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An Economic Survey of Angling in the Kyle of Sutherland Region

Prepared for the Kyle of Sutherland Fisheries Trust

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Executive Summary

This study sought to estimate the impact that angling has on employment and the income of households in the KSFT area.

A survey of fishery owners generated information on the total number of angler days fished in the KSFT area and how these days were distributed across a number of strata including anglers' origins, permit price bands and the fishing season. The owners' responses covered 80% of angling in the area. A companion survey of anglers generated information on their characteristics, their spending and the spending of their companions, as well as information about what anglers would do if angling were no longer available in the KSFT area.

From the survey of owners, it was estimated that there were a total of 15,050 angler days for salmon, sea trout and brown trout across the KSFT area. Of these12,091 were salmon and sea trout angler days and 2,959 were trout angler days. Anglers' gross expenditure was estimated by combining the information on expenditure per day from the anglers' survey with the estimated number of days obtained from the owners' survey. From Table E1 below, anglers and their companions annually spend nearly £4 million in the KFT area.

Table E1 Angler Gross Expenditure.

	Gross Expenditure
Salmon and Sea Trout	£3,549,840
Trout	£182,265
Total	£3,732,105

Anglers' gross expenditure supports economic activity throughout the KSFT economy, and indeed beyond. Of particular importance is the knock-on and ripple effects of this expenditure. These effects will be particularly strong if firms purchase their supplies within the KSFT and also if households spend their income locally. Unfortunately, as an economic entity, the KSFT area is relatively small, and to that extent, KSFT firms as well as households are less likely to purchase locally produced goods and services. To capture the full effects of angler expenditure on income and employment, including the knock-on effects, a highly detailed and complex model of the KSFT economy was constructed using the Detailed Regional Economic Accounting Model (DREAM®) developed by CogentSI.

The combined effects of anglers' expenditure and the knock-on effects generate annual household income in the form of wages, self-employment income, profits and rents. Collectively, these income streams are termed Gross Value Added (GVA). Using the DREAM® model of KSFT, it was estimated that, in the KSFT area, the £3,732 million of angler expenditure supports an annual income flow of £1.684, with £1.654 million of this dependent on visitor angler spending.

Using the same model, it is estimated that a total of 86 full time jobs equivalents (FTEs) are currently being supported in the KSFT area, 84 of which are dependent on visitor angler expenditure. Of the total 86 FTEs, 72 are termed 'direct employment', meaning that angler gross expenditure is directly supporting these. The knock-on effects are thus responsible for only 14 FTEs. These results are presented in the Table E2 below.

Table E2 Economic Activity Supported by Angler Gross Expenditure

	Total GVA (£'000s)	Direct Employment (FTEs)	Total Employment (FTEs)
Local Expenditure	£ 30	2	2
Visitor Expenditure	£1,654	70	84
All Expenditure	£1,684	72	86

Undoubtedly, one could identify more that 86 actual individuals in the KSFT area whose jobs are dependent on angling. This is because the 86 FTE's will be associated with more than 86 individual positions. Many jobs will be part-time and/or seasonal, especially the direct jobs. In this respect, two part-time, or four part-time / seasonal jobs are equivalent to one FTE. In addition, some individuals, although employed full-time, will spend only a proportion of their time in providing or maintaining angling services. For example, many ghillies will be engaged in general estate work in the off-season. It would not be unreasonable to conclude that angling supports the jobs of over 150 individuals in the KSFT area.

Table E2 above is essentially a snapshot of the current situation, but to fully evaluate the true contribution of angling one needs to address the question ***"What would happen in the KSFT area if angling ceased to exist?"*** In such a scenario, anglers might still visit the area and spend similar amounts, but on other activities. Thus, although angling related jobs and income would decline, jobs and income streams would be created in other activities. In such circumstances, one could argue that angling's contribution is not particularly significant, since, in the longer term, income and employment in the KSFT economy would recover. On the other hand, if the area were to lose significant proportions of angler expenditure, the income and job loss may be substantial and the adjustment may result in permanently lower levels of income and employment in the KSFT area.

The anglers' survey specifically addressed this issue, by asking anglers what they would do under three scenarios: salmon and sea trout ceasing to exist, trout angling ceasing to exist and all freshwater angling ceasing to exist. The responses provide the basis for estimating the net expenditure loss. The results of this analysis are given in Table E3 below. We estimate that, if all angling ceased the KSFT area would lose £3.368 million in annual angler expenditure[1].

[1] Notice that the loss of expenditure when all freshwater angling ceases is greater than the sum of the loss associated with each fish species. This is because when, say, trout angling is precluded

Table E3 Net Expenditure Loss.

	Gross Expenditure	Net Expenditure Loss
Salmon and Sea Trout	£3,549,840	£2,659,784
Trout	£ 182,265	£143,866
Total	£3,732,105	£3,368,238

This permanent loss of £3.368 million of angler expenditure will result in the economic impact described in the Table E4 below.

Table E4 Economic Impact of the Net Expenditure Loss

	Total GVA (£'000s)	Total Employment (FTEs)
Local Expenditure	£ 18	1
Visitor Expenditure	£1,492	75
All Expenditure	£1,510	77

From the Table above, it can be seen that the area would permanently lose an annual income flow of £1.510 million and 77 FTE's. In other words, if there was no angling for salmon, sea trout or brown trout, the KSFT area would lose the 86 FTEs jobs currently supported by angler expenditure (see Table E3), but would gain only 9 FTEs as (former) anglers switched their expenditure to other activities in the KSFT area[2]. The net loss would therefore be 77 FTE's.

Because of the size of the area, almost none of the direct and indirect economic activity associated with angling will occur in the Tain wards or in the areas directly surrounding the town of Dornoch. To understand the impact of a loss of 86 angling jobs on employment in the core fishing area, it was sensible to consider the impact of this employment loss on the Central Sutherland ward and the area to the west of the Dornoch Firth ward. Details of population and economic activity in this area were obtained from Scottish Census Reports On Line. Table E5 gives the employment in this core angling area.

Table E5 Local Employment 2001

	KSFT Core Angling area	Rate
Economically active	1,219	100%
In employment	1,093	90%
Unemployed	126	10.%

anglers can switch to salmon and sea trout within the KSFT area. In this way, the former trout angler expenditure is not lost. With the loss of all freshwater angling, substitution within the KSFT area is not possible and a greater proportion of expenditure is lost.

[2] In addition there would be 13 FTE's lost in the rest of Northern Scotland

Assuming those 1,093 “in employment” are engaged in full-time all year round occupations, then 86 FTEs in angling related employment accounts for around 7.9% of all jobs in the area. The reality is that the “in employment” relates to individuals and not FTE’s. We noted earlier that relatively few of the direct angling jobs are full-time, all year positions with 100% of working activity devoted to angling. Angling related employment probably accounts for around 150 employment positions or 13.7% of those in employment in the core fishing area.

If angling ceased altogether and between 86 and 150 individuals were added to the unemployment total, the unemployment rate would rise to between 17.4% and 22.6%. There would be 9 FTE’s created as (former) anglers switched their expenditure to other activities in the KSFT area. The net loss would therefore be between 77 and 135 individuals added to the unemployment total and the unemployment rate would rise to between 16.6% and 21.4%.

This study has shown that angling, particularly for salmon, is a very important part of this small rural economy and for well over a century, it has been supporting income and employment in what has become an increasingly fragile local economy. There are relatively few economic activities that have proved to be as long lasting.

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1 Objectives

This report has been prepared for the Kyle of Sutherland Fisheries Trust (KSFT). The original project objectives as determined by KSFT were:

1) *To ascertain the real value, both in scale and proportion, of sport fishing in the Kyle of Sutherland region to, its communities and culture.*
2) *To assemble information that may be employed as a means of demonstrating to a wide audience the value and importance of sport fishing to the local community and to foster support in promoting and conserving the sustainability of the fishery resource.*
3) *To secure a credible and a detailed report that can be used to obtain external funding both from the public and private sectors for the work of the KSFT.*

Historically, two kinds of 'economic' evaluations have been applied to angling in the UK and elsewhere. One form of evaluation is rooted in the Economic Value/Cost Benefit Analysis (CBA) framework. This type of study examines ***economic value*** and its sensitivity to changes in resource allocation. The primary focus is on how a change in resource use would impact on the well being of individuals, as reflected in their willingness to pay for the change (see Hanley and Spash, 1993). As such, the evaluation process might be unconcerned about the impact of the activity on individual regions or sectors of the economy.

The other set of evaluations focuses on the ***impacts*** of angling on local/regional income and employment. For example, a Tourist Board's concern may be with the effect of anglers' spending on regional income and/or employment and is thus likely to request an impact study.

Discussions with KSFT confirmed that the latter form of economic evaluation was the appropriate focus and the study therefore seeks to estimate the economic impact of freshwater fishing to the KSFT area. Where possible we sought separately to estimate the impacts of Salmon & Sea Trout and the impact of Trout[3] and to distinguish between local and visitor fishers.

[3] There is very little coarse angling and it was not appropriate to devote research effort to identifying its impact.

2 Theoretical underpinnings

In assessing the economic impact of anglers' expenditure[4] one is effectively seeking to answer the implicit question *"What would happen (to income and employment) in the KSFT area if angling for salmon & sea trout, or angling for trout ceased to exist?"* Two key issues arise out of this.

- What would anglers do if fishing for, say, salmon & sea trout ceased in the KSFT area and how much of their expenditure would be diverted outside the region? We use the term ***anglers' substitution possibilities*** to describe this issue.

- What is the impact on income and employment within the KSFT area of the decrease in angler expenditure? To answer this question a model of the KSFT economy has to be constructed. Once built, it can be used to trace though the knock-on (i.e. multiplier) effects of the expenditure change throughout KSFT economy – ***the KSFT multiplier effects.***

Anglers' substitution possibilities and multiplier effects are discussed in Sections 2.1 and 2.2 below.

2.1 Anglers' substitution possibilities

Anglers will respond in different ways to the loss of particular fish species in the KSFT area. Some anglers will divert their expenditure outside the region. For example, if salmon & sea trout fishing were no longer available, some anglers may decide to fish for salmon on the Spey, Tay, Dee, Don etc. The greater the proportion of anglers who respond in this way, the more convincingly one can argue that KSFT salmon & sea trout angling is contributing to the area's income and employment. On the other hand, some anglers and their companions may simply switch expenditure to other activities, or other forms of angling, within the KSFT area. For example, if trout angling were no longer available, trout anglers may switch to fishing for salmon, and indeed may even spend more. If many anglers responded in this way, the cessation of angling for trout would have little impact on income and employment in the KSFT area.

Practitioners often make the simplifying assumptions that visitors have better substitutes outside the region, and that local residents have better substitutes within it (see Fisheries Resources Management, 2000). This implies that a region would lose almost all visitor angler expenditure and retain almost all local angler spending. Researchers employing these assumptions thus only need to quantify visitor spending.

[4] This study also considers the magnitude and impact of anglers' non-fishing companions.

The above assumptions are somewhat crude. Not only are the actual substitution possibilities not always evident, they will vary between fish species. In this study, the view was taken that substitution possibilities may only be properly revealed through interrogation of the anglers themselves. It should also be noted that substitution possibilities will vary with the size of the area being considered. Other things being equal, the smaller the region, the fewer substitutes there are within it and the greater the proportion of angler expenditure that will be lost.

In this study, pre-substitution levels of angler expenditure are termed **gross expenditure**, the estimation of which provides a snapshot of current levels of angler expenditure in the KSFT region. Anglers' gross expenditures will support economic activity in the form of household income and employment in the KSFT area. Gross expenditure is the basis for estimating what is termed the **economic activity in the KSFT currently supported by** angler expenditure.

As described above, if salmon & sea trout angling were to cease in the KSFT area, there would be income and employment loss among those currently supplying services to these anglers. To the extent that salmon & sea trout anglers switch their expenditure to other activities (e.g. trout angling, stalking, golf etc) there would be compensatory gains in income and employment elsewhere in the KSFT area. Given this, the substitution effects are very important in determining the net change in expenditure and thus the net effect on income and employment in the area. In this report, the difference between the pre and post substitution levels of expenditure is termed the **net expenditure loss**. The net expenditure loss is the basis for estimating the net loss in income and employment. These net effects on household income and employment we term the **economic impact**[5] of the loss of angling.

2.2 The KSFT multiplier effects.

The full effect on regional income and employment of each (gross or net) pound of angler expenditure depends, among other things, on what the angler purchases and the strength of the direct effect, the indirect effects and the induced effects. These effects are briefly explained below.

The **Direct Effect** is simply the increase in local income and employment arising from the *initial* angler expenditure. Through a combination of taxation and the purchase of supplies from outside, a proportion of this initial expenditure will be immediately lost to the KSFT area, and effectively can be ignored. However, a

[5] There is no agreed taxonomy, or indeed common vocabulary, and the terms "economic activity supported by" and/or "economic impact of" may not necessarily be found in other studies of this kind. In this study, an explicit vocabulary is being used to emphasise that substitution effects are being incorporated into the analysis. Regrettably, many studies ignore, fudge or otherwise avoid the substitution issue, which is sometimes referred to as displacement.

proportion of angler expenditure will remain within the area. It is this proportion which creates the direct effect. For example, the direct *employment* effect of angler expenditure on, say, accommodation is simply the proportion of employment in hotels that is dependent on angler expenditure. The direct *income* effect of angler accommodation expenditure is the wages and profits paid by hotels to KSFT households.

It should be noted that some categories of expenditure have a minimal direct impact. For example, only about 5% of spending on petrol has a direct effect locally; 95% 'bounces off' through tax, duty and the purchasing of inputs from outside. In contrast, angler accommodation expenditure has a strong direct effect. The composition of angler expenditure is thus important in determining the magnitude of the direct effect on KSFT incomes and employment.

There are **Indirect Effects** arising from the Direct Effect. For example a KSFT hotel may purchase butcher supplies locally. This supports the wages of the local butcher's staff, the butcher's own income from self employment and perhaps the rent charged by the shop owner. It also contributes to employment in the butcher's shop. These effects are known as the first round indirect effects. There are further indirect rounds to be considered. The butcher may purchase some of his supplies from a local abattoir, thereby supporting the wages of abattoir staff and the abattoir's profits. It also contributes to employment in the abattoir. There will be further rounds of, albeit successively smaller, indirect effects. For example the abattoir may purchase livestock from local farmers, who in turn may purchase building services from local companies. The combined impact of the direct and all the rounds of indirect effects are modelled by what is termed "Type I" multiplier analysis. Among other things, this analysis would calculate the total Type I household income in the KSFT area (measured by Gross Value Added (G.V.A.)) and KSFT employment (measured by Full Time Equivalents (FTEs)) dependent on the fishery.

As described, both the direct effect and every round of indirect effects increases household incomes in the KSFT area in the form of wages, profits, rents and income from self employment. Thus, the income of a diverse range of KSFT households will be increased as a result of angler spending (e.g. hotel workers, hotel owners, butcher's staff, the butcher, butcher's landlord, the abattoir staff, owners of the abattoir, farm workers, the farmer, building workers etc….). In each spending round a proportion of these KSFT incomes are spent on KSFT produced goods, creating further local income and employment. This is the **Induced Effect**. "Type II" multiplier analysis incorporates these induced effects into the analysis, enabling the estimation of the corresponding Type II total income Effect (Type II GVA) and Type II total employment (Type II FTEs). In this report we only record the outcome of the Type II analysis.

The strength of the direct, indirect and induced effects depend on such things as inter-firm linkages within the regional economy, taxation policy, and the

proportion of local income normally spent within the region. These parameters themselves will be dependent on the size of the region. Specifically, the smaller the area the less likely local business and retailers will purchase locally produced supplies (weak indirect effects). Also, the smaller the area, the less likely local households will purchase locally produced goods (weak induced effects).

In modelling the regional economy, this study used the **Detailed Regional Economic Accounting Model** (DREAM®) developed by CogentSI. This model is described in Section 3.

3 Overview of research design

The generation of descriptive statistics and estimation of economic impacts followed the stages **(a)** to **(f)** described below:

- **a)** Identification of total angler effort distributed across fish species in the KSFT area, by visitors and by resident anglers.
- **b)** Estimation of gross expenditure by fish species.
- **c)** Assessment of the extent to which KSFT angler expenditure by fishery type will change i.e. substitution analysis and estimation of the net expenditure loss.

Stages **a), b)** and **c)**, lead to the estimation the net expenditure loss. The considerations which determined primary data collection and the estimation procedures necessary to estimate this are explained in Section 3.1.

Stages **d) e)** and **f)** below, are concerned with DREAM® modelling. The principles that have shaped the development of the DREAM® model are explained in Section 3.2.

- **d)** Building of the DREAM® model of the KSFT economy.
- **e)** Using DREAM® to assess income and employment in the KSFT area supported by angler gross expenditure.
- **f)** Using DREAM® to assess the economic impact (on income and employment in the KSFT area) of the net expenditure loss.

3.1 Estimation of net expenditure loss.

In England and Wales, the availability of lists of angler details from licence sales greatly simplifies primary data collection processes. The licence counterfoils provide the researcher with the opportunity to contact anglers at home using either postal or telephone questionnaires. Moreover, since the total number of anglers is known, one can easily scale the data obtained from individual anglers.

In Scotland, researchers have neither easy access to anglers' home contact details, nor estimates of the total number of anglers participating in various forms of freshwater angling. We therefore do not know the number of anglers fishing in the KSFT area.

In common with previous Scottish work (e.g. Radford, 2004 and Riddington, 2004), this study used the total number of annual fishing days as the scaling factor and therefore collected observations on the basis of expenditure per day, rather than per angler. Two surveys were required; a survey of owners to establish population totals and a survey of anglers to obtain observations on expenditure per day. The main purpose and features of these are further described below.

3.1.1 The role of the owners' survey

The owner survey had three broad objectives:

- To estimate **total angler days** for each fish species (trout, salmon & sea trout)
- To estimate the proportion of angler days originating from anglers within Scotland, from the rest of the UK, from mainland Europe, from North America, or from elsewhere.
- To estimate of the distribution of total angler days across the fishing season.

For each fishery in the KSFT area, we sought to contact the individual best able to complete a questionnaire which addressed the above issues. In some instances this was the proprietor, in others, the factor or manager was identified. The aspiration was to undertake a census, but it was anticipated there would be an element of non-response and therefore a need to scale the sample observations.

Scaling

The pivotal variable to be estimated was the total number of angler days. Conveniently, from secondary data we know the annual salmon catch for the KSFT area. This is because owners submit a catch return to the Scottish Executive which then aggregates these and publishes annual statistics for the KSFT area. On the assumption that non-respondents will have a similar catch per angler day as respondents, observed angler days can be scaled using the known total catch for the KSFT area.

Stratification of Salmon and Sea Trout Fisheries

It was also anticipated that there would be substantial variance in angler characteristics, particularly angler daily expenditure. On Scottish salmon rivers, local club anglers incur average daily expenditures that are a small fraction of the expenditures of those anglers who travel long distances, stay in quality accommodation and fish the best beats at peak times. Given such variance, the view was taken that the study would need to stratify the returns from salmon and sea trout anglers. Radford(2004) and Riddington(2004) stratified the sample by the home location of the angler. However for this project it was also decided to investigate stratification by days according to the (pro rata) daily cost of rod rental (see indicative Table below). Owners, or their representative, were asked to identify the proportion of angler days in each of the price categories in the table below.

Table 3.1.1.Pro-Forma for stratification by rental band

Salmon and Sea Trout Daily Rod Rental Cost (*Pro rata* including VAT)

	£0 - 10	£10 - 50	£50 - 100	£100-150	£150–200	£200-250	£250-300	Over £300
Number of angler days per season								

From the angler survey (see 3.2 below) we then sought to obtain sufficient observations on expenditure and characteristics in each of the strata. It was believed that aggregation across strata could produce a more reliable estimate of total angler expenditure than a stratification based on home location. The results are discussed in Section 6.2

3.1.2 The role of the angler survey

The anglers' survey sought to establish:

- The main characteristics of anglers in the KSFT area.
- The *average expenditure per angler day* for the various categories of fishing across a range of expenditure categories[6].
- The alternatives available to anglers if their 'first choice' form of angling were not available.
- Angler satisfaction.
- Travel details.
- Visitor satisfaction with the region's fishing and other characteristics.

It is very time consuming to employ researchers to travel along the riverbank or loch-side to interview anglers. Indeed, anglers do not welcome interruption of their sport. Two survey instruments were used. An electronic questionnaire was developed and published on the Web. A self-completion paper questionnaire along with stamped addressed envelopes was distributed via fishing clubs, proprietors, tackle shops, hotels etc.

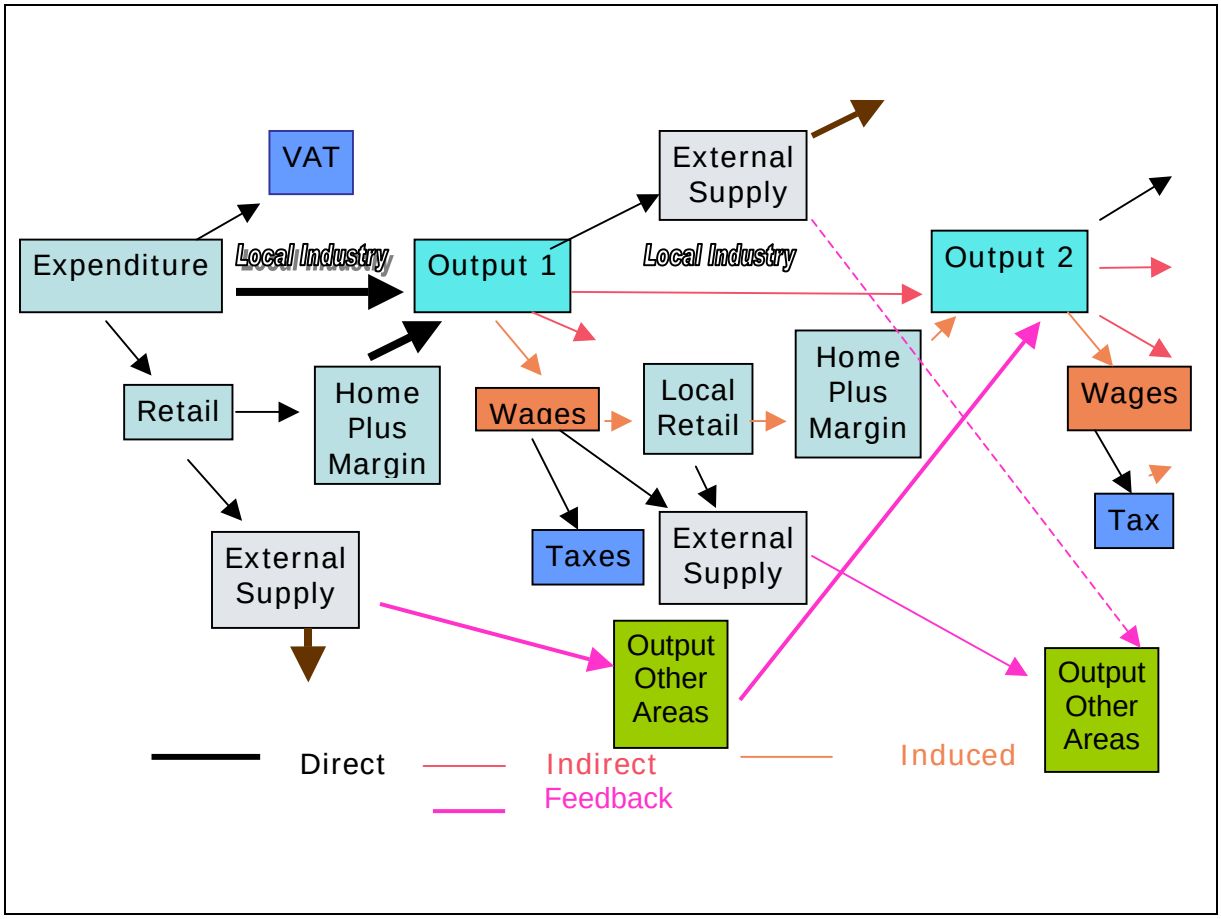
It is important to appreciate that no inferences about total angler expenditure could be drawn from the angler surveys themselves. The primary purpose of the angler survey is to produce data on expenditure *per day*. These data are scaled using independent data generated from the owners' survey.

[6] The regional models produced by Cogentsi require that expenditure be broken down by the following categories: accommodation, meals/drinks served, food and drinks from shops, public transport and vehicle hire, petrol, diesel etc. purchased, rents, licences and permits, club fees in fishery area, fishing clothes and footware, tackle and boat hire, other goods including gifts and souvenirs, ghillie hire and tips, tackle and bait purchase, outer clothing and footwear, other.

3.2 The Detailed Regional Economic Accounting Model (DREAM®)

Fig 3.2.1 shows the main flows which DREAM® seeks to model.

Figure 3.2.1 Main Expenditure Flows



To trace the effects, it is necessary to identify what both companies and individuals will purchase and, as importantly, where they will purchase it. A regional accounting model details the breakdown of purchases for a company in a specific industry. For example, it will define how £1000 of expenditure by a company in industry 1 will be split between companies in industries 2, 3, etc, and between government and wages. In addition, it must also define how much will be produced locally and how much outside the area.

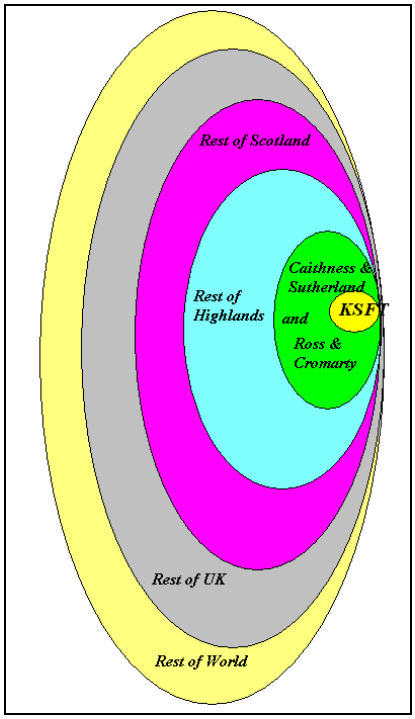
The Office of National Statistics (ONS) prepares regional accounts for areas defined under that statistical nomenclature for units of territory (NUTS). In the UK, the twelve NUTS1 regions are the nine Government Office Regions of England plus Scotland, Northern Ireland and Wales. The NUTS2 areas are subdivisions of NUTS1 regions. NUTS3 and NUTS4 are subdivisions of NUTS2

and NUTS3 respectively In Scotland, there are 44 NUTS4 units, with the inevitable consequence that some of the areas although very large in area (e.g Caithness and Sutherland) are very small in population. The basic building blocks of DREAM® are NUTS4. These can be assembled to form larger units, as required (e.g Western Scotland or the HIE area) but they can be sub-divided if necessary using the Annual Business Inquiry information at ward level. For this project the KSFT was based on employment and output data for the council Wards, Central Sutherland, Dornoch Firth, East Tain and West Tain with some adjustment to remove Skibo and Embo.

CogentSI have developed a system that encompasses the whole of the UK with 187 regional tables (40 in Scotland) each holding a matrix showing the breakdown for 123 industries (into 123 industries). Riddington et al (2006) details how these tables are constructed from published statistics.

A key part of the DREAM® approach, is to identify how much flows out of the area (and subsequently how much feeds back). In the **Geography Definition** the areas to be considered are defined and trade matrices for the 123 industries estimated. Fig 3.2.2 shows the defined geography for this project.

Figure 3.2.2 Defined Geographical Areas



3.2.1 Dream® Specific survey work

The DREAM model requires information on key angling expenditure linkages in the local economy. In particular, it was necessary to know what proportion of angler expenditure on rental fees remains within the economy and where it is spent. This required a sample of owners to be undertaken. The results of this survey are reported in the next section.

4 The owners' surveys.

As described in Section 3 above, there were two surveys of owners. The principal purpose of the first was to determine the total number of angler days and their distribution across categories of permit charges, origins of anglers and months of the season. Since the intention was to estimate population totals it was important to obtain as high a response rate as possible. This is labelled **the main owners' survey** and is reported in Sections 4.1 to 4.7 below.

The aim of the second survey was to provide information necessary to build the DREAM® model for angling in the KSFT area. Specifically, this survey sought to determine, how anglers' payments to proprietors are subsequently spent. This is termed **the owners' expenditure survey** and is reported in Section 4.8 below.

4.1 Design, distribution and response of the main owners' survey

It is estimated that there are 36 relevant proprietorships of various sizes. A self-completion questionnaire was produced, a copy of which can be found in Appendix B. The Chair of the KSFT distributed this questionnaire to each individual associated with each proprietorship who was best able to answer the type of questions asked. The completed questionnaires were returned directly to Glasgow Caledonian University, by-passing the KSFT.

Some fisheries are very small and rarely fished, whereas others embrace large sections of some rivers. Telephone contact was made with those who did not return the self-completion questionnaire. In total, information was obtained from 23 of the 36 fisheries. Because of the enormous variability in the characteristics of proprietorships, it would be potentially misleading to scale for non-response simply on the basis of the known total number of proprietorships. In addition, the survey was not seeking information on ownerships; the aim was to estimate total angler days and their distribution across a number of strata.

In the study, catch statistics were used to scale for non-response. The Fisheries Research Service (FRS) obtains catch returns from proprietors in response to an annual questionnaire sent to proprietors under the provision of section 15 of the Salmon and Freshwater Fisheries (Protection) (Scotland) Act 1951 as amended by the Salmon Act 1986. FRS makes no attempt to correct for non-returns or gaps in the register of proprietors. The catch returns are collected on a confidential basis and the catches of individual ownerships are not revealed to the District Salmon Fishery Boards or to the KSFT.

It was assumed that the relationship between fishing effort (angler days) and catch is likely to be similar within the KSFT area. Provided a valid catch rate can be calculated for the salmon and sea trout fisheries that responded, non-response can be scaled using the FRS statistics. Consequently, total angler days, as reported by proprietors, is multiplied by the ratio of the KSFT area's total catch to the catch of those fisheries responding.

Table 4.1.1 presents the FRS catch estimates for the KSFT area.

Table 4.1.1 F.R.S. salmon catch for the KSFT area

Year	Salmon Retained	Salmon Released	Total
2005	1492	1965	3457
2004	1329	2526	3855
2003	900	1390	2290
2002	1507	1189	2696
2001	2202	2001	4203
Total	7430	9071	16501
Five Year Average	1486	1814.2	3300.2

Compiled from Fisheries Research Service, Statistical Bulletins, Scottish Salmon and Sea Trout Catches 2001-2005.

Unfortunately, the FRS data for *salmon retained* includes the catch retained by the estuary nets. From FRS published data, it is not possible to obtain an estimate of salmon retained by the rods. However it is believed that in the KSFT area only 30% of rod caught salmon are retained and 70% are caught and released[7]. Since salmon released are rod caught, we can estimate the total rod catch by dividing the salmon released (by the rods) by 0.7. This is presented in the table below.

Table 4.1.2 Total KSFT salmon catch

Year	Salmon Released	Total Rod Caught Salmon
2005	1965	**2,807**
2004	2526	**3,609**
2003	1390	**1,986**
2002	1189	**1,699**
2001	2001	**2,859**
Total	9071	**12,959**
Five Year Average	1814.2	**2,592**

[7] Personal communication with the KSFT's fishery biologist.

From questionnaire responses, the following sample statistics were estimated;

Sample Catch	Sample Angler Days	Catch per day
2,074	**9,676**	**0.2143**

From FRS data, it is estimated that the five year salmon catch for the whole of the KSFT area is 2,592. If this is correct, the sample has covered 80% of the salmon and sea trout fisheries and that the scaling factor of 1.25 should be used.

4.2 Estimated total KSFT angler days

Applying the scaling factor of 1.25 to the sample angler days, it is estimated there are a total of 12,091 salmon and sea trout angler days.

Sample Angler Days	Scaling Factor	Total KSFT Salmon Angler Days
9,676	**1.25**	**12,091**

Following the same procedure of scaling by 1.25, the sample total of **2,368** trout angler days was increased to **2,959** days. Combining these two estimates the total number of salmon & sea trout and trout angler days is **15,050.**

4.3 Salmon & sea trout angler days by permit costs

It is well known that many owners retain a number weeks for themselves and their guests. From Table 4.3, responses from owners suggest that very few fishing days seem to be occupied by anglers who are paying nothing, or only nominal amounts. It may be the case that the questionnaire did not emphasise that information was required on all angler days, including those taken by non-paying guests and family. From the owners' responses, the mean charge per day for salmon and sea trout angling was £118.

Table 4.3 Salmon & sea trout angler days by permit costs (%)

£0 – 10	£10 - 50	£50 - 100	£100-150	£150–200	£200-250	£250-300	Over £300
4.31	6.68	29.35	32.59	16.21	10.86	0	0

4.4 Salmon & sea trout angler days across the season

The distribution of salmon & sea trout angler days over the season is largely determined by the timing of the salmon runs. Some beats do not fish well until late April and May.

Table 4.4 Salmon and sea trout angler days across the season

Jan to Feb	March to April	May to June	July to August	Sept to Oct
2.60%	14.57%	27.79%	33.73%	21.30%

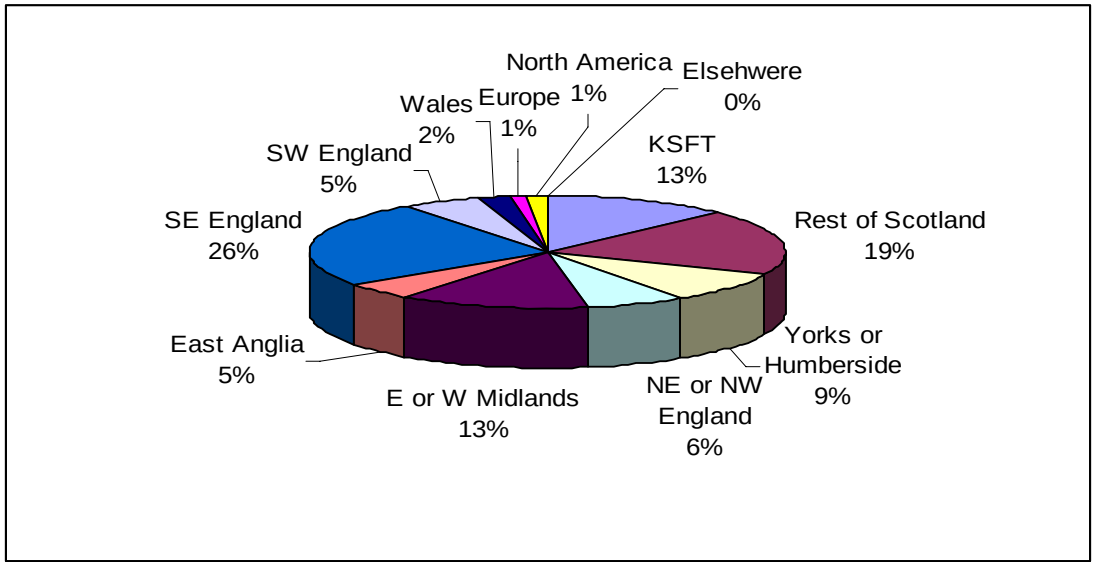
4.5 Salmon & sea trout angler days by angler origin

Over two thirds of salmon and sea trout angler days are occupied by anglers travelling to Scotland from England and only 12.7% by anglers normally resident in the KSFT. Only 29.7% are taken by anglers normally resident in Scotland.

Table 4.5 Salmon & sea trout angler days by angler origin (%)

KSFT	Rest of Scotland	Yorks or Humber	NE or NW Engl'd	E or W Midl'ds	East Anglia	SE Engl'd	SW Engl'd	Wales	Europe	N. America
12.7	19.0	8.9	6.5	13.3	4.7	24.9	5.2	2.2	1.2	1.4

Fig 4.5 Home region of salmon & sea trout anglers



4.6 Trout angler days across the season

Table 4.6 Trout angler days across the season

Jan to Feb	March to April	May to June	July to August	Sept to Oct
0%	0%	33.2%	33.5%	33.3%

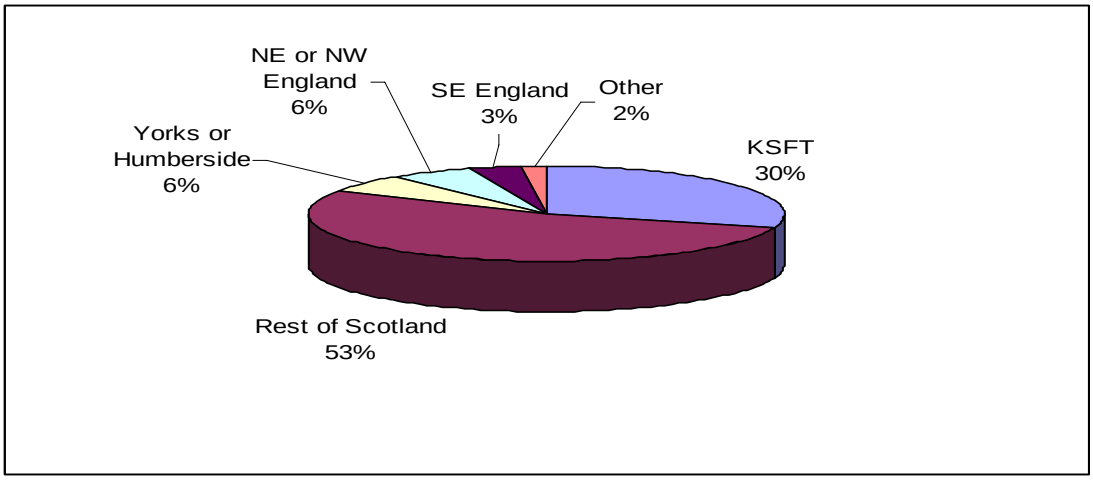
4.7 Trout angler days by angler origin

The distribution of trout angler days differs from salmon& sea trout, with 83% of angler days being taken by anglers from within Scotland and nearly a third from within the KSFT area itself.

Table 4.7 Trout angler days by angler origin (%)

KSFT	Rest of Scotland	Yorks or Humber	NE or NW Engl'd	E or W Midl'ds	East Anglia	SE Engl'd	SW Engl'd	Wales	Europe	N. America
29.9	53.1	6.3	5.6	0.6	0.2	3.4	0.0	0.4	0.5	0.0

Fig 4.7. Trout Angler days by angler origin



4.8 Owners' expenditure survey.

Rents represent an income flow to owners. If the owners did not incur costs locally in providing angling services and also resided outside the KSFT area then all the angler expenditure on permits and rents would simply flow out from the KSFT area. In reality, owners spend considerable sums running and maintaining their fisheries.

It was necessary to identify the level of this owners' expenditure against the rental income and to identify what they purchase. To this end, nine owners, representing a cross section of estates and covering 55% of the salmon angling and over 70% of the trout angling were contacted and asked to complete the short questionnaire shown in Appendix B.

This showed that rents covered only 98.4% of the costs of providing angling the balance of just under £20,000 being met from the owners. It would appear that, overall, the owners are subsidising angling, albeit in a very minor way. There is however wide variation between estates. In some cases, a large proportion of the available fishing is retained for the owners and guests, with rental income being used to offset only a proportion of the costs. Others are run on a more commercial basis and generate revenues which exceed costs. In effect some estates could yield a profit but this is taken "in kind" by the owners.

5 The angler survey.

5.1 Design and distribution

The method adopted was self response questionnaire distributed by the KSFT to hotels, retail and angling outlets throughout the KSFT area. The proprietors were contacted by the KSFT chair and asked to encourage their clients to complete the questionnaire. The full questionnaire is given in Appendix D.

5.2 Response rate and bias

Questionnaires were returned by 226 anglers. Using the information on total angler days obtained from proprietors and information on the average number of days fished by each angler obtained from the angler survey, the total population of KSFT anglers is estimated to be around 1,300 (see Section 5.5) This gives a response rate of 17.5%, which is probably towards the upper end of what might be expected from such a survey.

There is obviously the possibility of a self-selection bias. This is because more frequent anglers are not only more likely to receive a questionnaire, but they are more likely to complete it. Thus, estimates of the number of angler days per angler could be compromised through this self-selection bias. It is therefore quite likely that the true number of anglers exceeds the 1,300 estimated above.

If estimates of the total number of angler days in the KSFT area were derived by scaling the (probably biased) observations on angler days per angler, then self-selection bias would be a serious problem. Fortunately, from the main owner survey, which covered 80% of the fisheries and which was scaled using independent FRS data, we know the total number of angler days. Thus, with respect to estimates of total angler days, self selection bias is not an issue.

The main purpose of the angler survey is to generate observations on average expenditure per day. Whilst the average number of angler days is probably subject to self selection bias, there are no compelling reasons to suppose that expenditure per day is necessarily compromised. If more frequent anglers are in the habit of investing in the very best equipment they might spend more per day. On the other hand, less frequent anglers may travel further and stay in expensive accommodation and return home with gifts and souvenirs. On theoretical grounds, it is not possible to determine the direction of self selection bias (if any) in observations on angler expenditure per day. It should also be noted that, from the main owner survey, the distribution of angler days across permit charge bands and origins of anglers is known. This stratification enables a more sensitive scaling of observations within each category, thereby minimising any endemic bias.

5.3 Angler Characteristics

5.3.1 Gender, Age and Income

Fig 5.3.1 Angler age

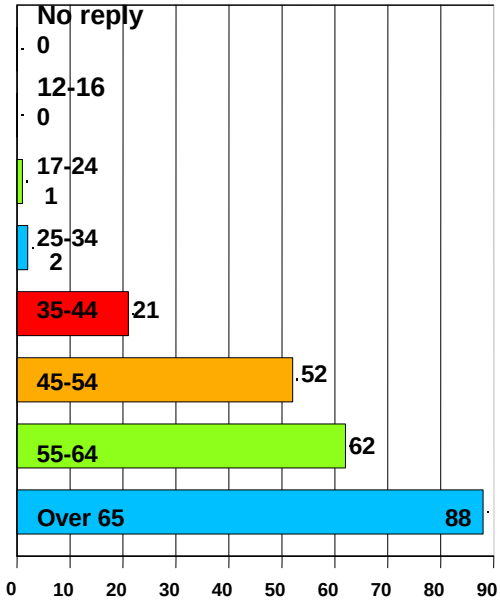


Fig 5.3.2 Gender

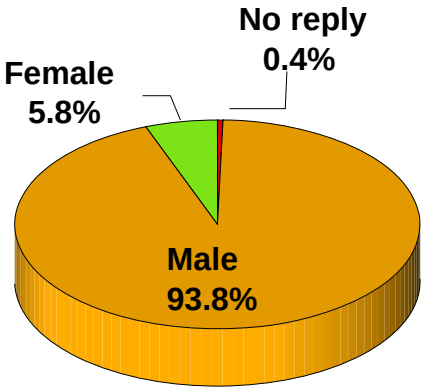
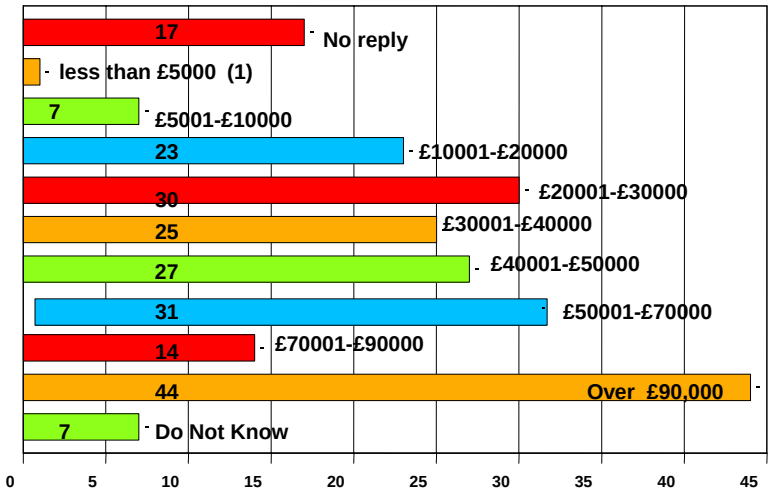


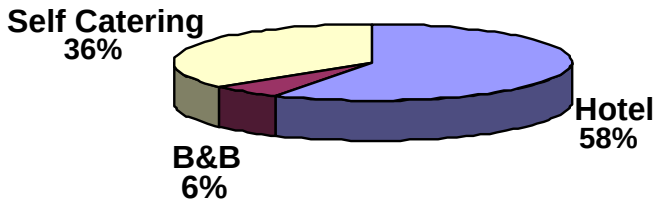
Fig 5.3.3 Angler household income



The typical angler is a high income earner, male and over fifty-five and probably retired**.**

5.3.2 Accommodation

Fig 5.3.2 Accommodation used



No angler surveyed stayed in a caravan. Interestingly the price of the self catering accommodation exceeded that of B&B and was close to hotel accommodation, reflecting the quality of the self catering accommodation for anglers.

5.3.3 Length of angling trips

Fig 5.3.3.1 Length of Salmon and sea trout trips

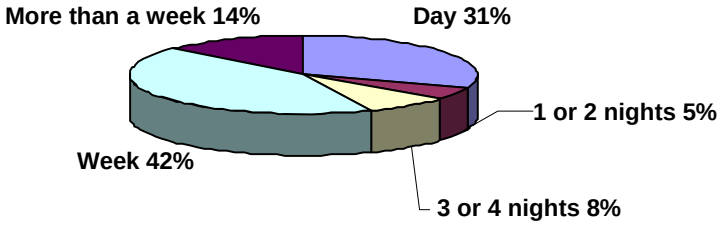
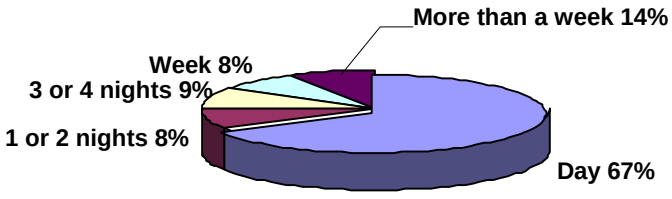


Fig 5.3.3.2 Length of trout trips



The majority of salmon and sea trout trips are for one week. However significant numbers have ten days or two week trips and this raises the mean number of

angler days per visiting angler up to around 10. The owner survey revealed that the majority of salmon & sea trout angler days are taken by anglers from England and elsewhere. In contrast, the majority of trout angler days are taken by anglers from Scotland. Given the longer distances traveled by salmon and sea trout anglers, the longer average duration of their trips is not unexpected.

Table 5.3.3 Length of trip by angler origin (salmon and sea trout)

	KSFT	Visitor from Scotland	Visitor from outside Scotland	Total
Day	44	12	5	61
1 or 2 nights	1	3	6	10
3 or 4 nights	1	6	9	16
Week	1	13	71	85
Over a week	1	9	17	27

5.3.4 Angler origins (angler survey).

Table 5.3.4 Mean angler days by angler origins

	KSFT	From Scotland	From outside Scotland	Overall Mean	% Anglers
Salmon and Sea Trout	22.66	10.97	9.94	14.09	81.30%
Trout	19.15	10.97	7.03	13.28	56.30%

The owner survey generated data on angler days by origins (see section 4). The above table gives the mean number of angler days by origins of the anglers, as revealed by the angler survey.

5.4 Comparison of angler and owner surveys

Table 5.4.1 compares the angler days by home locations of salmon and trout anglers in the KSFT

Table 5.4.1 Origins of anglers by percent of angler days

		Angler survey	Owner survey
Salmon & sea trout	**KSFT**	29.49%	12.70%
	From Scotland	28.81%	19.00%
	Outside Scotland	41.69%	68.20%
Trout	**KSFT**	43.70%	29.90%
	From Scotland	36.04%	53.10%
	Outside Scotland	20.25%	17.10%

The angler survey is clearly biased towards locals who will, inevitably, have lower expenditures on accommodation and hospitality but probably higher local

expenditures on equipment. This is because local anglers were more likely to receive a copy of the questionnaire. As we have estimates of angler days by home location form the owners survey, stratification by angler origin as undertaken in Radford et al (2004), is clearly one potential route.

As an alternative check we examined the distribution of responses by rent class from the owner and angler surveys. This is given in Table 5.4.2.

Table 5.4.2 Relationship between gross expenditure and rent band

	Gross expenditure per day				% Of sample in each permit price band	
Permit Price Band	**£1 to £100**	**£101 to £300**	**£300 to £700**	**Over £700**	**Angler survey**	**Owner survey**
No Payment	43.9%	41.1%	13.1%	1.9%	60.5%	4.31%
£1-£100	63.9%	31.1%	3.3%	1.6%	34.5%	68.62%
>£101	0.0%	0.0%	77.8%	22.2%	5.1%	27.08%

In the above table, gross expenditure is angler expenditure on all items. From the last two columns it is clear that the angler survey has a much greater percentage (60.5%) of anglers declaring “no or zero payment” compared with the owner survey (4.31%). In the angler survey, this might include the owners or those who did not know because fishing permits were packaged with accommodation or those who were guests of the owners. Even is we ignore the “no payment” band, the table suggests under-representation i**n the angler survey** of high spenders which requires some adjustment. The adjustment is discussed in Section 6.

5.5 The number of anglers

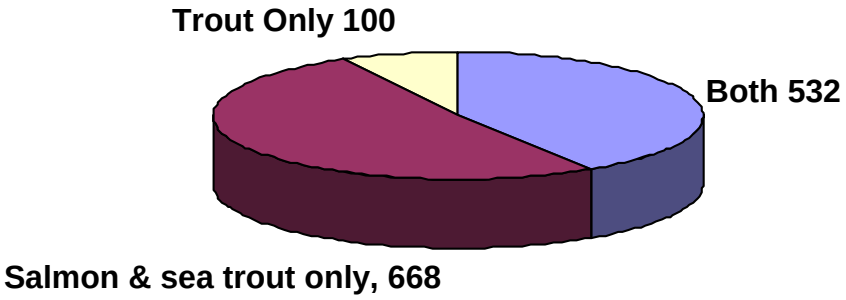
The number of anglers was estimated by taking the number of angler days estimated from the owner survey and dividing by the mean number of days per angler from the angler survey. This was done for each of the angler origins; from KSFT, from Scotland (excluding KSFT) and from outside Scotland. This is shown in the table below.

Table 5.5.1 Mean number of days per angler by angler origin

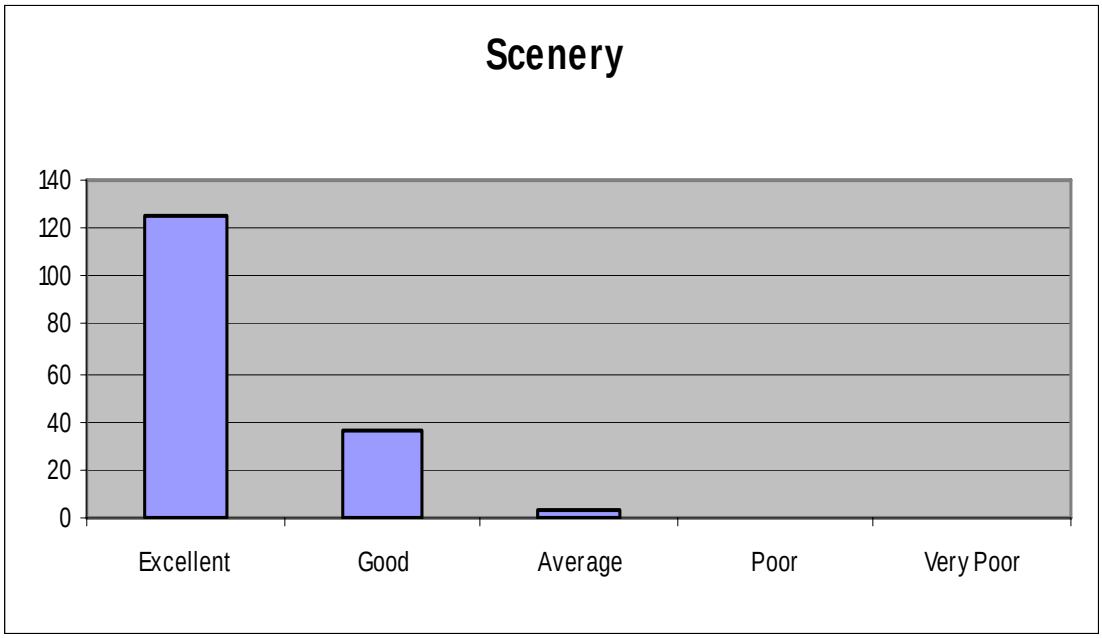
	KSFT	From Scotland	From Outside Scotland	Mean	% Anglers
Salmon and Sea Trout	22.66	10.97	9.94	14.09	81.30%
Trout	19.15	10.97	7.03	13.28	56.30%

The calculation of the number of anglers is complicated because over 36% of anglers fish for both salmon and trout. Fig 5.5.1 shows the final numbers estimated

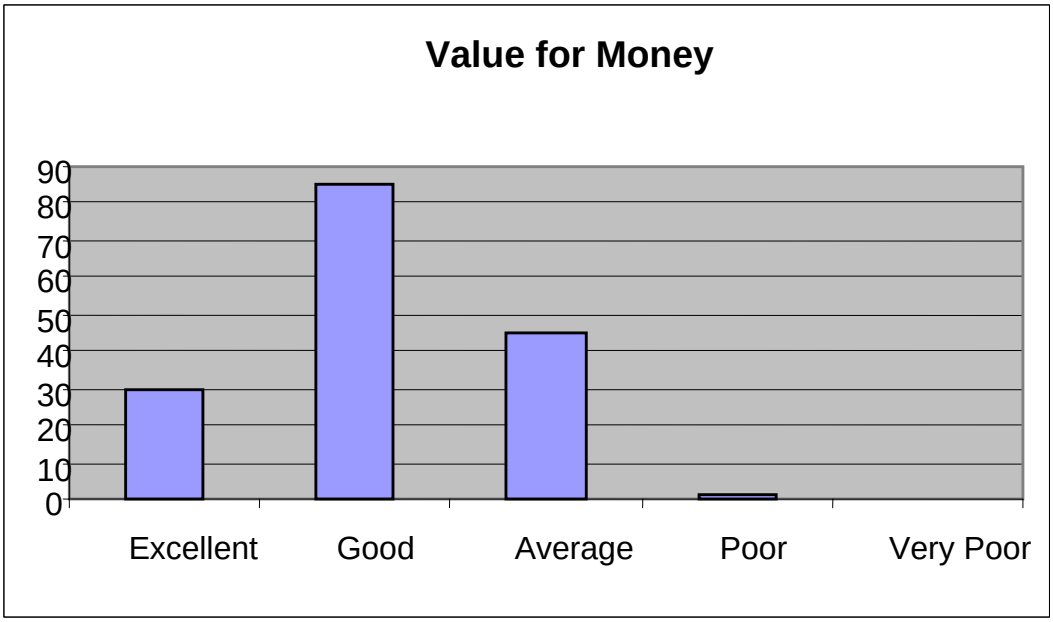
Figure 5.5.1 Anglers by fishing type



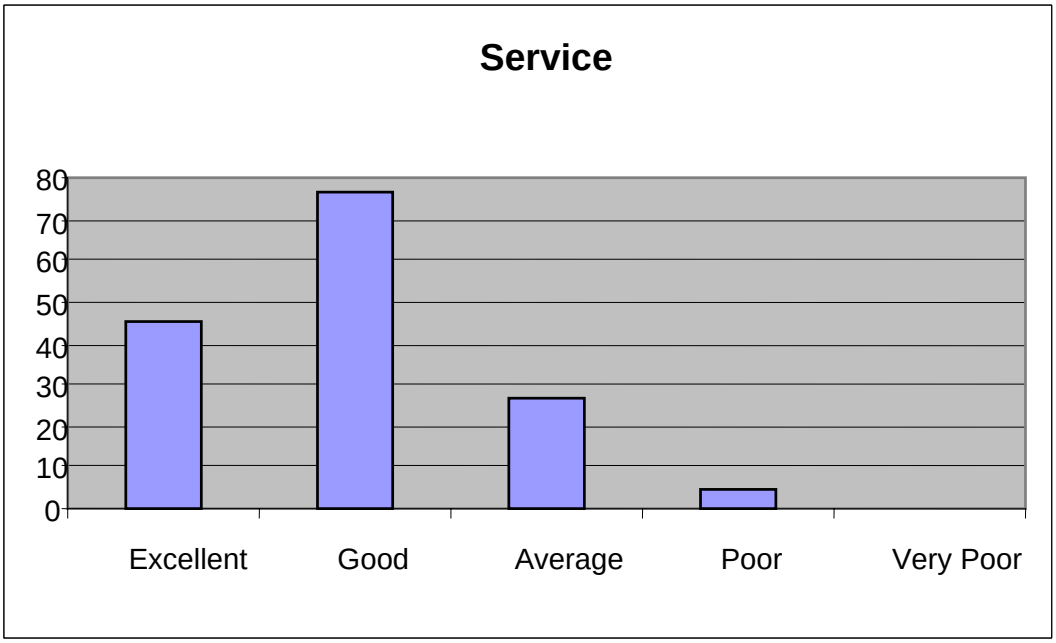
The general feeling was that the fishing quality was good.



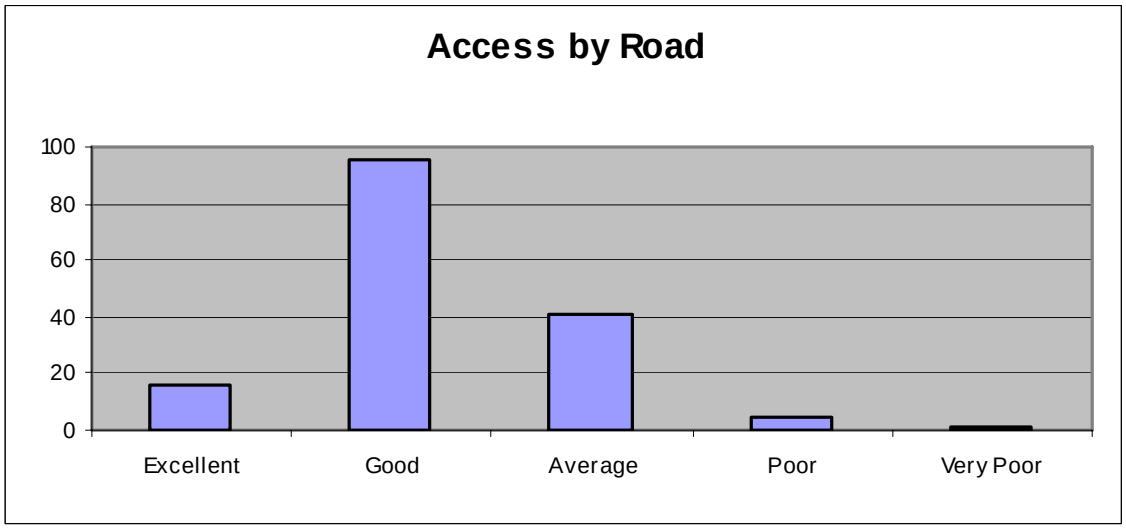
The scenery of the area is obviously a strong selling point.

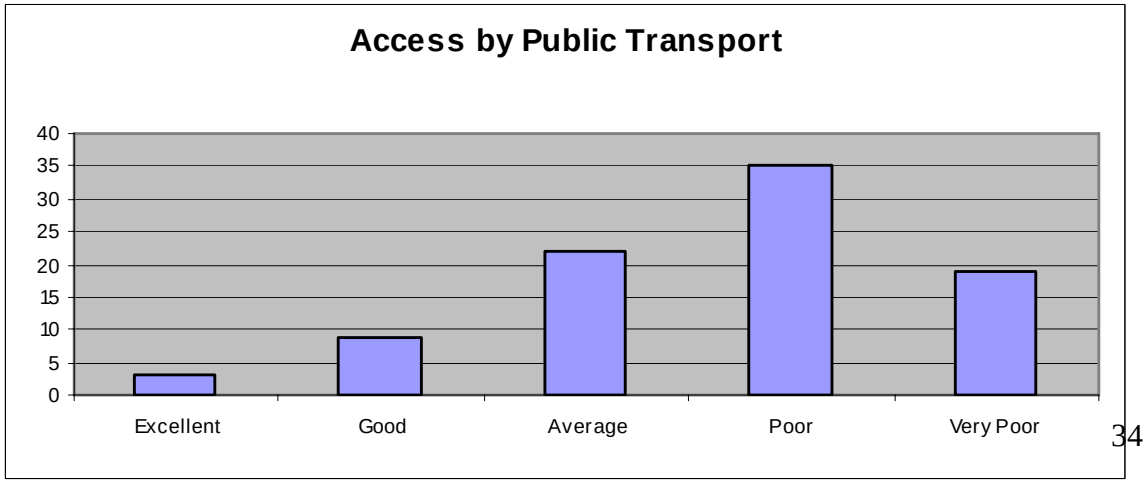


This key indicator of value for money was rated as Good

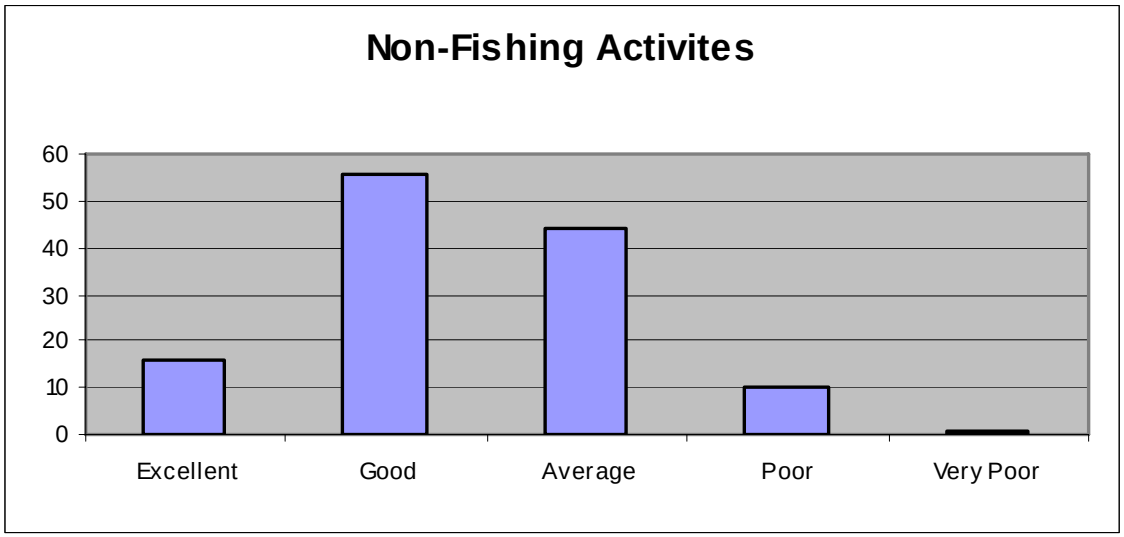


Service in the Area was also rated good

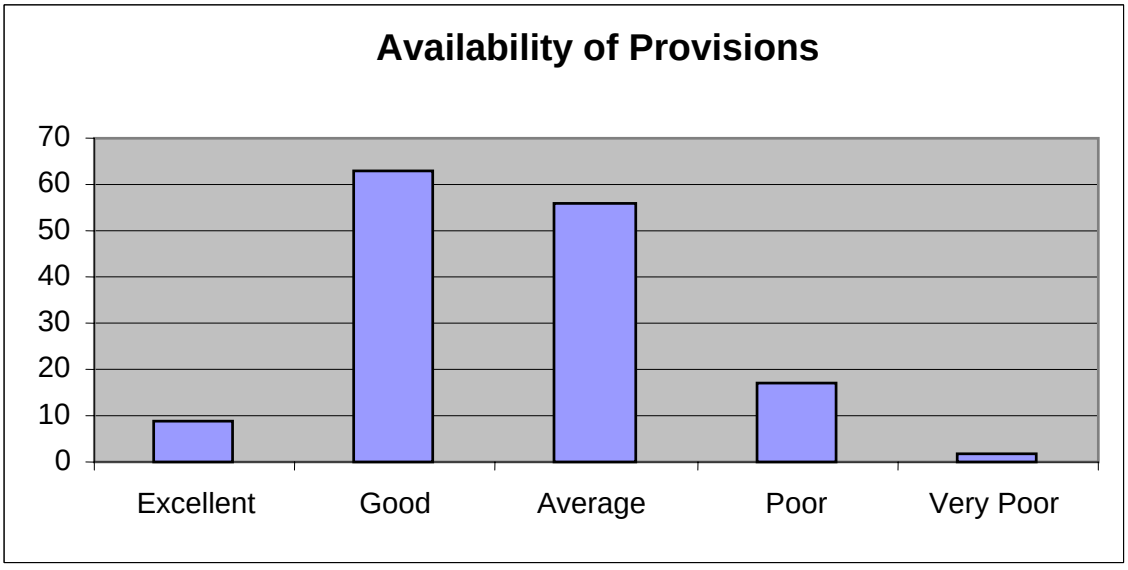




There is a marked contrast between opinions on private and public access. The density of population in the area makes it unlikely that public transport will improve.



Other activities in the area were ranked average to good with relatively few respondents regarding other activities as poor or very poor.



A little surprisingly availability of provisions were marked good to average as this was expected to be a weakness of the area.

5.7 Other Activities

Table 5.7 Other activities undertaken by anglers and their partners

	Anglers		Partners	
	%Total	%Replies	%Total	%Replies
Golf	19.5	32.1	12.4	35
Shooting	10.2	16.8	4.4	12.5
Stalking	8.8	14.6	5.3	15
Riding	1.3	2.2	1.8	5
Walking	24.8	40.9	18.6	52.5
Cycling	5.3	8.8	3.5	10
Water Sports	0.4	0.7	0	0
Visit Attractions	18.6	30.7	19.5	55
Sea Angling	12.4	20.4	4	11.3
Archeology	3.1	5.1	3.5	10
SightSeeing	28.8	47.4	20.4	57.5
BirdWatching	23.9	39.4	13.7	38.8
Photography	17.7	29.2	7.5	21.3
Shopping	8	13.1	12.8	36.3
Responses		**137**		**80**

Anglers and their companions participated in a wide range of other activities whilst visiting the KSFT area. In general, Table 5.7 suggests, not surprisingly given the age of the anglers, that less energetic activities such as sightseeing, walking, birdwatching, golf and visiting attractions are the preferred options. Apart from shopping, the companions' activities mirrored the anglers' activities. Unlike angling golf is an enthusiasm that seems to be shared with partners. Shopping features on the list of activities undertaken by partners.

6 Calculation of Gross Expenditure and Net Expenditure Loss

6.1 Categories of expenditure

There were two different categories of expenditure:

- Expenditure unrelated to a specific angler day
- Angler trip expenditure

6.1.1 Expenditure unrelated to a specific angler day.

During any given year, anglers also undertake expenditures which are not specific to particular fishing trips. Examples of this type of expenditure would include specialised angling clothing, books magazines, rods, etc. These items may be used in different locations and/or on different species. We term this **Non-Specific Expenditure**. The approach taken here is to assess the expenditure per recorded angler day stratified by angler origin (from KSFT, from elsewhere in Scotland and from outside Scotland). This figure is then multiplied by the number of angler days from each of these origins obtained from the owner survey. This is shown in Table 6.1.1

Expenditure by partners was again based on total spend by the individual (Q16). Some 80 of the 226 (35.4%) anglers answered questions on the activities undertaken by partners although only 43 answered the question on the expenditure of partners, presumably because it was unknown. Using the larger figure we estimate some 500 partners accompanied anglers to the region. If we deduct the local anglers this suggests over 41% of visiting anglers came with partners.

The mean spend by partner per day for each location was estimated and multiplied by the days to give the total expenditure by partners. The final estimates are also given in Table 6.1.1

Table 6.1.1 Non-Specific Expenditure and Expenditure by Partners

	Non-Specific Expenditure	Partner Expenditure
KSFT	£21,523	£397
From Scotland	£42,351	£89,948
From Outside Scotland	£162,442	£559,817
Total	£226,316	£650,162

6.2 Angler trip expenditure

When anglers undertake angling trips they incur trip related expenditures on such items as accommodation, meals, drinks, transport, boat hire, permits bait, gifts and souvenirs. As outlined previously, the approach adopted was to use the owner survey to identify the number of angler days in each of the rental/permit price bands. The angler survey was then used to generate estimates of the mean daily expenditure of anglers in each of these price bands. This is stratification based on daily permit price bands.

Using this approach it is crucial that owners and anglers understand the price banding. The survey results revealed a big difference between the surveys with 60.5% of anglers declaring they paid nothing, yet owners estimating that only 4.3% of angler days were in the zero price band (see Table 5.4.2). Whilst it was expected that the angler survey would pick up relatively more local anglers who pay less, or even zero, it may not be appropriate to suggest that sampling bias explains all of this difference between the samples.

It is possible that when responding to the owner survey, the owners were considering what they could charge for their fisheries. Thus, whilst we were expecting owners to allocate the days they retain for themselves and guests to the zero price band, in responding to the questionnaire, the owners may have placed these days in a much higher price band. In contrast, when completing the angler questionnaire, owners and their guests would record their permit expenditure as zero. Also, anglers purchasing an accommodation package that includes salmon angling permits may be unaware of the permit element and might have declared a zero permit price. As evidence, we have the paradox revealed in Figure 6.2.1 that the total expenditure by those apparently paying nothing in rents is higher than the expenditure for those paying up to £100 per day.

The net effect of this is that the owner survey, over-estimates the number of angler days in the high price band. Secondly, the angler survey reveals an unexpectedly high daily expenditure for angler paying nothing for their fishing. In other words, the stratification by permit price band, which is designed to ensure high spending anglers are scaled appropriately, has been confounded by high spenders paying nothing for their fishing. The correlation between permit charges and total daily spending is not as we expected. This is unfortunate since this correlation provides that rationale for stratifying by permit price bands.

There is an alternative stratification. Radford at al (2004) calculated trip expenditure using a stratification based on angler origins. Thus the expenditure per angler day on angling for either salmon or trout (estimated from the angler survey) is multiplied by the number of angler days from each of the areas obtained from the owner survey.

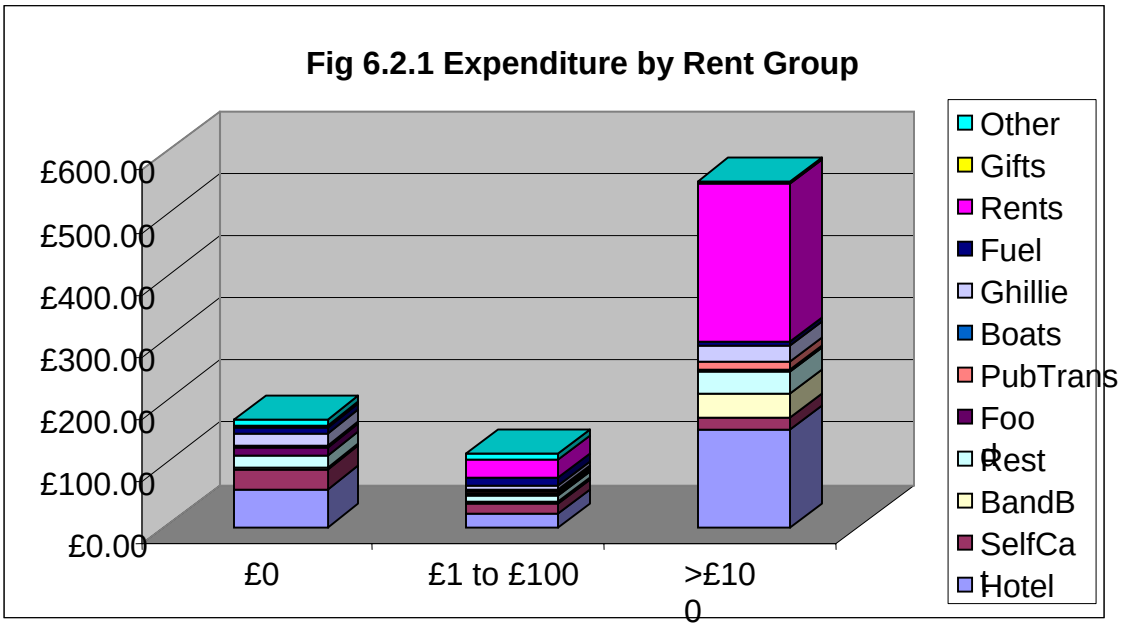


Table 6.2.1 compares the outcomes of the two stratifications on trip expenditure on salmon & sea trout angling The effect of using a permit price band stratification is to substantially increase the permit element, possibly in part monetizing some of the "income in kind". .

Table 6.2.1 Effects of alternative stratifications on trip expenditure

	Stratification		
	Angler origin	**Permit price**	**Mid-Point**
Total Expenditure	£2,647,473	£3,100,256	£2,873,864
Rent	£321,530	£1,151,067	£736,298
Expenditure (minus) Rent	£2,325,943	£1,949,189	£2,137,566

The effect of utilising a permit price band stratification also reduces other direct impacts possibly best explained by the permit element in accommodation packages. In the absence of any clear view of the relative relationship between rents paid by third parties (i.e. hotels or as part of a fee for staying at a country house) and rent in kind (i.e. owners not charging rent to friends and business associates) the mid-point between both stratifications have been used.

For trout, where the omission of "high spending" anglers is not a problem the angler origin stratification has been utilised.

6.3 Angler substitution

Whilst gross expenditure supports income and employment in the KSFT area, the impact of losing salmon & sea trout angling or trout angling or both will be less as some individuals transfer some their spending to other activities in the KSFT area. Questions 8,12 & 13 try to identify the extent of this substitution by directly questioning the anglers on their likely actions. Figs 6.3.1, 6.3.2 and 6.3.3 summarise the outcomes.

Fig 6.3.1 Activity if salmon angling unavailable

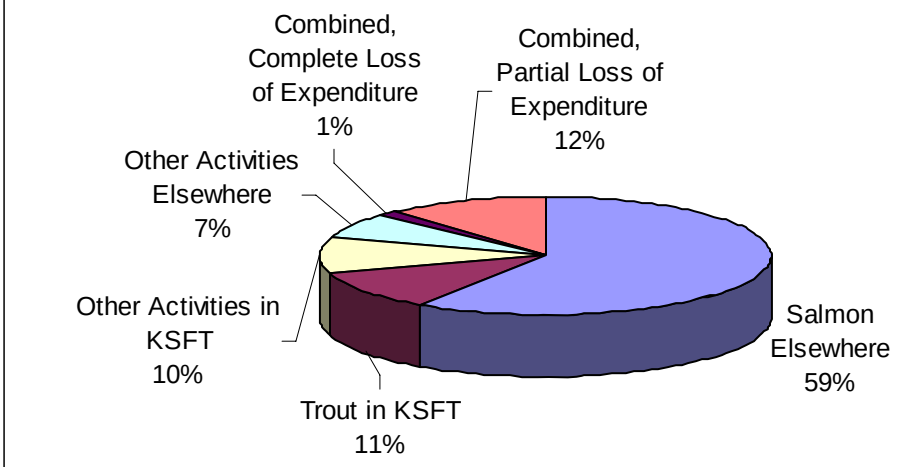


Fig 6.3.2 Activity if trout angling unavailable

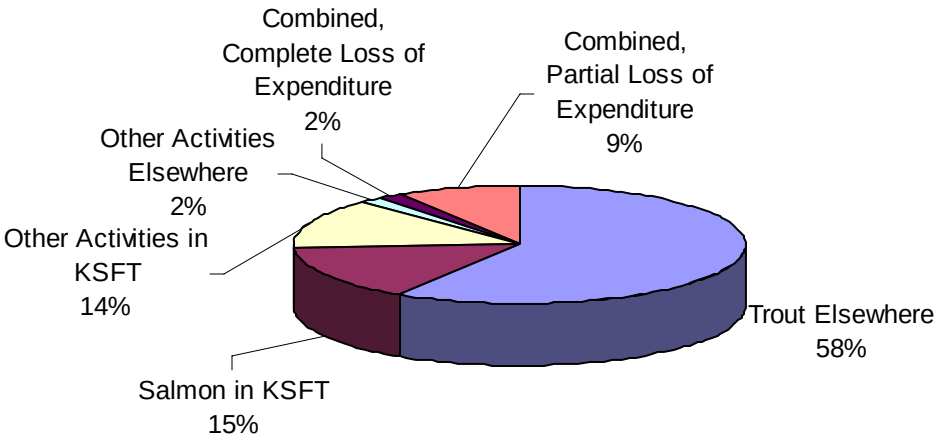
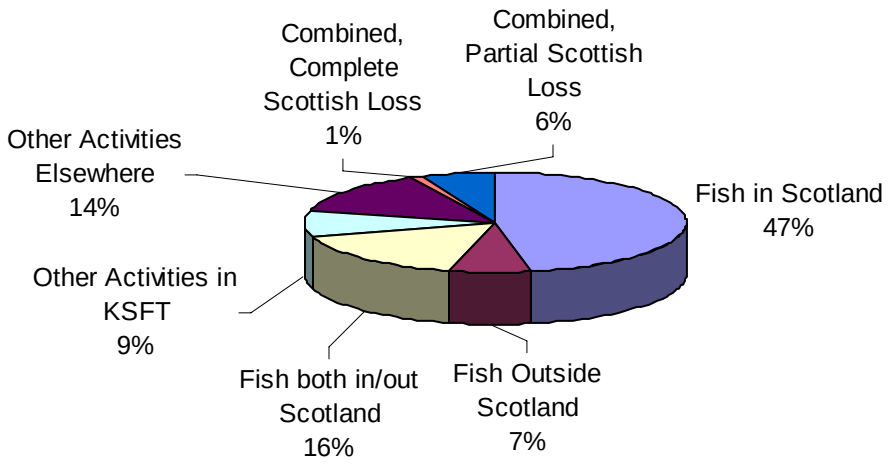


Fig 6.3.3 Activity if all angling unavailable



We assume that if more than one alternative is chosen the likelihood of each is equal. Thus after weighting the responses by area we obtain Table 6.3.1

Table 6.3.1 % Expenditure lost by type of angling

	Expenditure Lost to Area
Salmon and sea trout	75.1%
Trout	73.1%
Both	90.2%

6.4 Summary gross and net expenditures

Table 6.4.1 summarises the gross total expenditure that can be attributed to angling in the KSFT area. Apart from the owner contribution, all of the expenditure categories have been explained above. The owner contribution refers to the excess of owners' expenditure over their permit/rental income. In effect, it is the owners' subsidy to KSFT fisheries

Table 6.4.1 Gross expenditure by categories and % lost

	Gross Expenditure	% Lost
Trip related salmon angling	£2,654,181	71.1%
Trip related trout angling	£182,265	4.9%
Non-specific expenditure	£226,316	6.1%
Owner contribution	£19,181	0.5%
Partners expenditure	£650,162	17.4%
TOTAL	£3,732,105	100.0%

As expected, salmon & sea trout angling dominates with the next largest expenditures being associated with the partners of salmon & sea trout anglers. If there was no salmon & sea trout angling, the owner contribution would all be lost. In addition, a proportion of non-specific expenditure, trip expenditure and partners' expenditure would be lost. The final estimates of the expenditure loss are given in Tables 6.4.2, 6.4.3 and 6.4.4

Table 6.4.2 Impact of Loss of Salmon Angling on Local Expenditure

	Expenditure	Proportion Lost	Net Change
Salmon Angling Trip Expenditure	**£2,654,181**	75.10%	£1,993,289.93
Non-Specific Expenditure	**£226,316**	70.27%	£159,041.77
Owner Contribution	**£19,181**	100.00%	£19,181.00
Partners Expenditure	**£650,162**	75.10%	£488,271.66
TOTAL	**£3,549,840**		**£2,659,784.37**

Table 6.4.3 Impact of Loss of Trout Angling on Local Expenditure

	Expenditure	Proportion Lost	Net Change if no trout
Trout Angling	**£182,265**	73.10%	£133,236
Non-Specific Expenditure	**£226,316**	4.7%	£10,631
TOTAL	**£408,581**		**£143,866**

Table 6.4.3 Impact of Loss of All Angling on Local Expenditure

	Expenditure	Proportion Lost All	Net Change if All Went
Salmon Angling	**£2,654,181**	90.2%	£2,394,071
Trout Angling	**£182,265**	90.2%	£164,403
Non-Specific Expenditure	**£226,316**	90.2%	£204,137
Owner Contribution	**£19,181**	100.0%	£19,181
Partners Expenditure	**£650,162**	90.2%	£586,446
TOTAL	**£3,732,105**	90.3%	**£3,368,238**

In the next sections we estimate the income and jobs supported in the region and the economic impact if the angling ceases to exist.

7 Economic activity supported by and the economic impact of angling in the KSFT area.

7.1 Economic activity supported and economic impact.

Estimates of gross expenditure (i.e. pre substitution levels of expenditure) provide a snapshot of current levels of angler expenditure in each region. These gross expenditures will support regional household income and employment. In this study gross expenditure is the basis for estimating the **economic activity supported by** angler expenditure.

Following previous discussion, the net loss in angler expenditure depends on the substitution effects. For example, if anglers fishing within KSFT substitute for the loss of, say, salmon & sea trout angling in the KSFT area, by switching to trout angling in the KSFT area, the net loss in area's expenditure, income and employment could be relatively minor. Thus, although the area will lose the income and employment previously supported by salmon & sea trout angling expenditure, it will gain from the effects of increased expenditure on trout angling. In this report, the balance of these effects is termed the **economic impact** of the loss of angling within the KSFT area.

7.2 The DREAM® output

As discussed in Section 2, the strength of the direct, indirect and induced effects depend on the pattern of expenditure and the capacity of the local area to satisfy demands locally. The DREAM® output is very detailed and is presented in Appendix E, which contains eleven tables. Each table provides details of the economic outcomes associated with each of the main expenditure categories. Table 7.2.1 gives these expenditure categories and the associated table number.

Table 7.2 Economic Analysis Tables Available

Category	Table Number
Salmon Angling by Non-Scottish Visitors	A1
Salmon Angling by Scottish Visitors	A2
Salmon Angling by Locals	A3
Trout Angling by Non-Scottish Visitors	A4
Trout Angling by Scottish Visitors	A5
Trout Angling by Locals	A6
Non Specific Expenditure by Non-Scottish Visitors	A7
Non Specific Expenditure by Scottish Visitors	A8
Non Specific Expenditure by Locals	A9
Expenditure by Angling Partners	A10
Expenditure by Angling Estates	A11

The DREAM ®output embraces not only the KSFT area but also the five concentric regions in the model as shown in Figure 3.2.2. These regions are the KSFT area, the surrounding area of Northern Scotland (consisting of the rest of the LEC regions of Caithness & Sutherland and Ross & Cromarty), the rest of the Highlands, the Rest of Scotland and the Rest of the UK. Since the DREAM® output is so detailed, it is appropriate to select only the key economic indicators. These are explained below.

7.3 The key measures.

Direct Employment Supported. This is the amount of labour, measured in full-time equivalents (FTEs), that is employed to satisfy the demands of anglers as reflected in their gross expenditure. This ignores the subsequent indirect and induced effects.

Total Gross Value Added. (GVA) This is the extent to which household incomes in the KSFT area (wages, rents, profits and income from self-employment) are supported by angling as a result of all the direct, indirect and induced effects working through the economy of the KSFT area.

Total Employment. This is the KSFT employment, measured (FTEs) that are employed as a result of all the direct, indirect and induced effects working through the regional economy.

Total GVA and total employment are the more important indicators since these capture the direct, indirect and induced effects of angler gross expenditure. Direct employment is reported to enable readers to appreciate the strength of the indirect and induced effects for the economy of the KSFT area.

As explained above, the DREAM® output also identifies the consequences for five other areas. Potential users of this study may have responsibilities and interests that extend beyond the confines of the KSFT area are advised to consult Appendix E. In this section, as well as the consequences for KSFT, we report on the consequences for the economy of the rest of Northern Scotland of the loss of angling. The economic consequences are examined for both areas in the form of *economic activity supported* by angling and the *economic impact* of angling.

Following the discussion above, Table 7.3.1 presents the results for the key measures for the economies of both the KSFT area and the rest of Northern Scotland. The key measures are reported in both the context of the economic activity supported by angling and the economic impact of angling.

Table 7.3.1 Summary of key measures

		Activity Supported		Economic Impact	
		KSFT	Rest of Northern Scotland	KSFT	Rest of Northern Scotland
Local	**Direct Employment (FTEs)**	2	0	1	0
	Total GVA (£'000s)	£30	£9	£18	£8
	Total Employment (FTEs)	2	0	1	0
Visitor	**Direct Employment**	70	0	63	0
	Total GVA (£'000s)	£1,654	£609	£1,492	£549
	Total Employment (FTEs)	84	14	75	13
Total	**Direct Employment**	72	0	65	0
	Total GVA (£'000s)	£1,684	£618	£1,510	£557
	Total Employment (FTEs)	86	14	77	13

Analysts, policy makers and others with more specialised interests may be interested in the potential relationship between angler expenditure and the key indicators of economic dependency. We therefore report two key ratios.

The first is total household income (total GVA) generated per pound of angler expenditure. The second is the amount of angler expenditure necessary to generate one full time job .The DREAM® output enables these ratios to be calculated separately for local and visitor angler expenditure. These ratios are presented in Table 7.3.2.

Table 7.3.2 Summary of key ratios

		Activity Supported		Economic Impact	
		KSFT	Rest of Northern Scotland	KSFT	Rest of Northern Scotland
Local	**GVA per £ expenditure**	0.27	0.09	0.17	0.05
	Expenditure (£'000s) per FTE	£47	£521	£75	£3,561
Visitor	**GVA per £ expenditure**	0.46	0.17	0.42	0.15
	Expenditure (£'000s) per FTE	£43	£256	£47	£278

7.4 Employment supported by angler expenditure

From Table 7.3.1, it is concluded that the gross expenditure of all anglers supports 86 FTE's in the KSFT area, with visitor spending responsible for 84 of these. The vast majority of these jobs, namely the direct employment of 72

FTE's, are engaged in providing goods and services for anglers. The indirect and induced effects only contribute an additional 14 FTE's. This was not unexpected and simply reflects the size of the local economy and its very limited capacity to meet local demands.

Undoubtedly, one could identify more that 86 actual individuals in the KSFT area whose jobs are dependent on angling. This is because the 86 FTE's will be associated with more than 86 individual positions. Many jobs will be part-time and/or seasonal, especially the direct jobs. In this respect, two part-time, or four part-time / seasonal jobs are equivalent to one FTE. In addition, some individuals, although employed full-time, will spend only a proportion of their time in providing or maintaining angling services. For example, many ghillies will be engaged in general estate work in the off-season. It would not be unreasonable to conclude that angling supports the jobs of over 150 individuals in the KSFT area.

In addition to these jobs, the indirect and induced effects that result from angler spending in the KSFT area create another 14 FTE's in the rest of Northern Scotland. The impact on this economy is quite limited reflecting the limited industrial base of Northern Scotland

With respect to ratios, from Table 7.3.2., £47,000 of local KSFT angler expenditure is required to create one FTE. In contrast, it requires £43,000 of visitor angler expenditure to generate one FTE. In other words, there would be a net gain (loss) of one FTE in the KSFT area for every increase (decrease) in £43,000 spent by visiting anglers. This ratio is relevant if a policy initiative were to result in increased (decreased) expenditure by visiting anglers and there was no expectation of a consequential decrease (increase) in visitor expenditure elsewhere in the region.

The difference between local and visitor expenditure necessary to generate one FTE arises because of the different composition of expenditure. Visiting anglers spend more on accommodation which has stronger direct and indirect effects. It has been established that, in aggregate, all the owners' revenue from permits is spent and much of it locally. If visiting anglers spend a greater proportion on permits, there will be stronger direct and indirect effects.

7.5 Economic impact of angling on KSFT employment.

If angling ceased in the KSFT area, 86 FTE's would be lost, however there would be other jobs created elsewhere in the area, but not very many. The net loss would be 77 FTE's since the majority of the visitors would no longer visit the area. In addition, there would be a net loss of 13 FTE's in the rest of Northern Scotland.

Table 7.3.2 informs that there would be a net gain (loss) of one full time job equivalent in the KSFT area for every increase (decrease) of £47,000 of visitor angler spending, in circumstances where there was an expectation of a consequential decrease (increase) in visitor angler expenditure elsewhere in the KSFT area. The equivalent figure for local angler expenditure is £75,000 because much of local angler expenditure remains local.

7.6 Household income supported by angler expenditure

From Table 7.3.1, we conclude that the gross expenditure of all anglers supports £1.68 million of annual household income in the form of wages, rents, profits and income from self-employment. In addition, the indirect and induced effects that result from angler spending in the KSFT area create £0.618 million of annual household income in the rest of Northern Scotland.

With respect to the ratios in Table 7.3.2, each pound of local angler expenditure will generate only £0.27p in income for households in the KSFT area and £0.09p in the rest of Northern Scotland. Each pound of visitor angler spending will generate £0.46p in income for KSFT households and £0.17p for households in the rest of Northern Scotland. Once again this is because visiting anglers spend a greater proportion of their income on goods and services that have strong direct and indirect effects. These ratios are relevant if a policy initiative were to result in increased (decreased) expenditure by locals or visitors on angling, and there was no expectation of a consequential decrease (increase) in local expenditure elsewhere in the region.

7.7 Economic impact of angling on household income.

If angling ceased in the KSFT area, £1.68 million of household income would be lost, however there would be income created elsewhere in the area. The net loss would be £1.51 million. In addition, there would be a net loss of £0.557 million in household income in the rest of Northern Scotland.

Table 7.3.2, informs that each pound of visiting angler expenditure has a net economic impact of £0.42p on regional household income. This ratio is relevant if a policy initiative were to result in increased (decreased) expenditure by visitors on coarse angling, and there was an expectation of a consequential decrease (increase) in local expenditure elsewhere in the region. The equivalent figure for local angler expenditure is £0.17p.

7.8 Angling and the local economy

As outlined above, the gross expenditure of £3.73m currently supports a total employment of 86 FTEs with an estimated income of £1.68m in the KSFT area, with a further 14 jobs and £0.6m in the adjacent areas of Caithness & Sutherland and Ross & Cromarty. If all angling ceased we would expect to lose a net 77 FTE's of these jobs and £1.51 million in household income. The low level of substitution within the area reflects the size and alternative opportunities outside the KSFT area. However the indirect and induced effects are weak, reflecting the limitations of the KSFT economy.

Because of the limited size of this economy the loss of angling would be highly significant. The entire KSFT area consists of three and three quarter wards, Central Sutherland, Tain East, Tain West and Dornoch Firth less Embo in the north. However because of the size of the area almost none of the direct and indirect economic activity associated with angling will occur in the Tain wards or in the areas directly surrounding the town of Dornoch. To understand the impact of a loss of angling on employment in the core fishing area, it was sensible to confine the analysis to the Central Sutherland ward and the area to the west of the Dornoch Firth ward. Details of population and economic activity in this area from the 2001 census were obtained from Scottish Census Reports On Line. Table 7.8 gives the employment in this core angling area

Table 7.8 Local Employment 2001

	KSFT Core Angling area	Rate
Economically active	1,219	100.0%
In employment	1,093	91.3%
Unemployed	126	8.7%

Assuming those 1,093 "in employment" are engaged in full-time all year round occupations, then 86 FTEs in angling related employment accounts for around 7.9% of all jobs in the area. The reality is that the "in employment" relates to individuals and not FTE's. We noted earlier that relatively few of the direct angling jobs are full-time, all year positions with 100% of working activity devoted to angling. Angling related employment probably accounts for around 150 employment positions or 13.7% of those in employment in the core fishing area.

If angling ceased altogether and between 86 and 150 individuals were added to the unemployment total, the unemployment rate would rise to between 17.4% and 22.6%. There would be other 9 FTE's created as (former) anglers switched their expenditure to other activities in the KSFT area. The net loss would therefore be 77 and 135 individuals added to the unemployment total and the unemployment rate would rise between 16.6% and 21.4%.

7.9 Conclusions

This study has shown that angling, particularly for salmon, is a very important part of this small rural economy. The views of the current anglers about the area were very largely strongly positive and on this basis the activity is clearly very sustainable provided salmon runs continue. Indeed given the demographic characteristics of salmon anglers found in this study, the ageing of the UK population and the likely pressure to limit the growth in air travel, demand is likely to grow. The importance of partners was slightly surprising and publicising the attractions of the area to non-angling partners may be useful. On the other hand the limited importance of trout fishing was noted, despite the opportunities available.

For well over a century, angling has been supporting income and employment in what has become an increasingly fragile economy. There are relatively few economic activities that have proved to be as long lasting. Overall the impression is of an important vibrant industry with a good sustainable future provided salmon runs are protected from disease and over fishing.

Appendices

Appendix A: References

Fisheries Resources Management (2000) Assessing the Economic Value and Realising the Potential of Recreational Freshwater Fisheries in the Western Isles. A report prepared for the Western Isles Fisheries Trust.

Hanley, N and Spash, C (1993). Cost Benefit Analysis and The Environment Edward Elgar.

Radford, A., Riddington, G., Anderson J. and Gibson, H.(2004) The Economic Impact of Game and Coarse Angling in Scotland Report to The Scottish Executive. March 2004

Riddington G, Radford, A and Higgins P (2004) An Assessment of the Economic Impact of Water-Related Recreation and Tourism in the Spey Catchment. Report to Scottish Natural Heritage. April 2004

Riddington G, Gibson H and Anderson J. (2006) A comparison of gravity model, survey and location quotient based local area tables and multipliers *Regional Studies* Vol 40(9) pp1069-1081 December 2006

Appendix B: The Main Owner Questionnaire

Kyle of Sutherland Fisheries Trust: Survey of Proprietors/Managers

Dear

The Kyle of Sutherland Fisheries Trust (KSFT) wishes to assess the economic impact of game angling across the KSFT area and has commissioned a study from economists at Glasgow Caledonian University.

This questionnaire which is aimed at fishery proprietors and managers is only part of the KSFT economic study. There are companion, on-going surveys of KSFT anglers which focus on how much anglers spend and the pattern of their expenditure. The data from all the survey work will be processed through our computer model of the local economy. Among other things, the results of this study will provide information on the number of jobs in the KSFT area that are directly and indirectly dependent on angling. Once completed, the study will provide a much better understanding of the economic arguments for protecting and improving fisheries in the KSFT area.

The KSFT has compiled an inventory of all the ownerships of game fisheries in the KSFT area. Using this inventory we are now seeking to contact a representative from each ownership who has detailed knowledge about the anglers and their angling activity. In some cases this will be the proprietor, in others it will be estate managers, tenants or ghillies. The KSFT have been very helpful is identifying the relevant individuals and you have been selected as someone whose assistance would be invaluable in providing information.

We would therefore be most grateful if you would complete this questionnaire, which should be returned to us in the enclosed envelope. As you will see, some questions are quite straightforward, whilst others require you to provide an estimate based your informed judegment and your local knowledge. Since all the information we request is essential, we very much hope you will be willing to complete all the relevant questions.

Under the Data Protection Act, all replies will of course be treated in the strictest confidence. The results themselves will be presented to the KSFT in summary form only and it will not be possible to identify persons or individual fisheries in any reports we produce.

If you have any queries please do not hesitate to contact me at the address below. Thank you for your co-operation.

Alan Radford
Senior Lecturer in Economics
Glasgow Caledonian University
Cowcadden Road
Glasgow G4 OBA

PART A: Salmon and Sea Trout Angling (If there is no angling for salmon or sea trout on your fisheries please go to **PART B**)

Q1 **Please estimate the total number of angler days for salmon and sea trout at your fisheries in a typical season within the last three years.** Note: A salmon/sea trout angler day is any visit to your fisheries for salmon and/or sea trout fishing. This may be one angler fishing for a morning, afternoon or a whole day.

Estimated salmon and sea trout angler days is a typical season .....

Q2 **Of the total number of salmon and sea trout angler days indicated in Q1, please estimate the percentage accounted for by anglers normally resident in the following regions:**

- The KSFT area
- The Rest of Scotland
- Yorks or Humberside
- North East or North West England
- East or West Midlands
- East Anglia
- South East England
- South West England
- Wales
- Mainland Europe
- North America
- Elsewhere

Q3 **Of the total number of salmon and sea trout angler days indicated in Q1, please estimate the percentage in the following daily rod rental/permit price bands (Pro rata including VAT):**

- £0 to £10
- £11 to £20
- £21 to £50
- £51 to £100
- £101 to £150
- £151 to £200
- £201 to £250
- £251 to £300
- Over £300

Q4 **Of the total number of salmon and sea trout angler days indicated in Q1, please estimate the percentage occurring in the following time periods:**

- January and February
- March and April
- May and June
- July and August
- September and October
- November and December

Q5 **Please estimate the extent to which the number of salmon and sea trout angler days has increased or decreased, compared with a typical season 15 years ago.**

Estimated percentage **increase (if any)** in salmon and sea trout angler days..

Estimated percentage **decrease (if any)** in salmon and sea trout angler days.

Q6 **Please indicate the 5-year average salmon and grilse catch (retained plus released)**

Q7 **Please indicate the 5-year average sea trout catch (retained plus released)**

PART B: Trout Angling

(If there is no angling for trout on your fisheries please go to **Question 12)**

Q8 **Please estimate the number of angler days for <u>trout</u> at your fisheries in a <u>typical season</u> within the last three years.** Note: A trout angler day is any visit to your fisheries for trout fishing. This may be one angler fishing for a morning, afternoon or a whole day.

Estimated trout angler days is a typical season ..... ☐

Q9 **Of the total number of trout angler days indicated in Q8, please estimate the <u>percentage</u> accounted for by anglers normally resident in the following regions**

The KSFT area ☐
The Rest of Scotland ☐
Yorks or Humberside ☐
North East or North West England ☐
East or West Midlands ☐
East Anglia ☐
South East England ☐
South West England ☐
Wales ☐
Mainland Europe ☐
North America ☐
Elsewhere ☐

Q10 **Of the total number of trout angler days indicated in Q8, please estimate the <u>percentage</u> occurring in the following time periods**

January and February ☐
March and April ☐
May and June ☐
July and August ☐
September and October ☐
November and December ☐

Q11 **Please estimate the extent to which the number of trout angler days has increased or decreased, compared with a typical season 15 years ago.**

Estimated percentage **<u>increase (if any)</u>** in trout angler days ..... ☐

Estimated percentage **<u>decrease (if any)</u>** in trout angler days ..... ☐

Q12 **Please indicate below the number and types of workers employed in providing and supporting angling.**

If you have employees who work in angling <u>and</u> in other services (stalking, forestry, estate work <u>not</u> associated with angling etc), please indicate the percentage of their time devoted to angling related work.

	Number	*Percentageof work that is angling related.*
Full Time Permanent Workers	☐	☐
Part Time Permanent Workers	☐	☐
Full Time Seasonal Workers	☐	☐
Part Time Seasonal Workers	☐	☐
Other. Please specify_____	☐	☐

Q13 **Please take the opportunity to outline initiatives (if any) that would enable you to expand the number of angler days taken on your fishery.**

Thank you for your cooperation

Appendix C: The Owner Expenditure Questionnaire

Kyle of Sutherland Fisheries Trust

Proprietors' Cost Survey

The project is concerned with fully identifying the impact of angling on the economic health of the area and to trace all angling related expenditure both by angler and proprietor. In this part of the work we are asking a sample of proprietors about the pattern of their expenditure on their fisheries. Accommodation and Hospitality should not be included.

Q1. What percentage of the expenditure on your fishery is covered by income from rent, fees, leases etc? ☐

{If your fishery records a surplus of income over expenditure, please record by a percentage >100%}

Q2. **What is the breakdown of this expenditure by category and the percentage of each category that is sourced in the KSFT area?**

	% of Expenditure	*% Sourced in KSFT*
Ghillies and Other Labour	☐	☐
Construction Materials	☐	☐
Boats (Including Maintenance)	☐	☐
Vehicles (Including Maintenance)	☐	☐
Fuel and Other Energy	☐	☐
Projects contracted in (e.g. Buildings)	☐	☐
Rates	☐	
Fishing Board Levy	☐	
Other (Please Specify)…….	☐	☐
Total	**100%**	

Thank you for your assistance.

Appendix D: The Angler Questionnaire

Kyle of Sutherland Fisheries Trust: Survey of Anglers

The Kyle of Sutherland Fisheries Trust (KSFT) wish to assess the economic impact of freshwater angling across the KSFT area and have commissioned a study from economists at Glasgow Caledonian University. Once completed, the study will provide a better understanding of the economic arguments for protecting and improving fisheries in the KSFT area.

The survey covers FRESHWATER angling for salmon, sea trout and trout. If you have fished for these fish in the KSFT area within the last three years then we would like your help. A map of the relevant study area is given at the bottom of the page. You should note that whilst the questionnaire may appear long, the number of questions you are requested to answer depends on your particular circumstances. Most anglers will answer relatively few of the 19 questions.

All replies are anonymous and the results will be presented to KSFT in summary format only. Further, you have our assurance that under the Data Protection Act, all replies will be treated in the strictest confidence. Please return the questionnaire in the enclosed envelope as soon as possible. If you wish to complete the questionnaire on-line you can do so at http://www.gcal.ac.uk/econsurv/ksftsurvey.htm

If you have any queries please do not hesitate to contact me at the address below. Thank you for your co-operation.

Alan Radford
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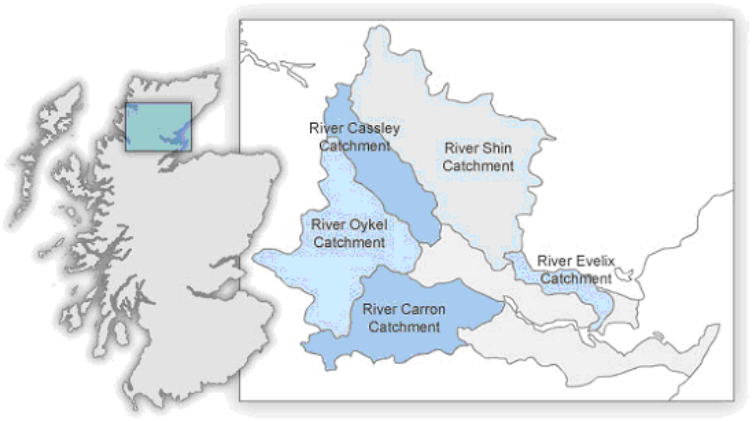


Q1 **Where do you normally live?**

- ☐ Within the KSFT area
- ☐ Yorkshire or Humberside
- ☐ South East England
- ☐ Mainland Europe
- ☐ Rest of Scotand
- ☐ West or East Midlands
- ☐ South West England
- ☐ North America
- ☐ North East or North West
- ☐ East Anglia
- ☐ Wales
- ☐ Other

Q2 **Your age**

- ☐ 12-16
- ☐ 25-34
- ☐ 45-54
- ☐ Over 65
- ☐ 17-24
- ☐ 35-44
- ☐ 55-64

Q3 **Your gender**

- ☐ Male
- ☐ Female

Q4 **Your annual houshold income**

(This information will help us to analyse and interpret the results. All responses are anonymous and confidential and we hope you will be willing to provide income details)

- ☐ less than £5000
- ☐ £5001-£10000
- ☐ £10001-£20000
- ☐ £20001-£30000
- ☐ £30001-£40000
- ☐ £40001-£50000
- ☐ £50001-£70000
- ☐ £70001-£90000
- ☐ Over £90,000
- ☐ Do Not Know

For each of the species categories below, please indicate how many days you fished in the KFST area during a typical session in the last three years. Please count one half day, or part of a day as one full day.

Q5 Salmon and Sea Trout...

Q5 Brown Trout

Expenditure on Tackle, Clothing, Books and Magazines in the KSFT Area

Q6 Please indicate your TOTAL annual expenditure in the KSFT area during a typical year on fishing tackle, specialised angling clothing, books and magazines.
INCLUDE purchases of all tackle for example rods, reels, lures, line, flies, fly-tying equipment, nets, waders, waistcoats, waterproofs, bags, holdalls and boxes.
DO NOT INCLUDE non-equipment items such as bait, accommodation, meals, transport, boat hire, rents or licences

- ☐ £0
- ☐ less than £5
- ☐ £5-£10
- ☐ £10-25
- ☐ £25-£50
- ☐ £50-£100
- ☐ £100-£250
- ☐ £250-500
- ☐ £500-1000
- ☐ £1K -£5K
- ☐ More than £5K

Part A: Fishing for Salmon and Sea Trout in the KSFT Area

(If you did not fish for Salmon and Sea Trout in the area in the last three years please go to **Part B**)

Q7 For each of the categories below, please enter the total number of KSFT salmon and sea trout angling trips undertaken during a typical year

Day Trips for Salmon and Sea Trout .....

Salmon and Sea Trout Angling Trips involving 1 or 2 nights in accommodation.....

Salmon and Sea Trout Angling Trips involving 3 or 4 nights in accommodation .....

Salmon and Sea Trout Angling Trips involving 5 to 7 nights in accommodation .....

Salmon and Sea Trout Angling Trips involving more than 7 nights in accommodation....

Q8 For each of the categories below, please indicate the **average** amount you spent **each day in the KSFT area** whilst on salmon and sea trout angling trips. **Include** all expenditure in the area **by you** on behalf of all fishing and non-fishing companions. (Please **exclude** expenditure undertaken **by your** companions)

	£0	Less than £1	£1-£2.50	£2.50 -£5	£5-£10	£10-£25	£25-£50	£50-£75	£75-£100	£100 - £250	More than £250
Hotel Accommodation (per day)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
B & B Accomodation (per day)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Self Catering (per day)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Caravan or Camping Fees (per day)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Meals & drinks Served (per day)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Food & Drink from shop (per day)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Public Transport & Vehicle Hire per day	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Petrol & Diesel bought locally per day	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Hire of tackle and boats per day	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Ghillie or guide hire per day	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Licences and Permits and club fees per day	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Gifts and souvenirs per day	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Anything else you spent (per day) in KSFT area	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Q9 If there were no salmon and sea trout in the KSFT area what is your most likely response?

- ☐ Fish for salmon and sea trout outside the KSFT rea
- ☐ Fish for species other than salmon and sea trout in the KSFT area
- ☐ Carry out another actvity in the KSFT area
- ☐ Carry out another actvity outside the KSFT area

Part B: Fishing for Trout in the KSFT Area

(If you did not fish for Trout in the area in the last three years please go to **Question 13**)

Q10 For each of the categories below, please enter the total number of KSFT Trout angling trips undertaken during a typical year

Trout Angling Day Trips .....

Trout Angling Trips involving 1 or 2 nights in accommodation.....

Trout Angling Trips involving 3 or 4 nights in accommodation .....

Trout Angling Trips involving 5 to 7 nights in accommodation.....

Trout Angling Trips involving more than 7 nights in accommodation.....

Q11 For each of the categories below, please indicate the **average** amount you spent **each day in the KSFT area** whilst on Trout angling trips. **Include** all expenditure in the area **by you** on behalf of all fishing and non-fishing companions. (Please **exclude** expenditure undertaken **by your** companions)

	£0	Less than £1	£1-£2.50	£2.50 -£5	£5-£10	£10-£25	£25-£50	£50-£75	£75-£100	£100 - £250	More than £250
Hotel Accommodation (per day)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
B & B Accomodation (per day)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Self Catering (per day)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Caravan or Camping Fees (per day)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Meals & drinks Served (per day)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Food & Drink from shop (per day)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Public Transport & Vehicle Hire per day	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Petrol & Diesel bought locally per day	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Hire of tackle and boats per day	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Ghillie or guide hire per day	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Licences and Permits and club fees per day	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Gifts and souvenirs per day	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Anything else you spent (per day) in KSFT area	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Q12 If there were no Trout in the KSFT area what is your most likely response?

- ☐ Fish for Trout outside the KSFT area
- ☐ Fish for species other than Trout in the KSFT area
- ☐ Carry out another actvity in the KSFT area
- ☐ Carry out another actvity outside the KSFT area

Alternatives to all Salmon, Sea Trout and Trout Angling in KSFT

Q13 Please indicate what you would have done in a typical season if fishing for all the above freshwater species were no longer available in the KSFT area

- ☐ Would have fished elsewhere in Scotland
- ☐ Would have fished outside Scotland
- ☐ Would have undertaken other activities in KSFT
- ☐ Would have undertaken actvites elsewhere

(If you are a resident of the KSFT area, please go to Question 19)

The KSFT Area for Visitors

Q14 **Please could you rank the following items as reasons for a visiting the KSFT area for fishing**

	Excellent	Good	Average	Poor	Very Poor
Value for Money	☐	☐	☐	☐	☐
Fishing Quality	☐	☐	☐	☐	☐
Scenery	☐	☐	☐	☐	☐
Service	☐	☐	☐	☐	☐
Availability of Provisions	☐	☐	☐	☐	☐
Ease of Access by Road	☐	☐	☐	☐	☐
Ease of Access by Public Transport	☐	☐	☐	☐	☐
Non-Fishing Activities	☐	☐	☐	☐	☐

Q15 **Whilst visting the KSFT area for fishing, what other activities do YOU undertake in the Area ?**

- ☐ Golf
- ☐ Shooting
- ☐ Horse Riding
- ☐ Hiking & Walking
- ☐ Cycling
- ☐ Water Sports
- ☐ Visiting Attractions
- ☐ Stalking
- ☐ Sea Angling
- ☐ Archaeology
- ☐ Sightseeing
- ☐ Birdwatching
- ☐ Photography
- ☐ Recreational Shopping

Other (Please Specify) _

(If you were accompanied by non-fishing companions on your fishing trips to the KSFT area please answer the next two questions, otherwise go to Question 18)

Q16 We are interested in your estimate of the **annual expenditure by your non fishing companions** (including children) in a typical year.
Please indicate below **all such expenditure in the KSFT area** e.g. accomodation costs, shopping, leisure expenditure (visits, actvities), meals **paid by** companions

Q17 What activities do your non-fishing companions undertake in the KSFT area ?

- ☐ Golf
- ☐ Shooting
- ☐ Horse Riding
- ☐ Hiking & Walking
- ☐ Cycling
- ☐ Water Sports
- ☐ Visiting Attractions
- ☐ Stalking
- ☐ Sea angling
- ☐ Archeology
- ☐ Sightseeing
- ☐ Birdwatching
- ☐ Photography
- ☐ Recreational Shopping

Other (Please Specify) _____

Q18 **Please describe any other contribution you and/or you companions make to the civic, cultural social and economic well-being of the local (KSFT) area**

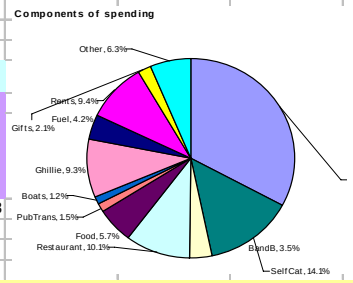
Q19 **If you have any further comments about fishing in the KSFT area please add them here**

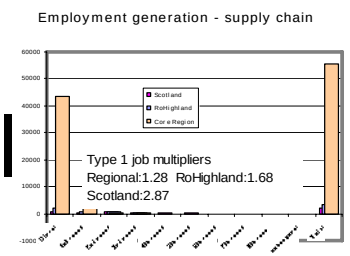
Thank you for your cooperation

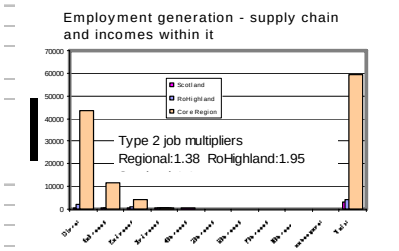
APPENDIX E

Economic Analyses from DREAM

Region:		Core Region	Neighbouring regions:	RoCASRAC	RoHighland
Species:		Salmon			
Angler origin:		Visitors			







Survey results

Angler days	Spend per day	Total spend
8252	£262.57	£2,166,768

Components of spending

Hotel	SelfCat	BandB	Restaurant	Food	PubTrans	Boats	Ghillie	Fuel	Rents	Gifts	Other	Total
£708,345	£305,274	£75,404	£219,701	£124,097	£31,533	£25,181	£201,764	£90,920	£203,327	£45,791	£135,431	£2,166,768
32.7%	14.1%	3.5%	10.1%	5.7%	1.5%	1.2%	9.3%	4.2%	9.4%	2.1%	6.3%	100.0%

Total effective spend	Retail margins	Wholesale margins	VAT and other product taxes	Spend net of product taxes	Falling on all Core Region producers	Falling on all RoCASRAC producers	Falling on all RoHighland producers	Falling on Scotland producers	Falling on other UK producers	Falling on all UK producers	Imports EU	Imports RoW
£2,166,768	£51,781	£20,835	£182,664	£1,984,104	£1,643,756	£1,651,692	£68,479	£47,997	£74,921	£122,918	£58,324	£53,154
100.0%	2.4%	1.0%	8.4%	91.6%	75.9%	76.2%	3.2%	2.2%	3.5%	5.7%	2.7%	2.5%

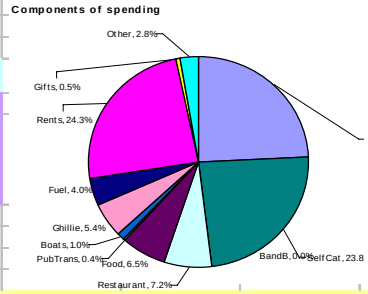
Type 1 multiplier analysis (business-to-business supply chain) (£000)

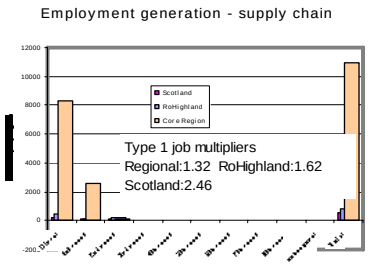
	Direct expenditure	First round indirect	Subsequent indirect	Total output effect	Output multiplier	Direct jobs	Total jobs	Employment multiplier	Jobs per £ mn effective spend	Jobs per 1000 angler-days	Total GVA generated	GVA/job generated
Core Region	£1,644	£265	£11	£1,921	1.168	43	49	1.141	22.8	5.99	£1,109	£22,459
RoCASRAC	£8	£270	£19	£297		0	6				£232	£36,382
RoHighland	£68	£31	£50	£150	2.186	2	4	1.677	1.7	0.44	£67	£18,608
Rest of Scotland	£48	£25	£60	£133		1	2				£63	£30,156
UK	£104	£57	£210	£371	3.554	1	4	3.841	2.1	0.54	£173	£38,435

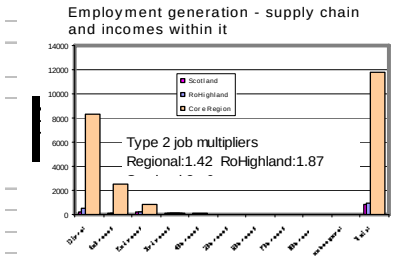
Type 2 multiplier analysis (supply chain plus spending of all who work in it and consequent supply chains)

	Direct expenditure	First round indirect	Subsequent indirect	Total output effect	Output multiplier	Direct jobs	Total jobs	Employment multiplier	Jobs per £ effective spend	Jobs per 1000 angler-days	Total GVA generated	GVA/job generated
Core Region	£1,644	£507	£144	£2,294	1.396	43	51	1.188	23.7	6.23	£1,032	£20,064
RoCASRAC	£8	£513	£172	£693		0	9				£405	£47,152
RoHighland	£68	£52	£127	£248	3.620	2	4	1.948	1.9	0.51	£82	£19,522
Rest of Scotland	£48	£37	£202	£287		1	3				£99	£30,499
UK	£104	£82	£714	£901	8.621	1	8	6.850	3.7	0.97	£311	£38,767

Region:	Core Region	Neighbouring regions:	RoCASRAC	RoHighland
Species:	Salmon			
Angler origin:	Scottish			







Survey results

Angler days	Spend per day	Total spend
11892	£37.09	£441,116

Components of spending

Hotel	SelfCat	BandB	Restaurant	Food	PubTrans	Boats	Ghillie	Fuel	Rents	Gifts	Other	Total
£106,338	£105,069	£0	£31,609	£28,877	£1,658	£4,332	£23,804	£17,560	£107,352	£2,380	£12,136	£441,116
24.1%	23.8%	0.0%	7.2%	6.5%	0.4%	1.0%	5.4%	4.0%	24.3%	0.5%	2.8%	100.0%

Total effective spend	Retail margins	Wholesale margins	VAT and other product taxes	Spend net of product taxes	Falling on all Core Region producers	Falling on all RoCASRAC producers	Falling on all RoHighland producers	Falling on Scotland producers	Falling on other UK producers	Falling on all UK producers	Imports EU	Imports RoW
£441,116	£9	£4	£0	£441,116	£320,092	£1,836	£14,546	£13,358	£20,576	£33,933	£15,496	£14,441
100.0%	0.0%	0.0%	0.0%	100.0%	72.6%	0.4%	3.3%	3.0%	4.7%	7.7%	3.5%	3.3%

Type 1 multiplier analysis (business-to-business supply chain) (£000)

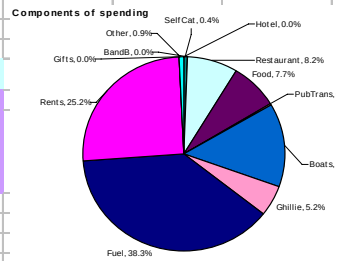
	Direct expenditure	First round indirect*	Subsequent indirect	Total output effect	Output multiplier	Direct jobs	Total jobs	Employment multiplier	Jobs per £ mn effective spend	Jobs per 1000 angler-days	Total GVA generated	GVA/job generated
Core Region	£320	£55	£2	£377	1.179	8	10	1.161	21.8	0.81	£211	£21,971
RoCASRAC	£2	£56	£4	£62		0	1				£47	£33,884
RoHighland	£15	£6	£10	£31	2.116	0	1	1.620	1.8	0.07	£14	£17,756
Rest of Scotland	£13	£7	£13	£33		0	1				£16	£28,683
Rest of UK	£28	£15	£46	£89	3.173	0	1	3.205	2.6	0.10	£41	£35,578

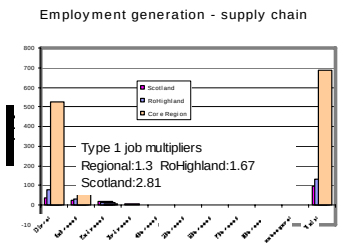
Type 2 multiplier analysis (supply chain plus spending of all who work in it and consequent supply chains)

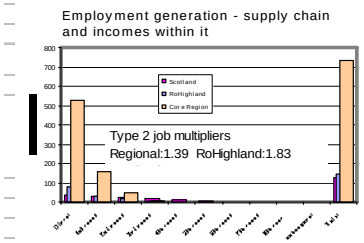
	Direct expenditure	First round indirect*	Subsequent indirect	Total output effect	Output multiplier	Direct jobs	Total jobs	Employment multiplier	Jobs per £ effective spend	Jobs per 1000 angler-days	Total GVA generated	GVA/job generated
Core Region	£320	£106	£30	£456	1.423	8	10	1.212	22.7	0.84	£216	£21,543
RoCASRAC	£2	£107	£36	£145		0	2				£62	£33,309
RoHighland	£15	£11	£26	£52	3.544	0	1	1.873	2.1	0.08	£17	£18,757
Rest of Scotland	£13	£10	£45	£68		0	1				£24	£29,439
Rest of UK	£28	£22	£158	£208	7.436	0	2	5.353	4.4	0.16	£72	£37,025

*half of first round jobs have been allocated to surrounding area, due to the limited economic capacity of KoS beyond services directly catering to fishers

Region:	Core Region	Neighbouring regions:	RoCASRAC	RoHighland
Species:	Salmon			
Angler origin:	Local			







Survey results

Angler days	Spend per day	Total spend
1339	£34.58	£46,297

Components of spending

Hotel	SelfCat	BandB	Restaurant	Food	PubTrans	Boats	Ghillie	Fuel	Rents	Gifts	Other	Total
£0	£200	£0	£3,785	£3,568	£136	£6,418	£2,406	£17,720	£11,665	£0	£399	£46,297
0.0%	0.4%	0.0%	8.2%	7.7%	0.3%	13.9%	5.2%	38.3%	25.2%	0.0%	0.9%	100.0%

Total effective spend	Retail margins	Wholesale margins	VAT and other product taxes	Spend net of product taxes	Falling on all Core Region producers	Falling on all RoCASRAC producers	Falling on all RoHighland producers	Falling on Scotland producers	Falling on other UK producers	Falling on all UK producers	Imports EU	Imports RoW
£46,297	£1,664	£730	£3,063	£43,234	£17,632	£18,634	£5,022	£4,252	£6,231	£10,483	£4,027	£2,530
100.0%	3.6%	1.6%	6.6%	93.4%	38.1%	40.2%	10.8%	9.2%	13.5%	22.6%	8.7%	5.5%

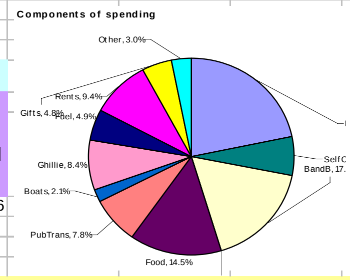
Type 1 multiplier analysis (business-to-business supply chain) (£000)

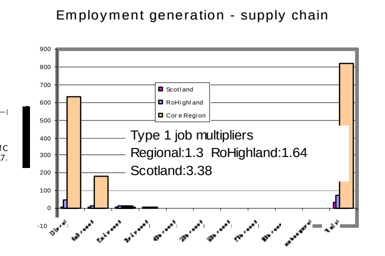
	Direct expenditure	First round indirect	Subsequent indirect	Total output effect	Output multiplier	Direct jobs	Total jobs	Employment multiplier	Jobs per £ mn effective spend	Jobs per 1000 angler-days	Total GVA generated	GVA/job generated
Core Region	£18	£3	£0	£21	1.203	1	1	1.153	13.1	0.45	£11	£18,204
RoCASRAC	£1	£4	£0	£5		0	0				£4	£38,969
RoHighland	£5	£3	£1	£9	1.835	0	0	1.668	2.8	0.10	£3	£23,996
Rest of Scotland	£4	£2	£2	£9		0	0				£4	£39,010
UK	£9	£5	£8	£22	2.562	0	0	3.240	4.0	0.14	£10	£54,032

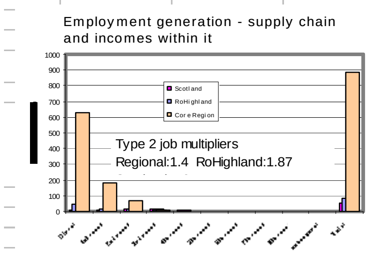
Type 2 multiplier analysis (supply chain plus spending of all who work in it and consequent supply chains)

	Direct expenditure	First round indirect	Subsequent indirect	Total output effect	Output multiplier	Direct jobs	Total jobs	Employment multiplier	Jobs per £ effective spend	Jobs per 1000 angler-days	Total GVA generated	GVA/job generated
Core Region	£18	£6	£2	£25	1.442	1	1	1.197	13.6	0.47	£10	£16,521
RoCASRAC	£1	£7	£2	£10		0	0				£5	£45,161
RoHighland	£5	£4	£3	£12	2.331	0	0	1.832	3.1	0.11	£3	£24,131
Rest of Scotland	£4	£3	£6	£14		0	0				£5	£37,151
UK	£9	£7	£22	£37	4.225	0	0	4.761	5.9	0.20	£13	£49,282

Region:	Core Region	Neighbouring regions:	RoCASRAC	RoHighland
Species:	Trout			
Angler origin:	Visitors			







Survey results

Angler days	Spend per day	Total spend
505	£74.19	£37,466

Components of spending

Hotel	SelfCat	BandB	Restaurant	Food	PubTrans	Boats	Ghillie	Fuel	Rents	Gifts	Other	Total
£8,070	£2,456	£6,386	£0	£5,421	£2,912	£772	£3,165	£1,825	£3,526	£1,803	£1,130	£37,466
21.5%	6.6%	17.0%	0.0%	14.5%	7.8%	2.1%	8.4%	4.9%	9.4%	4.8%	3.0%	100.0%

Total effective spend	Retail margins	Wholesale margins	VAT and other product taxes	Spend net of product taxes	Falling on all Core Region producers	Falling on all RoCASRAC producers	Falling on all RoHighland producers	Falling on Scotland producers	Falling on other UK producers	Falling on all UK producers	Imports EU	Imports RoW
£37,466	£1,508	£603	£3,667	£33,799	£26,010	£226	£1,724	£1,079	£1,688	£2,768	£1,783	£1,254
100.0%	4.0%	1.6%	9.8%	90.2%	69.4%	0.6%	4.6%	2.9%	4.5%	7.4%	4.8%	3.3%

Type 1 multiplier analysis (business-to-business supply chain) (£000)

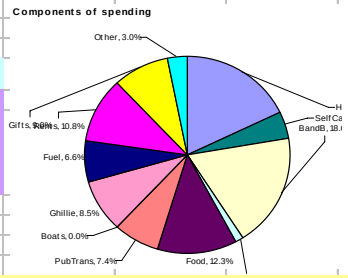
	Direct expenditure	First round indirect*	Subsequent indirect	Total output effect	Output multiplier	Direct jobs	Total jobs	Employment multiplier	Jobs per £ mn effective spend	Jobs per 1000 angler-days	Total GVA generated	GVA/job generated
Core Region	£26	£4	£0	£31	1.175	1	1	1.149	19.4	1.44	£17	£23,748
RoCASRAC	£0	£4	£0	£5		0	0				£4	£38,487
RoHighland	£2	£1	£1	£4	2.052	0	0	1.639	2.0	0.15	£1	£19,866
Rest of Scotland	£1	£1	£1	£3		0	0				£1	£34,383
Rest of UK	£2	£1	£4	£8	3.325	0	0	4.306	2.2	0.16	£4	£44,648

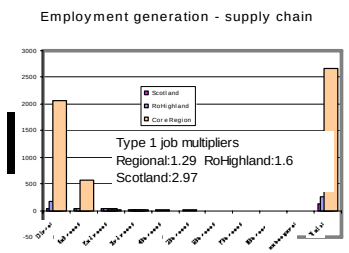
Type 2 multiplier analysis (supply chain plus spending of all who work in it and consequent supply chains)

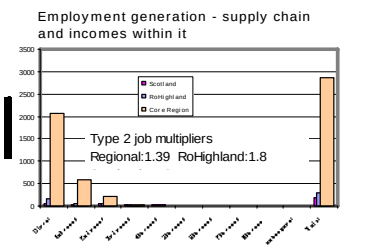
	Direct expenditure	First round indirect*	Subsequent indirect	Total output effect	Output multiplier	Direct jobs	Total jobs	Employment multiplier	Jobs per £ effective spend	Jobs per 1000 angler-days	Total GVA generated	GVA/job generated
Core Region	£26	£8	£2	£37	1.412	1	1	1.202	20.3	1.50	£16	£21,124
RoCASRAC	£0	£9	£3	£12		0	0				£7	£48,564
RoHighland	£2	£1	£2	£5	3.073	0	0	1.866	2.3	0.17	£2	£20,515
Rest of Scotland	£1	£1	£4	£6		0	0				£2	£33,199
Rest of UK	£2	£2	£13	£17	7.209	0	0	7.598	3.8	0.28	£6	£42,280

*half of first round jobs have been allocated to surrounding area, due to the limited economic capacity of KoS beyond services directly catering to fishers

Region:	Core Region	Neighbouring regions:	RoCASRAC	RoHighland
Species:	Trout			
Angler origin:	Scottish			







Survey results

Angler days	Spend per day	Total spend
1570	£74.73	£117,323

Components of spending

Hotel	SelfCat	BandB	Restaurant	Food	PubTrans	Boats	Ghillie	Fuel	Rents	Gifts	Other	Total
£20,819	£5,353	£21,830	£1,666	£14,395	£8,637	£0	£10,017	£7,733	£12,729	£10,612	£3,533	£117,323
17.7%	4.6%	18.6%	1.4%	12.3%	7.4%	0.0%	8.5%	6.6%	10.8%	9.0%	3.0%	100.0%

Total effective spend	Retail margins	Wholesale margins	VAT and other product taxes	Spend net of product taxes	Falling on all Core Region producers	Falling on all RoCASRAC producers	Falling on all RoHighland producers	Falling on Scotland producers	Falling on other UK producers	Falling on all UK producers	Imports EU	Imports RoW
£117,323	£4,671	£1,862	£10,835	£106,487	£79,525	£834	£6,134	£4,081	£6,309	£10,389	£6,051	£4,392
100.0%	4.0%	1.6%	9.2%	90.8%	67.8%	0.7%	5.2%	3.5%	5.4%	8.9%	5.2%	3.7%

Type 1 multiplier analysis (business-to-business supply chain) (£000)

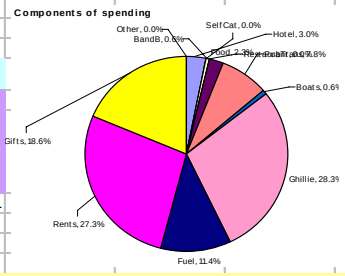
	Direct expenditure	First round indirect*	Subsequent indirect	Total output effect	Output multiplier	Direct jobs	Total jobs	Employment multiplier	Jobs per £ mn effective spend	Jobs per 1000 angler-days	Total GVA generated	GVA/job generated
Core Region	£80	£13	£1	£93	1.174	2	2	1.144	20.2	1.51	£53	£22,327
RoCASRAC	£1	£14	£1	£16		0	0				£12	£37,229
RoHighland	£6	£3	£3	£12	1.979	0	0	1.596	2.2	0.16	£5	£19,716
Rest of Scotland	£4	£2	£4	£10		0	0				£4	£33,751
Rest of UK	£9	£5	£14	£28	3.113	0	0	3.790	2.4	0.18	£13	£43,957

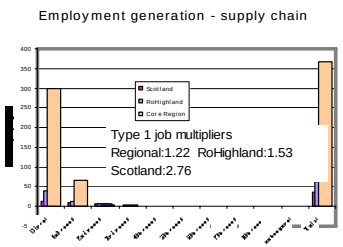
Type 2 multiplier analysis (supply chain plus spending of all who work in it and consequent supply chains)

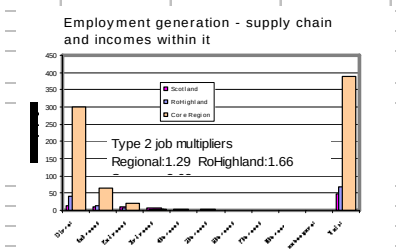
	Direct expenditure	First round indirect*	Subsequent indirect	Total output effect	Output multiplier	Direct jobs	Total jobs	Employment multiplier	Jobs per £ effective spend	Jobs per 1000 angler-days	Total GVA generated	GVA/job generated
Core Region	£80	£25	£7	£112	1.408	2	2	1.193	21.1	1.58	£49	£19,935
RoCASRAC	£1	£26	£9	£35		0	0				£20	£47,338
RoHighland	£6	£5	£7	£18	2.926	0	0	1.804	2.5	0.18	£6	£20,353
Rest of Scotland	£4	£3	£12	£19		0	0				£7	£32,870
Rest of UK	£9	£7	£43	£59	6.542	0	0	6.428	4.1	0.31	£20	£41,996

*half of first round jobs have been allocated to surrounding area, due to the limited economic capacity of KoS beyond services directly catering to fishers

Region:	Core Region	Neighbouring regions:	RoCASRAC	RoHighland
Species:	Trout			
Angler origin:	Local			







Survey results

Angler days	Spend per day	Total spend
884	£24.41	£21,581

Components of spending

Hotel	SelfCat	BandB	Restaurant	Food	PubTrans	Boats	Ghillie	Fuel	Rents	Gifts	Other	Total
£650	£0	£130	£0	£498	£1,689	£130	£6,111	£2,469	£5,890	£4,015	£0	£21,581
3.0%	0.0%	0.6%	0.0%	2.3%	7.8%	0.6%	28.3%	11.4%	27.3%	18.6%	0.0%	100.0%

Total effective spend	Retail margins	Wholesale margins	VAT and other product taxes	Spend net of product taxes	Falling on all Core Region producers	Falling on all RoCASRAC producers	Falling on all RoHighland producers	Falling on Scotland producers	Falling on other UK producers	Falling on all UK producers	Imports EU	Imports RoW
£21,581	£1,135	£483	£1,476	£20,105	£9,047	£344	£2,017	£1,518	£2,263	£3,781	£2,583	£1,422
100.0%	5.3%	2.2%	6.8%	93.2%	41.9%	1.6%	9.3%	7.0%	10.5%	17.5%	12.0%	6.6%

Type 1 multiplier analysis (business-to-business supply chain) (£000)

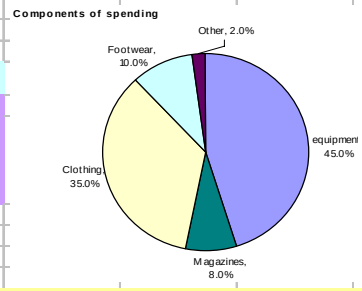
	Direct expenditure	First round indirect*	Subsequent indirect	Total output effect	Output multiplier	Direct jobs	Total jobs	Employment multiplier	Jobs per £ mn effective spend	Jobs per 1000 angler-days	Total GVA generated	GVA/job generated
Core Region	£9	£1	£0	£11	1.174	0	0	1.113	15.5	0.38	£6	£18,052
RoCASRAC	£0	£2	£0	£2		0	0				£2	£40,643
RoHighland	£2	£1	£1	£4	1.796	0	0	1.526	2.9	0.07	£1	£21,667
Rest of Scotland	£2	£1	£1	£3		0	0				£1	£37,770
Rest of UK	£3	£2	£3	£8	2.634	0	0	3.310	3.4	0.08	£4	£50,982

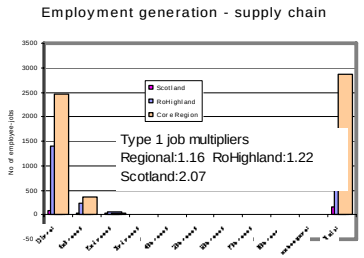
Type 2 multiplier analysis (supply chain plus spending of all who work in it and consequent supply chains)

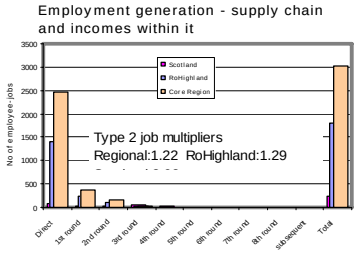
	Direct expenditure	First round indirect*	Subsequent indirect	Total output effect	Output multiplier	Direct jobs	Total jobs	Employment multiplier	Jobs per £ effective spend	Jobs per 1000 angler-days	Total GVA generated	GVA/job generated
Core Region	£9	£3	£1	£12	1.380	0	0	1.146	15.9	0.39	£6	£16,472
RoCASRAC	£0	£3	£1	£4		0	0				£2	£48,391
RoHighland	£2	£1	£1	£5	2.329	0	0	1.663	3.1	0.08	£1	£21,984
Rest of Scotland	£2	£1	£2	£5		0	0				£2	£36,138
Rest of UK	£3	£2	£9	£14	4.492	0	0	4.929	5.0	0.12	£5	£47,096

*half of first round jobs have been allocated to surrounding area, due to the limited economic capacity of KoS beyond services directly catering to fishers

Region:	Core Region	Neighbouring regions:	RoCASRAC	RoHighland		
Species:	Non Specific Spend					
Angler origin:	Visitors					







Survey results

Angler days	Spend per day	Total spend
		£162,442

Components of spending

equipment	Magazines	Clothing	Footwear	Other	Total
£73,099	£12,995	£56,855	£16,244	£3,249	£162,442
45.0%	8.0%	35.0%	10.0%	2.0%	100.0%

Total effective spend	Retail margins	Wholesale margins	VAT and other product taxes	Spend net of product taxes	Falling on all Core Region producers	Falling on all RoCASRAC producers	Falling on all RoHighland producers	Falling on Scotland producers	Falling on other UK producers	Falling on all UK producers	Imports EU	Imports RoW
£162,442	£58,876	£16,442	£15,650	£146,792	£47,881	£690	£32,417	£3,653	£7,448	£11,102	£16,989	£33,630
100.0%	36.2%	10.1%	9.6%	90.4%	29.5%	0.4%	20.0%	2.2%	4.6%	6.8%	10.5%	20.7%

Type 1 multiplier analysis (business-to-business supply chain) (£000)

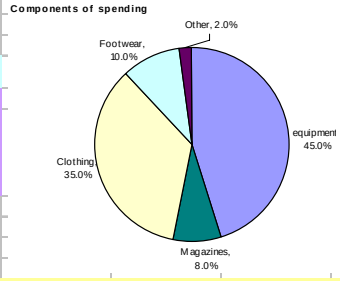
	Direct expenditure	First round indirect*	Subsequent indirect	Total output effect	Output multiplier	Direct jobs	Total jobs	Employment multiplier	Jobs per £ mn effective spend	Jobs per 1000 angler-days	Total GVA generated	GVA/job generated
Core Region	£48	£9	£1	£58	1.214	2	3	1.082	16.4		£33	£12,259
RoCASRAC	£1	£10	£1	£12		0	0				£6	£27,638
RoHighland	£32	£13	£3	£49	1.513	1	2	1.220	10.5		£26	£15,506
Rest of Scotland	£4	£2	£3	£9		0	0				£4	£24,527
Rest of UK	£12	£6	£17	£35	2.998	0	0	2.742	2.8		£16	£33,871

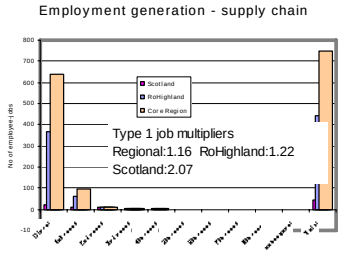
Type 2 multiplier analysis (supply chain plus spending of all who work in it and consequent supply chains)

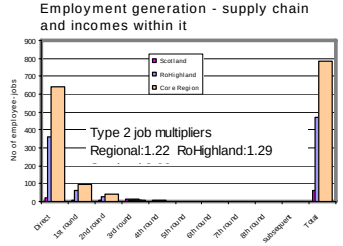
	Direct expenditure	First round indirect*	Subsequent indirect	Total output effect	Output multiplier	Direct jobs	Total jobs	Employment multiplier	Jobs per £ effective spend	Jobs per 1000 angler-days	Total GVA generated	GVA/job generated
Core Region	£48	£18	£7	£73	1.520	2	3	1.112	16.8		£31	£11,422
RoCASRAC	£1	£19	£8	£28		0	0				£12	£36,721
RoHighland	£32	£24	£12	£68	2.110	1	2	1.286	11.1		£29	£16,030
Rest of Scotland	£4	£3	£12	£18		0	0				£6	£25,981
Rest of UK	£12	£10	£54	£75	6.510	0	1	4.275	4.4		£26	£35,759

*half of first round jobs have been allocated to surrounding area, due to the limited economic capacity of KoS beyond services directly catering to fishers

Region:	Core Region	Neighbouring regions:	RoCASRAC	RoHighland
Species:	Non Specific Spend			
Angler origin:	Scottish			







Survey results

Angler days	Spend per day	Total spend
		£42,351

Components of spending

equipment	Magazines	Clothing	Footwear	Other	Total
£19,058	£3,388	£14,823	£4,235	£847	£42,351
45.0%	8.0%	35.0%	10.0%	2.0%	100.0%

	Total effective spend	Retail margins	Wholesale margins	VAT and other product taxes	Spend net of product taxes	Falling on all Core Region producers	Falling on all RoCASRAC producers	Falling on all RoHighland producers	Falling on Scotland producers	Falling on other UK producers	Falling on all UK producers	Imports EU	Imports RoW
	£42,351	£15,350	£4,287	£4,080	£38,271	£12,483	£180	£8,452	£952	£1,942	£2,894	£4,429	£8,768
	100.0%	36.2%	10.1%	9.6%	90.4%	29.5%	0.4%	20.0%	2.2%	4.6%	6.8%	10.5%	20.7%

Type 1 multiplier analysis (business-to-business supply chain) (£000)

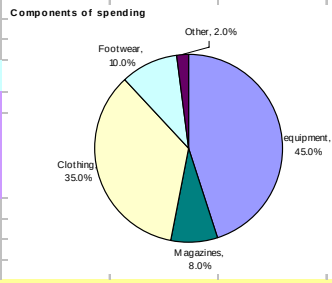
	Direct expenditure	First round indirect*	Subsequent indirect	Total output effect	Output multiplier	Direct jobs	Total jobs	Employment multiplier	Jobs per £ mn effective spend	Jobs per 1000 angler-days	Total GVA generated	GVA/job generated
Core Region	£12	£2	£0	£15	1.214	1	1	1.082	16.4		£9	£12,259
RoCASRAC	£0	£3	£0	£3		0	0				£2	£27,638
RoHighland	£8	£3	£1	£13	1.513	0	0	1.220	10.5		£7	£15,506
Rest of Scotland	£1	£1	£1	£2		0	0				£1	£24,527
Rest of UK	£3	£2	£4	£9	2.998	0	0	2.742	2.8		£4	£33,871

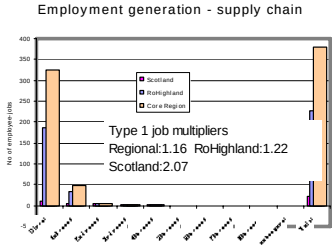
Type 2 multiplier analysis (supply chain plus spending of all who work in it and consequent supply chains)

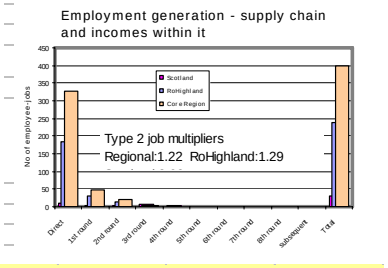
	Direct expenditure	First round indirect*	Subsequent indirect	Total output effect	Output multiplier	Direct jobs	Total jobs	Employment multiplier	Jobs per £ effective spend	Jobs per 1000 angler-days	Total GVA generated	GVA/job generated
Core Region	£12	£5	£2	£19	1.520	1	1	1.112	16.8		£8	£11,422
RoCASRAC	£0	£5	£2	£7		0	0				£3	£36,721
RoHighland	£8	£6	£3	£18	2.110	0	0	1.286	11.1		£8	£16,030
Rest of Scotland	£1	£1	£3	£5		0	0				£2	£25,981
Rest of UK	£3	£2	£14	£20	6.510	0	0	4.275	4.4		£7	£35,759

*half of first round jobs have been allocated to surrounding area, due to the limited economic capacity of KoS beyond services directly catering to fishers

Region:	Core Region	Neighbouring regions:	RoCASRAC	RoHighland
Species:	Non-Specific Spend			
Angler origin:	Local			







Survey results

Angler days	Spend per day	Total spend
		£21,523

Components of spending

equipment	Magazines	Clothing	Footwear	Other	Total
£9,685	£1,722	£7,533	£2,152	£430	£21,523
45.0%	8.0%	35.0%	10.0%	2.0%	100.0%

Total effective spend	Retail margins	Wholesale margins	VAT and other product taxes	Spend net of product taxes	Falling on all Core Region producers	Falling on all RoCASRAC producers	Falling on all RoHighland producers	Falling on Scotland producers	Falling on other UK producers	Falling on all UK producers	Imports EU	Imports RoW
£21,523	£7,801	£2,179	£2,074	£19,450	£6,344	£91	£4,295	£484	£987	£1,471	£2,251	£4,456
100.0%	36.2%	10.1%	9.6%	90.4%	29.5%	0.4%	20.0%	2.2%	4.6%	6.8%	10.5%	20.7%

Type 1 multiplier analysis (business-to-business supply chain) (£000)

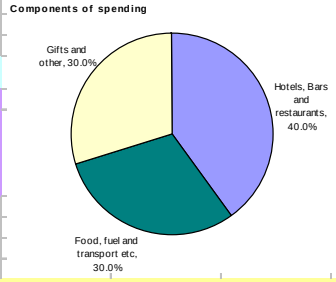
	Direct expenditure	First round indirect*	Subsequent indirect	Total output effect	Output multiplier	Direct jobs	Total jobs	Employment multiplier	Jobs per £ mn effective spend	Jobs per 1000 angler-days	Total GVA generated	GVA/job generated
Core Region	£6	£1	£0	£8	1.214	0	0	1.082	16.4		£4	£12,259
RoCASRAC	£0	£1	£0	£2		0	0				£1	£27,638
RoHighland	£4	£2	£0	£6	1.513	0	0	1.220	10.5		£4	£15,506
Rest of Scotland	£0	£0	£0	£1		0	0				£1	£24,527
Rest of UK	£2	£1	£2	£5	2.998	0	0	2.742	2.8		£2	£33,871

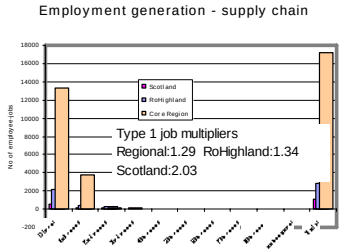
Type 2 multiplier analysis (supply chain plus spending of all who work in it and consequent supply chains)

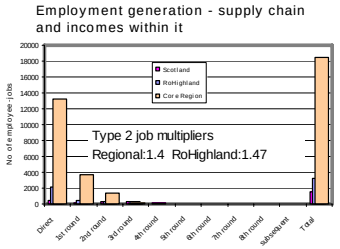
	Direct expenditure	First round indirect*	Subsequent indirect	Total output effect	Output multiplier	Direct jobs	Total jobs	Employment multiplier	Jobs per £ effective spend	Jobs per 1000 angler-days	Total GVA generated	GVA/job generated
Core Region	£6	£2	£1	£10	1.520	0	0	1.112	16.8		£4	£11,422
RoCASRAC	£0	£3	£1	£4		0	0				£2	£36,721
RoHighland	£4	£3	£2	£9	2.110	0	0	1.286	11.1		£4	£16,030
Rest of Scotland	£0	£0	£2	£2		0	0				£1	£25,981
Rest of UK	£2	£1	£7	£10	6.510	0	0	4.275	4.4		£3	£35,759

*half of first round jobs have been allocated to surrounding area, due to the limited economic capacity of KoS beyond services directly catering to fishers

Region:		Core Region		Neighbouring regions:	RoCASRAC	RoHighland									
Species:		Partners													
Angler origin:		Total													







Survey results

Angler days	Spend per day	Total spend
		£650,162

Components of spending			
Hotels, Bars and restaurants	Food, fuel and transport etc	Gifts and other	Total
£260,065	£195,049	£195,049	£650,162
40.0%	30.0%	30.0%	100.0%

Total effective spend	Retail margins	Wholesale margins	VAT and other product taxes	Spend net of product taxes	Falling on all Core Region producers	Falling on all RoCASRAC producers	Falling on all RoHighland producers	Falling on Scotland producers	Falling on other UK producers	Falling on all UK producers	Imports EU	Imports RoW
£650,162	£61,774	£24,606	£38,763	£611,399	£443,981	£5,189	£52,908	£22,402	£33,388	£55,791	£34,029	£37,954
100.0%	9.5%	3.8%	6.0%	94.0%	68.3%	0.8%	8.1%	3.4%	5.1%	8.6%	5.2%	5.8%

Type 1 multiplier analysis (business-to-business supply chain) (£000)

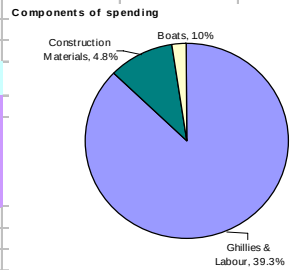
	Direct expenditure	First round indirect*	Subsequent indirect	Total output effect	Output multiplier	Direct jobs	Total jobs	Employment multiplier	Jobs per £ mn effective spend	Jobs per 1000 angler-days	Total GVA generated	GVA/job generated
Core Region	£444	£82	£4	£530	1.193	13	15	1.147	23.4		£301	£19,811
RoCASRAC	£5	£85	£6	£96		0	2				£54	£23,837
RoHighland	£53	£22	£15	£90	1.701	2	3	1.339	4.4		£47	£16,215
Rest of Scotland	£22	£11	£20	£53		1	1				£25	£24,459
Rest of UK	£46	£25	£79	£151	3.245	1	2	3.028	3.2		£70	£34,055

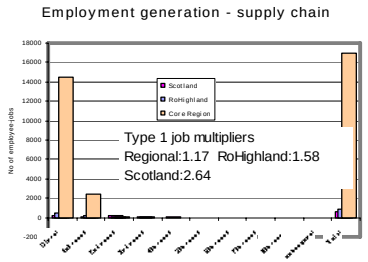
Type 2 multiplier analysis (supply chain plus spending of all who work in it and consequent supply chains)

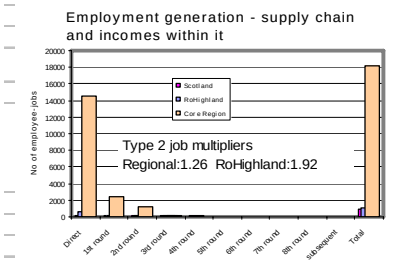
	Direct expenditure	First round indirect*	Subsequent indirect	Total output effect	Output multiplier	Direct jobs	Total jobs	Employment multiplier	Jobs per £ effective spend	Jobs per 1000 angler-days	Total GVA generated	GVA/job generated
Core Region	£444	£164	£50	£658	1.481	13	16	1.199	24.4		£287	£18,074
RoCASRAC	£5	£170	£61	£236		0	3				£101	£33,343
RoHighland	£53	£42	£48	£142	2.689	2	3	1.470	4.9		£54	£17,034
Rest of Scotland	£22	£18	£73	£114		1	2				£39	£25,922
Rest of UK	£46	£39	£278	£363	7.804	1	3	5.071	5.3		£124	£36,120

*half of first round jobs have been allocated to surrounding area, due to the limited economic capacity of KoS beyond services directly catering to fishers

Region:	Core Region	Neighbouring regions:	RoCASRAC	RoHighland
Species:	All			
Angler origin:	Estate Expenditure			







Survey results

Angler days	Spend per day	Total spend
		£535,796

Components of spending

Ghillies & Labour	Construction Materials	Boats	Vehicles	Fuel & Energy	Projects Contracted In	Rates & Levy	Other	Total
£210,529	£25,860	£5,249	£26,862	£21,151	£20,085	£149,333	£76,727	£535,796
39.3%	4.8%	1.0%	5.0%	3.9%	3.7%	27.9%	14.3%	100.0%

Total effective spend	Retail margins	Wholesale margins	VAT and other product taxes	Spend net of product taxes	Falling on all Core Region producers	Falling on all RoCASRAC producers	Falling on all RoHighland producers	Falling on Scotland producers	Falling on other UK producers	Falling on all UK producers	Imports EU	Imports RoW
£535,796	£10,156	£4,103	£2,585	£533,210	£414,543	£2,539	£19,523	£13,997	£20,060	£34,057	£22,851	£11,131
100.0%	1.9%	0.8%	0.5%	99.5%	77.4%	0.5%	3.6%	2.6%	3.7%	6.4%	4.3%	2.1%

Type 1 multiplier analysis (business-to-business supply chain) (£000)

	Direct expenditure	First round indirect*	Subsequent indirect	Total output effect	Output multiplier	Direct jobs	Total jobs	Employment multiplier	Jobs per £ mn effective spend	Jobs per 1000 angler-days	Total GVA generated	GVA/job generated
Core Region	£415	£59	£2	£476	1.148	15	16	1.086	29.4		£307	£19,501
RoCASRAC	£3	£60	£5	£68		0	1				£43	£32,462
RoHighland	£20	£9	£8	£37	1.888	1	1	1.583	1.6		£16	£19,132
Rest of Scotland	£14	£7	£14	£35		0	1				£17	£30,175
Rest of UK	£27	£15	£49	£91	3.369	0	1	3.681	2.0		£43	£40,664

Type 2 multiplier analysis (supply chain plus spending of all who work in it and consequent supply chains)

	Direct expenditure	First round indirect*	Subsequent indirect	Total output effect	Output multiplier	Direct jobs	Total jobs	Employment multiplier	Jobs per £ effective spend	Jobs per 1000 angler-days	Total GVA generated	GVA/job generated
Core Region	£415	£126	£38	£579	1.396	15	16	1.128	30.5		£290	£17,700
RoCASRAC	£3	£128	£48	£178		0	2				£88	£44,024
RoHighland	£20	£15	£30	£65	3.307	1	1	1.918	1.9		£21	£20,147
Rest of Scotland	£14	£11	£54	£79		0	1				£27	£29,750
Rest of UK	£27	£21	£182	£230	8.540	0	2	6.945	3.7		£80	£40,020

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