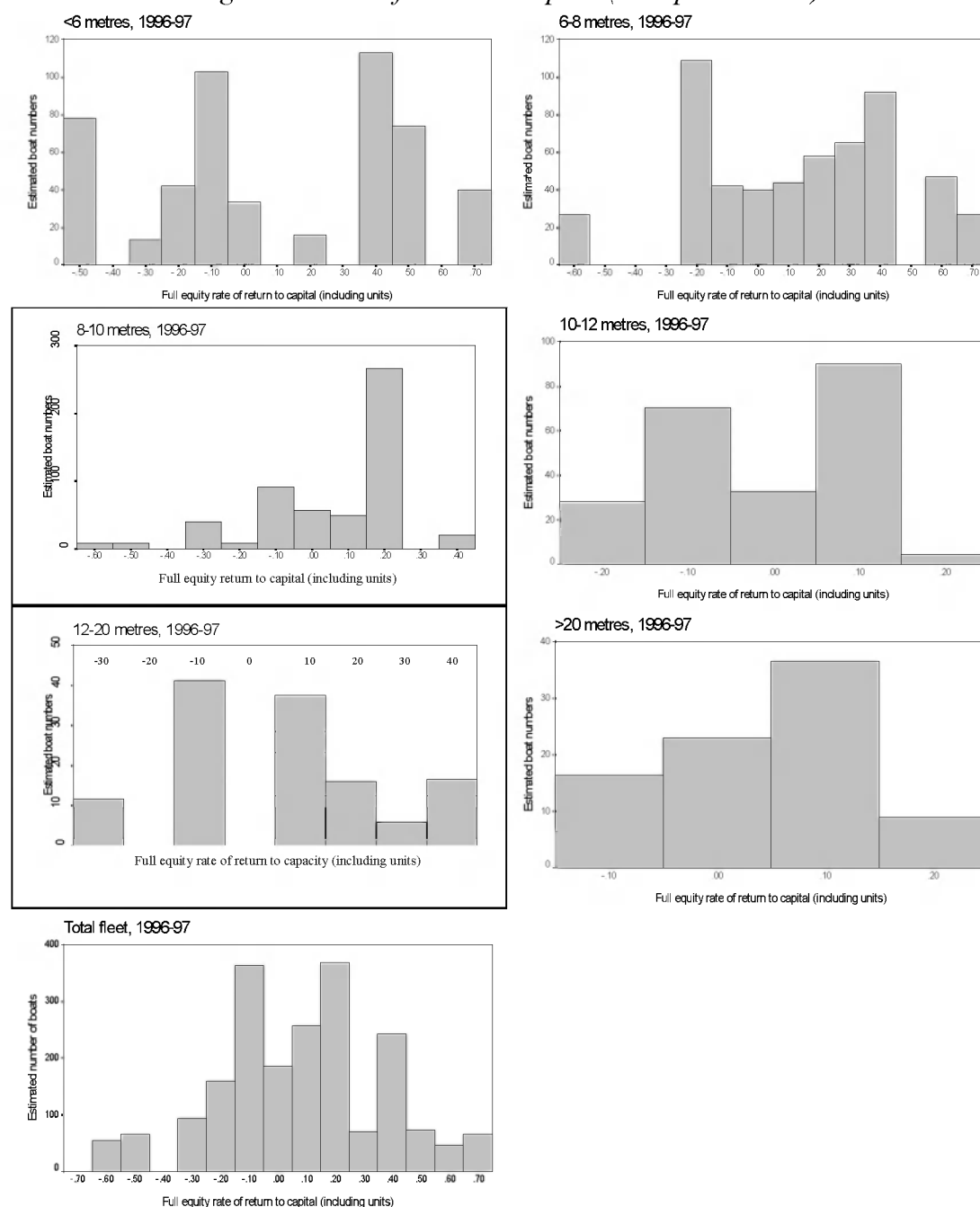
The opportunity cost of capital and capital including license values were not being covered by boats in the 8-10 metres class size in the survey year 1996-97. Mean rates of return in the 10-12 metres class size were falling over the survey period. In 1995-96 and 1996-97, boats in this size class, on average, were not covering their opportunity cost of capital or capital including license value, the latter year rate of return being recorded as zero per cent.

Despite covering the opportunity cost of capital and capital including license value in 1995-96, boats in class size 12-20 metres, on average, failed to cover their opportunity cost of capital in the other survey years. Boats in greater than 20 metres, on average, did not cover their opportunity cost of capital in all three survey years.

Assuming an expected rate of return of 5.7 per cent makes no significant difference to the above discussion. The exception is with respect to boats greater than 20 metres. Boats in this class would, on average, have been covering their opportunity cost of capital in 1995-96 and 1996-97.

The distribution of rates of return for the different class sizes are given in Figure 1.

Figure 1. Rates of return to capital (boat plus licence)



Returns to owner operator

Full equity profits and rates of return to capital are classical measures of economic performance. However, when labour is the main input, such as in the case of many smaller boats, small changes in the assumption about the value of labour could have significantly larger effects on the estimated level of profitability and, hence, returns to capital. Boncoeur, Le Gallic and Pascoe (1998) suggest that a more appropriate measure of economic performance maybe to derive owner operator economic returns. This is done by explicitly deducting the opportunity cost of capital from full equity profits rather than the imputed labour costs. Once the opportunity cost of capital has been deducted, the net income of the owner represents the reward, both of their labour

as a fisher and of their management skill. To determine if owners are covering their opportunity cost, owner operator economic returns are compared with the imputed value for skipper skill. If owner operator economic returns are greater than the imputed value for skipper then the owner is earning more than their opportunity cost of labour.

Owner operator economic returns follow the apparent trend in rates of return for each class size over the survey periods. Comparing owner operator returns to imputed skipper costs also, for the most part, reflects the trend reported above comparing rates of return to capital against the expected rate of return. An increase in the absolute value of the opportunity cost of owner's labour is apparent as class size increases assuming an opportunity cost of capital of 5.7 per cent. At this opportunity cost of capital the opportunity cost of the owner operator is being covered in all three survey years. The exception to this are mean boats in sizes class 8-10 metres and 10-12 metres in the survey year 1996-97, which did not, on average, cover their opportunity cost of labour.

Assuming an opportunity cost of capital of 10 per cent. only the two smallest class sizes covered the opportunity cost of the owner operator, on average, in all three survey years. In contrast the average owner operator of boats greater than 20 metres did not covering their opportunity cost in all three survey years.

Table 4. Financial and economic performance indicators by class size (£, average per boat, 1994/95 - 1996/97)

Table 4: Financial and economic performance indicators by class size (£), average per boat, 1994-95 - 1996-97																		
	< 6 metres						6 - 8 metres						8 - 10 metres					
	1994-95		1995-96		1996-97		1994-95		1995-96		1996-97		1994-95		1995-96		1996-97	
	Mean (£/boat)	RSE (%)	Mean (£/boat)	RSE (%)	Mean (£/boat)	RSE (%)	Mean (£/boat)	RSE (%)	Mean (£/boat)	RSE (%)	Mean (£/boat)	RSE (%)	Mean (£/boat)	RSE (%)	Mean (£/boat)	RSE (%)	Mean (£/boat)	RSE (%)
Revenue	7893	26	6417	30	6566	27	21071	13	16420	18	17685	23	40719	12	36156	24	32619	16
Running costs																		
• Fuel and oil	564	34	949	34	874	20	958	17	1094	38	1043	37	2666	24	2400	21	2325	16
• Ice	22	141	13	72	4	138	57	87	50	112	56	93	263	62	852	50	851	39
• Food	9	141	1	139	1	138	29	86	67	45	65	43	350	59	245	46	226	40
• Bait	457	47	3	122	3	118	1549	41	1569	45	1313	49	2177	29	985	50	1178	36
• Levies	125	97	50	99	33	85	636	29	383	40	541	47	975	33	1452	51	1067	39
Total running costs	1178	27	1015	35	915	20	3229	20	3164	23	3017	24	6431	17	5935	16	5646	13
Crew costs	1069	56	844	65	955	63	2543	29	1307	61	1793	80	8376	18	6306	29	6014	25
Fixed Costs																		
• Repairs and maintenance	681	18	1076	52	1420	56	3658	19	2678	24	3011	46	5921	27	5840	32	6717	26
• Survey costs	0	0	0	0	0	0	0	0	8	93	7	89	7	137	66	61	99	32
• Harbour dues	81	37	134	54	94	30	600	23	440	26	477	23	357	33	297	34	261	25
• Equipment hire	0	0	33	82	0	0	129	52	38	109	36	104	163	51	89	90	101	55
• Other rental	35	56	0	0	0	0	65	67	66	38	59	39	32	110	222	57	222	44
• Insurance	177	33	75	39	51	32	482	18	707	35	666	35	1203	17	545	36	603	23
• Administration	173	56	98	58	96	65	442	34	642	36	453	34	695	20	652	27	975	22
• Interest	14	141	46	139	0	0	461	43	223	53	176	50	960	63	224	116	290	55
• Other costs	259	56	55	55	53	58	679	40	751	35	632	37	1062	27	929	22	1269	24
Total Fixed costs	1419	29	1517	40	1714	47	6516	20	5551	19	5518	31	10400	20	8867	25	10538	20
Boat income	5775	26	3040	29	2982	23	8783	20	6398	27	7358	25	15511	16	15048	36	10421	27
Returns to capital																		
• Boat income	5775	26	3040	29	2982	23	8783	20	6398	27	7358	25	15511	16	15048	36	10421	27
• Plus interest and rent	48	50	79	86	0	0	654	42	326	44	271	42	1155	52	536	66	613	30
• Minus depreciation	135	14	67	18	76	20	323	14	258	17	279	18	588	17	539	22	600	18
• Minus skipper	2817	20	1843	32	1928	30	6465	15	4523	20	5005	26	10553	11	10311	27	9203	18
Full equity profit	2871	34	1209	42	978	60	2649	56	1943	61	2344	65	5524	23	4734	63	1231	141
Rates of return (%)																		
• capital	0.466772		0.396913		0.32181		0.180304		0.163911		0.207909		0.206638		0.189835		0.050393	
• capital and license	0.410444		0.219593		0.180142		0.159028		0.114264		0.144153		0.164846		0.130873		0.034912	
Returns to owner operator																		
• Boat income	5775	26	3040	29	2982	23	8783	20	6398	27	7358	25	15511	16	15048	36	10421	27
• Plus interest and rent	48	50	79	86	0	0	654	42	326	44	271	42	1155	52	536	66	613	30
• Minus depreciation	135	14	67	18	76	20	323	14	258	17	279	18	588	17	539	22	600	18
• Minus opportunity cost of total capital																		
• 10%	700	13	551	11	543	12	1666	13	1701	15	1626	15	3351	16	3617	17	3527	14
• 5.7%	399	13	174	18	173	20	949	13	676	18	643	18	1910	16	1421	22	1393	18
Owner operator economic returns																		
• 10%	4989	31	2501	35	2363	27	7448	24	4765	35	5723	31	12726	18	11428	45	6907	37
• 5.7%	5289	29	2878	30	2733	24	8164	22	5790	30	6706	27	14167	16	13624	39	9042	29

Table 4 (continued) Financial and economic performance indicators by class size (£, average per boat, 1994/95 - 1996/97)

	10 - 12 metres						12 - 20 metres						>20 metres					
	1994-95		1995-96		1996-97		1994-95		1995-96		1996-97		1994-95		1995-96		1996-97	
	Mean (£/boat)	RSE (%)	Mean (£/boat)	RSE (%)	Mean (£/boat)	RSE (%)	Mean (£/boat)	RSE (%)	Mean (£/boat)	RSE (%)	Mean (£/boat)	RSE (%)	Mean (£/boat)	RSE (%)	Mean (£/boat)	RSE (%)	Mean (£/boat)	RSE (%)
<i>Revenue</i>	83193	16	53643	14	66690	24	111752	30	140583	18	186330	17	291197	9	321921	14	394059	9
<i>Running costs</i>																		
• Fuel and oil	6083	12	4370	16	4436	22	7485	34	7930	16	11642	15	57701	11	38055	21	55565	11
• Ice	327	38	445	54	797	51	1438	20	1370	37	2218	43	3326	9	3797	11	3224	12
• Food	1551	40	860	56	1790	48	3664	23	2552	33	2225	40	8615	10	7874	10	8440	8
• Bait	5316	43	1597	52	1272	72	0	0	4594	53	4550	61	0	0	2522	125	2880	89
• Levies	3589	30	2674	32	2637	33	8467	35	8032	19	9161	17	21108	13	13338	17	16209	11
Total running costs	16866	17	9945	18	10932	26	21054	30	24215	21	29502	18	90749	10	65585	16	86318	9
<i>Crew costs</i>	13943	18	10666	15	16600	33	28149	38	36252	21	56402	18	66392	13	86141	11	102691	8
<i>Fixed Costs</i>																		
Repairs and maintenance	16120	18	7127	18	12823	24	15131	16	20090	29	35458	24	59442	17	69774	15	88977	10
• Survey costs	10	172	87	87	65	55	1432	12	159	57	133	67	5155	37	0	0	0	0
• Harbour dues	1187	28	497	43	2463	74	1940	68	1701	54	2204	35	4256	31	8705	20	10125	17
• Equipment hire	710	20	498	36	1370	27	952	85	1024	27	1784	23	2652	23	3324	32	3670	16
• Other rental	59	98	205	73	493	71	0	0	196	54	309	50	89	51	592	56	853	40
• Insurance	2277	14	1909	14	3842	49	5631	5	4172	18	6083	22	17461	10	11724	11	13830	8
• Administration	1334	13	1417	28	1347	24	1466	5	1997	21	1841	17	4488	16	3013	28	3389	21
• Interest	613	39	1046	54	1220	44	6346	85	1564	56	1201	65	7168	50	4714	54	4665	34
• Other costs	1852	18	2123	24	1533	31	270	43	1553	24	4749	37	2549	23	4382	18	6235	14
Total Fixed costs	24163	14	14908	15	25088	20	33167	14	32458	22	53762	21	103259	11	106229	13	131745	8
<i>Boat income</i>	28221	23	18124	25	14070	32	29383	71	47658	19	46664	36	30798	45	63966	26	73305	19
<i>Returns to capital</i>																		
• Boat income	28221	23	18124	25	14070	32	29383	71	47658	19	46664	36	30798	45	63966	26	73305	19
• Plus interest and rent	1382	18	1749	34	3016	25	7298	85	2785	33	3294	28	9909	40	8630	43	9189	25
• Minus depreciation	1596	21	1338	14	1682	15	3133	15	2516	19	3836	15	7551	14	7105	22	10352	11
• Minus skipper	17683	15	11816	15	15077	24	19958	35	26799	18	36117	18	24665	10	31401	13	37698	9
<i>Full equity profit</i>	10324	37	6719	44	326	920	13590	62	21127	22	10004	127	8490	163	34091	42	34444	34
<i>Rates of return (%)</i>																		
• capital	0.142354		0.106994		0.004733		0.095424		0.179355		0.063679		0.024735		0.10418		0.082269	
• capital and license	0.12133		0.064895		0.003045		0.083976		0.123852		0.04547		0.023401		0.074391		0.060481	
<i>Returns to owner operator</i>																		
• Boat income	28221	23	18124	25	14070	32	29383	71	47658	19	46664	36	30798	45	63966	26	73305	19
• Plus interest and rent	1382	18	1749	34	3016	25	7298	85	2785	33	3294	28	9909	40	8630	43	9189	25
• Minus depreciation	1596	21	1338	14	1682	15	3133	15	2516	19	3836	15	7551	14	7105	22	10352	11
• Minus opportunity cost of total capital																		
• 10%	8509	19	10354	11	10720	12	16183	13	17059	15	22002	12	36282	14	45826	19	56950	9
• 5.7%	4850	19	3580	14	3931	15	9224	13	6714	19	8955	15	20681	14	18652	23	23864	11
<i>Owner operator economic returns</i>																		
• 10%	19498	24	8181	44	4683	85	17365	87	30868	20	24120	64	7521	142	19666	75	15192	77
• 5.7%	23157	23	14956	27	11473	37	24324	61	41212	18	37167	43	23123	44	46840	33	48278	26

Financial and economic performance by fishing activity

The financial and economic performance of the fishery was also estimated on the basis of principal gear type. This was to examine the relative performance of particular fishing activities. Seven separate fishing activities were identified. The seven fishing activities are subdivided into two categories mobile gear and static gear. A breakdown of the key costs and revenue for the different fishing activities are presented in Table 5 (mobile gear types) and Table 6 (static gear types). Only two years data (1995/96 and 1996/97) are presented for dredge and pelagic trawl boats (Table 5).

Financial performance indicators

Revenue

Mean revenue decreased for beam trawlers, dredgers and potters over the survey period (Table 5 and 6). In contrast, mean revenue increased for otter trawlers, pelagic trawl operators, line boats and netters. The greatest apparent absolute increase in mean revenue for boats using mobile gear was recorded by otter trawl. Line boats and netters experience an apparent increase in revenue of approximately 145 per cent and 92 per cent respectively.

Running Costs

Characteristically boats that operate static gear tend to fish nearer the shore compared with boats that use mobile gear. Hence, it would be expected that boats operating mobile gear would have higher running costs than boats operating static gear. This assumption is consistent with the data presented in Tables 5 and 6.

There was an apparent increase in mean total running cost for otter trawls, pelagic trawl, line boats, and netters. In the case of otter trawl no mean bait costs were recorded in the survey year 1994-5. However, extrapolating mean baits costs back from values recorded in survey years 1995-96 and 1996-97 does not change the apparent trend in total running costs for this gear type. In contrast, beam trawlers, dredgers and potters experienced an apparent reduction in mean running costs over the survey period.

An apparent increasing trend in mean running costs is not inconsistent with the fact that otter trawls, pelagic trawl, line boats, and netters also experienced an apparent increase in their mean revenue over the survey periods. This suggests that the level of fishing activity of boats using for these gear types had increased, on average, over this period. Increases in mean fuel and oil costs for these gear types would support this reasoning.

Crew costs

There was an apparent decrease in mean crew costs for beam trawlers, dredgers and potters. In contrast, otter trawlers, pelagic trawlers, line boats and netters experienced an apparent increase in mean crew costs. The greatest apparent increase in mean crew costs were experienced by line boats netters, approximately 353 per cent and 363 per cent respectively. These gear types also recorded the greatest apparent increase in mean revenue.

Fixed Costs

With the exception of beam trawlers, line boats and netters fixed costs for all other gear types were relatively stable over the survey periods. The mean fixed cost for beam trawlers reduced from £87431 in 1994-95 to £33436 in 1996-97, a fall of approximately 62 per cent. This was largely due to no survey costs being incurred by the boats in the sample in years 1995-96 and 1996-97 and also a substantial reduction in insurance costs (approximately 55 per cent). The fall in insurance cost may be related to an apparent fall in the mean capital value for this gear type (Table 3) over the same period therefore reducing sum insured and consequently the cost of insurance.

Line boats and netters experienced an apparent increase in fixed cost over the survey period of approximately 178 per cent and 68 per cent respectively. Line boats experienced substantial apparent increases in the mean costs of repairs and maintenance, harbour dues, insurance, administration and other costs. Netters recorded substantial apparent increase in the mean cost of repairs and maintenance, harbour dues, administration and other costs.

Boat income

Pelagic trawls and netters all experienced an apparent increase in mean boat income of around the same proportion (approximately 50 per cent). There was an apparent decline in boat income for beam trawlers, dredgers, line boats and potters. The greatest apparent fall in mean boat income was approximately 36 per cent incurred by dredgers. The high RSE around the mean boat income for potters recorded in 1995-96 and 1996-97 indicates that it is unlikely that this gear type was experiencing a small increase in mean boat income between these two survey years.

The mean boat income of otter trawls was relatively stable when comparisons are made between survey years 1994-95 and 1996-97. However, from 1994-95 to 1995-96 the mean potting boat experienced an apparent increase in mean boat income of approximately 55% and from 1995-96 to 1996-97 an apparent fall in mean boat income of approximately 35%.

Economic performance indicators

Economic performance indicators by gear type are summarised in Table 6 for the seven main gear type activities. Again, economic revenue is assumed to equate to financial revenue. Similarly economic running costs equate to financial running costs. Also, as in the previous section on economic performance by size class, modifications have been made to labour costs and fixed economic costs.

Full equity profits and rates of return to capital

There was an apparent decline in mean full equity profits for beam trawlers, otter trawlers, dredgers, line boats netters and potters. Pelagic trawl was the only gear type that experienced an increase in mean full equity profits.

The mean pelagic trawler was covering its opportunity cost of capital, assuming an expected rate of return of 10%. Pelagic trawl was the only gear type to experience a substantial increase in its rate of return to both capital and capital including license value. The mean potting boat was also covering its opportunity cost of capital across

all three survey years, although only by a small margin with respect to the rate of return to capital including license value.

The mean line boat was covering its opportunity cost of capital (assuming an expected rate of 10 per cent) for all three survey years. However, it had experienced a substantial decrease in the rate of return to capital from 50 per cent in 1994-95 to 15 per cent in 1996-97. Whilst it was covering its opportunity cost to capital and license value in 1994-95 it failed to do so in 1995-96 and 1996-97.

Assuming an expected rate of return of 10 per cent the mean beam trawl boat failed to cover its opportunity cost of capital or capital and license value in any of the survey years. The mean otter trawl boat was initially covering its opportunity cost of capital in 1994-95 and 1995-96. However, there was substantial fall in its rate of return to capital from 11.05 per cent in 1995-96 to 1.09 per cent in 1996-97. The rate of return to capital including license value followed the same pattern. The mean dredge and net boats follows a similar description as the mean otter trawl boat.

The distribution of rates of return for the different gear types are given in Figure 2. For all gear types a number of boats were making negative return to full equity (Figure 2). This reduced the average return for each gear type. In 1994-95 the modal rates of return to full equity capital for boats using gear types other than beam trawl was between 25 to 30 per cent and the modal rate of return for beam trawlers was 10 per cent (Pascoe, Robinson and Cogan 1996). From Figure 2, the modal rates to full equity profit in 1996-97 was between 10% and 20% for beam trawler, dredgers, otter trawlers, pelagic trawlers, line boats. For potters the modal rate of return was 40 per cent an increase from 25 per cent in 1994-95. In contrast, the modal rate of return for netters reduced to minus 10 per cent in 1996-97. Hence, most boats in the fishery were earning normal (i.e. around 10 per cent) or above normal returns. The exception is netters who, on average, were making a loss in 1996-97. In contrast, therefore, to 1994-95 there has been an apparent reduction in the magnitude of rates of return to full equity profit for the majority of boats.

Returns to owner operator

Mean owner operator economic returns follow the apparent trend in mean rates of return for each gear type over the survey periods. Hence, there is an apparent decline in the mean rate of return to owner operators for beam trawlers, otter trawls, dredgers, line boats, netters and potters. Pelagic trawl was the only gear type to experience an apparent increase in the owner operator economic returns.

Potters were the only gear type to experience an apparent declining mean owner operator return for all three survey years. However, the opportunity cost of the owner operator remained positive throughout the survey period at both an assumed opportunity cost of capital of 10 per cent and 5.7 per cent. Beam trawler, otter trawlers and netters were not covering their opportunity cost to the owner operators in 1996/97 at either 10 per cent or 5.7 percent opportunity cost of capital. Dredge and line boats appeared not to be covering the opportunity cost of the owner operator at an opportunity cost of capital of 10 per cent. However, assuming an opportunity cost of capital of 5.7 per cent the opportunity cost of the owner operator appears to be positive.

Figure 2. Distribution of rates of return by gear type

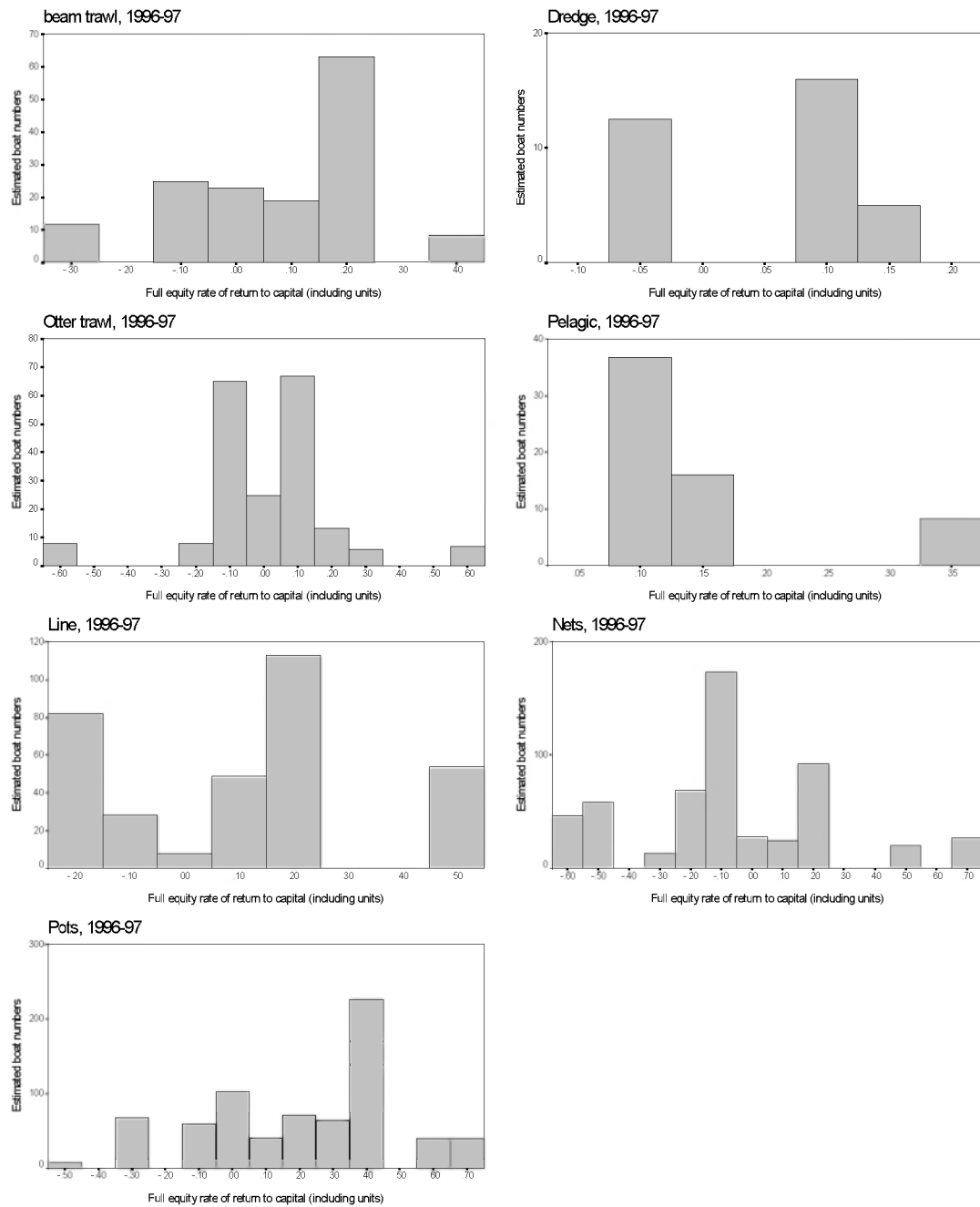


Table 5. Financial and economic performance indicators by mobile gear (£, average per boat, 1994/95 - 1996/97)

	Beam trawl						Otter trawl						Dredge				Pelagic trawl			
	1994-95		1995-96		1996-97		1994-95		1995-96		1996-97		1995-96		1996-97		1995-96		1996-97	
	Mean (£/boat)	RSE (%)	Mean (£/boat)	RSE (%)	Mean (£/boat)	RSE (%)	Mean (£/boat)	RSE (%)	Mean (£/boat)	RSE (%)	Mean (£/boat)	RSE (%)	Mean (£/boat)	RSE (%)	Mean (£/boat)	RSE (%)	Mean (£/boat)	RSE (%)	Mean (£/boat)	RSE (%)
<i>Revenue</i>	275946	10	157576	38	194346	21	46027	19	62472	16	57696	19	150204	61	141244	63	68979	40	78841	61
<i>Running costs</i>																				
• Fuel and oil	48327	17	23497	42	29569	23	4546	18	5470	14	4761	17	20132	59	21673	64	4777	27	4946	38
• Ice	2657	12	1497	34	1505	20	505	40	211	44	169	56	2367	58	2405	57	285	35	241	31
• Food	8378	9	4074	34	4708	19	696	42	619	36	591	38	2969	60	2753	57	751	39	646	42
• Bait	0	0	0	0	0	0	0	0	395	45	398	43	586	60	573	61	0	0	0	0
• Levies	21365	10	8231	39	8802	24	2583	29	4375	27	3567	34	4475	63	4838	51	5122	47	4120	41
Total running costs	80727	13	37299	37	44583	21	8330	20	11070	18	9486	22	30530	57	32243	58	10935	32	9952	36
Crew costs	64462	13	34193	46	48815	24	7796	27	14242	22	17157	31	39463	49	35255	52	12120	45	13761	73
Fixed Costs																				
• Repairs and maintenance	49631	22	33234	45	45685	23	9894	25	8885	17	8282	24	28473	56	35891	61	11494	53	8227	53
• Survey costs	4428	41	0	0	0	0	12	116	80	52	80	50	0	0	0	0	62	62	172	60
• Harbour dues	5078	22	3546	56	5537	28	767	31	562	37	741	33	502	78	522	76	88	66	107	67
• Equipment hire	2214	28	1602	58	1654	27	479	28	546	33	546	28	1212	138	1152	140	1071	34	1035	42
• Other rental	0	0	399	89	332	77	28	130	382	41	392	38	129	78	134	76	696	56	2185	41
• Insurance	14792	15	5821	37	6814	21	1604	19	2079	17	3833	49	6489	63	6813	64	2831	36	2981	39
• Administration	3708	21	1921	49	1764	35	863	20	1023	12	963	11	1723	44	1617	41	3278	30	2393	31
• Interest	5985	56	2489	104	1911	65	1261	58	781	60	430	67	2184	138	1540	140	2628	67	3048	53
• Other costs	1595	40	2215	40	3816	24	880	25	822	33	1434	25	1640	34	1600	34	885	77	698	94
Total Fixed costs	87431	16	51227	42	67512	21	15788	20	15159	11	16674	16	42352	58	49270	61	23033	37	20846	35
<i>Boat income</i>	43326	30	34858	33	33436	30	14112	23	22001	29	14379	38	37859	100	24477	108	22892	46	34281	85
<i>Returns to capital</i>																				
• Boat income	43326	30	34858	33	33436	30	14112	23	22001	29	14379	38	37859	100	24477	108	22892	46	34281	85
• Plus interest and rent	8199	46	4490	84	3897	47	1767	41	1709	32	1341	26	3525	132	2826	132	4396	39	6269	35
• Minus depreciation	6933	15	3960	46	5180	24	850	20	1518	19	1710	19	3215	68	3672	67	1530	42	1798	50
• Minus skipper	29702	7	18443	28	22037	17	10299	18	14263	12	13236	15	16962	48	14936	54	14174	39	16880	61
<i>Full equity profit</i>	14890	85	16945	55	10115	80	4731	32	7928	57	774	557	21207	155	8694	241	11584	44	21872	81
<i>Rates of return (%)</i>																				
• capital	4.72%		9.31%		4.84%		12.24%		11.05%		1.09%		14.29%		5.83%		16.17%		29.74%	
• capital and license	4.46%		6.63%		3.49%		9.60%		7.57%		0.76%		9.97%		4.06%		11.19%		20.89%	
<i>Returns to owner operator</i>																				
• Boat income	43326	30	34858	33	33436	30	14112	23	22001	29	14379	38	37859	100	24477	108	22892	46	34281	85
• Plus interest and rent	8199	46	4490	84	3897	47	1767	41	1709	32	1341	26	3525	132	2826	132	4396	39	6269	35
• Minus depreciation	6933	15	3960	46	5180	24	850	20	1518	19	1710	19	3215	68	3672	67	1530	42	1798	50
• Minus opportunity cost of total capital																				
• 10%	33403	14	25542	43	28950	22	4929	18	10469	19	10212	19	21273	63	21440	62	10350	34	10468	41
• 5.7%	19040	14	10377	46	11907	24	2809	18	4090	19	4033	19	8460	69	8501	67	4084	42	4192	50
<i>Owner operator economic returns</i>																				
• 10%	20626	49	9846	102	3202	236	10101	25	11722	37	3798	136	16895	180	2191	876	15407	44	28284	84
• 5.7%	34989	26	25011	42	20245	42	12220	22	18102	30	9977	53	29708	119	15130	154	21673	39	34560	75

Table 6. Financial and economic performance indicators by static gear (£, average per boat, 1994/95 - 1996/97)

	Lines						Nets						Pots					
	1994-95		1995-96		1996-97		1994-95		1995-96		1996-97		1994-95		1995-96		1996-97	
	Mean (£/boat)	RSE (%)	Mean (£/boat)	RSE (%)	Mean (£/boat)	RSE (%)	Mean (£/boat)	RSE (%)	Mean (£/boat)	RSE (%)	Mean (£/boat)	RSE (%)	Mean (£/boat)	RSE (%)	Mean (£/boat)	RSE (%)	Mean (£/boat)	RSE (%)
<i>Revenue</i>	9321	40	13377	32	13600	28	26899	25	49578	26	51743	33	32572	20	24718	52	28095	51
<i>Running costs</i>																		
• Fuel and oil	844	41	2488	24	2506	26	1395	30	2277	29	2566	39	1303	28	1218	47	1191	52
• Ice	79	72	1321	45	1352	47	286	51	624	47	783	58	6	110	1	134	2	136
• Food	0	0	33	83	24	91	499	57	852	48	811	61	213	111	213	130	218	143
• Bait	293	109	187	205	1	213	28	82	705	89	626	103	3941	25	2742	42	2778	46
• Levies	491	44	8	205	4	213	1921	25	2372	30	2471	33	134	53	273	75	340	69
Total running costs	1706	45	4036	30	3887	32	4129	28	6830	33	7256	39	5597	26	4446	47	4528	52
<i>Crew costs</i>	253	114	880	78	895	82	3933	39	12872	32	14289	39	5483	24	3931	78	4956	71
<i>Fixed Costs</i>																		
• Repairs and maintenance	587	37	962	47	1119	47	5297	22	8791	26	11585	31	4118	28	3919	71	5713	55
• Survey costs	0	0	62	125	75	31	198	66	37	94	31	109	0	0	29	74	29	74
• Harbour dues	117	63	275	28	265	28	600	32	1170	51	1492	69	359	27	331	29	334	29
• Equipment hire	0	0	101	57	48	107	336	68	201	105	467	62	92	49	107	114	269	69
• Other rental	92	141	0	0	0	0	0	0	62	78	66	97	59	62	99	42	106	45
• Insurance	66	97	320	26	294	22	1131	48	1192	35	1406	49	816	14	629	49	667	47
• Administration	25	104	125	83	248	29	454	37	628	23	731	28	670	21	681	29	721	32
• Interest	0	0	50	205	0	0	1872	78	242	69	188	92	390	46	393	65	498	49
• Other costs	217	104	856	38	1030	54	389	61	898	34	1314	57	1150	25	932	28	742	27
Total Fixed costs	1104	48	2750	34	3079	29	10278	30	13220	27	17280	34	7655	22	7120	49	9080	42
<i>Boat income</i>	6258	52	5711	49	5740	43	8559	47	16656	28	12918	31	13836	23	9220	49	9532	57
<i>Returns to capital</i>																		
• Boat income	6258	52	5711	49	5740	43	8559	47	16656	28	12918	31	13836	23	9220	49	9532	57
• Plus interest and rent	92	141	151	75	48	107	2209	76	505	79	721	65	542	42	600	48	873	34
• Minus depreciation	150	53	366	29	408	31	645	40	543	29	731	39	482	30	471	58	534	61
• Minus skipper	2777	40	2894	35	3120	29	7051	22	11151	23	12237	29	8639	17	5716	34	6635	33
<i>Full equity profit</i>	3423	67	2601	70	2260	70	3071	76	5467	40	670	293	5257	35	3633	74	3236	107
<i>Rates of return (%)</i>																		
• capital	50.22%		15.30%		13.53%		10.47%		22.09%		2.29%		23.99%		16.46%		14.68%	
• capital and license	34.65%		9.15%		8.13%		8.98%		13.65%		1.58%		21.50%		11.73%		10.61%	
<i>Returns to owner operator</i>																		
• Boat income	6258	52	5711	49	5740	43	8559	47	16656	28	12918	31	13836	23	9220	49	9532	57
• Plus interest and rent	92	141	151	75	48	107	2209	76	505	79	721	65	542	42	600	48	873	34
• Minus depreciation	150	53	366	29	408	31	645	40	543	29	731	39	482	30	471	58	534	61
• Minus opportunity cost of total capital																		
• 10%	988	49	2844	26	2780	28	3418	40	4006	27	4246	37	2445	29	3097	49	3050	52
• 5.7%	563	49	969	28	952	31	1948	40	1411	29	1672	39	1394	29	1258	59	1256	62
<i>Owner operator economic returns</i>																		
• 10%	5212	64	2651	95	2600	84	6704	48	12611	31	8662	33	11451	22	6253	48	6820	57
• 5.7%	5637	59	4526	58	4428	50	8174	38	15207	28	11236	30	12502	22	8091	45	8614	53

Overall value of the fishery

The survey results can be extrapolated to provide an indication of the value of the fishery to the economy of southern England. An assumption behind this extrapolation is that the boats in the sample are representative of their respective groups in terms of fishing activity.

The total values for the fishery were estimated by multiplying the overall weighted mean by the number of boats in the fishery (Table 7). The total values for 1994-95 have been re-calculated to be comparable to the survey data collected.

Table 7. Estimated total fishery values of key variables

	1994-95		1995-96		1996-97	
	Total (£m)	RSE	Total (£m)	RSE	Total (£m)	RSE
Revenue	87.8	17	95.4	19	103.6	19
Crew	17.4	22	20.4	23	24.5	23
Skipper	18.3	11	18.8	13	20.1	14
Crew and skipper	35.7		39.2		44.6	
Full equity profits	9.9	30	12.2	29	6.8	56
Total value added	45.6		51.4		51.4	
Interest	2.2	44	1.2	47	1.1	41
Capital value ^a	82.9	23	84.3	24	92.6	22
Imputed licence value	11.2	15	40.0	18	39.5	18
Total capital	91.8	22	124	22	132	20
Economic profits ^b	0.7		-0.2		-6.4	

^a excludes capital value of licenses

^b Full equity profits less normal return to capital, assuming 10 per cent normal return to capital

From Table 7, the total value of landings increased by about 18 per cent from 1994-95 to 1996-97. Despite this, total full equity profits fell over the same period. Economic profits were estimated to be negative in both 1995-96 and 1996-97 indicating that the level of investment in the fishery was not sustainable in the long run.

The total value of capital increased over the three survey years. In 1996-97, almost 30 per cent of the total capital value in the fishery is incorporated in the licence values (i.e. combined value of licence, units and quota allocation). While licence values are often considered an indicator of the industry's expectations of future profit levels, transferability of units between fisheries distorts this measure to some extent.

Conclusions

The information presented in this report is based on the most comprehensive analysis of the economic performance of the UK fleet of the English Channel to date. While other economic studies have been carried out on the fleet over the last few years, these have been limited to boats over 12m in length and to a restricted range of fleet segments. As most of the fishery consists of boats under this size class, these other studies exclude the vast majority of fishing operations in the Channel. In contrast, this study specifically examines the economic performance of all UK boats operating in the Channel, irrespective of size or gear type.

As would be expected, the fishery is characterised by some individuals making relatively large profits while others are making a loss. This is observed not just

between different fishing activities, but also within activities and within size classes. For most fleet segments, average returns to capital are low, and in most cases decreased across the three years of the survey data. In 1996-97, the rates of return to capital in most fleet segments were below what might be considered as a normal rate of return. This means that, from society's perspective, greater returns could have been achieved had the capital value of the boats would been invested in the next best alternative activity. This is not to say that the owners of these boats were not all earning a financial return on their investment, just that higher economic returns could have been earned elsewhere.

Similarly, for most fleet segments, average returns to the owner-operator also decreased over the three years examined. Decreases in the incomes to owner-operators are likely to act as a disincentive for new entrants to the industry, as higher incomes might be achievable elsewhere.

Overall, the fishery was estimated to be making an economic loss in 1996-97. That is, the full equity profits did not exceed the normal expected rate of return on capital. Over the period examined, these decreased substantially. This again suggests that the current level of investment in the fishery is not sustainable in the longer term.

References

- Pascoe, S. and Robinson, K and Cogan, L. 1996, *Economic and Financial Performance of the UK English Channel Fleet*, CEMARE Research Report R44, CEMARE, University of Portsmouth, UK.
- Boncoeur, J., Le Gallic, B. and Pascoe, S. 1998. On the (ir)relevance of rates of return measures of economic performance to small boats. Paper presented at IFFET, Norway, July
- Boncoeur J. and Le Gallic B., 1998. Economic survey of the French fleet operating the English Channel fisheries, CEDEM, University of Western Brittany, Brest (France), 1998.