



SCHOOL OF CONSERVATION SCIENCES

**AN INVESTGATION INTO THE BOURNE STREAM PARTNERSHIP INITIATIVE**  
**CAN THE BOURNE STREAM PARTNERSHIP BE DESCRIBED AS A GOOD WORKING**  
**EXAMPLE OF INTEGRATED COASTAL ZONE MANAGEMENT?**

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COASTAL ZONE MANAGEMENT

<b>TABLE OF CONTENTS</b>	<b>PAGE NUMBER</b>
<b>ABSTRACT</b>	(unavailable)
<b>TABLE OF CONTENTS</b>	<b>I</b>
<b>LIST OF TABLES</b>	<b>III</b>
<b>LIST OF GRAPHS</b>	<b>III</b>
<b>LIST OF FIGURES</b>	<b>III</b>
<b>1.0 EUROPEAN INTEGRATED COASTAL ZONE MANAGEMENT, A STRATEGY FOR EUROPE</b>	<b>1</b>
<b>2.0 INTRODUCTION TO THE BOURNE STREAM</b>	<b>3</b>
2.1 THE BOURNE VALLEY	3
2.2 COY POND AND GARDENS	4
2.3 THE UPPER, CENTRAL AND LOWER GARDENS	4
2.4 RECREATION	5
2.5 GEOLOGY	5
<b>3.0 BOURNE STREAM ISSUES</b>	<b>6</b>
3.1 THE EC BATHING WATER DIRECTIVE	6
3.2 THE BLUE FLAG CAMPAIGN	8
3.3 INVESTIGATING DIFFUSE POLLUTION ISSUES	8
3.4 CONCLUSION	11
<b>4.0 INTRODUCTION TO THE PARTNERSHIP APPROACH</b>	<b>12</b>
<b>5.0 MSc PROJECT OBJECTIVES</b>	<b>14</b>
<b>6.0 THE BOURNE STREAM DATABASE</b>	<b>15</b>
6.1 METHODS	15
6.1.1 DATA COLLECTION	15
6.1.2 DATABASE DESIGN	16
6.1.3 BOURNE STREAM DATABASE 2001 DISTRIBUTION	17
6.2 RESULTS	17
6.3 DISCUSSION	21

6.4	LIMITATIONS	21
6.5	FUTURE MANAGEMENT OF THE DATABASE	22
6.6	RECOMMENDATIONS	24
6.7	CONCLUSIONS	25
<b>7.0</b>	<b>THE BOURNE STREAM PARTNERSHIP</b>	<b>26</b>
7.1	DEVELOPMENTS AND CURRENT ACHIEVEMENTS	26
7.2	DISCUSSION	27
7.2.1.	SUCCESS	28
7.2.2.	FAILURES	28
7.3	RECOMMENDATIONS	29
7.3.1	SUMMARY OF RECOMMENDATIONS	30
7.4	CONCLUSIONS	30
<b>8.0</b>	<b>REFERENCES</b>	<b>32</b>
<b>9.0</b>	<b>ACKNOWLEDGEMENTS</b>	<b>34</b>
APPENDIX I	Photographs of the Bourne Stream	<i>not available online</i>
APPENDIX II	GIS location maps	<i>not available online</i>
APPENDIX III	Borough of Poole Compartment maps	<i>not available online</i>
APPENDIX IV	Stratigraphical Column	<i>not available online</i>
APPENDIX V	Sample questionnaire	<i>not available online</i>
APPENDIX VI	Questionnaire replies	<i>not available online</i>
<b>APPENDIX VII</b>	<b>Summary data table</b>	<b>36</b>

### **LIST OF TABLES**

TABLE 1	PROBLEMS IN THE COASTAL ZONE	1
TABLE 2	EC MICROBACTERIOLOGICAL STANDARDS	7
TABLE 3	THE PASS RATES FOR BOTH EC STANDARDS	7
TABLE 4	ABSTRACT FROM THE BOURNE STREAM PARTNERSHIP VISION STATEMENT	12
TABLE 5	SUMMARY OF RESULTS FROM THE QUESTIONNAIRE	19

### **LIST OF GRAPHS**

GRAPH 1	A STORM HYDROGRAPH FOR THE BOURNE STREAM	10
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### **LIST OF FIGURES**

FIGURE 1	BLUE FLAG CAMPAIGN	8
FIGURE 2	DATABASE SCHEMATIC	18

## 1.0 EUROPEAN INTEGRATED COASTAL ZONE MANAGEMENT, A STRATEGY FOR EUROPE

Towards the end of September 2000 the Commission of the European Communities (EC) released a document which was sent to the European Parliament outlining a proposed Integrated Coastal Zone Management (ICZM) Strategy for Europe.

This paper was the result of a European Demonstration Programme of which the County of Dorset took part in. The paper is seen, by many, as the first real step in understanding and efficiently tackling the increasing number of problems facing the coastal zone.

The paper first highlights the major problems within the coastal zone such as water contamination, coastal erosion and resource depletion as well as habitat destruction and conflicts of different users in the zone.

The demonstration programme found four main problems, which were found to contribute to the already mentioned problems seen today in the coastal zone (Table 1)

- |    |   |
|----|---|
| 1. | lack of relevant knowledge                                |
| 2. | inappropriate and uncoordinated laws                      |
| 3. | failure to involve all stakeholders                       |
| 4. | poor co-ordination between relevant administrative bodies |

**Table 1.** Problems in the coastal zone (European Communities 2000)

From the experiences learnt from the demonstration programme it was established that in order to generate improvements within the coastal zone there was a great need for a collaborative approach to planning and management. Furthermore, any collaboration that takes place between stakeholders must extend beyond just the stakeholders present on the coastal zone (European Communities 2000).

Although all these recommendations from the ICZM demonstration programme seem sound principles in theory can they really be applied to a real world situation? Would the suggested collaborative approach firstly be easy to implement, especially if there can be no immediately obvious benefit to the stakeholders who may be located some distance from the coastal zone?

Secondly would this united integration of stakeholder working to achieve a common goal really produce any real benefits? Or would the situation arise where the potential for achieving great progress in tackling some of the new aforementioned problems is lost due to administrative and disagreements between stakeholder with differing views and agendas.

With these findings from the ICZM demonstration programme in mind this paper will be investigating the application of ICZM practice. A real situation has arisen within the local coastal zone of Bournemouth and Poole, where the problems identified from the demonstration programme can clearly be seen.

Using this example as a case study the situation offers an opportunity to see whether the problems identified in the coastal zone can really be tackled by integrated methods. Moreover can these recommended methods be applied easily in such a situation and be deemed to bring about successful results.

The report will highlight the problems specific to this case and analyse the way local authorities are tackling these problems through integrated methods. Problems encountered from working in an integrated fashion will also be investigated.

## **2.0 INTRODUCTION TO THE BOURNE STREAM**

The Bourne Stream from Bournemouth takes its name, lies in the bottom of a shallow valley located in the County of Dorset, Southeast England.

The stream flows for approximately 8kms through both the Boroughs of Poole and Bournemouth before terminating close to Bournemouth Pier, in close proximity to the designated EC Bathing Water Site (SZ 0885090650) (Bourne Stream Strategy 2000). The Bourne Stream is composed of three main tributaries and has a newly revised drainage catchment of 14km<sup>2</sup> of which 43% of the land use is known to be urban (pers.comm.. Smith 2001).

Due to the number of different environments through which the stream flows and the crossing of the two unitary boundaries the stream is commonly divided into three main sections:

- (a) The Bourne Valley
- (b) Coy Pond and Gardens
- (c) Upper, Central and Lower Gardens

### **2.1 THE BOURNE VALLEY**

The Bourne Valley lies on the eastern edge of the borough of Poole and is further divided into two areas, Bourne Bottom and Talbot Heath.

The stream can be seen in its most natural state with muddy banks and sometimes overgrown vegetation. Although the stream itself is surrounded by open space on both sides there are large areas of residential and light industrial land use beyond.

Both areas are known for their well managed heathland and woodland areas and the abundance of wildlife, including many Red Data Book species that can be found in these areas (Leisure Services 2001). The combined vicinity is estimated to be nearly 80 hectares and is divided into 24 compartments by Poole Borough Council (Leisure Services 2001).

The area is heavily protected on account of its ecology by various national and international designations, yet provides the local public and visitors with an area of natural open space in which to enjoy many leisure activities (Leisure Services 2001).

This stretch of the stream is referred to a tributary one. It has a somewhat elusive source upon Canford Heath, northwest Poole (Bourne Stream Strategy 2000). It is from this source that the stream flows down through the Bourne Valley and into Coy Pond, before being joined in Coy Pond Gardens by two further tributaries before proceeding to flow through the Bournemouth Pleasure Gardens and out into Poole Bay.

## **2.2 COY POND AND GARDENS**

The Coy Pond and gardens still occur within the Borough of Poole in the highly urbanised area of Branksome. The gardens are an area of public open space of nine acres in size and are described as having a slightly natural yet wild appearance (Leisure Services 2001/2006). The stream still retains some of its natural appearance such as muddy banks but the land around the stream is lightly landscaped. The English Heritage Register of Parks and Gardens lists the gardens as Grade II\* (Leisure Services 2001/2006).

The Coy Pond Gardens acts as a confluence point for the three tributaries of the Bourne Stream. The second tributary of the stream is even more of an enigma than the first but is thought to have a source just below the Newtown area, in a road formerly called Kingston Crescent (Echo 1944). This has yet to be confirmed and will prove difficult due to the extensive urbanisation in this area.

It is from this area that the stream passes through a mixture of culverted and open stretches within the Rossmore and Alder Hills area of Poole, including the Alder Hills Nature Reserve. It is further downstream that this second tributary meets the first tributary close to the unitary boundaries of Poole and Bournemouth within the Coy Pond Gardens, downstream from Coy Pond.

A third much smaller tributary can be located within the Branksome area of Poole and joins the second tributary close to the gasworks further upstream from Coy Pond Gardens. The source of this tributary cannot be traced visually and will have again become complicated by the level of urbanisation that has taken place in this area.

## **2.3 THE UPPER, CENTRAL AND LOWER GARDENS**

The Upper, Central and Lower Gardens lie within the Borough of Bournemouth. The stream here flows through the centre of the gardens, which are also listed Grade II\* by English Heritage and are surrounded on both sides again by residential land use and also by the city

centre (Bournemouth Borough Council 1999). The stream at this point flows through highly maintained gardens and the natural appearance is lost (Bournemouth Borough Council 1999). The natural banks have been replaced by concrete ones. The length of the stream through the gardens is measured at approximately 3kms (Bournemouth Borough Council 1999).

## **2.4 RECREATION**

The stream has a history of high recreational use extending back to the early 1900s (Davenport 1988). The Bourne Stream and associated areas offers local residents a place they can enjoy whether they use the area to exercise or relax away from the hectic urban areas. The scenic areas and wildlife along the course of the stream are major attractions to all that visit the area.

## **2.5 GEOLOGY**

The Bourne Stream flows over an area of complicated geology (West 2000). The rocks are all sedimentary in origin and are of Eocene age, Lower Tertiary (65-2 million years) (House 1993). In general the deposits are composed of non-marine Branksome Sands and Parkstone Clays both of which are overlain at points by a mixture of Head and Head Gravel deposits (House 1993).

### **3.0 BOURNE STREAM ISSUES**

The aim of this chapter is to focus on the diffuse pollution issue that has been attributed to the Bourne Stream and assess the impact this is having on Bournemouth's local bathing beach.

The Bourne Stream is a typical urban stream, which has notable problems with diffuse pollution issues and flooding, which are typical of any stream seen to pass through any such urbanised area (Peter Brett Associates 1999). The infiltration rates are obviously lowered and runoff is greatly increased due to the high percentage of impermeable surfaces and lack of vegetation found within such an urban area.

Surface runoff and the associated contaminants from both areas are thus directed into the channel of the Bourne Stream at various points along its course (Peter Brett Associates 1999). This leads to regular periods of deterioration of water quality, which are known to impact on the water quality of the local bathing beach (Environment Agency 1996/1997). Furthermore with the added occurrence of a high water table in the area regular flooding events are also common, especially in the lower reaches (Bournemouth Borough Council 1999).

#### **3.1 THE EC BATHING WATER DIRECTIVE**

The objectives of the bathing water directive is to ensure public health is protected and to improve and maintain bathing water quality (Europa, A 2001). The current EC Directive became law in 1976 and is currently under revision and may produce further implications for Bournemouth if the current situation is not rectified (Europa, C 2001).

The UK uses Coliforms to assess the compliance of the imperative Bathing Water Standards set by the EC, which each Member States must cohere to (Europa, B 2001). The EC Directive also has Guideline Coliform and Faecal Streptococci Standards. These standards are more stringent than the Imperative Standards, although there is no legal requirement for member states to achieve these levels they are set in the hope that each member state will try to attain these more stringent levels (Table 2).

The Bathing Water season in the UK starts on the 13 May and continues through to the end of September (FEE 2001). The Environment Agency, being the competent authority, is required to sample twenty times in that period, usually on a fortnightly basis, and analyse the

bathing water in accordance with the requirements of the Directive (Environment Agency, 2000). The results are then reported to the Department of Environment Farming and Rural Affairs (DEFRA). DEFRA then pass the results to the European Commission (Environment Agency 2000).

<b>IMPERATIVE STANDARDS</b>
95% of the samples must not exceed 10,000 total Coliforms per 100ml
95% of the samples must not exceed 2,000 faecal Coliforms per 100ml
<b>GUIDELINE STANDARDS</b>
80% of the samples must not exceed 500 total Coliforms per 100ml
80% of the samples must not exceed 10 faecal Coliforms per 100ml
90% of the samples must not exceed 10 faecal Streptococci per 100ml

**Table 2.** EC microbacteriological Standards. (FEE 2001)

Historically this bathing water site usually passes the Imperative Standards set by the EC but unfortunately samples have continued to exceed the Guideline Standards (Table 3).

YEAR	IMPERATIVE STANDARDS	GUIDELINE STANDARDS
1990	PASS	FAIL
1991	PASS	FAIL
1992	PASS	PASS
1993	PASS	FAIL
1994	PASS	FAIL
1995	PASS	FAIL
1996	PASS	PASS
1997	PASS	FAIL
1998	PASS	FAIL
1999	PASS	FAIL
2000	PASS	FAIL

**Table 3.** The pass rates for both EC Standards. (Badger 2001).

### 3.2 THE BLUE FLAG CAMPAIGN



Fig. 1 (FEE 2001)

The Blue Flag is an exclusive eco-label awarded to more than 2750 beaches and marinas in 21 countries across Europe in 2001 and now in South Africa. The Blue Flag Campaign is run independently by a non-profit organisation, Foundation for Environmental Education (FEE) (FEE 2001).

A beach that has a Blue Flag can be known to have met the more stringent Guideline Standards being among one of 26 criteria set by FEE. The award is given one season at a time and the other areas of criteria apart from water quality issues include environmental management, safety, services and facilities and environmental education and information (FEE 2001).

As a consequence of Bournemouth being unable to meet the required microbiological levels for the Guideline Standards the beach, popular with holidaymakers, has been unable to gain the Blue Flag status.

With the absence of the Blue Flag it is feared that the continued failures may eventually become detrimental to the tourism industry in the area and possibly have a knock-on effect on the local economy (pers.comms. 2001). This year Bournemouth failed to attain the Guideline Standards and thus failed to gain the Blue Flag Award (pers.comms. Smith 2001).

### 3.3 INVESTIGATING DIFFUSE POLLUTION ISSUES

As a result of the continued bathing water failures there was a need to investigate possible sources of pollution. With the stream discharging into Poole Bay, the stream was seen as the obvious choice (Environment Agency, 1996/1997).

Point source pollution along the stream was not seen to be an issue as only one consented discharge occurs in the catchment, that being a surface water discharge from Sainsburys car park (pers.comms. Smith 2001). Additionally due to the separate sewerage system in the area only surface water discharges into the stream at various points along the course, there

are no recorded CSOs (Combined Sewage Overflows) connected to the stream (Peter Brett Associates 1999).

During 1992 Wessex Water began the first instigated water quality investigations of the Bourne Stream by carrying out biological surveys. The results reported very low biotic scores within the stream and ponds supporting low levels of macro-invertebrates, indicating very poor water quality (Wessex Scientific 1992).

Following this investigation the company initiated further studies in 1993 and 1994. As well as runoff from the urban areas these studies highlighted gully pots as being notable sources of pollution, which contributed to the diffuse pollution problem (Wessex Scientific 1993/1994).

Investigations by Bournemouth Borough Council in 1993 and 1995 presented data that originally confirmed there was a correlation between rainfall and elevated faecal coliform counts in the stream (Environment Agency 1996/1997).

More detailed investigations were carried out during the bathing season of 1995 close to Bournemouth Pier by the Environment Agency. The short sea outfall was under particular scrutiny and the results demonstrated that the short sea outfall was in operation for longer periods that should have been (Environment Agency 1996/1997).

The short sea outfall should work as follows, under normal conditions the Bourne Stream water passes out to sea via one of the long sea outfalls where it is mixed with sewer effluent prior to discharge (Environment Agency 1996/1997). Conversely when period of heavy rain occur and the overflows from Bournemouth's combined surface and foul water drainage system discharges through the long sea outfalls a device forces the Bourne Stream to discharge through the short sea outfall (Environment Agency 1996/1997). This if the system is working correctly then the Bourne Stream will only discharge through the short sea outfall in storm conditions, however there is evidence that:

- The occurrence of spring tides result in the closure of the flap valve allowing the Bourne Stream to discharge via the short sea outfall in periods of dry weather;
- The flap has been shown to become jammed closed by debris washed into the chamber, again allowing the Bourne Stream to discharge through the short sea outfall.

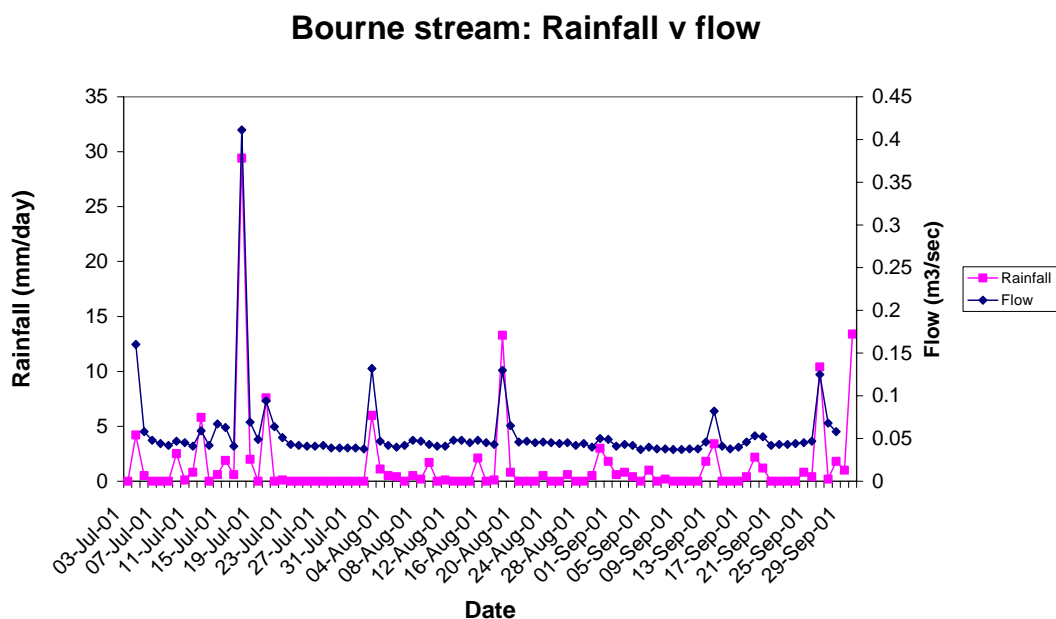
(Environment Agency 1996/1997)

Sampling by the short sea outfall concluded that high bacterial levels in the bathing area coincided with short sea outfall operations and storm conditions. This correlation between high Faecal coliform levels in the bathing water site and storm conditions, was linked to the high bacterial levels in the Bourne Stream which was attributed to the first flush effect (Environment Agency 1996/1997).

The first flush is a term used to describe a dry period followed by substantial amounts of precipitation falling within the urbanised catchment causing surface water to be channelled by the large amounts of impermeable surfaces into the watercourse (Peter Brett Associates 1999). In this case the Bourne Stream has litter, food waste, dog foul, oil and any other waste present on the ground at the time washed into its channel causing the water quality within the stream to deteriorate and bacterial levels to rise (Peter Brett Associates 1999). Consequently this poor water quality is discharged via the short sea outfall across the designated EC Bathing Water Site (pers.comm. Smith 2001).

Usually a stream is capable of diffusing the high levels of bacteria associated with this debris from a first flush incident but unfortunately due to the especially short time lag seen in this catchment this does not happen. The response of the catchment to rainfall leads to increased flow so a very short retention time occurs thus little time exists for the water quality to improve before being discharged rapidly into Poole Bay (pers.comm. Smith 2001).

The storm hydrograph below demonstrates this very clearly (Graph 1).



**Graph 1.** A storm hydrograph for the Bourne Stream. (Environment Agency 2001)

It can be seen that as the rainfall increases rapidly there is an immediate response to increased flow rate within the channel. The samples taken on 17<sup>th</sup> August, for instance, subsequently failed to meet EC Imperative Standards.

### **3.4 CONCLUSION**

Stream water quality is thus known to deteriorate following rainfall events most commonly after a period of dry weather, the first flush. The short retention time allows for little time for water quality to improve before discharge into Poole Bay.

Bathing water failures of the Imperative Standard are due to the poor water condition of the Bourne Stream and the operation of the short sea outfall under high rainfall conditions. The Guideline failures are also suspected and linked to the water quality of the stream (pers.comms. Smith 2001).

It was concluded within the Environment Agency 1996/1997 investigation that control methods are needed to minimise the impact of the Bourne Stream acting upon the bathing waters. They suggested two methods that should be employed in order to accomplish this goal.

- Alleviate the risk of malfunction from the short sea outfall;
- Apply BMPs (Best Management Practices) to the catchment to improve bacterial levels in the Bourne Stream and thus reduce impact on the Bathing Beach.

#### 4.0 INTRODUCTION TO THE PARTNERSHIP APPROACH

As already stated, with the pollution type being diffuse in nature, causing Bournemouth's bathing water failure no one single organisation had the full regulatory powers to tackle this problem (pers.comms. Smith 2001). On recognition of this fact the Bourne Stream Partnership was set up in an attempt to alleviate the diffuse pollution issue within the catchment by establishing a collaborative approach to managing the situation (Bourne Stream Strategy 2000).

This partnership initiative involves stakeholders from within two unitary boundaries, where past differences in opinion have been put aside and also includes a mixture of government, commercial and public organisations, who share a common goal, that of reducing the diffuse pollution problems and thus improving the bathing water quality.

The prospective partners first met in February 2000 following a report by Peter Brett Associates, which had investigated the suitability of the Bourne Stream catchment for the fitting of BMPs (Best Management Practices) (Partnership Minutes 2001).

The use of BMPs, such as in-stream ponds, porous paving and the distribution of water butts, was believed to be able to improve the water quality of the Bourne Stream by reducing runoff and thus alleviating flows (Peter Brett Associates 1999). As the flow rate decreased greater biological degradation would then be able to take place. It was hoped these measures would then ultimately improve the condition of the bathing water in Bournemouth (pers.comms. Smith 2001).

During the following months as the partnership became established a five-year strategy was adopted which has three key themes within the vision statement (Table 4).

1. <b>Quality of Life</b> – improve public access, improve quality of life for those living and working in the area
2. <b>Sustainable Development</b> – educate and involve people about their impact on the environment, and how they can minimise their impact
3. <b>Environmental Quality</b> – promote sustainable development in the area and improve environmental quality.

**Table 4.** Abstract from the Bourne Stream Partnership Vision Statement.

With the EC ICZM document and the Bourne Stream Partnership in mind there are some parallels that can be drawn between the problems identified in the document and the problems seen in the coastal zone of Poole and Bournemouth today.

1. A failure to involve all relevant stakeholders in tackling problems such as pollution issues is a common error (EC Communities 2000). This was the case, as individually some of the larger organisations had carried out investigations but never together (Environment Agency 1996/1997). This demonstrates the poor co-ordination that existed between the relevant administrative bodies in the catchment, a pitfall highlighted by the EC document.

Although the situation has altered greatly there are still a few stakeholders not represented within the partnership such as industry and tourism an assertive effort has been made to encompass as many stakeholders as possible (pers.comms. Smith 2001). A total of twelve members now belong to the partnership and the thirteenth, Bournemouth Oceanarium, joined recently (Bourne Stream Strategy 2000).

With the involvement of stakeholders in mind it is worth noting that not all members come from the immediate perceived coastal zone, but many come from further inland (Bourne Stream Strategy 2000). This inclusion of stakeholders in and beyond the coastal zone was deemed an important step to take when embarking on a partnership approach within the coastal zone, by the EC Strategy for Integrated Coastal Zone Management.

2. The existing poor co-ordination that has been present in the Bournemouth and Poole area has also been rectified by a strong communication network that has been created. Regular partnership meetings occur on a regular basis and the use of e-mails and phone calls in the interim.
3. Within the Bourne Stream Partnership Strategy the partnership identifies a lack of knowledge as a potential downfall as does the EC Strategy for Integrated Coastal Zone Management. The partnership suggests within their strategy that the development of a database, perhaps GIS (Geographical Information Systems) based, would be required to rectify this problem.

Once all the baseline data from each partnership member had been collected and collated it was hoped it would assist in making well-informed decisions regarding any developments that are planned for the Bourne Stream catchment and also allow any gaps in their knowledge exists to be seen (Bourne Stream Strategy 2000).

## **5.0 MSc PROJECT OBJECTIVES**

Thus there are two objectives that can be drawn from this investigation.

1. The first is to undertake the task of constructing a database, which will bring together all the baseline information, which, is held by the Bourne Stream Partners. It was specified by the partners that the collation of this data should be stored in a database format which would be accessible to all the partners and possibly be GIS (Geographical Information Systems) based.
2. The second objective is to analyse the progress of the Bourne Stream Partnership and see if the collaborative approach to dealing with the diffuse pollution issues in the catchment has been a successful initiative.

## **6.0 THE BOURNE STREAM DATABASE**

It was agreed at an early stage that the database in this initial stage should be designed for use of members of the partnership only, with the prospect of adapting the information held within the database at a later stage for public use.

As already stated within the objectives each organisation holds much information regarding the Bourne Stream and the problem that exists is how this data can be shared with the partnership as a whole and be used in a beneficial way.

### **6.1 METHODS**

The development of the database was a complicated project due to the amounts and differing types of data involved.

#### **6.1.1 DATA COLLECTION**

An initial partnership meeting was used as the medium for the introduction of the project so that each member was aware that the construction of the database was to begin. At this meeting the objectives of the database were explained to those members who attended.

It was agreed that visits to each member within the partnership would be the most appropriate way of going about the process of data collection. At these meetings there were certain questions put to the partners as well as data collection, such as what they thought the database should consist of and whether they had any concerns regarding Intellectual Property Rights.

While visiting most partners it became apparent from conversations with numerous people that there were rumours of as yet untapped sources of data located in libraries, smaller organisations, not yet within the partnership and even the local newspaper archives. Thus a new objective developed, increase the size of the data collection exercise.

As the partners had expressed a wish for at least part of the database to be GIS the opportunity to allow some of the information gathered to be presented in a GIS format existed. Arc View was used to generate images, as it was the Environment Agency standards.

The length of the stream was walked and the use of a digital camera and a hand-held GPS was used to record some aspects of the stream and to ensure the accuracy of the position of the stream. A hot air balloon was also used in central Bournemouth to gain aerial photographs of the Pleasure Gardens.

### **6.1.2 DATABASE DESIGN**

Although all the methods stated above were used to gather the relevant data it was not foreseen in the early stages how the database would be constructed and what would be put into it as the amount and form of the data from each partner was unknown.

Following the visits to each member within the partnership it became apparent at a very early stage that the information held by each member was not in a format that could be easily collected and entered into the database in their current forms. The data was found to be held in a number of formats ranging from hand written material to highly complex specialised computer programmes.

It was decided that the best way to overcome this limitation was to create a meta database or repository. This means that the actual data would not be present within the database, instead the data available from each member would be listed in a separate spreadsheet, detailing the year it was collected and the form it currently is in. This would still give the partners the information they required, as they would be able to see what information each member has and thus what is available to them.

The Microsoft Office package was used to construct the database on account of it being a package that was readily available to all members and thus users would be familiar with operation of the package. Secondly the package gave the versatility needed to construct a database of this type.

Due to the data not being present in the database it was deemed necessary that a contact name was included in the database so that other users could access their data easily.

From the meetings with each member individually it was further perceived that some people working within the Bourne Stream Partnership were not entirely familiar with the areas through which the stream flowed. This led to the design of the database growing slightly to accommodate some extra features as opposed to just the data from each member. Two additional sections were added to the database.

- **GIS MAPS**

Some basic information was included in the database in a map format such as the exact course of the stream, sampling points and conservation protected areas;

- **PHOTOGRAPHIC GALLERY**

A photographic gallery using the photos gained from walking the length of the stream was incorporated as were the aerial photographs taken of the Pleasure Gardens and beach.

It was thought that the photographs and the maps would be of benefit to those unfamiliar with the stream course and would be beneficial to any meeting where discussions about a particular area were under debate.

Also deemed to be integral parts of the database was the need to include a copy of the Bourne Stream Strategy and a complete contact page for each organisation within the partnership where addresses, phone numbers and e-mails can be gained at a glance.

For legal reasons regarding IPR two copyright sections were finally incorporated into the database outlining reproduction responsibilities of any material within the database covering Environment Agency data and Ordnance Survey maps. The final database design can be seen in Figure 3.

### **6.1.3 BOURNE STREAM DATABASE 2001 DISTRIBUTION**

The database once constructed was burnt onto a CD-ROM, in a read only format which was then easily distributed to each member by post. The original master copy is kept in a read/write state so it can be easily amended if required. Along with the CD-ROM a questionnaire was also sent out so the feeling from the partners regarding the database could be ascertained.

## **6.2 RESULTS**

In order to ascertain if the objectives had been met, questionnaires were created and sent to each organisation within the partnership along with the copy of the database. The results attained from the surveys were all positive with the overriding feeling between partners that the database would be beneficial to the partnership and had met the objectives that were set.

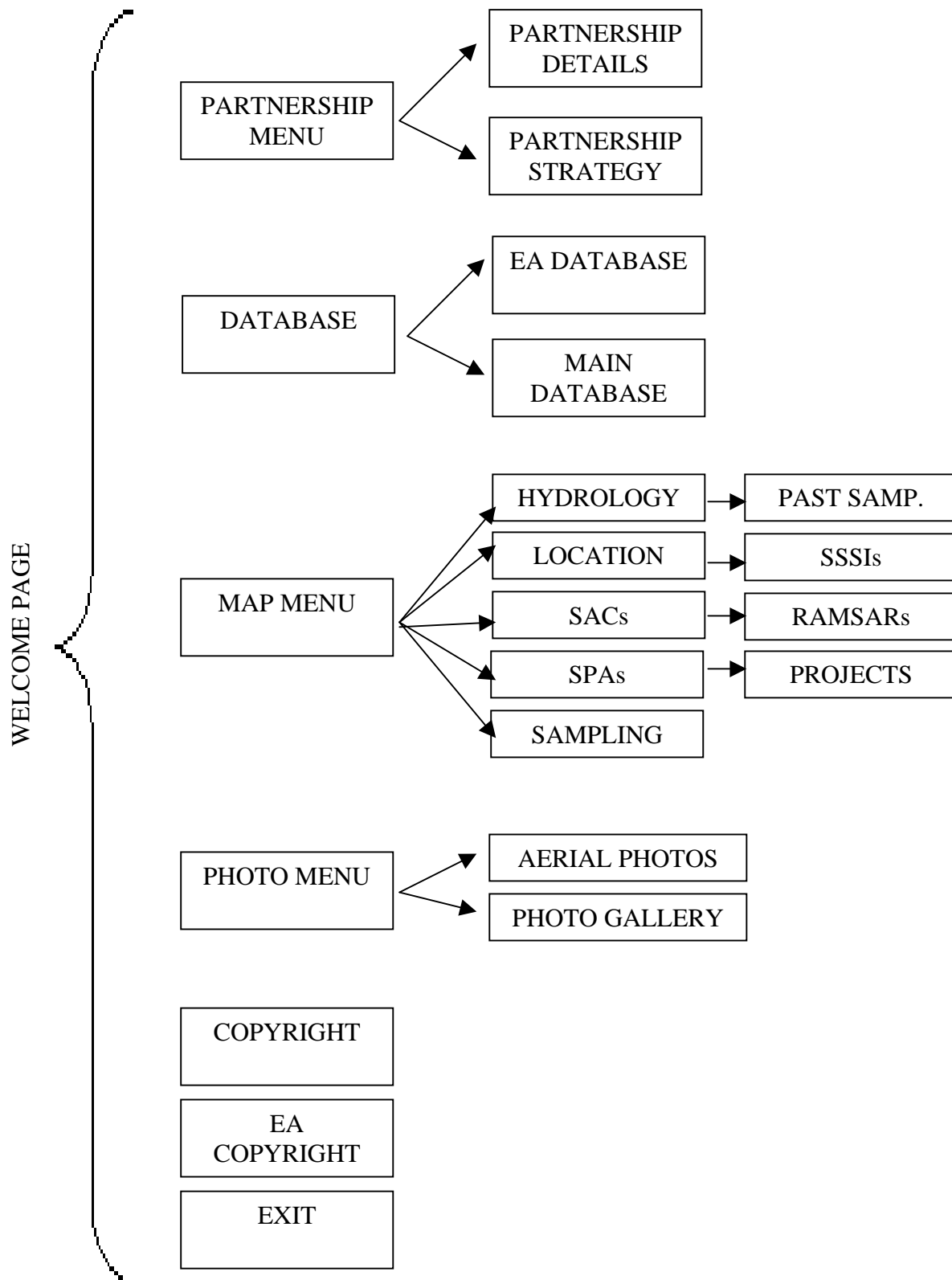


Fig. 2. Database Schematic

From the fourteen questionnaires sent out in order to ascertain if the objectives had been met, a total of nine replies were returned and only three were returned without any continued prompting from the sender.

Poole Borough Council, Bournemouth and West Hampshire Water, Bournemouth Oceanarium and Bournemouth University failed to return the questionnaires after nearly three months of them being sent out.

	QUESTION	RESPONSES	
		YES	NO
Q1	Is the database user-friendly?	89%	11%
Q2	Is there any data absent from your data sheet?	56%	44%
Q3	Are there any other maps that could be added?	67%	33%
Q4	Is the photographic coverage adequate	67%	33%
Q5	Are the four main sections of the database sufficient?	67%	33%
Q6	Is the database a useful tool?	100%	0%
Q7	Where should the database go from here?	-	-
Q8	Would the construction of a web page be the next appropriate step?	78%	22%
Q8a	If yes, what concerns would you have over IPR?	-	-
Q9	Who should hold and develop the database?	-	-
Q10	Who is the target audience for the future?	-	-
Q11	Distribution of data in the future?	-	-
Q12	Any further comments?	-	-

**Table 5.** Summary of results from questionnaires.

Table 5 provides a summary from the questionnaire that were sent out to each partner, they refer only to the questions to which a yes and no answer could be given.

The results above demonstrate a very positive response to the database and the general consensus was that the database was found to be user-friendly by all except one organisation, and no problems were voiced over the installation and use of the database. It can also be inferred from these comments that there are some possibilities that additional information could and should be added at a future date.

If we now consider some of these results in more depth.

Specifically it was expressed that there could be a historic element added to the map and photograph sections of the database. Furthermore as suggestion was made that specific

photos of stream demonstrating flow rates from differing parts of the stream, channel shape and bank heights for example. Land use maps and aerial photos, 1:25000 were among the other suggestions.

With regards to Q5 a section describing the environmental and physical conditions of the stream would be beneficial. A section stating past, current and future developments were also requested. Greenlink specifically requested the input of their Greenway maps.

With regards to what should be the next step of the database, all partners basically agreed that a period of update and development was required. One partner suggested that the database could be transformed into a booklet for the public.

After this update, the partners demonstrated a strong preference regarding the development of a web page, which would then display the data currently, stored on the database. The data would then of course be within the public domain.

As a result of this data being in the public domain, partners were asked what their feeling would be regarding Intellectual Property Rights. Over half of the partners had no concerns at all. The remaining members all stated that there needed to be a process of rewriting some information if only to change the language used in the database for ease of understanding. There was also concern over some access to data of a sensitive nature. It was suggested that there should be a reference made to this material and a contact in the organisation concerned so further information could be released if appropriate. Alternatively it was recommended that it may be possible to include a summary or abstract. This would give that organisation complete control as they would be providing the information.

With regards to who should hold and develop the database the answer was very clear. Every partner nominated someone else for the job, with the Environment Agency and the University being the favourites. Another suggestion was the appointment of a project officer.

As to who should be the target audience in the future the responses stated that the public, schools, professionals, libraries, basically anyone who was interested should have access to the data, even if it is selective.

The partners were happy with the database to be continued to be distributed by means of a CD-ROM or by using the Internet to download updated information.

With regards to the aesthetics of the database it was felt by the partners that a more detailed contents page would be useful and in addition it was suggested that a read-me file explaining how to use the database would also be practical. A brief explanation of what some of the acronyms on the GIS maps was another point for consideration.

### **6.3 DISCUSSION**

It should firstly be stated that the database in this initial stage was seen to meet the objectives set by the partners. The database has managed to bring together all the data from the partners who decided to take part in this exercise. Furthermore gaps in the data and commitment from some partners was demonstrated. With regards to the additional sections that were added as the database developed these have enhanced the function of the database as a reference source.

The general consensus was that the database now gave the partners quick and easy access to details they may require when working on matters concerning the Bourne Stream. The database can thus be looked upon as the starting point the partners were in pursuit of regarding the development of a more professional and widely viewed tool.

It has become apparent from the questionnaires and the authors experience that there is more data available that has been omitted or overlooked at present and will need to be entered in the future. It is possible that much of data was missed due to the lack of interest shown by certain members with regards to the construction of the database. However it is more likely due to the vast array of information available about the Bourne Stream, which has resulted in some data possibly seeming irrelevant at the time the data was compiled and resulted in being missed.

This is one question the partnership will have to consider very carefully when considering the future of the database. How far and to what depths will the data collection be extended? In other words what data will be beneficial to the partnership and what resources will they have available to carry out this development?

### **6.4 LIMITATIONS**

The greatest limitation with the whole project when working with the Bourne Stream Partnership was arranging to meet members within the time frame allocated to the project.

Some members either denied they had anything useful to contribute and so these members never were being visited at all throughout the whole consultation and construction process.

Increasingly more frustrating was the situation that occurred where some appointments were made but which were never kept. Usually they were rescheduled but not all which resulted again in no contribution from those members being made and valuable time being lost.

The time element was found to have a great impact on the content of the current database. Throughout the database development new sources of data were visited and massive amounts of data were collected as already mentioned. Due to the time factor, sadly none of this data is currently held in the database. The data ranges from detailed descriptions of the three areas of the Bourne Stream, regarding conservation, geology, palaeoclimate, hydrology, historic and current ownership and land use to sewer maps and even newspaper articles stretching back to the early nineteen hundreds.

The vast amounts of data cannot be incorporated into this report due to the word limit, however a summary table has been included in Appendix 7. Had more time been available to develop the database and the few members who did not join the data collection exercise had done then the database would be by far a much more versatile tool for the partners.

## **6.5 FUTURE MANAGEMENT OF THE DATABASE**

It has been shown that the first stage of the construction of the database and the collection of data from the partners has been a success however the future of the database will need to be carefully considered.

Following the responses communicated via the questionnaire from various partners it can be recommended that the evolution of the database should proceed in two phases.

### **Phase One**

The first phase is really an extension of the current stage of the database with minimal cost involved. This would involve a period of amendments and additions to the master copy, which should result in an updated CD-ROM being produced and distributed to all partners. The possibility exists, if time can be found, now the data has been collected, of expanding the working potential of the database.

One first suggestion would be to slightly redesign the spreadsheet component of the database so that a search function could be incorporated. This function may help partners to create a summary report of a particular nature from all the members' data.

The layout of the database needs to be more closely looked at. If more time was available in the future displaying the data from each partner could be expanded to create easier viewing.

New sections need to be introduced to create a more comprehensive feel to the database. These should for example included a broad introduction explaining how to use the database and also an introduction to the Bourne Stream Partnership and how it came about.

There is the potential for all the data collected in addition to that from the partners to be incorporated. This would be very useful to all members. Hydrological data for the past ten years, physical characteristics of the stream even information about EC bathing water results and how these are measured are a few examples.

## **Phase Two**

The second phase is seen as the development of a database for public viewing in the form of a web page that could be launched if time allows in conjunction with the PR launch of the partnership planned for hopefully next year. It is foreseen that the web pages should be capable of linking to other members existing web pages.

For this to take place there will obviously have to be a considerable change to the language and layout of the information on the database before being exposed to the public. There will also have to be considerable vetting of data to ensure Intellectual Property Rights (IPR) are adhered to. This problem has not seen to be an issue with the construction of the database in initial stages or phase one as the information was to be viewed by the partners only.

A suggestion by one of the partners previously referred to regarding information of a sensitive nature, is the idea of creating abstracts or a reference list when referring to sensitive information.

There are two major logistics to be orchestrated regarding the next phases of the database. Firstly who will carry out the work to update the database and secondly who will fund this development?

With regards to who will fund and be responsible for the database in the future either the Environment Agency or Bournemouth University were nominated to take on the development role, however there are implications with either of these two organisations carrying out this task.

For phase one if the University took on the role the production of an upgraded CD-ROM will firstly not on its own create a suitable project for a student due to the lack of depth involved.

Secondly the University would also have to rely on a student who would be willing to take on the project if the project was deemed acceptable. Timing of the development phase would have to coincide with the placement period used by the University and the length of this placement would need to be looked at more closely.

The same problems would also exist for phase two if the University is considered for this project. The cost involved in phase two in comparison to phase one would be a major problem for the University, unless finance could be found from elsewhere.

The EA already plays the biggest part within the partnership and there are small indications that the load allocated to this organisation is becoming too great. Examples of this include continued chasing and organisation of other members. The Minutes themselves are proof of the uneven workload within the partnership at present.

There is a real danger that if more work is assigned to the Environment Agency it will experience resource problems and resentment may be felt as they have other responsibilities and workloads outside the project.

## **6.6 RECOMMENDATIONS**

With regards to who should develop the database it is a strong recommendation that the Environment Agency is not involved alone in the development of the database, either phase one or two and a shared venture would be more acceptable as resources and expertise can be shared.

At present it would surely be more appropriate for one of the Borough Councils to be considered to take the lead role, possibly Bournemouth Borough Council due to their inherent connection with the Bourne Stream and the bathing waters. At present both Borough Councils have well established web pages which are well structured and appear to

be updated on a regular basis. Also the support and knowledge of constructing a web page would already be in place. Therefore it seems appropriate that the Bourne Stream web page could be added on to one of these sites initially.

A few members still have contributed no data to the database and this needs to be followed up to complete the database.

The data that has been collected from other organisations outside the partnership should be incorporated in the new revised database and the web page. Much of this additional information is the data that the partners felt was missing from the first database and would prove to be very useful.

From the responses in the questionnaire the database should be developed in two phases. Firstly a period where additions and restructuring can take place followed by phase two which involves the development of a Bourne Stream web page.

## **6.7 CONCLUSIONS**

The development of the database has resulted in a versatile tool that is available for all the partners to use. The objectives as already mentioned concerning the database have been met. The baseline information from organisations within the partnership has been collected and displayed in a manner that is easy to access by all partners.

In addition a vast amount of data now exists that is not present and was never conceived of being in the database as it was gathered from organisations outside the partnership.

A new member has joined the partnership, Bournemouth Oceanarium, as a result of this diversification of data collection.

## **7.0 THE BOURNE STREAM PARTNERSHIP**

If this partnership is taken as an example of ICZM, what then, if any achievements, advancements and good practice can be seen? In other words has adopting a “partnership approach” way of working, that is working in an integrated manner, been an advantage when tackling such a problem as diffuse pollution within the coastal zone?

The Bourne Stream Partnership has now been underway for nearly two years at present. Overall the integration of these organisations within and around the coastal zone has created a successful partnership and improvements and progression has been made.

### **7.1 DEVELOPMENTS AND CURRENT ACHIEVEMENTS**

The partnership has set in motion a number of projects

#### **1. R&D Project**

Following the Peter Brett Associates (PBA) report on Best Management Practices (BMPs) in 1999 several suggestions to improve the water quality of the Bourne Stream were put forward, such as in-stream ponds. If permission to carry out the works from the current landowners is obtained and funding is successful then the first developments will go forward in the Coy Pond Gardens early spring 2002 following the completion of a further feasibility study by PBA. In addition a feasibility study for Scott Road and Alder Road habitat enhancement is also being planned.

#### **2. The Lagoon System**

The lagoon system developed by Poole Borough Council and English Nature in the higher reaches of the stream close to Loewy Crescent has been completed and is now highly established. Sampling up and down stream of the SUD began last year in order to ascertain if the reed beds that have been planted within the lagoon system are filtering the water, which passes through it.

There was no recorded improvement until the end of this summer where improvements were seen for level of Faecal coliform downstream of the SUD but no improvement have been found at present for Faecal Streptococci.

### **3. The Wetland Project**

A new wetland development, upstream from the lagoon system, although unpopular with the public in the initial stages due to tree clearance is a joint venture by English Nature and Poole Borough Council. It is well on the way to becoming established.

### **4. Sampling**

Routine sampling along the Bourne Stream is now being carried out by the Environment Agency to monitor water quality at a greater number of sites on a more regular basis. A river habitat survey has also recently been completed.

### **5. Finance**

Funding bids have been set in motion. A Landfill Tax Credit bid has been submitted to ENTRUST and the partnership is awaiting their decision.

### **6. Database**

The first stage of the database has been recently completed. This is an integral part of the partnership that was required to be developed in order to improve the level of knowledge within the partnership and also to allow the partnership to make informed decisions regarding the Bourne Stream once all the data regarding the stream had been collated.

### **7. PR sub-group**

This sub-group has been constructed in order to deal with publicity issues such as a logo for the partnership, leaflets and posters highlighting the work of the partnership in light of the public launch planned for next year. The group is in the initial stages and is currently showing little co-operation between members and output is thus very limited at present.

Overall one of the most striking achievements gained by working in an integrated way is the air of openness between all members within the partnership and secondly the excellent communication network now in place, which encompasses all members of the partnership.

## **7.2 DISCUSSION**

The Bourne Stream Partnership can be seen to be addressing the three main causes of failure known to hamper the success of amending problems in the coastal zone from working in a collaborative manner.

## **7.2.1 SUCCESS**

### **Failure to involve all stakeholders**

The partnership has brought together a huge range of different individuals whom although they have their own agendas for wanting to become a member of the partnership yet all share a common interest or goal. These members have been included from outside the narrow coastal zone and although some sectors still remain absent from the partnership such as tourism industry and the public a concerted effort is being made to include these missing sectors. Already planned is the public launch of the partnership next year this will probably see the integration of the project into schools and local resource centres. Local interest groups may also feel it appropriate to join the partnership if only as a smaller sub-group. The tourism sector has not completely been devoid of input concerning the partnership, as the Bournemouth Oceanarium who has recently joined the partnership is one of the biggest tourist attractions in Bournemouth, which resides close to the Bourne Stream.

### **Poor co-ordination**

The development of strong relationships and well-developed communication networks are clearly demonstrated in this partnership while pre-existing prejudices have been put aside.

### **Lack of relevant knowledge**

It has already been established that the partners at an early stage had recognised the importance of bringing together all the information regarding the Bourne Stream as they felt this would help them make well-informed decisions in the future. The database has been constructed and distributed to all members as previously discussed and has been seen to have a positive impact upon the partners.

## **7.2.2 FAILURES**

It was stated in the beginning that this report would not only be looking at the good effects that may have come about from working in an integrated manner but also the problems that have been encountered when taking a collaborative approach to management of the coastal zone.

While the partnership can be seen to be a successful venture there is however a situation that is becoming more prominent with every meeting. There is an imbalance of workloads regarding the general running of the partnership matters. In most cases it is the Environment Agency who is seen to be overburdened with arranging meetings, copying and sending out

Minutes and chasing other members for actions that have been promised and not delivered. It is the authors opinion that if this partner retracted their input there is the danger that the partnership may flounder if only initially.

The situation has recently been further confirmed by the problems encountered in the development of the Bourne Stream Database. The Environment Agency took the lead role in assisting the development of the database and sadly it was found to be the same organisations who have a history of falling behind with actions, which demonstrated a lack of commitment to this project. Furthermore it was again these same members who failed to return the questionnaires. When a situation such as this starts to develop in partnership set-up it is termed 'participant burnout'.

In a recent study by Wilson and Charlton called Making Partnerships Work (1997), the report draws upon the lessons learnt from numerous partnerships. Within the paper one of the most prominent points to be come across is the need for a partnership to have a defined organisational structure in place to allow the partnership to work effectively.

The Bourne Stream Partnership whilst having many people involved with a wide range of knowledge and skills, it does not have a formal organisational structure in place at present. This suggests the need that some order needs to be introduced to partnership, with the aim being to resolve the commitment problem seen at present.

### 7.3 RECOMMENDATIONS

The first recommendation to avoid the current situation progressing of a division of interests and commitments that is seen to be emerging within the partnership, is that it may be time to take a fresh look at the members and officially divide the group on account of this.

A suggested structure, from Wilson and Charlton (1997) which has been noted as being successful for other partnerships, is a three-tier structure. This commonly is composed of:

- **The Management Team** (implementing partnership activities)
- **The Governance Group** (the executive body)
- **The Consultative Group** (the sub-group)

The adoption of such a structure would allow the more proactive members of the partnership to take a lead role if they desired, but there would be an understanding that all the members in the governance group will take on an equal share of the workload.

The consultative group gives the members who have put him or herself on the periphery of the partnership to retain this level of input into the partnership.

This division should be carried out by not only looking at what members can and have produced but also what they are unable to deliver, past and present (Wilson and Charlton 1997).

In a paper by Moote (1995) the restructuring of an existing partnership that is experiencing commitment problems also recommends restructuring as a possible solution. Although in some cases some members have found the rigidity of the new structure a little constrictive, all members have been seen to quickly adapt and the partnership is from then on more open to continuous reviews and revised organisational structure (Moote 1995).

Furthermore it can be seen that the partnership would benefit from a Bourne Stream Project Officer for which the partnership should try to gain funding, even if this happens on a part time basis.

The partnership would benefit from a focal person who will have the specific role of organising the general day to day running of the partnership and to oversee the work of the partnership as a whole. This would extinguish the current situation of one member of the partnership singly having to juggle the Bourne Stream work on top of their existing workload.

### **7.3.1 SUMMARY OF RECOMMENDATIONS**

- 1 Try to involve more members from other sectors such as tourism, industry and public sector
- 2 A restructuring of the partnership as previously discussed
- 3 Appointment of a project officer either part or full time depending on the role the officer would play.

### **7.4 CONCLUSIONS**

There are a few issues or problems that need to be addressed within the partnership. However from the ability of the partnership seen already in their achievement to date these problems or organisation and a slight decline in commitment by a few members should be sorted out quickly and efficiently with the help of a much needed management team.

The Bourne Stream Partnership can in many ways be seen as a successful partnership and the integration of government, non-government and private companies in and beyond the coastal zone has thus far worked extremely well producing many successful developments.

Thus it can be concluded that applying the collaborative approach to management in the coastal one as expressed by the Commission of the European Communities can bring about successful changes.

Finally then there are many lessons that can be demonstrated and shared with others who may find themselves tackling a problem similar to that of the Bourne Stream. The Bourne Stream Partnership can be described a good working example of coastal zone management.

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## **APPENDIX 7**

Summary table of additional information gathered outside the partners

1997	Making Partnerships work	Wilson, A. & Charlton, K.
1995	Partnership Handbook. A resource and guidebook for local, community-based groups addressing natural resource, land use or environment issues	Moote, A.
1998	Achieving best value through partnership	Geddes, M.
?	Partnership approaches to diffuse pollution management	Pollard, P. <i>et al.</i>
1999	Partnerships – an introduction to the legal issues	?
1997	Fostering Intersectoral Partnering: A guide to promoting co-operation among government, business and civil society actors	Institute for Development Research
?	Partnerships in Action	Environment Agency
2001	History of land ownership of the Bournemouth area	Bournemouth Planning Dept.
1944-2001	Record of event associated with the Bourne Stream	Echo, Bournemouth
1790-2000	Historical maps	Bournemouth Planning Dept.