

SECTION 1 INTRODUCTION

1.1 Background

The River Spey is a central feature of the landscape of North-east Scotland (Badenoch and Strathspey and Moray). It has been both a primary influence on the pattern of development in the area and the source of much of the economic development. Strathspey has a national and international reputation for scenic quality, salmon fishing, whisky distilling and wildlife. In recent years, the special natural heritage qualities of the river and its catchment has been recognised through a number of national and international designations; most recently under European legislation as a Special Area of Conservation. Its importance for other forms of recreation is also developing as these activities (canoeing, kayaking, rafting, and walking (on the Speyside Way)) grow in popularity. The establishment of the Cairngorms National Park and the implementation of the European Community Water Framework Directive only serve to emphasise the need for careful and integrated catchment management.

Against this background, an informal Steering Group comprising the key regulatory bodies in the Spey catchment was formed, whose remit was to produce a Catchment Management Plan (CMP) (Spey Catchment Steering Group, 2003). The group comprises the Spey Fishery Board, SportScotland, Moray Badenoch and Strathspey Enterprise Company, Scottish Natural Heritage, the Scottish Environmental Protection Agency, and the Highland and Moray Councils. Production of the CMP revealed the need for up-to-date information on the volume and value to the local economy of water-related recreation. This study was commissioned and this report to SCSG is part of an on-going wider project by SCSG to inform strategic planning and decision-making in the area.

After discussion it was agreed that, for an economic assessment of the local impact of water based recreation in the catchment, the most appropriate local economic area was that covered by Moray, Badenoch and Strathspey Enterprise. Fig 1.0.1 shows the boundaries of the MBSE study area alongside the boundaries of the catchment. For information the National Park and Local Authority boundaries are also shown, together with the key water features.

1.2 Output

Output from the project consists of two reports; this Research Report and a Summary Report. The Summary Report contains a very limited review of the literature, provides an overview of the research process and presents the principal results. This Research Report provides information on other research (including bird watching), full details of research methods and their success (or otherwise) and details on participants and their interactions with other users. Importantly this report explains in detail the economic analysis underlying the results featured in this report. It should be noted that all statistics relate to 2003 and are in 2003 prices unless otherwise stated.

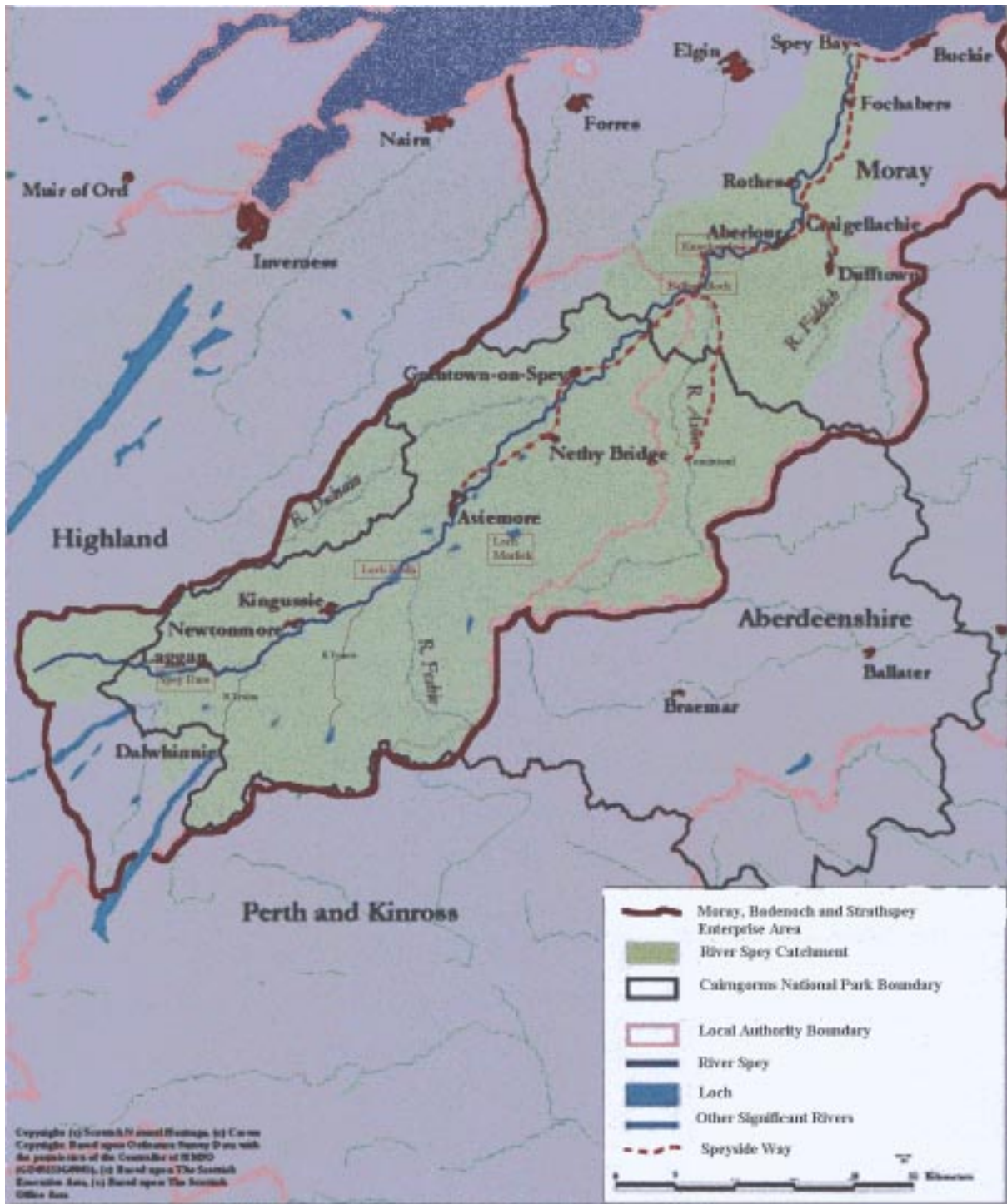


Figure 1.0.1 Map of MBSE, Catchment, National Park and Local Authorities

1.3 Aims and Objectives

The project specification identifies five objectives. The first two seek to measure the level and economic impact on the local economy of water-related tourism activities.

Discussion of other less directly related activities such as bird-watching, river side picnicking, hiking and swimming provide a context for the study.

The third objective seeks to identify the environmental impact of these activities. This involves a qualitative assessment of the impact on both the visual environment and on the ecology of the river.

The fourth objective examines the interaction between anglers and paddlers. This study aims to identify both the numbers involved and the nature of the interactions.

The final objective is to identify some possibilities for expanding water related leisure and recreation. The project aims to identify appropriate criteria for selection and also identifies a number of areas where monitoring and further research would be useful.

1.4 Structure of the Report

The remainder of this section provides a brief overview of the some general issues, as well as key issues associated with the conduct and use of economic impact assessment. Thereafter, the report is structured as follows.

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| Section 2: | A review of the existing body of theory and knowledge relevant to angling, paddle-sports and other water-related recreation in the Spey catchment. |
| Sections 3 and 4: | Estimation of activity levels and the associated economic impacts of angling and paddle-sports. |
| Sections 5 and 6: | Estimation of activity levels and the associated economic impacts of paddle-sports. |
| Section 7: | Analysis of the nature and frequency of interactions between competing users of the surface water space and riparian land. |
| Section 8: | Assessment of the environmental impact of recreational activity on the main stem |
| Section 9: | A review of development opportunities |
| Section 10: | Presentation of summary and conclusions including a discussion of further research and monitoring |

1.5 Measures of Activity Levels and Expenditure

The key measure is the 'activity day' rather than visit or 'activity hours'. This means that if an individual participates in an activity for any part of a day then this is counted as one activity day. This could lead to significant over-estimation of effects. For example, if an individual hires a canoe for two hours for a paddle on Loch Morlich then this is counted as a water sport activity day. Similarly a two-hour visit to the Loch Garten osprey hide would constitute a bird-watching activity day. Procedures were adopted which were sensitive to this issue.

Estimated total activity days by participants are multiplied by the mean expenditure of participants in the activity to give a measure of total expenditure. It is important to recognise that for paddling this applies to 2003 only and for angling a "typical" single year based on an average from 1998 to 2003.

The total expenditure is not however the economic impact, which requires analysis of the proportion of expenditure that is spent on local products (absorption) and would remain in the area if the activity ceased (the substitution effect) and the knock-on (multiplier) effects in the local economy. These concepts are discussed further in section 1.5.

1.6 Cost–Benefit Appraisal and Economic Impact Analysis

The overall project remit refers explicitly to the local economic impact. There are a number of ways of undertaking an economic evaluation, other than assessing the impact of participants' spending on a defined local economy. An alternative approach is the Cost Benefit Analysis framework (CBA). This approach takes the welfare of individuals as its reference point and focuses, among other things, on the number of participants and their enjoyment of their recreational activity. This study offers no formal CBA type analysis and thus, in some respects, has a somewhat constrained focus. Because of this, the consultants would want to issue a strong "health warning" about use of results. It is hoped that, when assessing policy initiatives and development opportunities, policy makers would take a wider view and would not be guided solely by local economic impacts.

1.7 Economic Impact Analysis

1.7.1 Introduction

In the public domain, the magnitude of angler expenditure and its impact on income and employment is often used for advocacy purposes. Unfortunately, the findings of impact studies can be cited and used inappropriately. This might be deliberate but may also be simply misguided. Both culpable and innocent misuse is best tackled by ensuring that the scope and limitations of impact studies are made explicit. Sections 1.5.2 to 1.5.5 introduce some key issues.

1.7.2 Substitution

In assessing the current economic impact one is asking the implicit question *what would happen to income and employment in a defined area if the fishery ceased to exist?* In other words, there is a hypothetical scenario in which fishing or paddling no longer

exists, and an attempt is made to predict what would happen to angler or paddler expenditure and local income and employment. The implied response of the participants is crucial.

Substitution refers to the extent that expenditure on the activity being undertaken simply “displaces” expenditure from other activities in the area. The obvious example is a new supermarket that simply displaces expenditure from existing shops in the area, and may, in fact, have a negative impact on total jobs because of increased productivity. In our case we seek to identify how much expenditure on other activities in the area will expand if water-based activities ceased in order to remove this displaced expenditure from the analysis.

At one extreme, it is possible that all current total expenditure would be lost to the local area. This would happen if all ‘recreational visitors’ to the Spey catchment now participated in their sport outside the catchment and all expenditure by local participants was diverted outside the area. In these circumstances, total participants’ expenditure would be lost to the catchment. This is unlikely and the assumption is often made that ‘visitors’ have better alternatives outside the area, whereas residents have almost perfect substitutes within the region. This assumption leads some practitioners to focus only on the expenditure that would be lost i.e. visiting participants. Rather than relying on the above traditional assumptions and separating local and visitor spending, this study has sought to identify the actual substitution possibilities available to participants in the main recreational activities, irrespective of where they come from. In this way, the local expenditure that is ‘conditional’ on the existence of each recreational activity is identified.

The effect of allowing for substitution is also important in remedying any over-estimation arising from the use of an ‘activity day’. A casual user who hires a canoe for 2 hours would be recorded as one activity day and the whole of his daily expenditure initially included in the estimate of total expenditure. Substitution analysis results in counting only the expenditure of those serious enough to leave the area to pursue the activity, and discounts those who would stay in the area and pursue some alternative. This approach is followed, less precisely, by VisitScotland’s “Main” and “Other Purpose” categorisation of activity. We prefer the increased precision of substitution measures.

1.7.3 Direct Effects

Once the relevant expenditure change is estimated, the task is to calculate the impact on local output, local incomes and local employment. Some expenditures have a minimal initial local impact. For example, only about 5% of spending on petrol has a direct effect locally, 95% ‘bounces off’ through the purchasing of inputs from outside. In contrast, a larger proportion of accommodation spending has a local effect. The composition of angler expenditure is important in determining the magnitude of the initial Direct Effect. The Direct Effect is simply the initial increase in local incomes (principally wages) and any increase in locally sourced inputs (i.e. additional local output).

1.7.4 Indirect Effects

There are knock on effects from the Direct Effect. Specifically, the local impact of producing these additional locally sourced inputs is known as the first round Indirect Effect. This effect manifests itself in further increase in local incomes (wages) and further demands by firms for locally produced inputs. The local effect of producing more

local inputs creates further rounds of successively smaller Indirect Effects. The combined impact of the Direct and all the rounds of Indirect Effects is modelled by what is termed “**Type I**” multiplier analysis. Among other things, this analysis would calculate the total local output dependent on the fishery (the **Type I Total Output Effect**) and the total increase in local household income (the **Type I Gross Value Added**).

1.7.5 Induced Effects

As described, both the direct effect and every round of indirect effects increases household incomes (principally wages and income from self employment) and in each spending round a proportion of these are spent on locally produced goods, creating further local income and local output. 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 Output Effects** and the **Type II Gross Value Added**.

1.7.6 Employment

Once the (Type I and/or Type II) local incomes or output impacts are calculated, (Type I and/or Type II) local employment can be estimated through known relationships between output and employment or total wages and employment.

1.7.7 Modelling the Local Economy

In this study, the local area is defined as the Moray, Badenoch and Strathspey Enterprise Area (MBSE). The magnitude of the overall effect on local output, incomes and employment depends on a number of key characteristics of the local economy. An important characteristic is the absorption rate which is the propensity to purchase locally produced goods. A heavy and homogeneous product, such as building materials, would have a high level of absorption in the local economy. If not available locally it will come from sources as close to the area as possible. On the other hand, the ‘absorption rate’ in financial services would be low relative to cement. The size of the area is also critical, a small economy such as MBSE is unable to supply most of the goods required and consequently the Type 1 multiplier effect is small. Conversely, for the UK as a whole the majority of goods will be sourced within the economy and the multiplier will be relatively large. Also in a small local area a large proportion of the expenditure, notably income tax, employee national insurance and mortgage payments will flow outside the region.

In this study two approaches were used to model the local economy. The first, which applies to the local (MBSE) economy only, involved a telephone survey of firms in the area. This enabled the tracking of rounds of expenditures and their impacts on local output, income and employment as they worked through the MBSE economy. Details and results are given in Appendix 1.2.

The second used an approach developed by CogentSI and utilises specific models for angling and water sports in MBSE. The model incorporates trade matrices between 53 regions for the 128 individual Standard Industrial Classification categories generated by an estimated gravity (distance related) model and consistent with known published information. It also utilises the technical coefficients derived from the Scottish Input-Output Tables and again reconciled to known outputs/inputs and estimated flows. Details of the construction of these tables are given in Appendix 1.1. We report the results from the CogentSI Type II model in the main body of the report.

1.7.8 Boundaries

It is important to also recognise that the effects of a change will expand as the boundaries of the study area expand. If a hotel in the MBSE area purchases fresh food from markets in Inverness then additional income from additional customers will in part flow outside MBSE to Inverness. This money is “lost” to MBSE. If on the other hand the hotel is supplied directly from a slaughterhouse and farms in the area then the expenditure will remain in the area and flow on via local purchases by the slaughterhouse, payments to slaughter-men and payments to local farmers. If the boundaries of the area included Inverness then in both cases the money would have remained in the area, increasing any measure of impact.

However it should be noted that the substitution effect increases as the boundaries expand. For example most river canoeists will transfer from the Spey to another river in the Highlands. Hence their income will be lost to MBSE (and the impact therefore counted) but not to Highlands and Islands Enterprise (HIE) area (where it will be discounted).

1.7.9 Use of Results

It is important to realise that this impact study records the current position. The results presented need to be used sensitively in analysing the effect of changes in the current position. For example, a doubling of the returning salmon stock will not result in a doubling of the economic impact of salmon angling. Thus, whilst it is interesting to quote that a rod caught salmon currently generates on average £x in local income, the causal chain between salmon stocks and output, income and employment is complicated and is not linear. Given this, these crude averages need to be used with care. Later in the report we estimate the local income and output generated per angler day. Whilst the relationship between activity days and impact is less complicated than that between say salmon stocks and economic impact, one still cannot assume linear relationships.

It should also be noted that the current size of the economic impact cannot be directly used as an argument for additional resources to be devoted to it. It is the magnitude of the change that additional resources will induce that is important, not the overall size.

1.8 Overview of Research Methods

Details of the research methods utilised are given in the respective chapters. Table 1.6.1 summarises the various survey methods.

Table 1.6.1 Survey methods used in the Study

Data Requirement	Source	Method
Angler Days	Owners	Questionnaire
Angler Expenditure & Interaction	Anglers	Questionnaire
Angler Expenditure & Interaction	Anglers	On Site Survey
Water Sports Days 1	Centres	Survey
Water Sports Days 2	Ghillies/Proprietor	Count
Water Sports Days 3	Paddlers	Self Completion Cards
Water Sports Spend 1 & Interaction	Paddlers	Questionnaire (SCA members)
Water Sports Spend 2 & Interaction	Paddlers Sailors	On Site Survey
Gorge Walking	Centres	Interview
Owner Spend	Owners	Interview
Centre Spend	Managers	Interview
Opportunities	Elite	Interview

The rationale underlying the choice of method, the sample size, response rate (if applicable) and a discussion of the effectiveness is given in the relevant sections.