Marine Wildlife Tourism and Whale-Watching on the Island of Mull, West Scotland

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CONTENTS.

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1. INTRODUCTION

The report considers boat based wildlife tourism on the Inner Hebridean island of Mull, off the west coast of Scotland and, in particular, whale-watching as part of the wildlife tourism sector on the island. It assesses the value of this industry and market in relation to cetaceans and considers the potential for future development.

1.1 The Environment and Tourism.

Tourism is big business and, across the globe, tourism touches continents, countries, communities and cultures. An increase in disposable income and leisure time in wealthier countries, such as the United Kingdom, has brought many people being able to take a number of holidays during the year. In 1993, international arrivals alone totalled 537million and by 2000 are expected to exceed 650 million. Between 1972 & 1992, the international tourist trade expanded by 300%[1].

While many established resorts and destinations remain popular, holidays "off the beaten track", or of special interest, are capturing an increasing share of the market. Factors such as the increased efficiency and decreased cost of transport, an heightened awareness of environmental issues (both global and local) and the desire to escape from an increasingly urban society have resulted in people travelling to remote areas to spend their free time. This type of tourism which is "directly dependent on the use of natural resources in a relatively undeveloped state" has been termed 'nature tourism'[2].

On a global scale it is estimated that nature tourism may account for as much as 10% of international tourism[3] with a global value ranging from US$30 billion to US$1 trillion[4]. In 1999, 76 AITO members offered nature/wildlife holidays in the UK and abroad, ranging from bird-watching in the Cotswolds to polar bear and whale-watching in the Arctic[5]. AITO does not represent all such operators and there are many more. In 1996 there were more than 117 seal watching establishments in the UK and Ireland attracting 0.5million visitors each year[6].

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[1] Hanneberg, 1994
[2] Ceballos-Lascurain, 1996
[3] Pleumaron, 1994
[4] Lindberg, 1991; Filion *et al*, 1992
[5] AITO, 1999
[6] Young, 1998

Nature tourism is not necessarily conservation-minded and may involve both consumptive and non-consumptive uses of resources such as scenery, topography, water features, vegetation and wildlife, in either a sustainable or unsustainable manner. It may involve high volume mass tourism or low volume/low impact tourism, generate high or low economic returns, be domestic or international, and based on day visits or longer stays[7]. By definition, nature tourism relies on the environment but may not necessarily utilise it sustainably (environmentally or economically) and care should be taken not to confuse it with 'ecotourism'.

A brief mention of the term 'ecotourism' is important at this stage. Ecotourism is often used interchangeably with nature tourism and, whereas there is no formal definition, the term is actually a subset of nature tourism, relating to those nature tourism activities which in some way minimise tourist impacts whilst utilising the resource in a sustainable way and providing return to the local community. Goodwin (1996) defined ecotourism as "low impact tourism which contributes to the maintenance of species and habitats either directly through a contribution to conservation and/or indirectly by providing revenue to the local community sufficient for local people to value and therefore protect their wildlife heritage areas as a source of income". A nature tourist therefore may not necessarily be an ecotourist.

Whale-watching is an excellent example. Although considered by many to be a non-intrusive way to watching cetaceans in their natural habitat, and thereby being classified as 'eco-tourism', the extent to which whale-watching is low impact and sustainable is questionable. Even though the industry is not consuming the whales themselves, it may cause degradation of the whales' habitat thereby affecting their sustainability. Also the industry usually caters for mainstream tourism (albeit a particular niche of the mainstream market) and therefore there is a need to know more about the environmental and educational benefits of whale-watching before calling it ecotourism[8] .

Much nature tourism is in fact wildlife tourism, relying on the viewing of key species in their natural habitats. Opportunities to view particular species (such as whales, elephants or tigers) in the wild can be a major draw to an area (and generate revenue for the local community), but can also have impacts on the species themselves. Conscientious wildlife tour operators should ensure that their activities have minimal impact on the animals they depend on and ensure that the tourists which they bring do likewise.

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[7] Roe *et al*, 1997
[8] IFAW, 1997

Unfortunately this is not always the case and the persistent presence of tourists can influence breeding patterns, feeding behaviour and other social interactions, as well as direct injury through carelessness on the part of the tour operator or tourist[9]. Research has shown certain wildlife species can habituate to the regular presence of humans[10]. However the increasing body of evidence to the contrary suggests that a precautionary approach to wildlife tourism is the best strategy.

Any monoculture is risky (tourism, agricultural or industrial) as it is subject to economic fluctuations in the international and domestic markets. Wildlife tour operators dependent on one single species therefore rely on both the tourist demand and the species abundance. Changes in the distribution of food supplies, for example, caused by unusual weather patterns such as El Nino or unnatural events such as military activity, may change the distribution of the viewed species. A better strategy would be - the greater the diversification of the product the greater the resiliency.

Tourism, in particular wildlife tourism, has the potential to significantly strengthen the local economy, where traditional industries such as fisheries and agriculture are in decline, by generating local employment, both directly in the tourism sector and in various support and resource management sectors. Even though nature tourism is not primarily a rural development tool (it is stimulated by a commercial interest in a particular environment and therefore requires profit), in remote areas it may present an opportunity to develop what could be a valuable - and sustainable- local resource, within a context where other alternatives are scarce and perhaps potentially far more damaging[11].

1.2 Scotland and Tourism.

The decline in the primary economic sectors in Scotland has led to tourism becoming central to development activities, particularly to rural areas such as the Highlands and Islands area. The major asset of Scotland for tourists is the environment with 80% of visitors stating that one of the main reasons for visiting Scotland was to enjoy the scenery[12]. A survey of visitors to the island of Tiree indicated that most visitors enjoyed the scenery and wildlife (86% of visitors went to the beaches and 57% spent time watching wildlife[13]. In a similar study on the

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[9] for examples see Roe *et al*, 1997
[10] IFAW *et al*, 1995, Young, 1998
[11] Wilson, 1994
[12] Scottish Tourist Board, 1991; Signpost, 1999
[13] Cobham Resource Consultants, 1996

island of Skye, 68% of visitors thought that the area's scenery was its most attractive feature[14].

Scotland is in the privileged position of being able to offer both land and seascapes of a high quality environment; scenically beautiful, pollution free and rich in wildlife.

In 1996, holiday tourist expenditure contributed £1.5billion to the Scottish economy and supported 8% of the Scottish workforce[15]. The Highland Region alone currently attracts over 2.6million tourist visitors each year[16] and generates £480 million a year for the economy[17]. However, tourism in the Highlands has suffered from a downward trend since the mid 1980s with an increase in overseas visitors being outweighed by a decline in the UK market[18]. Between 1989 and 1992 the number of trips by UK tourists to the area fell by 28%[19]. This is attributed to a number of factors, such as cheaper package holidays, bad weather, the strong pound, poor marketing and, by some, even major international events such as the Olympics and 1998 World Cup[20]. There appears to be the need to develop Scotland's holiday image to attract people back to the country.

The interdependence if tourism and the environment is now widely recognised: the concept and practice of sustainable tourism feature at the core of the Scottish Tourist Board's Strategic Plan (Interim Review) 1999, and sustainability issues underpin 'Tomorrow's Tourist', a government strategy paper for England and Wales (Tourism Division of Department of Culture, Media and Sport). Increased awareness by authorities as to the importance of the environment to the economy has resulted in the establishment of The Tourism and Environment Forum, composed of representatives from a range of public, private and voluntary sector agencies and organisations.

The Forum's aims are to ensure the industry adopts good environmental practices and capitalises on the advantages they bring: to promote the sustainable use of key national resources, to ensure a national and local integrated approach to tourism and environmental

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[14] System Three, 1991
[15] Scottish Natural Heritage, 1998
[16] HRC et al, 1994
[17] The Scotsman, 1999
[18] as above
[19] Scottish Tourist Board, 1993
[20] Signpost, 1999; Tourism Resources Company, 1995

opportunities and to deliver market research and environmental capacity information to the industry[21].

The development and management of the natural heritage also brings jobs, particularly in terms of rural development. A disproportionate share of jobs related to the natural heritage are based in rural areas (40%). This accounts for 2% of all jobs in rural Scotland. In 1997, approximately 8200 jobs were related to managing, conserving or enhancing the natural heritage or in interpretation, 67.9% of which were permanent full-time positions[22].

In 1997, over 1900 full-time and 600 part-time jobs were involved in wildlife tourism in Scotland, either directly or in businesses which offered wildlife viewing as part of their activities. Of those directly involved in wildlife tourism (600), 420 jobs were located in the Highlands and Islands region, 111 in Argyll alone. For Argyll, this represents 18.5% of the total number of Scottish wildlife jobs in an area which contains <1.5% of jobs in Scotland[23]. Wildlife tourism is therefore a significant player in the Argyll rural economy.

1.3 Scotland and Marine Wildlife Tourism.

Within the wildlife tourism industry, a proportion of businesses focus specifically on marine species, such as seabirds, seals, fish and cetaceans. The top six species being promoted by wildlife tour operators are: i) seals, ii) seabird colonies, iii) birds of prey, iv) cetaceans, v) red deer, vi) otters[24], four of which can be seen from the sea.

Marine wildlife tourism, as it is termed, is not new to Scotland and is defined as ‘any tourist activity with the primary purpose of watching, studying or enjoying marine wildlife’[25]. Scotland not only has 7866 islands, but claims >60% of the total UK coastline, most of which is relatively untouched. This valuable resource contains a wealth of species and ecosystems to which visitors can be introduced. Even though marine wildlife tourism is located throughout Scottish waters, when viewed from a geographical perspective there is, in fact, little direct marine wildlife tourism provision in Scotland[26].

1.3.1 Economic Impacts.

[21] Tourism and the Environment Forum, 1999
[22] Mackay Consultants, 1997
[23] A & M Consultants, 1997
[24] McCarthy, 1999
[25] Masters *et al.*, 1998
[26] as above

This specialist sector of Scotland's tourism market is already worth £9.3million to the Highlands and Islands region and in 1996 supported 400 jobs. More than eighty boat operators take visitors to see marine and bird life in Scotland[27] and the sector seems set to grow. The number of boat operators providing trips to see the dolphins in the Moray Firth, for example, has increased from one in 1990 to 9 in 1996, carrying a total of 30,000 passengers[28].

Indirect revenue from marine wildlife tourism is estimated to be £57million and employment to be as high as 2,670 jobs[29]. If the industry expands at a rate of 10% a year (a not unrealistic proposition, given the right support and considering the projected growth ecotourism world-wide), by 2003 total revenues would amount to some £92.12M, supporting 4,286 job[30].

Boosting marine wildlife tourism also brings a range of other socio-economic benefits: a successful wildlife tour operator can boost other tourism revenues, boat-based operators help support marine infrastructure and services, more fragile peripheral communities tend to benefit and there is an increased potential to generate off-season activity which mirrors wildlife activity i.e. bird breeding seasons[31].

The main centre for marine wildlife tourism in Scotland (and probably the UK) is the west coast of Scotland. The greatest concentration of boats taking visitors to see wildlife is in the Argyll and Islands region (principally Mull and Oban). For example, in the Minch area, 76 operators are involved with wildlife tourism of which 61 offer boat trips[32].

Boat operators in the area offer a range of itineraries ranging from trips focusing on key species, such as whale-watching, to more general wildlife trips and scenery-based trips, where wildlife, particularly seabirds, are seen but less emphasis is put on wildlife as a whole. The duration of boat trips lasts from a few hours to a few days.

1.3.2 Environmental Impact.

Factors such as remoteness and physical inaccessibility, distance (and time) from major population centres, limited ferry timetables and destinations, cost of access by boat, weather, dangerous conditions for small boats, shortages of harbours, limited accommodation, and

[27] A&M Consultants, 1997
[28] INC, 1996
[29] West Highlands, 1998; Highlands, News Group, 1998.
[30] Masters *et al,* 1998
[31] as above

midges - all contribute to protecting the Scottish Isles from recreational overuse. And while many of these factors are already being steadily eroded by better maps, guidebooks, improved transport links, a lengthening recreational season, midge repellents etc. the evidence remains that in the Scottish islands there are very few cases where recreation *alone* is having a serious adverse impact[33].

It should be noted however that research in this area is sparse and the lack of baseline data does mean that gradual population changes may go undetected. With the increase in marine tourism, especially in the Argyll and Islands areas, the threat of marine traffic on cetaceans is becoming increasingly relevant. Table 1 shows a list of perceived threats to cetaceans in Hebridean waters and highlights the relatively low impact wildlife tourism, and boat traffic in general, has on cetaceans. The local community threatens cetaceans through pollution, over-fishing and fish farming. Boat traffic may adversely affect marine mammals through accidental pollution, collisions resulting in death or injury and disturbance through engine noise. The significance of these effects is still poorly understood but most impacts are likely to be long term and subtle.

Table 1. An assessment of perceived threats to cetaceans in West Scotland[34].

Factor	Level of threat
Pollution	***
Over-fishing	***
Fish farming	***
Resumption of whaling by Norway	***
Entanglement in fishing gear	**
Oil Spills	**
Military activity	**
Leisure craft traffic	*
Commercial boat traffic	*
Wildlife tourism traffic	O
Capture for oceanaria	-
Persecution by humans	-

Key:		
	***	Major cause for concern
	**	Moderate cause for concern
	*	Minor cause for concern
	O	Currently not a cause for concern
	-	Not a threat to cetaceans in West Scotland

In general, shipping traffic does not seem to be a problem for most whale and dolphin species[35] or seals[36]. To date, no causal relationship has been established between whale-

[32] Morrison, 1995
[33] Wilson, 1994

watching boats in Scotland and changes in cetacean population and behaviour[37]. Morrison (1995) reported that some species actually appear to enjoy the presence of a boat as an opportunity to bow-ride (dolphins) and 'play' (seals).

Promoting responsible boat behaviour around marine wildlife is important. Many codes of conduct have been developed around the world and the majority focus on the same principles, such as approach slowly and at an angle to the individual, let the individual denote where they travel and whether they interact with the boat and respect the animal's space and social behaviour. Local codes of conduct include the Sea Watch Foundation Code of Conduct and the recently produced Code of Conduct for Seal and Whale-watching by the Hebridean Whale and Dolphin Trust (HWDT) (Appendix 1).

The level of commercial freight traffic in Hebridean waters is relatively low and, with the exception of a small number of large cargo ships, military craft and the ferries, most vessels are relatively small, operating as fishing boats, tour boats or private craft. There have been no conclusive reports of cetaceans being killed or injured due to marine traffic in local waters although badly cut dorsal fins have been recorded on Risso and common dolphin which may be attributable to propeller damage[38]. Further information regarding the threats to cetaceans is given in Appendix 2.

Seabird colonies are also part of the marine tourism product and may be threatened by thoughtless behaviour. The colonies of razorbills, guillemots, shag, fulmar, kittiwake, and in particular, puffins on the islands of Staffa and Lunga are particularly popular with visitors. At the height of the tourist season three commercial boats (plus private craft) visit the island daily. Even though there is a large influx of visitors to the island, puffin and other cliff breeding seabirds do not appear to be disturbed and, although distributions may have changed, population numbers are stable[39].

In this sense, marine wildlife tourism can actually serve to preserve areas which may be threatened by development and tourists themselves are ideally placed not only to enjoy and appreciate the richness of the marine environment but also to observe and monitor changes, damage and threats to that environment and to 'sound the alarm'. As Sean Whyte, ex-director

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[34] Parsons, *pers. comm.*
[35] Hoyt, 1997
[36] Young, 1998
[37] Masters *et al.*, 1998
[38] Parsons, *pers comm*

of the Whale and Dolphin Conservation Society commented about the Moray Firth dolphins "the more people who care about the environment and who have a direct financial/ emotional investment in their welfare, the safer the dolphins will be"[40].

At present, marine wildlife tourism is rarely promoted in its own right to attract new tourists to an area, moreover it adds value to an existing market. As a result, the economic additionality of this sector of the tourism industry is currently poor. In many cases such tourism enterprises add little to the overall economic activity of an area[41]. Whereas it is important to place the product in its wider context with landscape and seascapes, cultural features, tradition, local food, and outdoor activities, Scotland is well-placed to develop this market by promoting Scottish marine wildlife through its wild, rugged coastlines. In this way marine wildlife tourism could be a primary reason for visitors coming to Scotland thereby diversifying the tourism product.

1.3.3 Scotland and Whale-watching.

Worldwide, whale-watching is a multi-million dollar industry. In 1994, 5.4 million people participated in whale-watching activities worldwide spending around US$504 million on tours, food, travel, accommodation and souvenirs[42]. Between 1991 and 1994, there was a 10.3% increase per year of people going whale-watching and the total revenues increased by a staggering 16.6%[43].

Whale-watching is defined as ‘the watching of any cetacean in the wild, an activity which is almost invariably conducted from a platform (e.g. ship, cliff or aeroplane)’[44]. However, activities such as feeding and swimming with cetaceans are not excluded. The industry is young - the first whale watch boat started commercially in 1955 along the south Californian coast. For the next twenty years, whale-watching increased at a gradual pace until the mid 1980s, when it expanded rapidly. In the late 1980s countries such as Australia, New Zealand, Canaries, Japan and Norway started commercial whale-watching followed by Hong Kong, Taiwan and Iceland in the 90s. Whale-watching now occurs in more than 65 countries and overseas territories every year, nine of which are in Europe[45].

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[39] Evans, *pers comm*
[40] *pers. comm.*
[41] Masters *et al.*, 1998
[42] Hoyt, 1995a
[43] IFAW, 1997
[44] IFAW *et al*, 1997
[45] Hoyt, 1995b

The first British commercial whale-watching operation began in Scotland in 1989 on the island of Mull. By 1994, this had grown to 7 main whale and dolphin watching operators established in Scotland and West Wales with an additional 14 companies engaged in whale-watching on a part time basis[46]. In 1991 only 400 people were involved in whale-watching in the UK, generating a total income of £192,000; this figure rose to 15,000 people generating £6.5 million total income (£850,000 direct revenue) in 1994[47]. The growth of the industry over this four year period suggests that the UK has considerable potential for further expansion.

Unlike other destinations around the world, UK based whale-watching tends to be peripheral to most tourists' motivations for visiting an area. Despite the relative abundance of cetaceans in British waters, the tourism industry, local enterprise authorities and conservation bodies have been slow to pick up on the appeal of cetacean-watching trips in terms of potential generated revenue and environmental education opportunities.

The development of dolphin-watching trips on the Moray Firth on the east coast of Scotland is one example where whale-watching has been successful in raising awareness of conservation issues as well as bringing much needed revenue into the local community. The profile of the resident population of bottlenose dolphins which lived in the area was raised through a dolphin adoption scheme organised by the Whale and Dolphin Conservation Society. Twenty thousand members of the public adopted a Moray Firth dolphin of which 86% said that they would try and visit the area to see the dolphins for themselves. It was predicted that an additional 21,000 bednights were created as the result of this scheme with an accompanying £600,000 in expenditure[48].

The Moray Firth Partnership was formed as a voluntary coalition of over 350 people from industry, local authorities, conservation bodies, recreational users, local residents and many others interested in the future well-being of the Moray Firth's special assets. Its aim was to help people work together to safeguard the Firth's natural, economic, recreational and cultural resources for the benefit of residents and visitors[49]. Local boat operators were encouraged to join a voluntary accreditation scheme which abided by a voluntary code of conduct in presence of the dolphins.

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[46] Hoyt, 1994
[47] Hoyt, 1995a; Arnold, 1997
[48] Arnold, 1997
[49] Arnold, 1997

The results of the strategy were that 28% of visitors stated that the presence of dolphins had been the sole reason for visit; 14% said that it had been a factor and, perhaps more significantly, 16% of those visiting the area said that the presence of the dolphins had resulted in them staying an extra night. In fact, £720,000 was generated to the local economy. Seventy five percent of respondents to a survey in the area said that if they were taking a trip that they would use an accredited operator. Of those who took a trip 83% were first time passengers, 62% saw dolphins on the trip and 93% would take the trip again[50].

Whale-watching is not without its criticisms and are believed to have short term effects on cetacean behaviour. The unaccustomed presence of boats around cetaceans is bound to have an effect on behaviour, at least in the short term. Young (1998) reported that seals can become accustomed to noise and regular presence of boats however the level to which cetaceans will tolerate similar pressures in unknown and at this stage a precautionary approach is probably best advised.

1.4 The Island of Mull and Tourism.

The island of Mull is located in the Inner Hebrides off the west coast of Scotland (Map 1). The island is sparsely populated with around 2,800 residents scattered over its 925sqm area. The main population centres are Tobermory in the north, Salen in the middle and Bunessan in the south. With the decline of the fishing industries and agriculture, tourism is a vital part of the economy as well as bringing benefits to the community. The number of visitors visiting the island during the summer support many of the businesses which serve the residents throughout the year (bakery, butchers, fishmongers, restaurants) and the local community benefits greatly from the frequency of sailings between Oban and Craignure in the summer season and the summer only ferry service which links Tobermory to the Ardnamurchan peninsula.

Approximately 350,000 people visit Mull and Iona each year (Table 2), this is a visitor: resident ratio of 125:1. The flow of visitors is seasonal with over 71% visiting between May and September, peaking in July and August (Table 3). The months either side of this period are termed the Early and Late season[51]. Visitor numbers in peak season may be as high as 3500 visitors per day (the likely peak number), a volume which currently Mull appears to be able to cope with[52]. Forty percent of visitors are from overseas[53].

[50] Arnold, 1997
[51] Cobham Resources Consultant, 1996
[52] Touchstone Heritage Management Consultants, 1999
[53] Corrum Trust, 1997

The island of Iona which lies off the south western tip of Mull is the destination for many visitors to Mull. A large number of visitors (43%) simply visit Mull on the way to Iona, passing through the island and contributing little to the economy other than helping to sustain ferry and coach services. Iona has a population of less than 100 residents the ratio of visitor to resident is 1800:1 which undoubtedly has significant impact on island life.

Table 2: Annual visitor numbers to Mull and Iona[54]

Year	Visitors to Mull	Annual % change	Visitors to Iona	Annual % change
1998	699243	-8.2	237597	-24.3
1997	761875	+20.5	313825	+8.8
1996	632244	-12.1	288466	+3.2
1995	719222	+8.6	279494	+3.7
1994	662230	+4.1	269661	+8.4
1993	636029	-3.6	248687	-7.3
1992	659526	+0.1	268296	+0.1
1991	658798	-	266559	-

Table 3: Monthly visitor numbers to Mull and Iona (1998)[55].

Month	Passengers to Mull	% of total	Passengers to Iona	% of total
January	16842	2.4	1564	0.6
February	17549	2.5	1798	0.7
March	26154	3.7	6184	2.3
April	52683	7.4	18042	6.7
May	81562	11.5	34313	12.8
June	88666	12.5	40494	15.1
July	112417	15.9	49557	18.5
August	129645	18.3	57744	21.6
September	82978	11.7	36350	13.6
October	61046	8.6	16667	6.2

[54] Caledonian MacBrayne, 1999 - assumes local traffic remains constant, fluctuations reflect changes in visitor numbers.
[55] as above

November	19476	2.8	2301	0.9
December	20225	2.9	2583	1.0
Total	709243	100	267597	100

Much of the Highlands and Islands region has experienced a decline in visitor numbers over the last few years[56] and this has also affected Mull and Iona (Table 2). Whereas Iona can cope with fluctuations in visitor numbers (current visitor numbers put considerable strain on the community and facilities for visitors[57]), Mull needs to maintain the number of people who visit the island.

There are three points of entry to Mull, Craignure, Fishnish, and Tobermory. The main port, Craignure, has up to five sailings a day from Oban during the summer season and receives around 300,000 visitors each year. Due to its proximity, Craignure is the main port for visitors to Iona. Estimates suggest that a substantial number of visitors (rather more than half) come by bus or foot (the remainder arriving by car). Of those arriving by bus, a large proportion of them travel to Iona returning to Oban the same day.

The Lochaline-Fishnish ferry carries around 55,000 visitors (of which only 5,000 come by foot, bus or bicycle) and the summer only ferry from Kilchoan to Tobermory brings around 12,000 (of which 7,000 come by bus, bicycle or on foot). Very few buses are taken on the Tobermory ferry, therefore more passengers arrive by foot or bicycle.

A relatively small number of visitors arrive by private boat, charter or cruise ships.

As on Iona, many visitors visit Mull as a day trip (either organised or independent) mainly from Oban. Day trips are encouraged by a day saver fare (£52 including car plus 4 occupants) which favours a full car for a day rather than a 5 day return (£63) or longer (£85.80). Whereas the other ferry services are more economical the mainland ports are more inaccessible, especially for visitors travelling from the south. The extent of day trippers' experiences is limited and anecdotal evidence suggests that some may return for longer visits as a result of their introduction to the island[58].

[56] The Scotsman, 1999
[57] Touchstone Heritage Management Consultants, 1999
[58] Touchstone Heritage Management Consultants, 1999

Once on the island, Mull offers a range of facilities. The picturesque Tobermory is the main town where the island's bank and supermarket are located. Elsewhere on the island, there are a number of village shops as well as post offices and restaurants. There are many places to stay and accommodation varies in type, quality and location. Currently listed by the Scottish Tourist Board are 18 hotels, 62 bed and breakfasts, 98 self-catering establishments, and three campsites. There are also a substantial number of visitors who have holiday homes. On Mull there are brief shortages of bedspaces at peak periods but this is less marked than in earlier years when overall visitor numbers were higher. Shoulder season business (either side of the main tourist season of July and August) is good[59].

Public transport is limited, especially in winter. However buses do meet some ferries from Oban and take people north to Tobermory and south to Fionnphort (and Iona). Cycle and car hire on the island are available but limited. There are a number of petrol stations on the island, however the cost of fuel is significantly higher than on the mainland.

1.4.1 Marketing and Destination Management.

Despite the importance of tourism to Mull, there is no one body that draws together tourism development, management or marketing as a whole for the island. While a great deal was known about visitors anecdotally, there is little hard statistical material available that deals specifically with the area. The Touchstone Report (1999), which was produced with the assistance of the Mull and Iona Community Trust, tour operators and those involved in the travel and tourist trade on the island, produced an overview of tourism on Mull as well as a visitor profile. Owing to the lack of official figures, much of the evidence was anecdotal, representing third party views which may be biased or coloured by individual experiences or professional interests. Prior to this the Corrum Report included a mention of tourism as part of a Mull and Iona Regeneration Strategy and Community Action Plan (1997).

The only association within the local tourist industry is Holiday Mull, a marketing group representing nearly 40% of tourism businesses on Mull. Its aim is to promote Mull as a quality holiday destination through its members. The Mull and Iona Land and Sea Forum also includes tourism under its broad interests and seeks to inform the community of any new major tourism plans as well as promoting sustainable tourism.

There are two Tourist Information Centres (TIC) on Mull, at Craignure and Tobermory. Both provide some literature and leaflets on Mull and its natural and cultural history but the TICs

[59] Touchstone Heritage Management Consultants, 1999

concentrate on providing an accommodation booking service and general literature and souvenirs for Scotland. In comparison to general tourism literature on Scotland, the TICs have little in the way of interpretation of Mull and local information. The centres are well used with 50% of Mull tourists visiting the facilities. Between January 1997 and September 1998, there were 94,125 inquiries (13% overseas visitors) at Craignure and 79,762 inquiries (23% overseas visitors) at Tobermory[60]. Many day trippers and other visitors have little prior awareness of the islands, their characteristics and facilities and this is borne out by the very high proportion of visitors who use the information outlets on the islands to find out about facilities.

Other than the TICs, the information available to visitors about Mull is limited. A few interpretation boards are located on the island (at Dervaig, Calgary Bay and a number of Forest Enterprise sites) and the Hebridean Whale and Dolphin Trust’s centre in Tobermory provides extensive interpretative materials about the marine environment and wildlife tour operators. However in general, visitors are left to discover Mull on their own. While for many this is preferable, the high proportion of visitors using the TICs (especially foreign visitors) suggests that interpretative materials and information provided in these facilities need to be increased.

There is a range of attractions for the visitor. Excluding Iona, which is an obvious draw, there are a number of castles (occupied and unoccupied), churches, lighthouses and other buildings of interest, some of which are accessible for the day from the mainland and provide wet weather facilities. There is also a small museum in Tobermory, the Old Byre in Dervaig and the Columba Centre in Fionnphort which provide interpretation on the history of the island. The Mull Little Theatre and An Tobar Arts Centre provide cultural entertainment in the evenings and there are a number of tea-rooms and galleries.

Activities include pony trekking, boat and cycle hire, guided tours and walks, fishing and, for independent walkers, a book series on island walks.

The natural beauty of the island features heavily in much of the marketing and appeal of Mull. Owing to the small population, the island has a sense of wilderness and offers a diverse landscape to the visitor. There are many dramatic land and seascapes, incorporating many fine beaches, ruined castles and crofts, forests, lochs, cliffs and mountains. For the hill walkers, Ben More is a ‘Monroe’ (over 3000ft) and the many lochs offer good fishing.

[60] Tourist Information Centre, Craignure, 1999

Offshore islands, such as Eorsa, Inch Kenneth and the Treshnish Islands (designated SACs), complement the impressive views from Mull towards Coll, Tiree and the mainland. Visits to Staffa with its basaltic columns (similar to the Giant's Causeway in Ireland) and Fingal's Cave (the inspiration for a musical piece of the same name in Mendelssohn's Hebridean Suite), Iona with its Abbey and history and Lunga with its seabird colonies all add to the range of resources on the island.

In addition to natural features and visitor attractions, Mull also hosts a number of events during the tourist season which bring additional people to the island. At the beginning of the season (usually the end of April) there is a weekend music festival and the Mull Rally takes place during October. Both events help to lengthen the tourist period with most accommodation establishments being full during this time. Other events include the Mendelssohn Music Festival, the Tennants Yacht Week and the Highland Games.

The aim for developing tourism on Mull is not necessarily to increase visitor numbers but to spread the number of tourists across the year thereby putting less strain on facilities. More could be made of low season tourism (but there are problems with there being limited tourist facilities off season i.e. restaurants are closed, accommodation is not available and ferry services are infrequent) and improving the complete holiday package (i.e. improved accommodation, better interpretation, innovative tours, wider selection of food available and better tourism infrastructure). Visitors should be encouraged to stay longer, spend more and make return visits. This will help to increase tourist related revenue accruing to community.

1.5 The Island of Mull and Marine Wildlife Tourism.

The Inner Hebrides are one of the most productive marine environments in Europe. Of particular interest to visitors are key species such as seabirds (large breeding colonies of puffins, guillemots, razorbills and Manx Shearwaters on nearby islands), eagles (both golden and sea eagles have healthy populations on Mull), corncrakes (a threatened species present on Mull and being reintroduced on Coll, Tiree and Lunga), the European otter (which inhabits coastal areas on Mull and surrounding islands), grey and common seals and cetaceans (whales, dolphins and porpoises).

Staffa is the most popular destination for boat trips and in particular Fingal's Cave, for this reason most trips depart from the south and middle part of the island. Although seals and seabirds are regularly seen, wildlife viewing during these trips is somewhat incidental to seeing the island itself.

Lunga, one of the Treshnish Islands, is also popular with tourists. At peak tourist times, a significant volume of visitors land on the island to see the impressive colonies of puffins, guillemots, razorbills and kittiwakes. The bird populations are monitored annually by a team of researchers who ring the puffins[61].

Boat trips also go from the northern end of the island to the areas between Ardnamurchan peninsula, Coll, Muck and Rum, where there are regular cetacean sightings, as well as basking shark, large seal colonies and seabirds. The operators provide whale-watching and general wildlife trips take small groups (up to 12 passengers) on day trips. There is a significant emphasis on wildlife, and in particular cetaceans and, for the whale watch boat, sightings of cetaceans are frequent. The wildlife cruise tends to focus less on cetaceans and more on other species (partly owing to the size of the boat and being unable to cover the distances necessary to regularly find cetaceans).

The waters around Mull and Ardnamurchan Peninsula are considered amongst the best cetacean viewing sites in Europe. Of the 28 species of cetacean which have been sighted off the coasts of Britain, nineteen have been recorded in waters neighbouring Mull and nine are regularly sighted in the Hebrides. The most commonly sighted species are harbour porpoises (*Phocena phocena*) and minke whales (*Balaenoptera acutorostrata*), although common, bottlenose and Risso dolphins are also regularly seen and occasionally killer whales.

Species such as seals and seabirds are frequently sighted in the area but it is the opportunity to see species such as the minke whale, dolphins, and basking sharks which are special to the area (detailed information on sighting opportunities is given in Appendix 3). According to whale-watching texts, the Hebrides offer a better-than-average chance of seeing cetaceans[62], with the probability of seeing minke whales and harbour porpoises to be highly probable[63]. Evans (1987) commented that cetacean viewing in the Minch area was “good....but by no means exceptional” which perhaps highlights the variation in viewing within the region. To

[61] The Treshnish Islands are currently up for sale and, even though all the islands are protected, it will be interesting to watch how the islands are managed under new ownership. The RSPB and The Hebridean Trust (not associated to the Hebridean Whale and Dolphin Trust) have expressed an interest.
[62] Carwardine, 1995
[63] Wood, 1999

illustrate the whale (and dolphin) watching potential, the area was given a four star top whale-watching rating in comparison to the south coast of Britain which received only two[64].

As the awareness of whales and dolphins in the Hebrides is increasing so is the image of Mull as a whale and dolphin watching location. The increasing number of reported whale sightings in the area, whale-watching operations and the work of the local charity, The Hebridean Whale and Dolphin Trust (HWDT) all contribute to raising the profiles of cetaceans in this area.

The Hebridean Whale and Dolphin Trust (HWDT) is a registered charity, established in 1994, which has pioneered the study of whales and dolphins around the Hebrides and the west coast of Scotland. Previously known as the Mull Cetacean Project set up in 1990, the project has expanded over the decade to include a wider area of the Hebrides and the Northeast Atlantic and is involved in a wider range of issues. One of the key aims of HWDT was to raise awareness of cetaceans and other marine species (and issues pertaining to the conservation of these species) in the waters around Mull and the rest of the Hebridean islands.

The HWDT Education Centre in Tobermory opened officially in 1998 and attracted 14,000 visitors in its first four months. The centre provides a much needed wet-weather year-round visitor facility on the island and is popular with visitors to Tobermory. Over 15,000 visitors have been received at this centre so far in 1999 (January-August), a 15% increase on last year despite the falling number of tourists in the region.

A volunteer programme at the centre brings people to Tobermory for periods of one month or more, offering not only the chance to gain experience of the running of a small wildlife charity but bringing revenue into the community in terms of rent, food and entertainment all year round. Local involvement is encouraged by children and adult volunteers.

The majority of information displayed in the centre is in the form of poster displays. However, a 3-D map of the area is the focal point of the centre and other exhibits such as a dolphin skeleton, cetacean bones and baleen are on display. Many of the interactive displays are aimed at children and care has been taken to ensure that microscopes and exhibits are at the correct height for children to access. There are also a number of CD ROM computer programmes and a video showing cetaceans filmed from the local whale-watching boat.

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[64] Evans, 1994

The centre serves as an information point for Hebridean wildlife tourism (both marine and land-based) distributing tourism brochures and collecting and collating sighting of marine wildlife. It also acts as a vendor for locally-made crafts which are sold on the premises and merchandise sales so far this year (January-July 1999) were over £5700 (HWDT, 1999). There is no other centre providing wildlife information on the island.

Marine tourism on Mull is well-established. Commercial boat trips to the nearby islands have been available for almost 30 years. Today, there are five commercial boat operators, all of which provide wildlife/sightseeing day trips and are the focus of this study. Currently there is only one boat offering purely whale-watching trips, the others offer a mixture of wildlife and sightseeing. Trips range from 3 hour to full day excursions. The area is also popular with recreational fishermen and divers who utilise the extensive maerl beds and numerous wrecks for their activities.

For those who want to see wildlife but not from a boat, there are two land-based operators who escort small groups of visitors on 'safaris' to see eagles, otters, deer, seals and other animals. Both these operators report good business.

While whale-watching is a small part of marine wildlife tourism, it is believed that cetaceans may have greater value to tourism on Mull in the wider context, in terms of raising profile of cetaceans in British waters, broadening nature tourism base, developing tourism product of Mull, raising conservation issues and using cetaceans as a figure head for education of conservation issues through whale-watching and HWDT.

1.6 The Marine Wildlife Tourist.

For the effective development and marketing of Scotland's marine heritage, identification of the market is important. Visitors appear to be generally interested in the natural heritage of Scotland. Anecdotal evidence suggests that visitors to Highlands and Islands because of its wildlife tend to be educated and affluent - precisely the market segment which will bring most economic benefit[65]. This corresponds with the generally acknowledged idea that nature-orientated visitors spend more than "conventional" tourists[66].

[65] Masters *et al.*, 1998
[66] Shackley, 1996

This section draws together the limited research available on visitors to rural Scotland and marine wildlife tourists world-wide (mainly whale watchers) in order to compare the profile of visitors to Mull.

The Touchstone Consultants (1999) drew together local opinions of the type of tourist visiting Mull. The general profile was of visitors from a middle-aged group, travelling without children (the so-called ‘empty-nesters’) who were relatively affluent, keen on outdoor pursuits and with an interest in either or both natural and cultural heritage. They were able to take two or three holidays a year and were generally self-starters in terms of holiday destinations and activities. Younger people and families also visited the island but in smaller numbers and had a similar profile to the general tourist above.

A similar profile was given for visitors to the nearby island of Tiree[67]. The majority of visitors were in the ‘AB’ socio-economic category (44%) and 76% were aged between 25-54. Two thirds of respondents were travelling without children and the majority were relatively self sufficient, staying in self-catering, holiday homes or with friends and relatives[68].

From statistics on the general visitor to Scotland, the findings suggest that a particular subset of the tourist market chooses to visit the islands (only 27% of visitors to Scotland are in the ‘AB’ socio-economic, and the age groups are more evenly represented[69]). This report will aim to clarify the profile of visitors to Mull during the early part of the tourist season.

Estimates of overseas visitors are variable. Estimates for Mull are as high as 40% (mainly from North America, France, Germany, the Netherlands, Italy and Spain[70]); for Tiree - 6% and for Scotland - 17%[71].

A relatively large amount of research has been conducted on the characteristics of marine wildlife tourists, in particular whale-watchers. The profile which emerges is not dissimilar to the profile of visitors to the Hebridean islands described above.

[67] Tiree is located to the west of Mull, next to the island of Coll (Map 1) and is connected to the mainland by a ferry service from Oban. It is a low, windy island with over 700 inhabitants and is a magnet for windsurfers in October when international windsurfing championships are held.
[68] Cobham Resource Consultants, 1996
[69] as above
[70] Touchstone Heritage Management Consultants, 1999
[71] Cobham Resource Consultants, 1996

Passengers on boat trips have been studied in a number of locations, ranging from Canada and the USA to New Zealand and Hawaii. In general passengers were well-educated (79% of participants in the California study had four years college education[72]), affluent (68% of respondents in the Canadian survey earned more than $40,000 per annum[73]), middle-aged (the average age of passengers was 41years[74]) and attracted fractionally more females than males (37% males, 67% females[75]).

One of the key problems with marine wildlife tourism, particularly whale-watching, is the dependence on key species. Passengers often pay considerable sums of money to see these species and it is the skill of the tour operator to ensure that passengers are not disappointed on not finding a particular species. Knowledge about the market can help marine wildlife operators in the designing of interpretative material so as to provide the correct level of information for visitors to enjoy. Of the 38% of passengers who did not see dolphins on Moray Firth boat trips, 89% said that it did not spoil the enjoyment of the trip[76]. Duffus (1988) noted that whilst most whale watchers were satisfied with their experience, environmental degradation, other traffic, trip problems, whale harassment and restrictions detracted from the experience. Factors such as trip comfort, learning opportunities, environment and scenery added value.

Morrison (1995) reported that the majority of passengers taking short boat-trips are not “wildlife experts but are keen to learn more”. A report on wildlife tourism in Scotland showed 76% of passengers on daily boat trips were general visitors with only 28% considered to be wildlife enthusiasts[77].

Wildlife boat trips therefore provide excellent platforms for education. These cruises provide opportunities for all ages and backgrounds to learn more about particular species, the marine environment and a variety of environmental issues (local, regional, national and international). Local history and culture can also be tied in to the experience as well as encouraging responsible tourism. Appreciation of the problems will lead to concern and perhaps eventually involvement or at least a degree of responsibility[78]. However the amount

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[72] Tilt, 1987
[73] Duffus, 1988
[74] as above
[75] Tilt, 1987
[76] Arnold, 1997
[77] A&M Consultants, 1997
[78] Wilson, 1994

and quality of the information supplied should be carefully monitored so as provide sufficient information without providing a lecture.

This report aims to provide initial statistical evidence on the nature of marine wildlife tourism on the island of Mull and the type of visitors who are attracted to the island for holidays – their motivations and expectations. It is the first study of its kind to be undertaken on Mull and identifies some of the unique possibilities Mull offers in terms of marine wildlife tourism and also ways in which Mull can develop into the next millennium by establishing itself as a quality wildlife destination which attracts new visitors and encourages people to return.

1.7 Aims and Objectives

Aim

To investigate the role of boat -based wildlife tourism on the Island of Mull and in particular the value of cetaceans within this sector. This will be determined in terms of visitor satisfaction, educational possibilities and the potential benefits to the local community.

Objectives

* To produce visitor profiles of both visitors to Mull and passengers taking wildlife boat trips.
* To assess the interest and knowledge of tourists in marine wildlife (in particular cetaceans).
* To assess the interest in marine wildlife tourism (in particular in whale-watching) on the island.
* To assess the current status of boat-based marine wildlife tourism (day trips) on the island of Mull.
* To assess the economic value of marine wildlife tourism in terms of direct and associated expenditure, merchandise bought, jobs created, and to relate this to accruing to the local island economy.

Map 1. Map showing the location of the Isle of Mull

2. METHODOLOGY.

The study was designed to consider the knowledge and expectations of three distinct groups involved in tourism on Mull. The first were the general visitors spending at least on night on the island, the second group were visitors who chose to take boat-based wildlife day-trips from Mull and the third group were the boat operators themselves In most situations, the method of data collection was through questionnaires, either self administered or conducted by the researcher.

The report is based on a sample of more than 400 visitors to the island during the early tourist season of 1999 (May-June), characterised by the avoidance of the main school holidays. It provides statistical evidence drawn directly from the experiences of tourists. It also takes into account the views of tour operators and is the first such research to be undertaken on the island.

Both questionnaires (section 1 & 2) were piloted before arrival on the island and on Mull itself prior to the study period commencing. Approval of the study was gained from the Mull Tourist Information Centre manager, the research director of the Hebridean Whale and Dolphin Trust and the Chairman of Holiday Mull.

2.1 Survey of general visitors to Mull.

The questionnaire was divided in to two distinct parts: Part One, to be completed on the night of arrival, involved questions on reasons for visiting the island, intended activities[79] and current knowledge about cetaceans, Part Two, to be completed on the final night, focused on activities undertaken during the stay and overall rating of the visit and facilities.

Two researchers were undertaking studies on wildlife tourism (albeit different aspects) at this time. Aware of the need for similar data from the same sample and to avoid approaching the same individual twice, the questionnaire incorporated questions for both study areas. This accounts for the relatively lengthy nature of the form and the obvious omission of certain questions in the Results section of this report (original questionnaire in Appendix 4). The other study was investigating the re-introduction of the sea eagle to the island and the impact this has had on tourism and the local farming community.

[79] Visitor activities refer to commercial activities only. Whilst acknowledging that many free activities, such as walking and driving, are undertaken by visitors to Mull, they generate little direct financial revenue for the community and therefore are not of concern in this survey.

Self-completion questionnaires were distributed through accommodation providers across Mull. Establishments were chosen at random within the main accommodation categories (hotel, guest house, self catering and campsite) and left in rooms and at reception in 53 establishments across the island. The distribution of the questionnaires was considered to be representative of commercial accommodation on the island, both in terms of accommodation type and geographical location. Owing to the small number of registered campsites on Mull (three in total), all were approached in order to provide an adequate sample.

Only those tourists spending the night on Mull were sampled on the assumption that day-trippers were less likely to take wildlife boat trips owing to lack of time (also visitors staying overnight generally have a higher spending ration). Although inextricably linked to Mull, visitors staying on Iona were excluded from the sample, as were those staying in privately owned holiday homes, visiting friends and relations and on unofficial campsites.

An average of ten questionnaires were left with each accommodation provider with instructions for collection. At the end of June, a follow-up call was made and forms were collected in the second week of July. A total of 538 questionnaires were distributed of which 233 were completed, a return rate of 44% (Table 4).

Table 4: Summary statistics of the questionnaire distribution.

	Hotels	Guest houses	Self-catering	Camping
No. questionnaires (no. of properties)	127 (11)	260 (28)	106 (12)	45 (3)
No. of questionnaires completed	42	127	46	19
Return rate	33%	49%	43%	42%
Proportion of overall responses (%)	18%	54%	20%	8%

Even though follow-up calls were made to each accommodation provider before the end of the data collection period, different levels of co-operation were observed for different establishments. A disproportionate number of questionnaires were returned from guest houses, for example. Whether or not these response rates are representative of visitor patterns on the island on this time is unknown as there are no official tourism figures available.

2.2 Survey of passengers on boat -based wildlife trips.

The five main operators on Mull offering boat-based wildlife cruises were approached regarding the administering of questionnaires to passengers of boat trips (Appendix 5). Three of the operators helped with this part of the study and some additional information was gathered from relevant questions in the first questionnaire, distributed through accommodation providers.

A number of questionnaires were left with the operator at the beginning of the season (more were available on request) and were collected at the end of the study period (mid July). Questionnaires were completed by 183 passengers during the boat trips and were reliant on a crewmember distributing forms at an appropriate time. For this reason it should be noted that the survey cannot claim to be fully representative of the views of all passengers. The crewmember would be selective about who was asked and it was difficult to complete forms in rough, wet weather[80].

2.3 Survey of tour operators.

The five main boat operators offering day trips from Mull to see wildlife were identified. Three of the five tour operators were formally interviewed by the researcher (using the questionnaire in Appendix 6). Of the two remaining, data was collected from promotional material, brief informal discussions with the operators themselves and information direct from passengers regarding the nature of the trip. In this way, a number of the questions could be answered for all five operators.

The boat operators were grouped into three categories, according to the emphasis on wildlife during the cruise (Table 5).

[80] The research did stimulate the production of a kids' quiz on one boat.

Table 5: Main characteristics of boat operators.

Category	Landings	Length	Trips/day	Focus of trip	Passengers	Operators
Whale-watching	No	4-6hrs	Up to 3	Cetaceans	12 (max)	1
Wildlife	One/two	6-8hrs	Daily	All wildlife, (seabirds & seals, also sharks & cetaceans)	10-63 (max)	2
Sightseeing	One	2-3hrs	2	Fingal's Cave, Staffa (birds & seals seen)	72 (max)	3
Other	Two of the sightseeing boats also carry excursionists based in Oban. Day trips to Mull, Iona and Staffa from Oban include ferry crossing and bus transfers across Mull. These boats did not distribute questionnaires.					
	Sea-fishing charters also operate from Mull					
	Chartered dive-boats and wildlife cruises (not day trips) tend to operate from Oban/Mallaig.					

2.4 Characteristics of respondent groups.

The demographic information from both questionnaires is shown below. For ease of reference, the main questionnaire, distributed through accommodation providers, will be referred to as 'general' and the second questionnaire, completed by passengers on boat trips, will be referred to as 'boat'.

2.4.1 Gender.

The number of male and female respondents to the 'general' questionnaire was approximately equal. There were slightly more female than male respondents in the 'boat' sample (Table 6).

Table 6: Gender distribution of samples.

Gender	General	Boat
Male	106 (46.9%)	51 (61.1%)
Female	120 (53.1%)	80 (38.9%)
Total	226 (100%)	131 (100%)

2.4.2 Age.

Distribution across the age categories was significantly skewed towards the older age categories (Table 7). The most well represented group in both samples was between 45-60 years (39.8%, 38.8%). Sixty percent of the 'general' sample were over 45 years of age. Only 12% were under 30 years of age. In the 'boat' sample, there was a slightly higher proportion of younger respondents. Only 10% of passengers were over 60years old.

Table 7: Age distribution of samples.

Age group	General	Boat
<18	4 (1.9%)	5 (3.7%)
19-29	23 (10.7%)	20 (14.9%)
30-44	58 (26.9%)	44 (32.8%)
45-60	86 (39.8%)	52 (38.8%)
60+	45 (20.8%)	13 (9.7%)
Total	216 (100%)	134 (100%)

2.4.3 Education.

A significant proportion of both groups went on to higher education. The majority of visitors were formally educated to high levels; 63.1% of the 'general' and 64.9% of 'boat'visitors were educated until 21 years (Table 8).

Table 8: Completion of formal education.

Age	General	Boat
16	40 (19.7%)	23 (17.6%)
18	35 (17.2%)	23 (17.6%)
21+	128 (63.1%)	85 (64.9%)
Total	203 (100%)	131 (100 %)

2.4.4 Visitor Origins.

Respondents to the general questionnaire were predominately British visitors (76.7%). Of those overseas visitors (52), twenty one were from North America (9.3% of overall sample). The remaining 14.8% was represented equally by the other nationalities (Australian, German, Scandinavian and other).

The proportion of British visitors in the boat sample was even greater (91.8%). North Americans comprised 7% of the sample and respondents from countries other than the UK and North America were very few (Table 9)

Table 9: Visitor Nationality.

Nationality	General	Boat
British	175 (75.9%)	123 (91.8%)
North American	21 (9.3%)	9 (6.7%)
Australian	7 (3.2%)	0 (0%)
German	7 (3.2%)	1 (0.7%)
Scandinavian	9 (4.2%)	1 (0.7%)
Other	9 (4.2%)	0 (0%)
Total	228 (100%)	134 (100%)

2.5 Limitations of this study.

The main limitations of this study have been highlighted in the main methodology above. However it should be noted that the distribution of the two main questionnaires (general and boat) was reliant on the co-operation of staff and on the individuals themselves to complete the forms. Also, it is probable that, in situations where the respondents had a choice about whether to complete the questionnaire, only those interested in wildlife took time to complete the form. To encourage a higher return rate, a £75 prize draw was included to the main questionnaire.

For these reasons the results cannot claim to be fully representative of the overall population of visitors to Mull at that time. Similarly, owing to the specific season during which the data was collected, caution should be taken when making general inferences as to the general visitor to Mull.

Mull is a well-developed complex tourist economy and only commercial categories of accommodation were used during the study. However a substantial number of properties on the island are holiday homes and a significant number of visitors choose to stay with friends or family, wild camp (tents and mobile homes) or simply visit for the day. Again, while aware of the existence of these subsets, they have not been included in this study and therefore should not be included in any general assumption as to the overall nature of tourists on Mull.

3. RESULTS OF GENERAL VISITOR SURVEY.

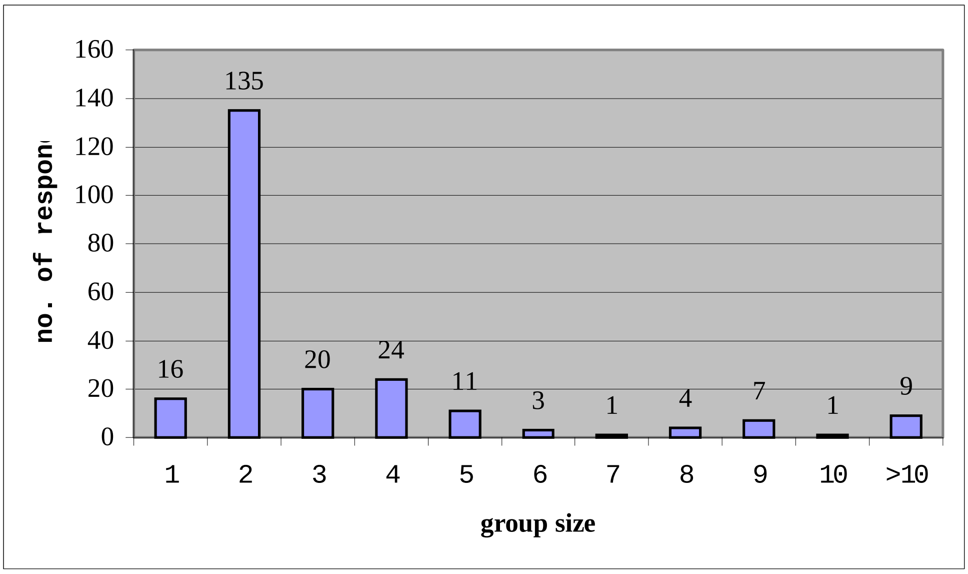
3.1 Characteristics of respondent group.

The main characteristics of the 233 visitors who completed questionnaires distributed through accommodation providers (hereafter referred to as the general sample) are shown in the Methodology. Additional results are shown below.

3.1.1 Group size.

The average number of people travelling with the respondent was 3.5 persons (standard deviation = 4.1), however the modal group size was 2 (Figure 1).

Figure 1: Group size of the sample.



3.1.2 Specialist wildlife viewing equipment.

Many of the respondents brought equipment with them; 63.5% brought binoculars and 32.6% brought a 200mm camera lens.

3.2 Visit characteristics.

3.2.1 Length of stay.

The average length of stay was 4.8 nights (standard deviation 3.9), however the modal value was 2 nights (Figure 2). The length of stay was dependent on the accommodation type, respondents using self-catering were staying for longer (8 nights) than other accommodation types (Table 10). Self-catering establishments tend to be rented by the week.

Figure 2: Length of stay.

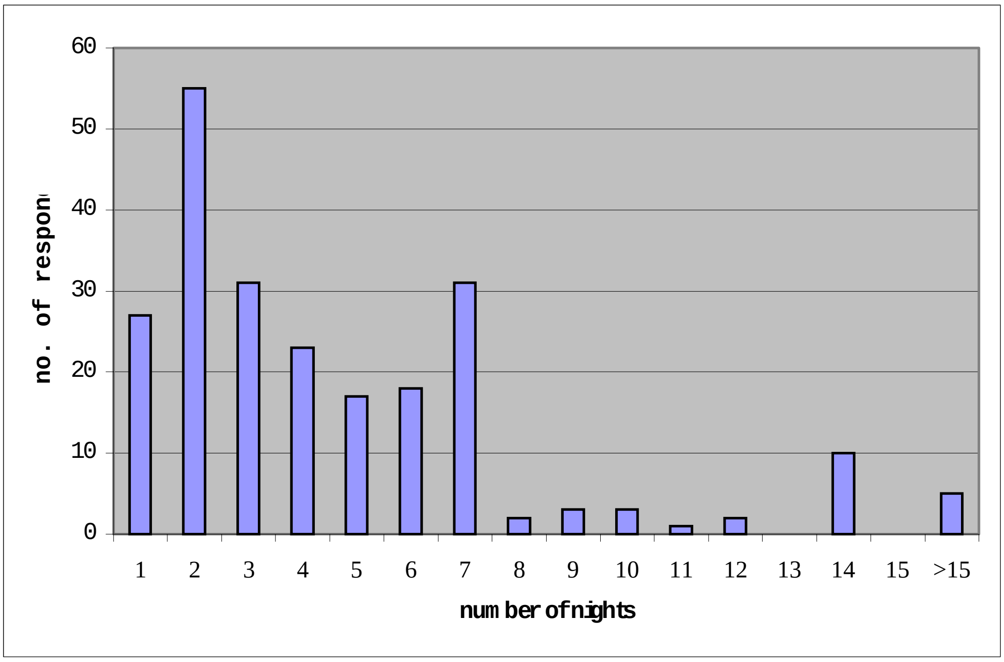


Table 10: Average number of nights in relation to accommodation type.

	Hotel	B&B	Self-catering	Camping
No. of nights	3.6	3.8	8.0	5.7
N	42	127	46	19

3.2.2 Repeat visits.

Just over half of the respondents (55%) were first time visitors to Mull (Table 11). Of those visitors who had visited Mull before, the majority had visited 1-5 times previously (56.3), and 11.7% had made over 10 visits (Table 12).

Table 11: First time visitors.

	N	%
First time visitor	128	55.4
Repeat visitor	103	44.6
Total	131	100.0

Table 12: Previous visits made by repeat visitors.

	N	%
1-5 visits	58	56.3
6-10 visits	18	17.5
>10 visits	12	11.7
No response	15	14.6
Total	103	100.0

3.2.3 Other holidays.

For 14.4% of respondents, the visit on Mull was the only holiday of the year (Table 13). Of the 85.6% of visitors taking other holidays, the majority were travelling in the UK (28.1%) or Europe (36.2%) (Table 14).

Table 13: Respondents taking one holiday.

	N	%
One holiday	33	14.4
>One holiday	196	85.6
Total	229	100.0

Table 14: Destinations of other holidays.

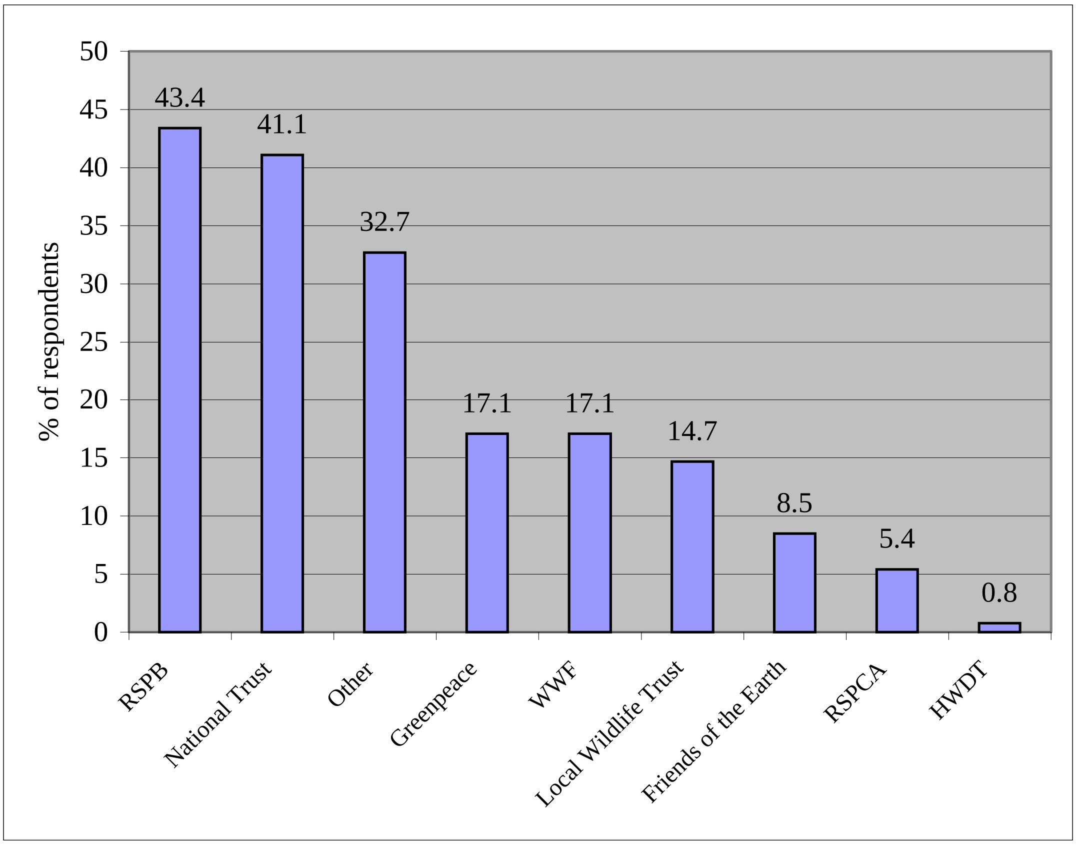
	N	%
UK	55	28.1
Europe	71	36.2
Worldwide	36	18.4
Undecided	23	11.7
No response	11	5.6
Total	196	100.0

3.3 General wildlife related activities.

3.3.1 Membership of environmental organisations.

Fifty seven percent of visitors surveyed were members of one or more environmental organisation. The RSPB and National Trust had the largest proportion of members (43.4% & 41.1% respectively). Less than 1% of participants were members of the Hebridean Whale and Dolphin Trust (Figure 3).

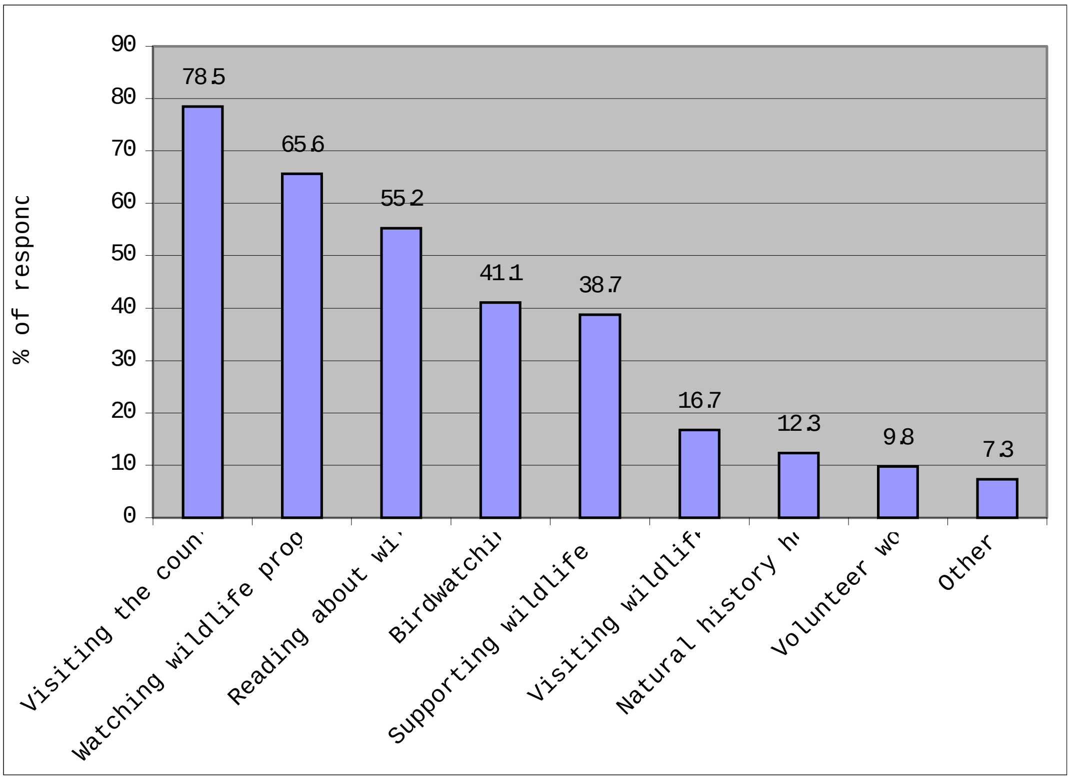
Figure 3: Memberships of environmental organisations by respondents.



3.3.2 Wildlife-related activities.

The majority (84%) of visitors participated in wildlife related activities. The most popular activities were visiting the countryside (78.5%), watching natural history programmes (65.6%) and reading about wildlife (55.2%). Almost half the sample (41.1%) was involved in bird watching and 38.7% supported wildlife financially through charitable donations (Figure 4).

Figure 4: Wildlife related activities undertaken by respondents.



3.4 Reasons for Visiting Mull.

Respondents were asked to rate the importance of five factors when deciding on Mull as a holiday destination. Landscapes and seascape were both rated as the most important features followed by wildlife watching. Cultural aspects of the island were rated as relatively unimportant in comparison to natural assets (Table 15).

Table 15: Rating distribution of features for deciding on Mull as a holiday destination (where 1 = not important, 5 = very important).

Feature	N	1	2	3	4	5	Average	Rank
Landscape	228	1	4	19	70	134	4.46	1
Seascape	227	6	4	27	71	119	4.29	2
Watching wildlife	217	8	23	51	40	95	3.88	3
Hiking	213	47	24	48	43	51	3.13	4
Hebridean culture	211	28	36	73	41	33	3.07	5
Diving/sailing	201	149	24	16	3	9	1.55	6

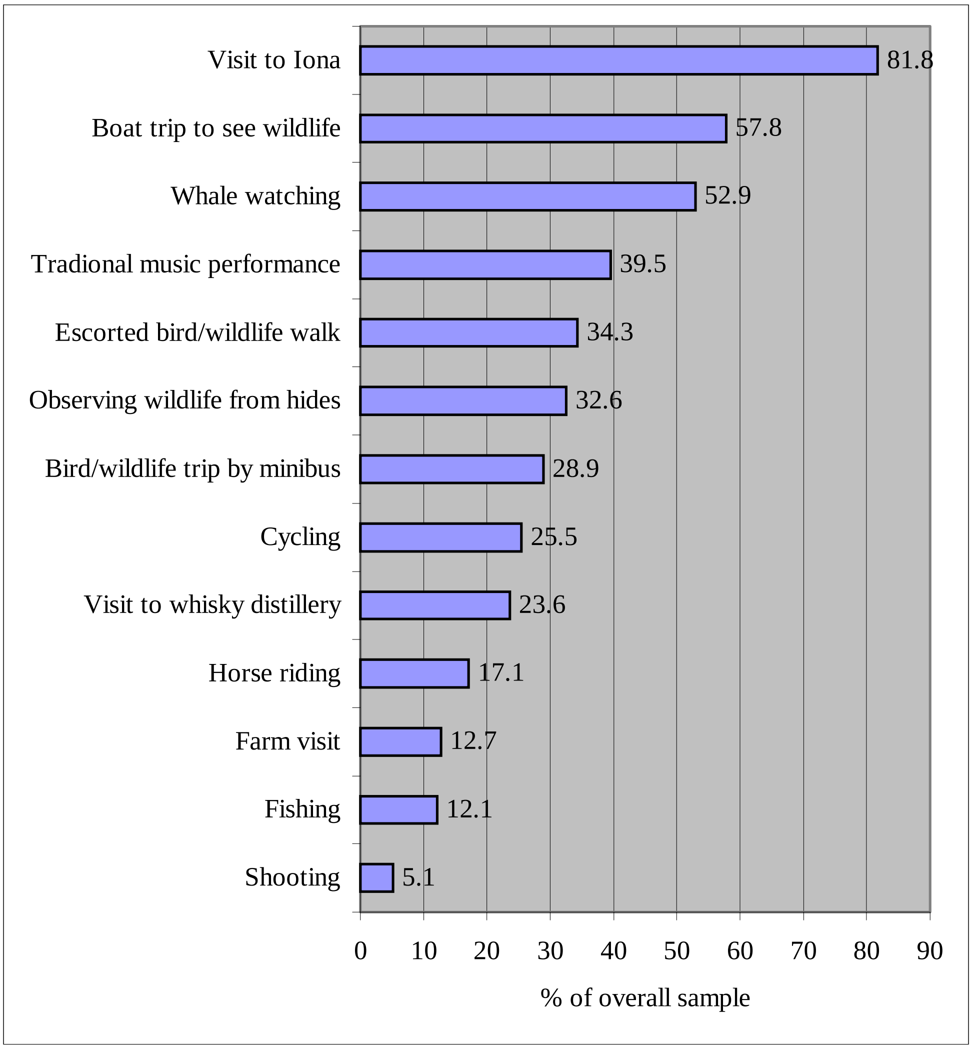
3.5 Activities on Mull.

3.5.1 Interest in Activities.

Respondents were asked to rate their interest in a number of activities (not all of which are available on the island) (Figure 5). Greatest interest was shown in visiting Iona with 81.8% gave interest ratings of 4 or 5. Interest in boat trips to whales or seabird colonies was also high (52.9% & 57.8% respectively).

Of the eight activities which had over 60 respondents show interest, six were wildlife related. The other two were Iona and watching a music performance. Shooting and survival training were the only categories which had less than 20 interested responses but is not surprising considering the sample.

Figure 5: Level of interest in activities.



3.5.2 Wildlife Trips.

When asked about prior intention to take organised wildlife tours, 36% of respondents that they were intending to take a wildlife tour during their stay. Of this group, 74% were mentioned a boat trip, 47% a land based trip and 5% were unsure. Twenty six percent indicated that they may take land and boat based wildlife trips.

3.5.3 Whale-watching trips.

Half the respondents (51%) had prior knowledge of whale-watching trips on Mull, but only half of those (25%) indicated that they would make an effort to go whale-watching.

3.5.4 Participation in Activities.

Overall levels of participation in activities were low (Table 16). Iona was clearly the most popular place of interest, attracting 68.6% of respondents. None of the other activities had participation rates above 41%. Cultural sites, such as Duart Castle and Torosay Castle, ranked high in the table as did boat trips to see wildlife. The percentage of respondents who went whale-watching was low.

Overall enjoyment ratings were high.

The proportion of people who visited Fingal's Cave (41%) was slightly higher than the proportion of people who took wildlife boat trips. Excursions to Staffa, where Fingal's Cave is situated, involve a boat trip and, during May and June, is also home to breeding puffins. One might therefore expect the participation rates of the two activities to be the same. The disparity may indicate that passengers did not consider the visit to Fingal's Cave to be wildlife oriented.

Table 16: The percentage of respondents participating in activities and the associated enjoyment rating.

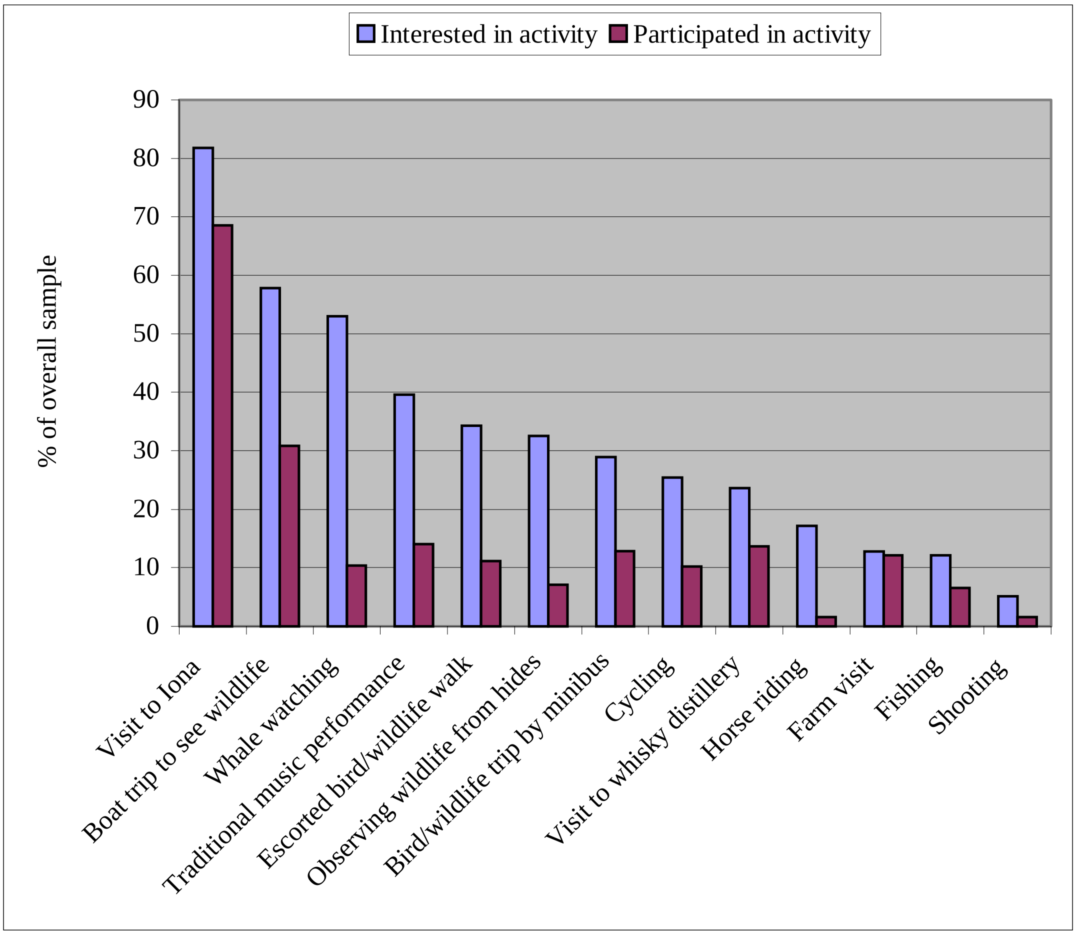
Activity	No. of participants (% of total)	Average rating
Visit to Iona	144 (68.6%)	4.54
Fingal's Cave, Staffa*	82 (41.0%)	n/a
Duart Castle*	76 (38.0%)	n/a
Boat trip to see wildlife	61 (30.8%)	4.64
Torosay Castle*	56 (28.0%)	n/a
Aros Park*	38 (19.5%)	n/a
HWDT Visitor Centre*	30 (15.0%)	n/a
Traditional music performance	28 (14.1%)	4.29
Mull Little Theatre*	27 (13.5%)	n/a
Visit to whisky distillery	27 (13.7%)	4.46
Bird/wildlife trip by minibus	25 (12.8%)	4.56
Farm visit	24 (12.1%)	4.33
Escorted bird/wildlife walks	22 (11.2%)	3.96
Cycling	20 (10.2%)	4.91
Whale-watching boat trip	20 (10.4%)	4.3
Fossilised Tree, Burg*	19 (9.5%)	n/a
Observing wildlife from hides	14 (7.1%)	4.71
Fishing	13 (6.6%)	4.00
Shooting	3 (1.5%)	4.33
Horse riding	3 (1.5%)	4.33

* data to calculate enjoyment ranking was not available.

3.5.5 Comparison between Interest and Participation in Activities.

The level of interest in an activity did not correspond with the level of participation (Figure 6). This disparity was particularly marked for whale-watching. Only 20 respondents went whale-watching although 118 expressed interest. Activities, such as land-based wildlife safaris, farm visits and visiting the whisky distillery, which has lower initial interest had proportionately higher participation levels.

Figure 6: Comparison between percentage of respondents interested in activities and percentage who participated.



3.6 Satisfaction.

3.6.1 Overall holiday satisfaction.

On a scale of one to five, the overall rating for the entire trip was 4.6 (69.2% of respondents gave Mull a top rating of 5) (Table 17).

Table 17: Overall enjoyment rating of holiday (where 1 = not enjoyable , 5 = very enjoyable).

	N	1	2	3	4	5	Average
Rating	214	1 (0.5%)	1 (0.5%)	7 (3.3%)	57 (26.6%)	148 (69.2%)	4.6

An impressive 85.3% would recommend Mull as a wildlife destination

3.6.2 Most enjoyable experience.

When asked to state the most enjoyable experience of the trip, 42.1% of the responses involved wildlife (watching wildlife 23.6%, boat/land trip 19.5%) and 30.2% involved the scenery (scenery 16.4%, walks 13.8%). Sixteen percent of people wrote that visiting a cultural site, such as Iona or Torosay Castle, was the most enjoyable aspect of their stay (Table 18).

Table 18: Most enjoyable experiences on Mull.

	N	%
Watching wildlife	46	23.6
Boat or land excursion	38	19.5
Scenery	32	16.4
Iona/cultural attraction	31	15.9
Walks	27	13.8
Other	10	5.1
Weather	7	3.6
Accommodation	4	2.1
Total	195	100
Wildlife-associated experiences[81]	*82*	*42.1*
Scenery-associated experiences[82]	*59*	*30.3*

3.6.3 Least enjoyable experience.

When asked to give the least enjoyable experience of their stay, natural factors were the most commonly reported (weather, 29.1%; midges, 9.5%). The complaints about the midges came predominantly from campers. Some respondents were disappointed with particular tourist facilities, such as poor roads (7.8%), poor public transport (7.8%), poor tourist facilities (8.9%) and Iona/other heritage site (5.0%). Only 2.2% of respondents commented that not seeing wildlife was the least enjoyable experience of their trip. Twenty percent of

[81] Sum of ‘watching wildlife’ and ‘boat or land excursion’.
[82] Sum of ‘scenery’ and ‘walks’.

respondents commented that they had no complaints about their trip and 3% said that leaving was the least enjoyable experience (Table 19).

Table 19: Least enjoyable experience on Mull.

	N	%
Bad weather	52	29.1
None	33	18.4
Midges	17	9.5
Lack of tourist facilities	16	8.9
Poor roads	14	7.8
Poor public transport	14	7.8
Other	14	7.8
Cultural attractions	9	5.0
Leaving	6	3.4
Not seeing wildlife	4	2.2
Total	179	100
Nature-associated experiences[83]	*69*	*38.6*
Tourism-associated experiences[84]	*53*	*29.6*

3.7 Visitor spending.

3.7.1 Souvenirs.

Only 24% of visited bought wildlife related souvenirs, such as postcards, cuddly toys and ornaments. The average spendings was high; £16.67 on whale and dolphin souvenirs (N=9), £13.28 on bird souvenirs (N=21) and £21.00 on other wildlife souvenirs (N=20).

3.7.2 Wildlife Merchandise.

The percentage of shop shelf stock relating to wildlife was estimated in Tobermory Main Street, the location of most of the shops on Mull (Table 20). An estimated 18% of stock in souvenir shops was wildlife related, 13% of which related to cetaceans. The Tourist Information Centre had more wildlife related stock but less cetacean stock. Unsurprisingly, merchandise sold in the HWDT Visitor Centre was entirely cetacean and marine wildlife related.

Table 20: Estimated percentage of wildlife and cetacean-related shelf stock in Tobermory.

[83] Sum of ‘bad weather’ and ‘midges’.

Shop type	N	Wildlife (%)	Cetaceans (%)	Description
TIC	1	30	10	Postcards, calendars
Souvenir	9	18	13	Postcards, toys, ornaments, books, clothing, pictures, jewellery
HWDT Centre	1	100	80	Postcards, toys, ornaments, books, clothing, pictures, jewellery
Other	3	1	0	Postcards

3.8 Wildlife knowledge and awareness.

3.8.1 Relative importance of seeing species during stay.

Table 21 shows the relative importance of seeing particular species to respondents. The final column is calculated as the difference between the percentage of respondents who rated sighting particular species as important and the percentage who did not. The figure gives some indication of the level of interest in particular species (and may be related to the chances of seeing the species).

Table 21: Importance of seeing species to the enjoyment of respondents' stay.

	N	Important	Indifferent	Unimportant	Relative importance
Golden Eagles	212	116 (55%)	47 (22%)	49 (23%)	+32
Other birds	212	114 (54%)	51 (24%)	47 (22%)	+32
Otters	216	105 (49%)	64 (30%)	47 (22%)	+27
Sea Eagles	214	103 (48%)	58 (27%)	53 (25%)	+23
Seals	215	89 (42%)	70 (33%)	56 (26%)	+16
Dolphins	209	71 (34%)	74 (35%)	64 (31%)	+3
Whales	206	69 (33%)	67 (33%)	70 (34%)	0

Approximately a third of respondents were indifferent about seeing wildlife, however over of third valued the sighting of each species. Fifty five percent of respondents said that seeing a golden eagle was important to the enjoyment of their stay, only 22% commented that is

[84] Sum of 'lack of tourist facilities', 'poor roads', 'poor public transport' and 'cultural attractions'.

unimportant. Sighting of bird species was comparatively important in comparison to marine species. The sighting of whales and dolphins to the enjoyment of the visit was important to less people (33% & 34% respectively) but may relate to the expectation of seeing the species in the wild.

3.8.2 Species sighted during stay.

On average most people did *not* see wildlife species (Table 22) and this provides a measure of how difficult certain species are to see. 'Other birds' and seals were the most frequently sighted animals (84% and 66% respectively). Only 7% of respondents saw whales and 17% saw dolphins (related to the number of respondents who took boat trips). Thirty six percent of respondents saw golden eagles.

Table 22: Proportion of respondents who saw particular species.

	N	%
Other Birds	164	84
Seals	122	66
Puffins	75	40
Golden Eagles	66	36
Otters	48	26
Sea Eagles	48	26
Dolphins	31	17
Whales	12	7

3.8.3 Satisfaction at wildlife sightings.

From those who saw particular species, the enjoyment rate was very high. With the exception of dolphins and seals, over 90% of respondents who saw particular species enjoyed the experience. Eighty percent of respondents enjoyed seeing dolphins and seals (Table 23). Very few respondents did not enjoy seeing species.

Table 23: Relative enjoyment from seeing species.

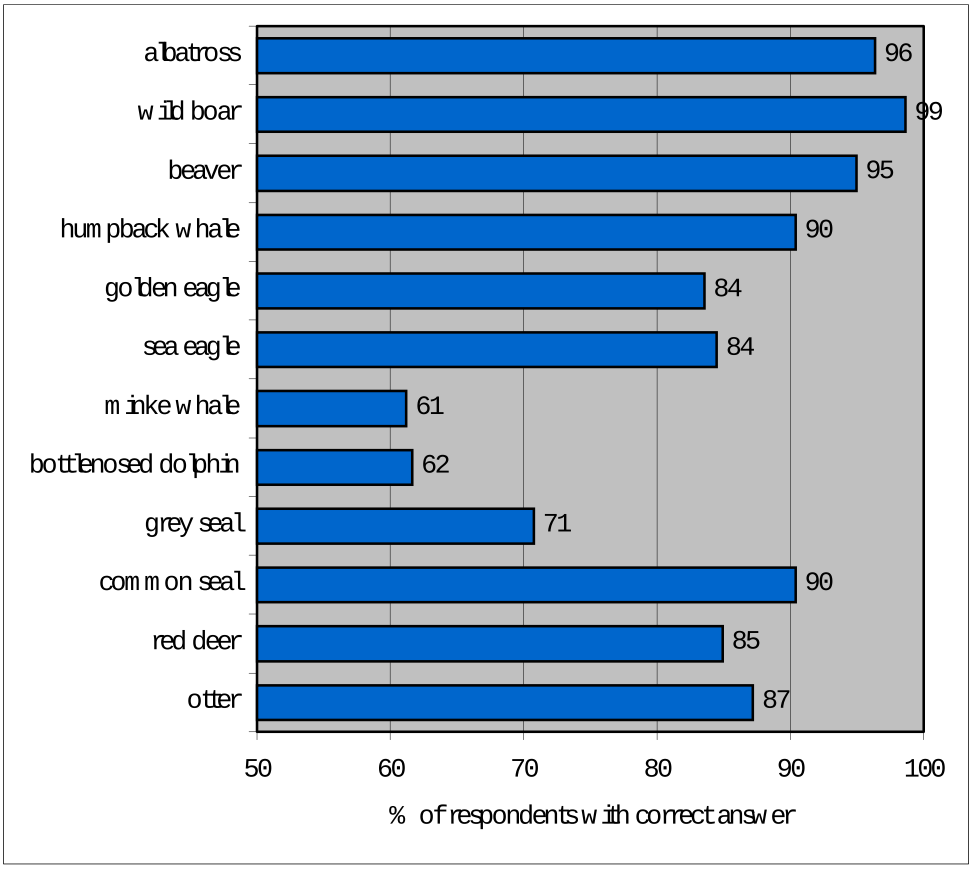
Species	N	Enjoyed	Indifferent	Did not enjoy
Other birds	164	150 (92%)	8 (5%)	6 (3%)

Seals	122	98 (80%)	20 (17%)	4 (3%)
Puffins	75	70 (93%)	2 (3%)	3 (4%)
Golden Eagles	66	61 (92%)	5 (8%)	0 (0)
Otters	48	44 (92%)	3 (6%)	1 (2%)
Sea Eagles	48	43 (90%)	4 (8%)	1 (2%)
Dolphins	31	25 (81%)	6 (9%)	0 (0)
Whales	12	11 (92%)	0 (0%)	1 (8)

3.8.4 Knowledge about local occurrence of species.

Overall, general knowledge about the occurrence of named species in and around Mull was high. The majority of respondents identifying correctly which species did and did not live in the area (Figure 7). Respondents seemed more certain about which species did not live in Mull (beaver, 95%, wild boar, 99%, albatross, 96% and humpback whale 90%). Those species with the greatest degree of error were the marine species, most notably the minke whale (61% success rate), bottlenose dolphin (62% success rate) and the grey seal (71% success rate). The majority of respondents (90%) appeared to know that common seals were found in the area.

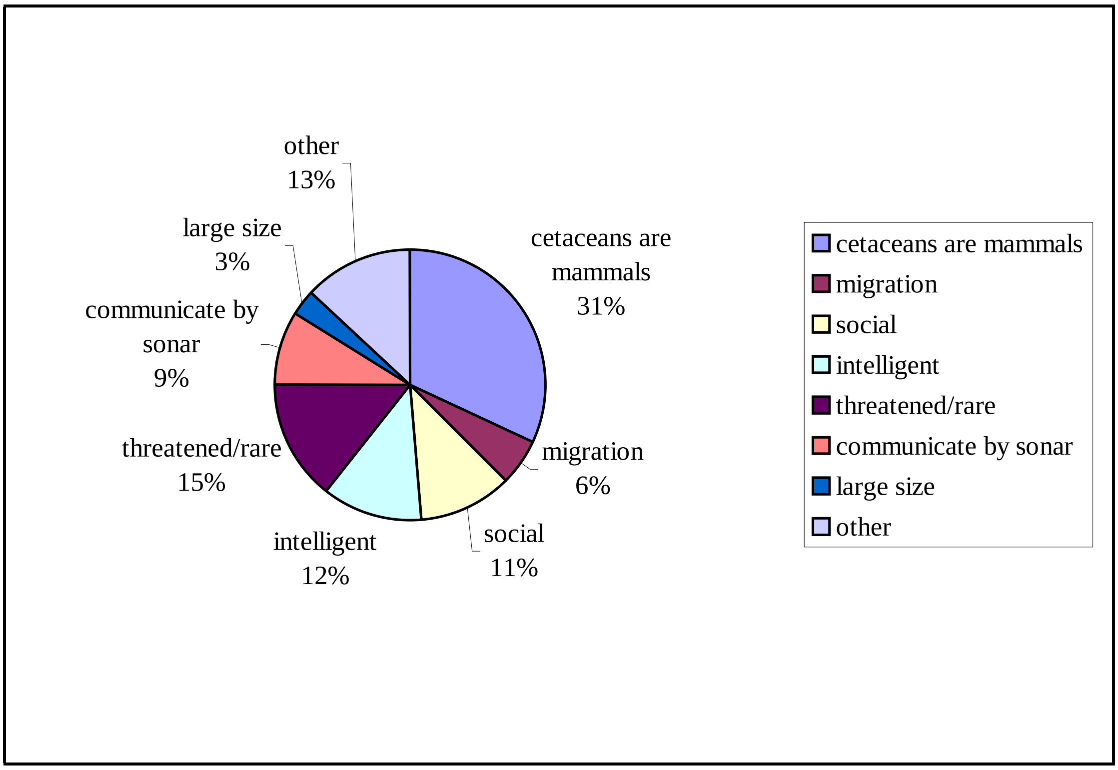
Figure 7: Percentage of respondents with correct answers.



3.8.5 General knowledge about cetaceans.

When asked to name three things about whales and dolphins, responses fell into eight distinct categories (Figure 8). On average people wrote three responses however sometimes two or more responses fell into the same category. For example, the common responses that cetaceans breathe air, suckle young and are warm blooded all belong in the 'cetaceans as mammals' category.

Figure 8: Respondents' knowledge about cetaceans.

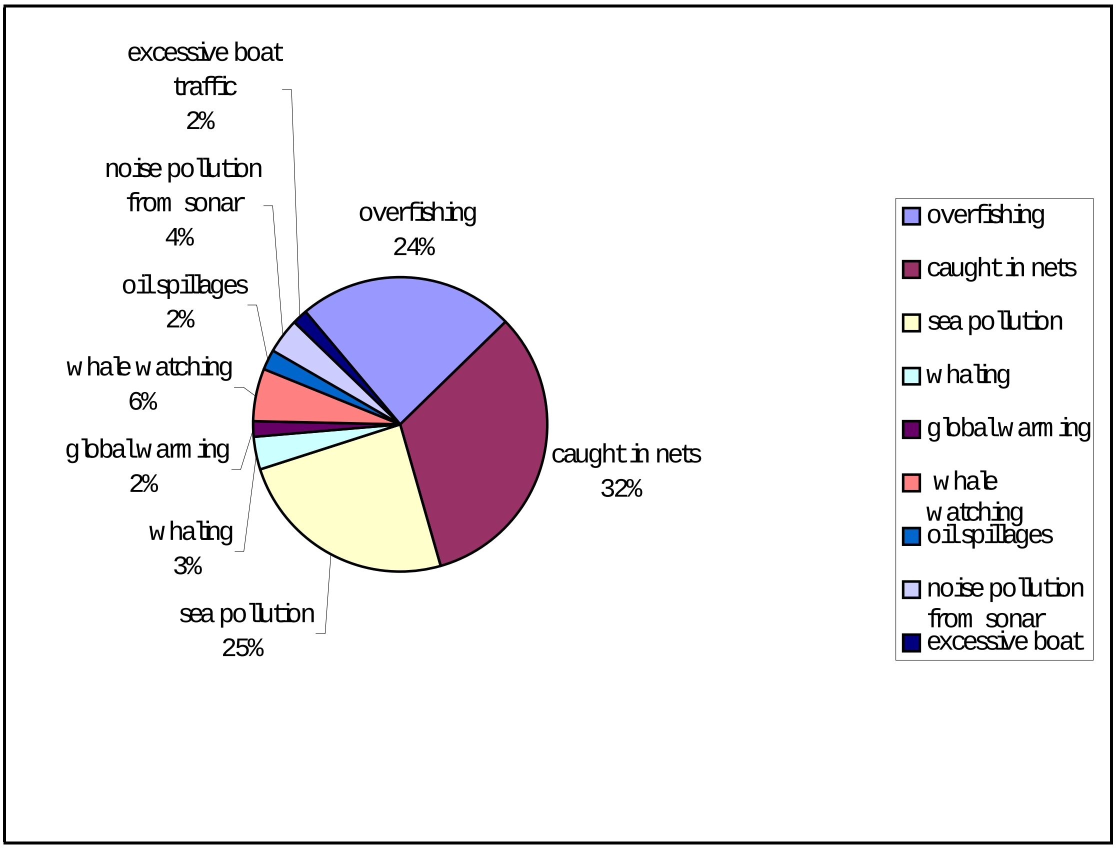


A third of respondents (31%) identified cetaceans as mammals. Fifteen percent remarked on the threatened or endangered status of some cetacean species whilst their intelligence (12%), unique communication techniques (9%) and social nature (11%) were also mentioned.

3.8.6 Knowledge about threat to cetaceans.

Respondents were asked to identify three main threats to cetaceans. The most common response was caught in nets (32%), followed by sea pollution (25%) and overfishing (24%). Only 6% suggested that whale-watching activities may affect marine mammals (Figure 9 overleaf).

Figure 9: Respondents' knowledge about threat to cetaceans.



4. RESULTS OF BOAT TRIP PASSENGER SURVEY.

4.1 Characteristics of respondent group.

The main characteristics of the 183 respondents to the questionnaire distributed to passengers on boat trips (hereafter referred to as boat sample) are shown in the Methodology.

4.2 Visit characteristics.

4.2.1 Location of accommodation.

The majority of passengers responding to the survey were staying on Mull (90.3%). The 13 individuals (9.7%) who were not staying on the island were on the sightseeing boat and likely to have been staying on Iona or visiting Staffa and Mull as a day trip.

Of those staying on Mull (149), half the sample was staying in the north part of the island (Table 24). Relatively few boat passengers responding to the questionnaire were staying in the south. One would expect there to be a lower proportion of respondents staying in the middle part of the island owing the lower density of tourist accommodation in this part.

Table 24: Location of accommodation.

	North	Middle	South	No response	Total
N	93 (51%)	32 (18%)	24 (13%)	34 (19%)	183 (100%)

Accounting for variation in sample size, there did appear to be a relationship between the location of the accommodation and the harbour from where boat trips departed (Table 25). Forty three percent of visitors staying in the northern part of the island used boat operators (in comparison to 8% from the south). Eight percent of visitors staying in the south took boat trips from the south, in comparison to 1% who travelled to the north for their boat trip.

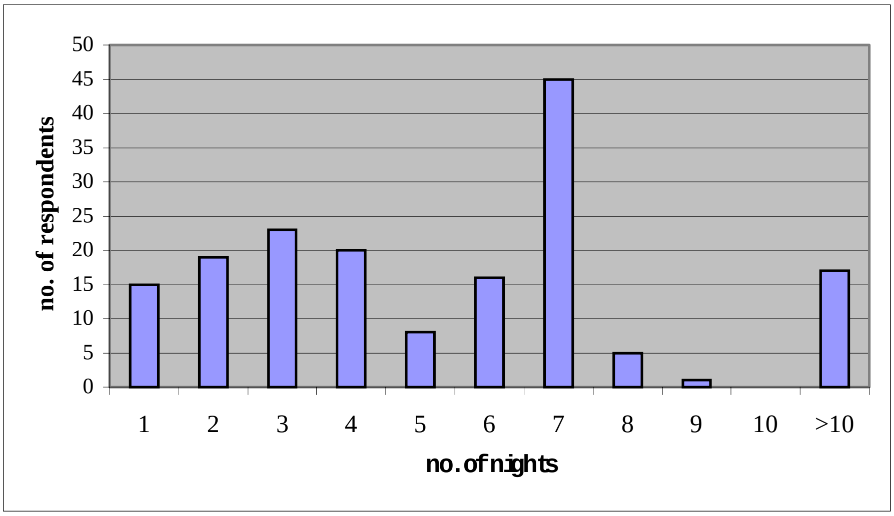
Table 25: Location of accommodation in relation to location of harbour.

	Accommodation location				
Harbour location	North	Middle	South	No response	Total
North	81 (43%)	15 (8%)	1 (1%)	14 (8%)	111 (59%)
Middle	0 (0%)	3 (2%)	8 (4%)	0 (0%)	11 (6%)
South	14 (8%)	14 (8%)	15 (8%)	20 (11%)	63 (34%)
Total	93 (51%)	32 (18%)	24 (13%)	34 (19%)	185 (100%)

4.2.2 Length of stay.

The overall average length of stay was 5.6nights (standard deviation: 3.7). The modal value was one week (Figure 10). Data was not available regarding accommodation type of passengers.

Figure 10: Length of stay.



4.2.3 Repeat visits.

Over half of questioned passengers (52%) were first time visitors to Mull (Table 26). Of the 87 visitors who had visited previously, 9.2% had visited more than 10 times, 16.1% had visited 6-10 times before and 51.7% had only visited 1-5 times previously (Table 27).

Table 26: First time Visitors.

	N	%
First time visitor	94	51.9
Repeat visitor	87	48.1
Total	181	100.0

Table 27: Previous visits made by repeat visitors.

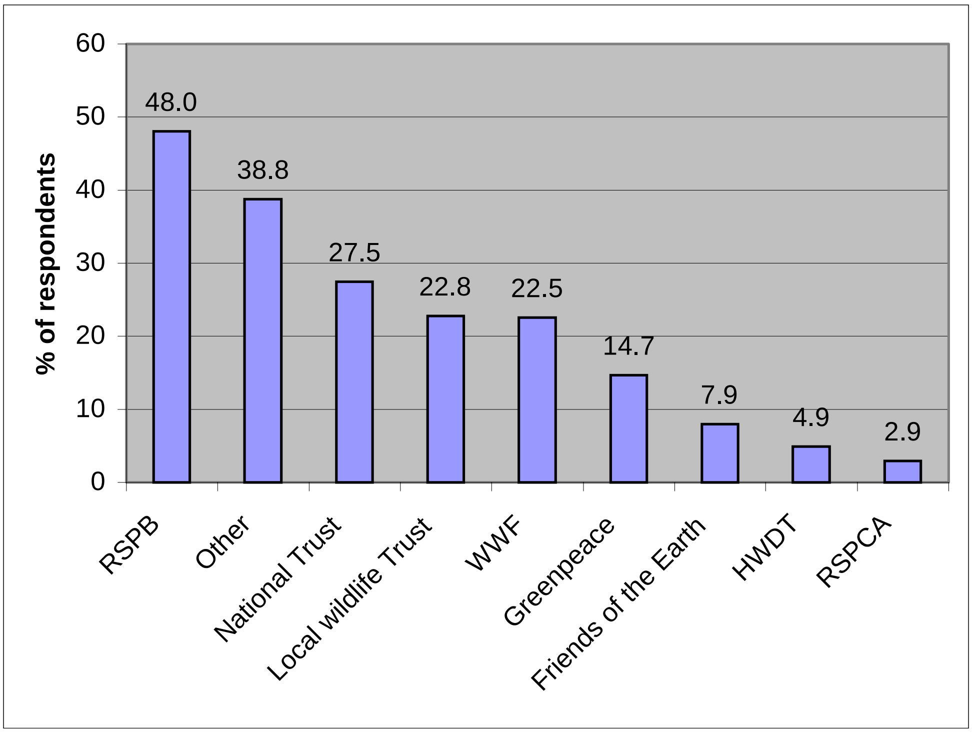
	N	%
1-5 visits	45	51.7
6-10 visits	14	16.1
> 10 visits	8	9.2
No response	20	22.3
Total	87	100

4.3 General wildlife related activities.

4.3.1 Membership of environmental organisations.

More than half (58%) of visitors surveyed were members of one or more environmental organisation. The RSPB was represented most strongly (48%). Other popular organisations were the (Scottish) National Trust 27.5%, local wildlife trusts (22.8%) and WWF (22.5%). The main UK cetacean charities were not represented, such as the Whale and Dolphin Conservation Society and the IFAW (even though IFAW was involved in whale-watching on Mull in previous years). Five percent of participants were members of the Hebridean Whale and Dolphin Trust (Figure 11).

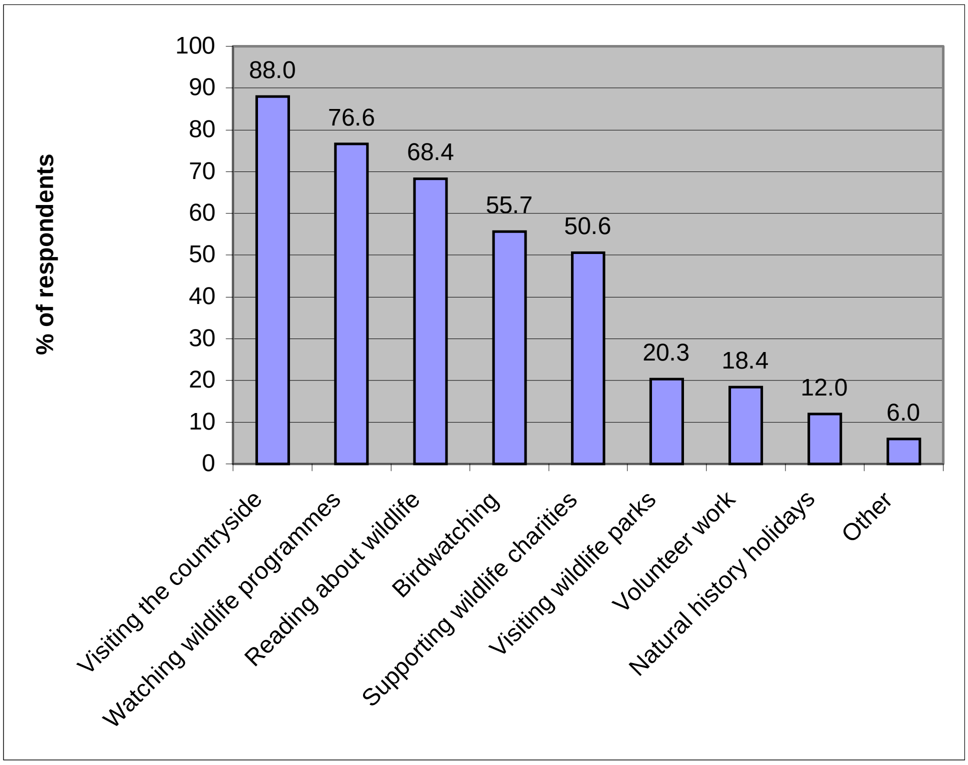
Figure 11: Membership of environmental organizations.



4.3.2 Wildlife-related activities.

Ninety one percent of respondents were involved in one or more wildlife related activities. The most common activities were visiting the countryside (88%), watching natural history programmes (76.6%) and reading about wildlife (68.4%). Over half the respondents (55.7%) spent time bird watching corresponding with the high RSPB membership. Only 12% went on natural history holidays suggesting that people may not be sufficiently interested in wildlife take a specialist holiday (Figure 12).

Figure 12: Wildlife-related activities.



4.4 Reasons for Visiting Mull.

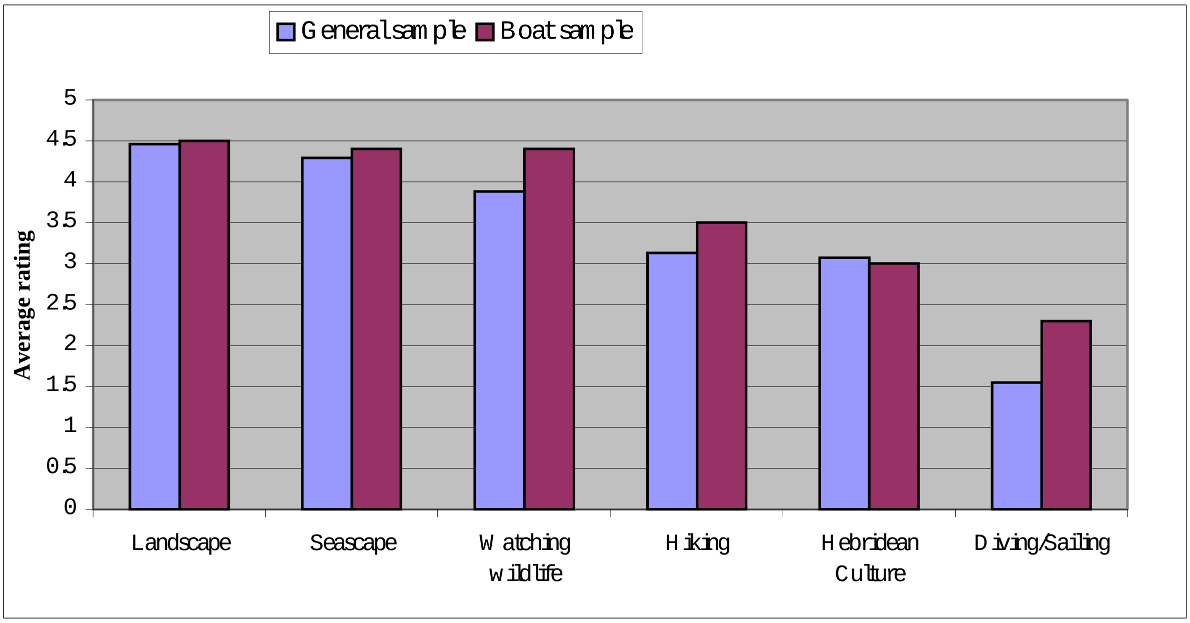
Respondents were asked to rate the importance of six features as factors when deciding on Mull as a holiday destination. Respondents rated landscape, seascape and watching wildlife as important (all rated over 4.3) Hebridean culture was ranked fifth (Table 28).

Table 28: Rating distribution of features for deciding on Mull as a holiday destination (where 1 = not important, 5 = very important).

Feature	1	2	3	4	5	N	Average	Rank
Landscape	2	2	22	51	102	179	4.5	1
Seascape	4	2	27	50	96	179	4.4	2.5
Watching wildlife	3	11	25	36	103	178	4.4	2.5
Hiking	33	23	35	46	35	172	3.5	4
Hebridean culture	24	38	67	32	17	178	3.0	5
Diving/sailing	109	25	15	11	9	169	2.3	6

Figure 13 shows the average ratings for each feature in comparison to the results of the general sample (in section 3.4). Whereas the ranking of individual features is the same for both samples, the boat sample rate features involving outdoor pursuits higher than respondents to the general questionnaire. This may relate to the younger age profile of boat passengers.

Figure 13: Comparison of the importance of particular features between the general and boat samples.



4.5 Passenger response to Boat Trips.

4.5.1 Quality of Tour.

Satisfaction expressed on all criteria mentioned in the survey was high (Table 29). Overall, trips were rated as excellent (4.73). The quality of the talk was given the lowest rating, however still equated to 'good'.

Table 29: Rating distribution of quality of boat trip (where 1 = poor, 5 = excellent).

Feature	1	2	3	4	5	N	Average
Overall	0	0	3	28	96	127	4.7
Guides’ knowledge	0	0	1	53	73	127	4.6
Guides	0	3	0	54	60	117	4.5
Boat facilities	0	0	80	66	53	127	4.4
Talk quality (if given)	1	2	8	64	17	92	4.0

4.5.2 Value for Money.

The majority of people considered the boat trips which they chose to be value for money (94%).

4.5.3 Recommendation.

Only 2% of passengers would not recommend the trip to a friend, reflecting an exceedingly high satisfaction level for all trips.

4.5.4 Cost and duration.

Costs ranged from £11 - £42 and corresponded with the length of trip (ranging from 3 hours - over 6 hours). The whale-watching trips were the most expensive and the sightseeing trips the cheapest. On a cost per hour basis, the sightseeing cruise was the best value for money (Table 30).

Table 30: Average cost and duration of boat trips.

Description	Actual average cost	Assumed average cost	Average length	Cost/hour
Overall average	£25.25	£25.56	5hrs 45mins	£4.33
Whale-watching	£42-£30	£33.61	5hrs	£6.72
Wildlife trips	£30	£29.71	6hrs	£4.86
Sightseeing trips	£10-£25	£16.56	3hrs 45mins	£4.35

4.5.6 Interpretation.

Information was provided to 91% of passengers. It should be noted that the 9% of passengers who did not receive information on their trip were not from any particular boat operator, suggesting that on occasion, boat operators may not give out information (or the passenger was not in a position to receive any).

Table 31 shows the proportion of passengers who received the different forms of information during the trip. The most common method of interpretation was through written material in the form of leaflets (77%) and talks (60%). Display material and activities for children were available on some trips. The activities for children were provided on the whale watch boat in the form of a quiz, introduced this year.

Table 31: Interpretive material provided on boat trips.

Interpretation type	N	%
Talk	74	60
Activity for children	2	2
Leaflet	95	77
Display material	25	20

4.5.7 Talk length.

On average, talks were less than 10 minutes in duration (31%). Twelve percent of passengers commented that talks were more than 20 minutes and 22% received a commentary as and when appropriate (referred to as 'intermittent' in the questionnaire). This suggests 34% of trips a significant amount of time was spent talking to passengers.

Most respondents on the whale-watching boat received a brief 5-10minute talk (82.4%), as did the sightseeing respondents (57.2%). A 5-10minute talk is considered brief therefore the two categories in Table 32 have been summed. Few passengers on the whale-watching trip (5.9%) received a talk of more than 10 minutes. The wildlife trip operator provided information intermittently (44%), probably when species were sighted and 36% of respondents received a talk of more than 10 minutes.

Table 32: Talk length in relation to boat trip category.

	Whale-watching trips	Wildlife trips	Sightseeing trips
Brief	2 (11.8%)	1 (4.0%)	6 (28.6%)
Intermittent	2 (11.8%)	11 (44.0%)	3 (14.3%)
5-10minutes	12 (70.6%)	4 (16.0%)	6 (28.6%)
10-20minutes	0 (0%)	2 (8.0%)	2 (9.5%)
>20minutes	1 (5.6%)	7 (28.0%)	4 (19.1%)
Total	17 (100%)	25 (100%)	21 (100%)

4.5.8 Frequency of cetacean sightings.

Cetaceans were seen by all categories of boat trip. On average, 52% of respondents saw whales and dolphins on their trip. The success rate for the different type of boat trip is shown below in Table 33. The whale-watching boat trips had a significantly higher sighting rate.

Table 33: Proportion of respondents who saw cetaceans during boat trip.

Description	N	%
Whale-watching	25	83
Wildlife cruises	28	44
Sightseeing cruises	24	42

All respondents enjoyed the experience. Only four of the overall respondents (2%) commented that not seeing whales and dolphins had spoilt the enjoyment of the boat trip.

4.5.9 Marketing.

Most respondents first heard about the boat trips through word of mouth or recommendation (42%). The TIC also generated 26% of passengers. The HWDT Visitor Centre provided information for eight passengers on boat trips. Table 34 shows the other forms of marketing and their relative effectiveness.

Table 34: Where respondents first heard about boat trip.

	All boat trips		Whale-watching	
Method	N	%	N	%
Word of mouth / Recommendation	66	41.8	10	27.8
TIC	41	26.0	8	22.2
Guide Book	15	9.5	4	11.1
Promotional leaflet	13	8.2	2	5.6
HWDT Centre	8	5.1	3	8.3
Other	8	5.1	2	5.6
Wildlife magazine	7	4.4	7	19.4

This pattern was reflected in the whale-watching cruise data, although advertising in guide books and wildlife magazines was also particularly effective (30.5% in total). Only 8% of respondents first heard about the trips through the HWDT Visitor Centre.

4.6 The Hebridean Whale and Dolphin Trust Visitors Centre (HWDT)

Forty percent of respondents had visited the Hebridean Whale and Dolphin Trust Centre in Tobermory. This represents 46% of whale-watching respondents and 42% of respondents on wildlife trips (both are based in or near Tobermory) and only 11% of those taking sightseeing trips (mainly based in the southern end of the island). Both the type of trip which visitors took[85] and the locations of their accommodation[86] were statistically significant to whether they visited the centre.

Of those who had visited, 100% enjoyed the centre.

Of those who had not visited the centre, 35% commented that they would make an effort to visit it, 8% said that they would not (no reason asked for). The majority of respondents who had not visited the centre said that they would only visit if they were passing (57%).

[85] Value 23.2,df = 2, $p<0.000$

4.7 Wildlife knowledge and awareness.

4.7.1 Knowledge about the local occurrence of species.

Overall, general knowledge about the occurrence of named species in and around Mull was good (Figure 14). The majority of respondents correctly identified which species did and did not live in the area. As in the general sample, the percentage of respondents who accurately identified which species did *not* live in the area (beaver, 98%, wild boar, 99%, albatross, 94% and humpback whale 91%) was higher than for those species which did live in the area.

Knowledge regarding the occurrence of the bird species was comparatively poor (31% & 26% did not know that sea eagles and golden eagles lived on Mull) as was knowledge about cetacean species. The bottlenose dolphin and minke whale had the greatest degree of error of all the species (35% and 30% respectively) however the proportion of people who did answer correctly was higher than the general population.

Knowledge about the occurrence of both seal species was accurate (94% knew common seals were indigenous to the area and 85% knew about grey seals).

A higher percentage of the boat sample correctly identified *all* the marine species which may indicate either better previous knowledge of marine species or that they had been made aware of the presence of these species during their trip. The opposite was true for the bird species with respondents from the boat sample correctly identifying that golden eagles live in the area.

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[86] Value 7.4, df = 2, $p<0.025$

Figure 14: Knowledge of wildlife species in the area.

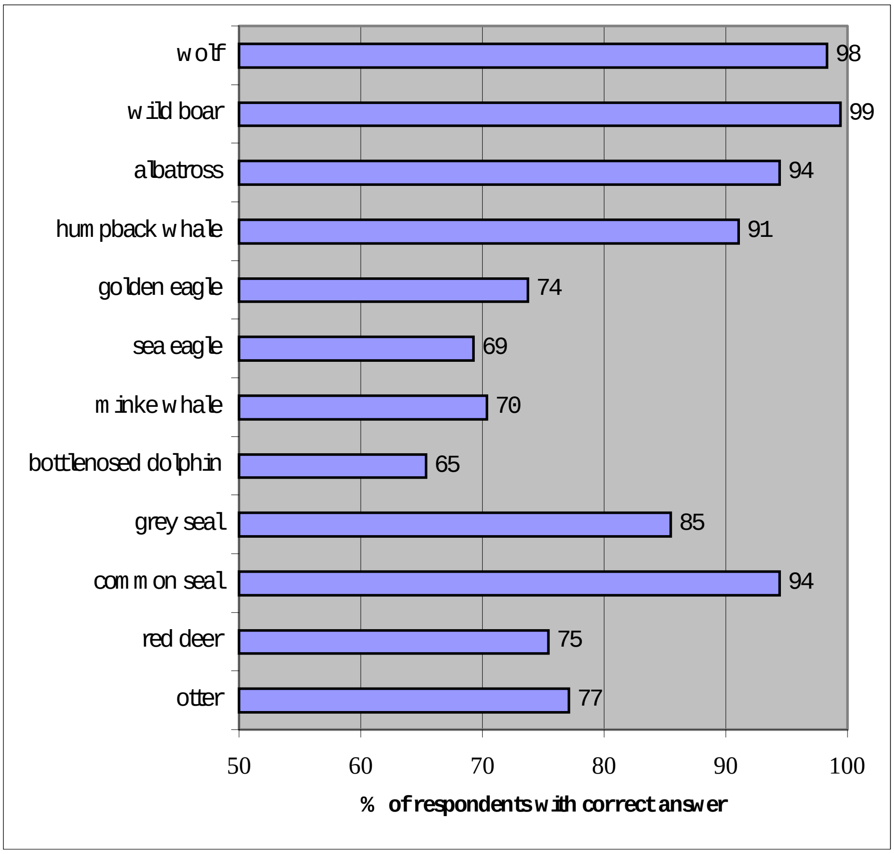
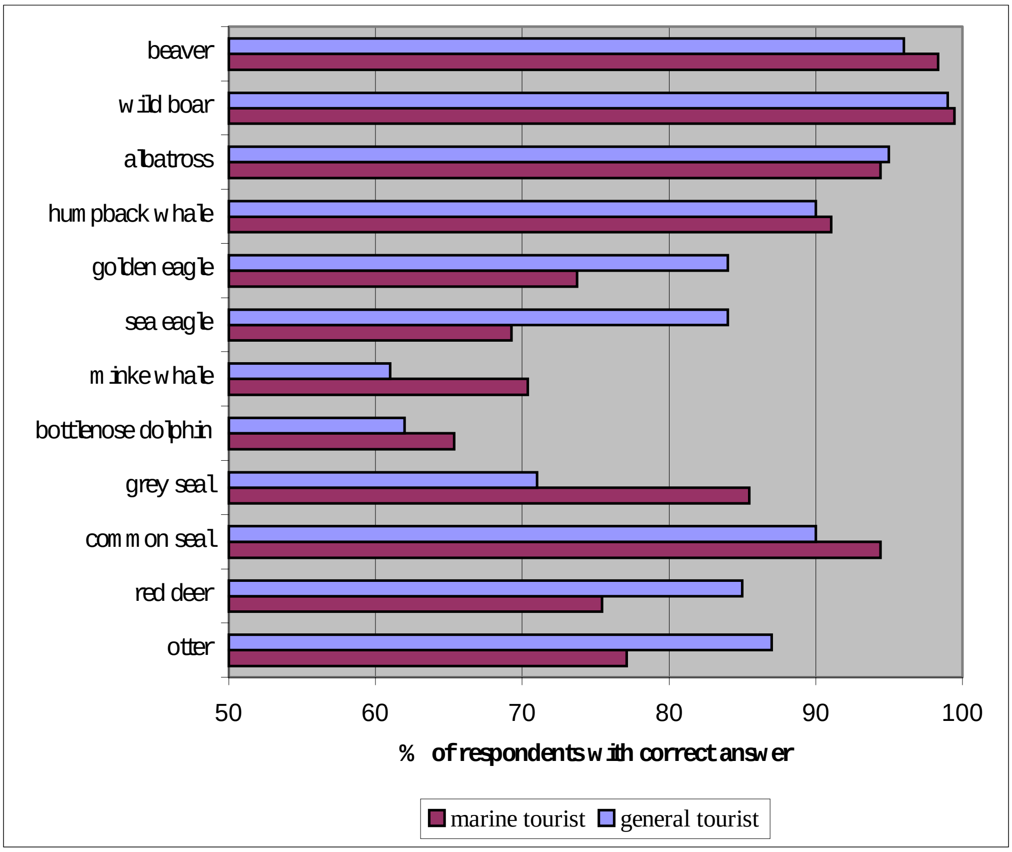


Figure 15: Comparison of knowledge of local wildlife between general and boat respondents.



4.7.2 Awareness of effect of whale-watching on cetaceans.

Two thirds of the respondents (66%) thought that whale-watching could have an effect on whale and dolphins. When asked in what way, the most common response was a positive effect (46.3%), of which increased awareness and educational opportunities was frequently mentioned (40.2%). Other factors included protecting the species and helping with research. A wider range of negative impacts were mentioned, the most common of which was the impact of the boat in interfering with the whales' behaviour (33%), (Table 35).

Table 35: Respondents opinions on how whale-watching could affect cetaceans.

Response	N	%
Raising awareness/education	33	40.2
Other positive impacts	5	6.1
Interference with individuals	27	32.9
Noise pollution	8	9.8
No comment	5	6.1
Other negative impacts	3	3.7
Increasing sea pollution	1	1.2
Total	125	100

4.7.3 General knowledge of cetaceans.

Passengers were asked to name three things about whales and dolphins, ten main themes were found, two more than the general questionnaire (Figure 16). The additional categories were 'anatomical features' (unique cetacean features, such as blowhole, dorsal fins, baleen plates) and 'associate with humans' (bow riding etc). In the general questionnaire, these categories were incorporated in the 'other' section owing to the relative low number.

The most common response was identifying whales and dolphins as mammals (36%). The proportion of responses to the other nine categories were approximately equal, ranging from 12% (anatomical features) to 4% (cetacean migrations).

4.7.4 Knowledge of threats to cetaceans.

Respondents were asked to name three major threats to cetaceans. Sea pollution was the most frequent response with 31% of respondents mentioning it as a threat. Whaling (20%), being caught in nets (17%) and overfishing (15%) were the next frequent group of responses. No more that 5% of the sample mentioned each of the other 6 categories (Figure 17).

Figure 16: General knowledge of cetaceans.

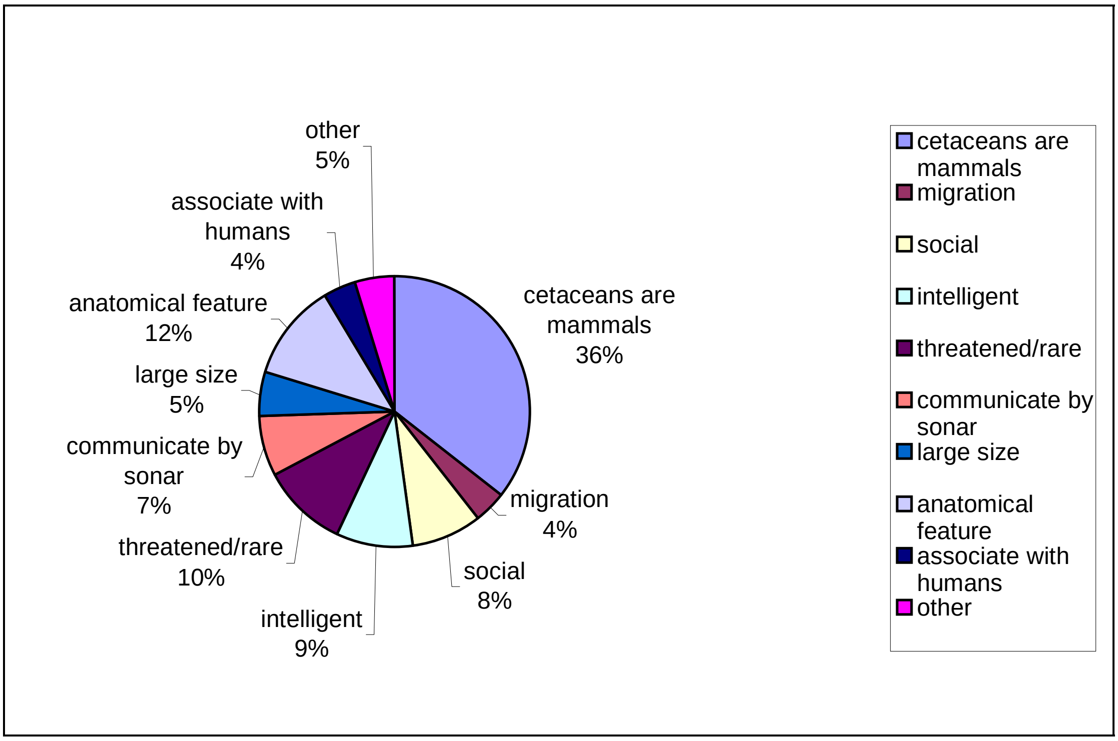
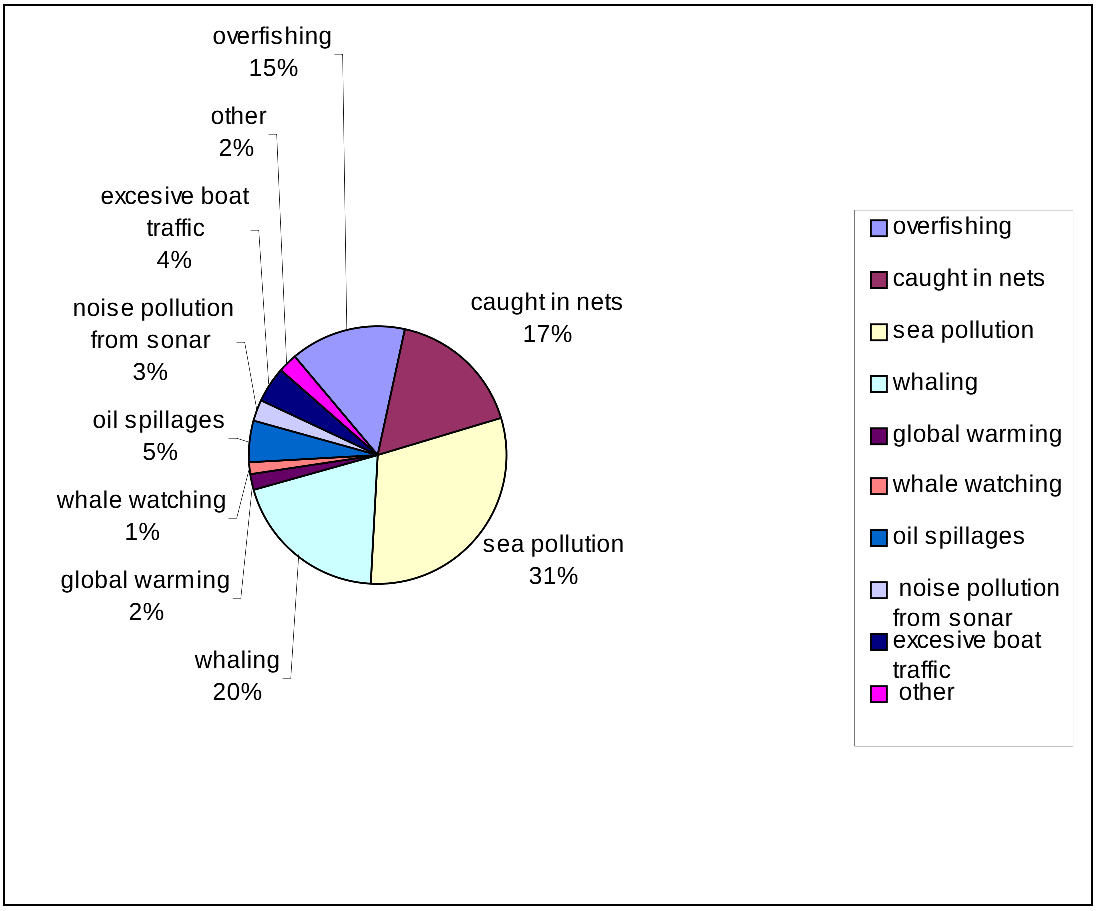


Figure 17: Knowledge of threats to cetaceans



5. RESULTS OF SURVEY TO TOUR OPERATORS.

Questionnaires were completed by three out of the five tour operators involved in the study. For the other boat operators, certain questions were completed using promotional material and information from passengers.

Owing to the small sample, the results have been presented in key points and summarise the main findings from the questionnaire and discussion with the operators.

5.1 General Tour Information.

All vessels used for short boat trips were powered by motor, although one boat had sails (rarely used).

Two operators ran two boats each, enabling them to provide day trips from Oban.

Four out of the five operators ran two or more different itineraries, depending on either fixed timetables, weather, sea conditions and demand.

All boats except one, provided shelter for the majority of passengers. Two out of the five operators provided protective clothing for passengers.

All trips had been in existence for over 7 years; the longest running operation is 26 years.

All trips operated between April and October. The precise length of the season was weather dependent. There is no provision for marine tourism during the winter months.

The length of the trips ranged from 3hours to all day (8 hours).

All trips operated on a regular daily basis (weather permitting). Some trips were run twice daily.

The price of the trips ranged from £10 - £42.

All except one boat operator allow passengers to disembark at some point in the journey.

The majority of operators had alternative sources of income, both during and out of season.

All trips had at least two crew members (including the skipper) on board.

Employment was seasonal and employees originated from both the local community (often family) and outside the area.

The approximate total of employees was 16, four were non-local, five were employees from the island and approximately 6 were family members. Including the boat operators themselves, the total number of jobs was 22.

5.2 Wildlife Opportunities.

Most of the trips were of a general nature, mainly involving trips to Staffa. One focused on whale watching exclusively, another focused on wildlife and other islands but did include Staffa in some trips.

Those operators not involved exclusively in whale watching commented that seeing cetaceans added value to their trips.

Cetaceans were rarely seen on most trips (2-5%), however the whale watch boat saw cetacean very frequently (98%).

Seals were seen very frequently by all operators (95%).

5.3 Marketing.

The whale watch boat was the only operator which has merchandise for sale, in the form of T-shirts, caps, pens etc. The other operators did not sell merchandise during the trips.

For all operators, the local distribution of leaflets and adverts was the focal point of their advertising. One operator placed promotional leaflets in STB bedroom packs (placed in accommodation across the island and region). The Scottish Tourist Board Visitor Centre in London also had information regarding one operator on the island. A number of magazines were used, RNLI magazine, Birds (RSPB) Magazine, BBC Wildlife, Natural World and Scottish Wildlife Trust Magazine. Two operators had websites.

Only one out of the four non-whale watching operators mentioned whales and dolphins in their advertising leaflet.

5.4 Interpretation, Education and Conservation.

Educational material was provided on all the trips. This was in the form of a talk lasting 5-10minutes and a crew member was usually available to answer questions. Operators with smaller boats tended to give extended talks. The larger sightseeing boats spoke to passengers (owing to there being more of them) via a loudspeaker system.

Information for passengers to take away was provided on one of the wildlife tours. Material in the form of laminated ID sheets, maps and other information was available on three of the trips as were reference books and activities for children.

Only one tour operator was a member of the Scottish Marine Wildlife Operators Association and therefore followed the code of conduct issued locally by the Association. Membership of this association also had the benefit of placement on the Green Tourism web-site.

On the whole tour operators were modest about their knowledge of local wildlife, whales and dolphins and conservation issues, considering their level to be good but not excellent.

Marine conservation was considered very important by two operators; the other operators considered conservation of the marine environment to be important.

Two of the operators followed codes of conduct when in the presence of cetaceans and all appeared to be aware of the need to approach these animals with necessary care. Boat operators seemed to be aware of the need to take care around cetaceans and the sightseeing boats tended not to see whales and dolphins frequently enough to benefit from development of a code of conduct.

Only two of the operators recorded their cetacean sightings. Both of these operators gave information to the Hebridean Whale and Dolphin Trust.

6. DISCUSSION.

6.1 Profiles of Visitors to Mull.

6.1.1 General Visitors.

Statistics, drawn from questionnaires distributed through hotels, guest houses, camp-sites and self-catering accommodation, were compiled over a period of two months at the beginning of the tourist season (May-June) and a profile of visitors during this time was produced.

As might be expected given the time of year, the majority of visitors (61%) fell into the 45 + age group with one in five being over the age of 60. The most common size group was two and the whole sample was more or less evenly split male and female (47% & 53% respectively).

Most respondents (63%) had been in formal education beyond the age of 21 which implies that they were in professions and most likely to be in socio-economic group AB. This was reinforced further by the finding that this was not the only holiday most were taking. Many took two or three holidays during the course of the year, mainly in the United Kingdom or Europe. This could be a reflection of age as well as an indication of their cultural interest, upbringing and background.

Excluding those staying in self-catering accommodation, which accounted for 20% of the sample, the average length of stay was five days, with the most common stay length as two days. This would indicate that, for most people, their visit to Mull was not the main holiday - it may also reflect the fact that Caledonian MacBrayne offer a five day saver ticket for cars to the island (saving of up to £35 per car on the full fare).

Self-catering accommodation tends to be let by the week, so the average stay was one week - which is a short time for a main holiday. Further surveying may indicate that visitors later in the season use Mull for their main holiday and stay for longer periods.

Nearly half of those questioned (45%) had visited Mull before, which highlights the importance of repeat visits to the tourist economy of the island. Visitors enjoy the familiarity of the island and feel that it has enough to offer to make a return visit worthwhile.

All those questioned had made their own arrangements to travel to Mull indicating that they may not comfortably fit into the package tour market. It also suggests a degree of independence, initiative and financial security which might be expected given the age, educational background and domestic nature of the market.

The research asked about the equipment brought to the island: two out of three visitors had brought binoculars and one third had cameras with 200mm lenses to take advantage of the scenery and wildlife opportunities.

Mull appears to be popular with overseas visitors, with one in five of the respondents coming from abroad. The United States and Canada were the most significant foreign nationalities represented, but there was also representation from Australia, Germany and Scandinavia. The Tourist Information Centres received the same percentage of enquiries from foreign sources as contained in this report. This would indicate that foreign visitors tend to be those who feel confident in English (although it may also be argued that only those who are confident in English would respond to the questionnaire - other nationalities certainly visit the island).

6.1.2 Marine Wildlife Tourists.

The majority of visitors taking boat trips were staying in accommodation on the island for an average period of six days. These were the subject of the second questionnaire distributed on boats during day trips from Mull. The most common length of stay was a week (as for the general sample), which implies they were self-catering and therefore had time for specific excursions which might include a visit to Iona, a drive around the island, a castle visit, a walk, shopping - and a boat trip.

The profile was similar to the general picture, but with less people over the age of 60 (10%) and more under the age of 45 (51%). This could be related to older people being less agile or less inclined to travel the sea preferring to watch it in comfort and safety from land.

Some older visitors clearly do enjoy boat trips (10%) and the range of trips available on the island caters for most abilities in terms of access, degree of comfort and protection from the weather.

Travellers were again mostly well educated, but sailing appears to appeal slightly more to women than to men - which corresponds to earlier research detailed elsewhere in this report and summarised below.

One might assume that boat trips appeal to first time visitors more than repeat visitors. This does not appear to be the case. The proportion of repeat visitors (48%) taking trips was favourable with the general profile outlined above (44%).

Only a small proportion of those taking trips were from overseas (8%). Here language might be one obstacle, cost, another and visitors from abroad working to an itinerary may not have sufficient time for a whole day on a boat.

It is essential that the inferences made from the findings, and detailed in sections 6.1.1 and 6.1.2 above, are confirmed through further thorough research before they are widely accepted.

6.1.3 Profiles in Comparison to Previous Studies.

The profile of the Mull visitor appears to reflect profiles previously described in Section 1.6, suggesting that similar types of people choose to visit both islands. Table 36 shows the main characteristics. The market appears to be middle-aged, relatively affluent, and faithful (in terms of repeat visits).

Table 36: Mull visitor profile in relation to previous research.

Characteristic	Current survey findings	Mull visitor profile[87]	Tiree visitor profile [88]	Scotland visitor profile[89]
Age	61% over 45	middle aged	36% over 45	35% over 45
	12% under 30	less younger people	9% under 25	19% under 25
Socio-economic status	64% educated to 21 (AB)	Relatively affluent	44% AB	27% AB
Travelling with children	modal group size of 2	‘empty nesters’	67% without children	60% without children
Other holidays	86% taking other holidays	2nd or 3rd holiday	data not available	data not available
Repeat visits	45% visited before	repeat market	strong core of repeat visitors	data not available
Average length of stay	4.6nights	data not available	7.2nights	5.4nights
Overseas visitors	23% overseas visitors	40% overseas visitors	6% overseas visitors	17% overseas visitors

Repeat visits constitute a significant volume of visitors to both Tiree and Mull and it would be easy for tourism providers to become complacent. However to maintain the long-term

[87] Touchstone Heritage Management Consultants, 1999
[88] Cobham Resource Consultants, 1996

tourism base, it is important that a sufficient number of first time visitors enjoy their visit and become ‘regular’ visitors. New generations of tourists require different facilities and, whilst maintaining its identity, Mull need to be conscious of the changing market.

There is a difference between the age of visitors; current findings show a greater proportion of older visitors in comparison to the Tiree study. This may be due to the particular months of the study (the Tiree study was conducted over an entire season) but may also be due to factors such as the longer ferry journey and more limited services on Tiree.

The marine tourist profile reflects the characteristics of whale-watchers discussed earlier in this report and shown in Table 37. It appears that marine wildlife tourism appeals to women and the younger section of the Mull market.

Table 37: Marine wildlife tourist profile in relation to previous research.

Characteristic	Current findings	Previous research
Affluent	>1 holiday; AB socio-economic category.	Affluent[90]; income directly proportional to age[91]; 68% earned more than CAN$40,000 per year[92];
Well-educated	65% finished education after 21.	Well-educated[93]; 79% had 4 year college education[94], 51% had University degrees[95].
Middle-aged	71% aged 30-60.	Majority of passengers were 20-34years[96]; average age 41years[97].
Attractive to female market	61% were female	63% were female[98]; 55% were female[99].

If it is true that nature tourists tend to be more affluent than ‘conventional’ tourists[100] then the type of visitor described in the findings of this report should be encouraged. Marketing of the island should concentrate on attracting the older, affluent visitor, rather than young

89 as above
90 Forestell & Kaufman, 1990
91 Tilt, 1987
92 Duffus, 1988
93 Forestell & Kaufman, 1990
94 Tilt, 1987
95 Duffus, 1988
96 Pearce & Wilson, 1995
97 Duffus, 1988
98 Tilt, 1987
99 Duffus, 1988
100 Shackley, 1996

backpackers and families. Emphasis could be placed on Mull as a quality destination, offering comfort and service but also allowing people to be independent. The image must not only attract new visitors, but encourage them to return.

6.2 Interest and Knowledge of Marine Wildlife (and cetaceans).

The environment is a popular issue so one might expect an older, well-educated visitor to be well informed about a number of environmental issues. The results show that visitors to Mull have a clear interest in nature and wildlife. Both the general and boat samples were involved in a range of wildlife related activities (84% & 91% respectively) from the sedentary: watching wildlife on television and reading about it, to the active; volunteer work, taking natural history holidays and bird watching.

Many participated in wildlife conservation through membership of wildlife and environmental organisations (51% & 58%). The RSPB had the most members in both samples (43% & 48%). Both groups contained National Trust members, although the Trust was better represented in the general sample (41%) than the boat sample (28%). It might be inferred that these two organisations have added appeal because they offer tangible membership benefits throughout the United Kingdom (although there is no RSPB or National Trust for Scotland property on the island).

Membership of charities involved in cetacean conservation was noticeably low although support for the Hebridean Whale and Dolphin Trust was fractionally higher (5%) by boat passengers than general visitors (1%). The main UK based cetacean charities were not represented at all in either sample.

Visitors to Mull also appear to be knowledgeable about species which live in or around the island. Most respondents could correctly identify from a list those species which lived in the area. The occurrence of marine species was less well known (although not significantly) than avian and terrestrial species by both samples. Respondents on boat trips had a better knowledge of marine mammals (71% of respondents on the boat trips knew that minke whales were found in the area compared to 62% of respondents to the general questionnaire).

No species was rated significantly more important than the others. Interest in birds was slightly higher than marine species with 55% of respondents indicating that seeing a golden eagle was important to their trip compared with 33% for whales. For the bird species, there was an expectation that one might be sighted in travels around the island. The relative importance of seeing bird species is to be expected given the large numbers of RSPB members in the sample.

General knowledge regarding whales and dolphins was relatively broad and accurate across both sample groups. Incorrect information was rarely given. The majority of respondents in both samples could identify whales and dolphins as mammals and could provide at least one other aspect unique to these species. The most common response, other than mammals, was the endangered status of many species (approximately 10% of overall sample).

Awareness of threats to cetacean populations was also well known and broad, with the majority of respondents able to provide three threats facing whales and dolphins. Whales and dolphins have been subject to high profile campaigns by wildlife charities over the years and the ‘Save the Whale’ campaign to stop whaling and the dolphin-friendly tuna to halt the use of particular types of nets have brought cetaceans into the public eye.

Respondents demonstrated awareness of the global threats to cetaceans (whaling, global pollution) but were less aware of threats which more directly threatened local populations (such as military activity, noise pollution, fish farms).

A very small proportion of respondents (6%) considered whale-watching to be a major threat to marine mammals. Interestingly, 46% of boat respondents saw whale-watching as a positive activity by raising the profile of marine conservation and using the activity as an educational platform. This suggests that many passengers may be unaware of, or choose to ignore, the environmental consequences of their own actions. The other half gave a broad range of negative impacts, from social disturbance to noise pollution.

6.3 Interest in Marine Wildlife Tourism.

The visitor to Mull is clearly not coming for bright lights and sunbathing! Analysis of the general questionnaires shows quite clearly that most are coming for the scenery - landscapes and seascapes - and for watching wildlife. Those respondents from the boat trips put a greater emphasis on wildlife watching (rating of 4.4) than the general sample (rating of 3.9).

Even though wildlife watching was identified as an important motivation for coming to Mull, it appears that relatively few people actually actively go and do it! Also there was a significant variation between the number of respondents who saw different species (66% saw seals but only 26% saw otters). This suggests that, although wildlife is an important component of the holiday, it is not essential to the overall enjoyment of the trip. The expectation that there is a chance of seeing otters, for example, may be sufficient to satisfy the visitors' appetite for otter viewing.

Almost all respondents (96%) rated their stay as enjoyable and would recommend Mull as a wildlife destination. Only 2% of respondents expressed disappointment at not seeing a particular wildlife species.

Those who did see wildlife rated the experience highly and for many it was the highlight of their stay (24%). Other factors, such as accommodation, beautiful scenery, good weather or a visit to a castle or Iona may compensate for the unpredictability of wildlife. These findings correspond with the view that visitors tend to be interested in wildlife but are not wildlife enthusiasts[101].

The levels of interest in activities were not reflected in the level of participation (see section 3.5.5). Five out of the six wildlife related activities suggested in the questionnaire had interest levels over 30%, but, with the exception of the wildlife boat trips, participation was less than half (below 13%). This was particularly pronounced for the whale-watching trips (52% interested but only 11% participated).

Wildlife boat trips were the fourth most popular activity in the questionnaire but only accounts for 31% of respondents. In comparison to the 69% of visitors who went to Iona, wildlife activities rated poorly with no activity exceeding 31%. This implies that many visitors to Mull at this time may not participate in any activities or visit any attractions[102].

The proximity of attractions to the respondents' accommodation also appears to affect participation levels. Forty three percent of respondents who took boat trips were staying in the north part of the island and took trips from the same area. This compares with the 8% who travelled from the north to take trips leaving from southern harbours. A statistically significant number of visitors to the HWDT Centre in Tobermory were staying in the northern part of the island and over half of the boat respondents who had not already visited the centre said that they would but only if passing. Convenience therefore appears to be a persuasive factor.

[101] Morrison, 1995; A&M Consultants, 1997
[102] It should be noted again that this study only considers commercial activities available on Mull and therefore does not take into account activities such as hiking and driving which bring no direct financial benefit to the community.

Most visitors went to Iona and both interest (82%) and participation (69%) were high. Other cultural heritage sites (such as Duart Castle and Torosay Castle) were also visited by a significant number of respondents (38% & 28% respectively). Although Hebridean culture was ranked lower than natural heritage as a reason for visiting Mull by both samples, cultural heritage attractions are popular with tourists. One important factor here might be that visits are not affected by the island's temperamental climate.

Scenic and wildlife opportunities on Mull were, for the majority, the most enjoyable part of their stay. A significant proportion referred to marine and land based wildlife (20%) trips and to a lesser extent fine weather, accommodation and visits to cultural sites. These elements are the 'take home' messages which visitors pass on to others and therefore demonstrate the importance of the environment and wildlife to Mull's tourism profile.

Complaints were few and, in general, visitors enjoyed their stay on Mull. Negative comments centred around the weather (29%) and the midges (18%) and factors relating to tourist facilities (such as poor roads, expensive ferry crossings, lack of public transport and complaints about restaurants and accommodation). Whilst issues such as the weather and midges are currently unavoidable, infrastructure problems can and need to be addressed if the quality of the experience is to be improved and current concerns about falling tourist numbers alleviated.

6.4 The Current Status of Marine Wildlife Tourism.

Marine wildlife tourism on Mull is well-established and has developed into a significant part of Mull's identity as a tourist destination. Boat trips provide an excellent excursion for visitors and boat operators offer trips of different price, duration and comfort, to different destinations and to see different wildlife species.

Boat trips are an important component of Mull's tourist attractions. Not only do visitors have opportunities to visit the islands of Iona and Mull but also Staffa, the Treshnish Islands, Coll and Muck. The current number of boats meets present demand and the levels of interest, participation and satisfaction shown in this report are high. However most operators admit that passenger numbers have dropped in the last couple of years by up to 15%[103].

Other than the ferry, most visitors do not go on a boat during their stay. This could be due to poor weather (although May and June 1999 were generally fine and few boat trips were cancelled), cost (although prices ranges from £12-£42), limited itineraries (the high satisfaction rate tends to deny this) or limited demand for boat trips in general (however 58% of respondents expressed interest in boat trips). An additional factor might be that the market is not being reached.

This last factor is one that can be approached on a local level by increasing the profile of marine wildlife tourism as a whole through co-operative marketing, rather than by individual operators. The marketing of marine wildlife tourism is discussed later in this chapter.

The island of Staffa remains the most popular destination for trips, rated as the second most popular (35% of respondents) activity in the study. Interestingly more respondents saw the Staffa trip as a visit to Fingal's Cave than a seabird watching experience although there is a large colony of puffins on the island.

Whereas the birds on Lunga appear to be relatively unaffected by the periodic presence of humans *at the moment* (one tour operator has even noted that the puffins appear to come out of their burrows and off the sea when boats arrive), however there are current concerns that the volume of visitors (up to 150 a day) may cause long-term changes in population numbers and in particular with the re-established corncrake colony on the island. Of particular concern is the number of visitors who take dogs onto the island, encouraged by individual boat operators allowing dogs aboard.

Cetaceans were seen on all categories of boat trip, more frequently by the whale-watching boat. The wildlife and sightseeing trips had a lower percentage of respondents seeing cetaceans (44%, 43% respectively) but cetacean viewing was not their main motivation for taking the trip. All operators agreed that seeing cetaceans added value to their trips although this was rare.

The lower sightings percentages will be due to the area which the sightseeing boats and, occasionally the wildlife boat, frequent – Staffa and Lunga. It is possible that the volume of boats and people in the area around these islands discourage larger marine animals

[103] through discussion with tour operators, *pers. comm.*

(cetaceans and sharks). There have been very few reported sightings of cetaceans and basking sharks in the area this year[104].

Other wildlife, such as seals, puffins and guillemots, are reliant on the islands to breed and whilst pelagic species such as cetaceans and sharks do not come ashore, they tend to be more elusive, frequenting quieter waters. The wildlife and whale-watch boats tend to focus in these areas and share the waters with other boats from Mallaig and Oban (popular harbours for charters and private boats).

Operators were confident but not overconfident in their knowledge about various aspects of the marine environment and all were aware of the importance of marine conservation. The two operators who were involved directly with marine wildlife both followed whale-watching codes of conduct (Appendix 1).

6.4.1 Whale-watching.

There is only one operator providing whale-watching trips on Mull and it has established a national and international reputation. However the role of cetaceans on Mull should not be over-played considering that, whereas two thirds of respondents were aware of whales and dolphins living in the area, only 9% of respondents made the effort to see them. An interest in cetaceans does not necessarily mean that people will pay to see them. Only 33% of respondents were interested in seeing whales compared with 55% who showed interest in golden eagles.

Factors such as limited places (the boat only takes 12 passengers), high cost (£42 for 6 hours), its location in Tobermory, away from Iona and Staffa, no booking office (all booking are made by telephone) and uncertainties about the weather may all discourage people. It is here that other operators may benefit from overspill from the whale-watching boat by offering a more economical (wildlife trips charge £30 for 6 hours, sightseeing trips charge from £12 for 3 hours) and well-rounded view of the marine environment.

The success of whale-watching anywhere in the world is precariously reliant on the tolerance of the whales and a change in their distribution can result in financial difficulties for the operator. Current demand for trips is high and sightings are regular (83%). A good season was reported by the operator[105].

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[104] Hebridean Whale and Dolphin Trust, 1999
[105] Fairbairns, *pers comm.*, 1999

6.4.2 Interpretation and Education.

All tour operators provided some interpretation of the marine environment in the form of a brief talk. During the trip, most gave additional information and were available to answer questions. Written material was provided by three operators in the form of free leaflets and/or reference books These were especially useful to non-English speakers (see below).

The content of the talks varied in length and quality between operators and the amount of information proved to be inversely related to the number of passengers aboard (Table 32). However the amount of time spent talking with the passengers by the whale-watch crew was low (the boat carries only 12 passengers), and considering this was the most expensive tour one might expect more interaction between crew and passengers. There was a feeling amongst operators that sights and species found in the area were sufficient to satisfy passengers without the need for additional information. Variation in the quality of marine wildlife interpretation was reflective of the relative importance of marine wildlife to the trip rather than a lack of knowledge by the operators.

In spite of this criticism, all aspects of the trips were individually well rated including the guides' knowledge, the boats' facilities and the quality of the talk. People were remarkably uncritical and trips were judged to be value for money and worth recommending to friends. It appears that most visitors take only one boat trip during their stay and therefore have no frame of reference on which to compare different trips. Whereas visitors appeared to be satisfied with the product, they are perhaps not the best source of information if a comparative study is to be undertaken.

The sightseeing trips tended to use set commentaries whilst the wildlife and whale-watch operators, with smaller groups and increased passenger contact, had a less defined pattern, varying the information depending on the species encountered during the trip.

Whereas the information provided was both informative and accurate, it is felt that current levels of interpretation could be improved and many educational opportunities are being lost. Improving the level of interpretation does not necessarily mean increasing the volume and operators appear to be sufficiently knowledgeable (and sufficiently confident with their knowledge) in local wildlife to provide an impressive commentary to the trip. The HWDT may be able to assist operators in developing an appropriate material for use.

Boat trips are comparatively expensive and passengers have high expectations. As with all wildlife tours, no sightings can be guaranteed and, by providing quality information about the marine environment in general, the potential for disappointment can be alleviated and passengers do not feel cheated. Appropriate interpretation can not only raise the awareness of tourists to marine issues and the importance of marine conservation but can also improve the quality of the tourism product and further increase satisfaction levels, thereby encouraging repeat visits and recommendations.

The small proportion of none English-speaking respondents to the boat survey is likely to under-represent the actual number (owing to language difficulties). The provision of written interpretation for foreign visitors is one sector of the visitor market which is poorly represented. The production of laminated information (weather proof) which covers certain aspects of marine wildlife are already used by some operators to good effect and overseas visitors may be encouraged to participate in boat trips if written information was available (either in basic English or other languages). Leaflets on marine wildlife could be made available from places such as the Tourist Information Centres and the Hebridean Whale and Dolphin Trust.

Because of the affiliation with HWDT, the whale-watch boat (and wildlife operator) is well positioned to take advantage of the expertise and resources of the Trust's marine education programme. In general the sightseeing boats are less involved with the Trust owing to their location at the other end of the island and the lesser importance of cetaceans to their trips. However they are better placed, with respect to larger passenger numbers to promote marine issues and responsible tourism.

6.4.3 Marketing and Destination Management.

The marketing of Mull is largely done by the Area Tourist Board (ATB), whose area covers Fort William to Stirling and the islands out to the west. Marketing of Mull on the island is limited to the efforts of Holiday Mull and tourism promotion is left to individual operators.

The findings of this research confirm Masters et al's findings (1998) that few people visit Scotland specifically for the marine wildlife. Marine wildlife tourism, rather than standing alone, complements the overall image of Scotland. However, as Masters et al reported, if there is not a wildlife boat trip, other local attractions will do just as well and there is a high degree of substitutability between marine wildlife attractions and many other types of attraction many of which are not specifically wildlife[106].

Realisation by operators of the draw of marine wildlife tourism is reflected in the distribution of advertisements. Through experience, most operators have assessed the effectiveness of different forms of advertising and admit that national advertising gives a poor return at high cost. Other than the Area Tourist Board brochure and references in guidebooks, most do not advertise further than Oban (all operators are members of the Scottish Tourist Board).

The whale-watching operator can, and does, aim at the national market owing to its unique product. Leaflets are distributed at the STB Visitor Centre in London and adverts are placed in a number of high profile wildlife magazines (BBC Wildlife, Natural World). The success of whale-watching around the world demonstrates that people are prepared to travel considerable distances and pay substantial sums of money for the experience. Whale-watching in the UK is relatively undeveloped and resources are relatively untapped.

As 65 countries have proved, there is a market for whale-watching and cetaceans alone can attract people to an area. The level of interest in cetaceans and marine wildlife is reflected in visitor numbers at the Hebridean Whale and Dolphin Trust Visitor Centre, where, so far this year, more than 6% of the overall visitors to Mull (15,000 people) have visited the centre, purchasing merchandise, inquiring about boat trips or simply reading the displays[107].

The market for cetacean and marine wildlife watching is there but awareness is low. Despite features on whale-watching in Mull in mainstream wildlife magazines, such as BBC Wildlife, and acclaim in whale-watching books, most people do not appear to associate the area with whale watching. Whale-watching tends to be thought of as an activity which can only be done abroad, in glamorous destinations such as Hawaii, Mexico, Alaska or Argentina and, by raising public awareness of cetaceans in UK waters, people may be persuaded to take a significantly cheaper holiday in Scotland.

This not only results in increased revenue for the local rural community but also gives Mull a sense of place. In this way, the presence of the whale-watch operation helps raise the profile of Mull as a wildlife destination and spread national conservation awareness of the importance of these populations.

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[106] Masters *et al.*, 1998
[107] Parsons, *pers comm.*

The main wildlife cruise also advertises nationally and is well-placed to offer specific wildlife services to the enthusiast. The sightseeing boats are restricted in the services they can provide owing to the large boat and therefore they continue to rely on the general tourist for business.

Tourism on Mull relies on two market segments, the nature tourism sector and the older sections of society, both of which are growing. Therefore it is of concern that visitor numbers to Mull are dropping. Marine wildlife tourism relies on the overall image of Mull and the island as a whole must promote itself and create a definite image with which people can identify. The information in this report indicates how Mull might market and develop wildlife tourism, through clearly identifying the consumers, their motivations and expectations.

Without a sense of place, Mull is indistinguishable from the other 7000 Scottish islands and its natural assets are its resource. With a clear identity as a wildlife destination, Mull could be market itself to domestic and international nature and eco-tourists. Promotion of the wider area, the Inner Hebrides or Argyll and Islands, would further focus the discerning tourist on the Scottish Islands.

6.5 Economic Impact of Marine Wildlife Tourism on the Local Community.

Whereas people do not appear to come to Mull specifically to take boat trips, the opportunities when they arrive do add value to the quality of their visit. The attractions of Staffa and the other offshore islands, the rich bird life and the whale and dolphin sightings all combine to create a unique product for the island to develop.

The fact that an island with a population of 2500 can support five long running boat operators during the summer months demonstrates that these companies are part of the island's tourism economy, both in terms of tourism revenue generated and in shaping the image of the island itself.

6.5.1 Estimates of Visitor Spend.

Using the results of this report and following the format described in Masters *et al's* report on Marine Wildlife Tourism in Scotland (1998), one can begin to estimate the economic value of tourism and marine wildlife tourism on Mull. Care should be taken when interpreting these values as they are crudely calculated and based on a number of assumptions. They do, however, provide some indication of the value of this market and offer a comparison with 1998 study.

On a general basis, it is estimated that tourist expenditure on Mull is more than £38.4million per year, assuming that, on average, each of the 200,000 visitors[108] stays for 4.8nights[109] and spends £40[110] per day (includes accommodation, food, travel and excursions).

Direct annual expenditure on marine wildlife tourism amounts to £0.65M per year[111] (spend associated directly with daily boat trips as discussed in this report). This estimate is based on a season from April to September, sailings every other day at two thirds capacity.

Using the ratio of jobs to visitor spend from Masters *et al* (1998) whereby 1 full-time equivalent (FTE) created by every £21,500 of visitor expenditure, a total of 30 people should be employed directly in marine wildlife tourism. Even including the boat owners themselves, the actual number of people employed in the marine wildlife tourism as discussed in this report is a maximum of 21 individuals. This calculates as a 1 FTE created by every £31,000 of visitor expenditure.

Marine wildlife tourism therefore appears to contribute 2% (£0.65million as a percentage of £38.4million) to the economy of Mull and indicates that a significant amount of money needs to be spent by tourists before additional full-time positions are created. Masters *et al.* (1998), discussed in introductory section of this report, valued marine wildlife tourism in Scotland at £9.3M per year and, assuming that the measures are somewhat comparable, this implies that marine wildlife tourism may account for 6% of marine wildlife tourism revenue in Scotland. This may not be unreasonable considering that the main concentrations of boat operators were in the Argyll and Islands region.

Marine wildlife tourism therefore plays a role in the tourism economy on Mull and in Scotland. Whereby boat trips may not necessarily draw visitors to the island, the excursions

[108] Based on the Touchstone Report estimates of annual visitor numbers to Mull alone (1999), and allowing for day trippers to Iona.
[109] Taken from current findings, that on average visitors to Mull stay for 4.8nights.
[110] Based on the conservative estimate that accommodation costs, on average £20 per person per night and other activities, food and travel will cost in the region of £20 per day.
[111] Based on boat sailing every other day (to allow for bad weather), at two thirds capacity (of all boats) at an average cost of £25 (from current findings) between April and September.

provide another reason for visitors to stay another day and therefore spend more money. Further product differentiation may lead to a subsequent increase in the length of stay.

6.5.2 Other Economic Impacts

As well as adding to the image of the island, the businesses bring indirect benefits to the local community. All operators are island residents (although two operators live on Iona) and therefore much of their income is reinvested in the island itself. All the businesses are family-run and operators are involved in many aspects of community life (including sitting on various committees and volunteering for the RNLI). The boats also help support a healthy marine infrastructure and maintain a number of harbours in working condition.

Although the businesses are relatively profitable, most, if not all, operators have alternative sources of income, either during or out of season. The tourist season is comparatively short and, for those who depend on the tourist pound alone, the revenue generated between May and October has to last all year. Alternative income may be generated through accommodation rents or in the farming or fishing industry over the winter months.

Employment opportunities for others are not particularly high, although seasonal employment is generated by all businesses. Most boat operators drive their own boats and therefore only require one crewmember per boat. Those businesses running two boats do employ a second skipper and also administrative staff to deal with bookings. Work can be sporadic, dependent on weather and sea conditions and the rate of pay is low. The majority of employees are either family or non-local (room and board is often part of the ‘wage’). Unemployment during the winter is high throughout the island. Opportunities for local employment in the marine wildlife tourism sector is poor and locals often prefer non-seasonal employment. This occurs in many communities which rely on tourism during the summer. The cost of a boat precludes many from entering the sector.

The whale-watch operator was the only boat operator who sold merchandise, in the form of promotional items, during the trips. Many of the other operators did not consider this to be appropriate to their cruises, commenting on problems of handling stock and cash on the boat due to limited space, especially in bad weather.

Wildlife related stock is well represented in the local shops highlighting another way marine wildlife tourism brings money to the community. A quarter of the sample (24%) purchased wildlife related souvenirs and the average spends were high (over £13) for each category.

People will buy wildlife souvenirs even if they have not seen the animal and, considering the relatively low profile of whales and dolphins on Mull and the few people who actually saw them, cetacean merchandise featured prominently also.

Even if the number of people who see cetaceans is limited by the number of operators (or possibly conservation restriction in the future), they can still contribute to their conservation and learn more through centres such the cetacean centre in Tobermory.

6.5.3 The Hebridean Whale and Dolphin Trust Visitor Centre.

The turnover of the Whale and Dolphin Visitor Centre certainly goes some way to supporting the HWDT's work and the centre relies on an interest in cetaceans to attract visitors. The comparatively high turnover of merchandise indicates that there is a significant market for marine wildlife souvenirs. The centre's presence on the main street in Tobermory provides another tourist attraction, open all year round and in all weather conditions. It also provides an excellent facility for raising awareness of cetaceans in the area as well as educating visitors and local residents about the issues affecting the marine environment as a whole throughout the year.

The centre brings other benefits to the community; the Trust currently has one full time member of staff and three part-time staff. Local school children are encouraged to help at the centre and kids clubs and school visits are regularly arranged. Volunteers assist with the running of the shop and office and indirectly bring revenue to the local community through residential lets, and consumables.

The HWDT team has an important role to play in the development of marine wildlife tourism on Mull. By remaining impartial to the promotion of particular operators, the centre can act as an information point for visitors interested in the marine environment. Other than promotional advantages, the centre can also support local operators through the provision of literature and up-to-date information regarding local, national and international conservation issues. The key is to attempt to get boat (and land) operators to work together in promoting Mull as a wildlife destination and the HWDT is well-placed to do this.

7. Further Discussion and Conclusions.

Marine wildlife tourism is not a problem on Mull. Current levels of boat-based wildlife tourism do not appear to threaten marine and coastal wildlife, although the lack of baseline data on the subject means that, for many species, subtle changes in numbers would be difficult to detect.

Of more concern to boat operators is not declining wildlife but declining passenger numbers. Therefore the value of this report is not so much to advise on the negative impacts of tourism, but to draw out Mull's positive marine assets and highlight particular areas where boat operators can increase their share of the tourism market.

It is perhaps obvious but important to highlight the need for the careful development of the tourism industry in fragile environments such as Mull. The low population density leaves many areas uninhabited, giving visitors a sense of wilderness not experienced in other parts of the UK. The skill of developing the tourism economy on Mull is through a series of subtle changes which increase the availability of information to visitors without impinging on their freedom.

Mull is well-placed to establish itself as a quality destination in terms of wildlife viewing and tourist facilities. Wildlife opportunities need to be complemented by the provision of appropriate services, such as good quality accommodation and food. The market appears to be middle-aged, relatively affluent and well-educated and therefore Mull needs to market itself accordingly.

Mull should not encourage more and more visitors. Peak season visitor numbers already stretch resources (restaurants are full, supermarkets sold out and accommodation unavailable). However there is the capacity to spread visitor numbers across a longer season. Similarly, tourists could be encouraged to stay longer, contributing more to the island's economy and giving more time for a boat trip.

The season for boat-based wildlife tourism is governed by the weather, therefore off-season strategies are of limited benefit to these operators. Boat operators need to ensure that their boats are full during the summer season and to do this the customer needs to be identified and then reached.

The type of visitor taking boat trips is unsurprisingly similar to the general profile, although slightly younger and therefore the pool from which boat trips draw their passengers is generally from people staying on the island. The study identified an interest in nature and wildlife by visitors and therefore wildlife boat trips were appealing to most. However the number who actually participated was comparatively low. Further research is needed to investigate this discrepancy but one can speculate that it is owing to a number of factors, including cost, weather and convenience.

The weather appears to be a major component of the holiday and, considering that Mull is one of the wettest islands in the UK, there is little one can do to improve it! The need for high standard, wet-weather attractions encourages visitors onto the island. Visitors need things to do when it rains and the study showed that although interest in cultural heritage was low, Mull's castles were popular.

There is a proposal for the building of a swimming pool which, as well as being of benefit to the local community, would provide activities for visitors (and particularly those with children) on wet days.

The potential for educating visitors about wildlife during the summer is substantial. Opportunities to see marine wildlife throughout the season are excellent, and if people are more informed about the wildlife opportunities on and around the island they will be more inclined to investigate methods of seeing it (both land and boat).

The Hebridean Whale and Dolphin Visitor (HWDT) Centre in Tobermory goes some way to promoting this. Simple methods, such as a sightings board outside the centre, provide an indication of the frequency of cetacean sightings in the area, and thereby raising their profile. Information on wildlife trips is available (both land and boat based) and the staff can recommend different trips to the individual visitor. The centre also acts as a valuable wet-weather attraction which is open all year round therefore continuing marine wildlife interpretation during the winter months, when the boat operators are not running.

As noted in this research, it is felt that current standards of interpretation on boat trips could be improved. Boat passengers are a captive audience and therefore, by increasing the quality not the volume of information provided, operators could be encouraged to raise a number of issues. Rather than providing basic information on key species, such as puffins or seals, wildlife could be placed in a wider context resulting in a deeper understanding of the marine environment and man's impact on it. These possibilities are particularly appropriate for whale-watching and wildlife boats which carry small numbers of passengers on 6 hour trips.

It is in the area of education and awareness that the HWDT can be most instructive. By working directly with operators, the Trust can provide information and materials regarding the marine environment to be used by both operators and passengers. The provision of information packs was used to good effect as part of the Dolphin Space Programme on the Moray Firth and visitors seemed to favour operators who showed an awareness of the environmental impacts of tourism[112]. As most visitors appear to be well-informed about conservation issues, association with local or national organisations may demonstrate that marine wildlife tourism on Mull is environmentally sensitive.

Marine wildlife tourism need not be solely boat based. The designation of vantage points, where cetaceans, seals and seabirds can be seen, may encourage people to consider the marine as well as the terrestrial environment. A number of sites have already been identified and are regularly used by the land safari operators. Hides could also be constructed to enable people to watch in adverse conditions. Similarly, the placing of small interpretative boards would explain a little about species which might be seen in the vicinity.

The creation of a series of leaflets or booklets on Mull wildlife would inform people about the diversity of species as well as highlighting the unique opportunities for wildlife viewing on the island. Booklets currently available deal with suggested walks, the geology and cetacean identification but there is no single guide to wildlife on the island. A island trail could also be developed for visitors with cars, covering the best places to see particular species without impinging on the environment.

The provision of a wildlife centre would enhance visitor understanding of the natural heritage on the island and would also provide another wet-weather attraction. The centre could educate visitors about the status and management of both land and marine species, indicating possible viewing areas in different seasons.

Tourism is not the only industry on Mull. Farming, estate management and fishing all help to shape the island's landscape and therefore it is important that they are included in any wildlife management decisions. Most residents are aware that tourists visit Mull for the scenery, wildlife and peace and therefore it is essential that these qualities are maintained.

Local people are beginning to value wildlife resources, realising that the quality of the environment and wildlife viewing are directly linked to the local economy. Whereas the majority of people on the island are aware of tourism's importance, there is an urgent need to assess its value. This realisation that wildlife is an economic resource as well as a conservation message are all elements of successful ecotourism, as defined by Goodwin (1996).

Mull is an excellent platform on which marine wildlife tourism can develop due to a long-established industry and marine infrastructure, its popularity with other marine users such as divers, fishermen and sailors and the presence of the HWDT. Popular species such as cetaceans (already high profile world-wide) could act as a figure-head for marine wildlife tourism in the area, encouraging people to the area.

There is only one dedicated whale-watching boat on Mull; it is not an industry. Therefore the development of whale-watching on the island is directly related to the attitudes and aspirations of the proprietor. A report on whale-watching on Mull would therefore be a business plan for an individual company rather than an impartial report. Whale watching is just one way in which the marine environment can be interpreted and has become particularly popular over the last few years. However other marine operators offer equally valuable wildlife viewing experiences and the *range* of trips available means that interested visitors can take a number of trips and experience different aspects of the marine environment.

As is so often the case, funding and initiative are limiting factors in the development of the market. However, there is considerable local expertise on the island and a combined effort by those involved in wildlife (operators, HWDT, RSPB, SNH, land managers, farmers and interested locals) could result in a tourism development plan which is viable, realistic and sustainable (both environmentally and economically).

There are many ways, beyond the scope of this report, in which tourism on Mull can be moved forward into the next decade, but it is hoped that the island develops in a sustainable way bringing benefits to the local rural community and maintaining the high quality environment. This can only be achieved through further investigation into the nature of the general tourist to Mull throughout the year and the aspirations and thoughts of local people whom tourism development of any kind affects. Tourism can help support this small island

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[112] Arnold, 1997

but it is vital that it is developed in such a way that the experience which visitors enjoy, and chose to return to time and again, is not lost.

8. Recommendations for Development and Further Research.

8.1 General tourism on Mull.

- Raise the general profile of tourism on Mull.
- Establishment of links with other nearby island, such as Coll and Tiree to market the region co-operatively.
- Promotion of Mull and its wildlife through articles and features in wildlife magazines.
- Creation of a Mull logo which reflects the wildlife and environment, in order to establish Mull's identity (the island's shape is distinctive and already used for pendants and displays).

8.2 Wildlife tourism on Mull.

- Consider Mull as case study/model for sustainable wildlife tourism development.
- Raise profile of wildlife tourism on Mull and beyond.
- Publication of booklets/leaflets on different aspects of wildlife on the island and at sea. These could also be translated into other languages for foreign visitors.
- Development of shore-based marine wildlife tourism, through the provision of vantage points, discrete interpretation boards and all weather hides.
- Development of wildlife trails around the island, highlighting wildlife viewing points (both walkers and motorists).
- Development of a wildlife interpretation centre, covering all aspects of the natural heritage on Mull, and including man's relationship with the environment.

8.3 Marine wildlife tourism on Mull.

- Raise profile of marine wildlife tourism on Mull and across Scotland (in conjunction with the Hebridean Whale and Dolphin Trust).
- Promote Mull as a marine mammal centre, on the reputation of the whale watching enterprise, the HWDT and the excellent viewing opportunities.
- Establish links with other marine wildlife tourism operators around Scotland and the UK to create a network of operators for marketing and advisory purposes.
- Work with other marine users, divers, fishermen and charters, to raise awareness of marine issues.
- Provision of information packs by HWDT to all wildlife operators (day-trip and charter boats) in the area, highlighting the importance of responsible tourism.
- Assist operators improve the quality of the interpretation on their trips.

- Publication of a guide for boat users, containing relevant information regarding marine life, conservation and responsible tourism.
- Encourage operators to become more actively involved in conservation, for example reporting cetacean sightings to the HWDT.
- Educational opportunities on boats during shoulder season. (A Lottery bid has been submitted by The Hebridean Whale and Dolphin Trust for the purchase of a boat).

8.4 Further Research.

The need for an extensive survey of the tourism industry on Mull across the year cannot be stressed too strongly. There are a number of issues which need to be addressed, but were beyond the limitations of this Masters project.

This project focused on only one aspect of Mull's well-developed and complex tourist economy and attempted to highlight some of the area where further investigation is required. There is therefore considerable scope for further research on the island.

Of particular interest are:

- the relationship between Mull and Iona, and the problems associated with coach traffic across the island.
- the effect the substantial number of holiday homes have on the community and its economy.
- an overall assessment of wildlife tourism on the island, including land and sea operators.
- the seasonality of the market and the effect this has on the community.

Other studies might investigate:

- the impacts of tourists on any of the species commonly sighted, especially the puffins on Staffa and Lunga, and the harbour porpoises which live close to the shore.
- the educational value of marine wildlife tourism and whether the trips bring about a change in attitude of the passengers.
- the value of charter wildlife cruises which operate in the area, in relation to day trips, and the value they bring to the local economy.
- the value of the recreational sailing industry in the area
- the attitude of local people towards tourism and wildlife.

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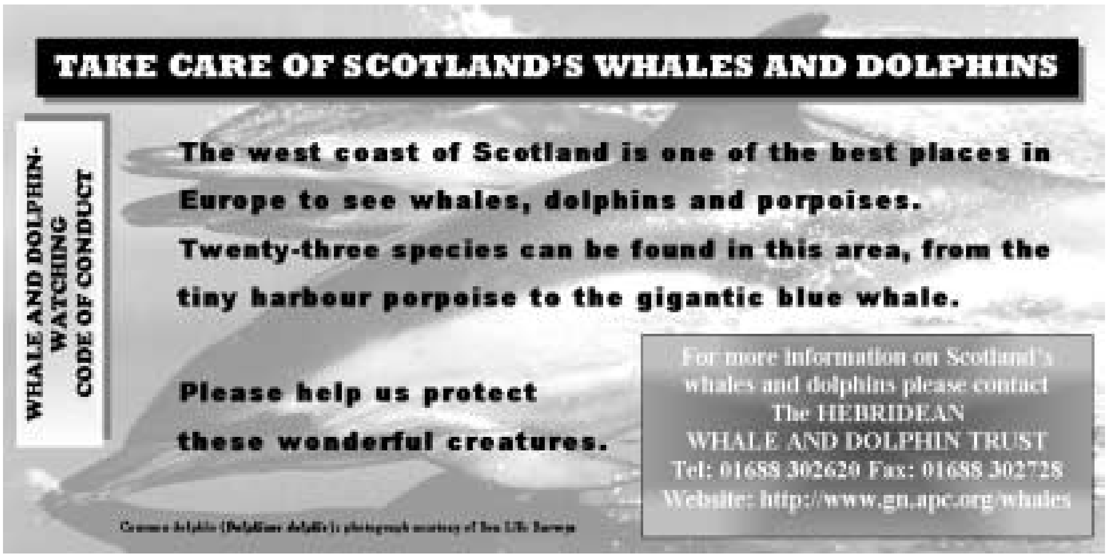
APPENDIX 1: Codes of Conduct.



- Always BE AWARE that whales and dolphins may be in the area.
- If you see whales or dolphins nearby SLOW DOWN (to no wake speed), keep a STEADY SPEED and AVOID RAPID CHANGES in direction or speed.
- Always take EXTREME CARE when whales and dolphins are nearby.
- If possible, avoid coming closer than 100m and never approach the animals HEAD ON.
- Avoid groups containing CALVES - they are easily frightened and could suffer.
- If stopping to watch a whale or dolphin - put the gears into NEUTRAL or SWITCH OFF the engines if stopping for longer.
- Never CHASE, CIRCLE or OVERTAKE whales or dolphins - Let the whales and dolphins come to you.....IF THEY WANT TO!
- Avoid having more than ONE VESSEL within 300m of any group of whales or dolphins.
- Never let your vessel get into the MIDDLE OF A GROUP of animals - you could split the group up and young animals may lose their mothers.
- If the whales and dolphins show any sign of becoming ALARMED move away - slapping their tails or hitting their heads on the surface of the water may be signs of distress.
- HARASSING and deliberately disturbing a whale or dolphin is a CRIMINAL OFFENCE!
- It's not advisable to swim with or touch whales or dolphins - they're wild animals and CAN BE DANGEROUS. Treat them with respect.
- Never attempt to FEED whales or dolphins.
- Dispose of fuel, food and litter appropriately when back on shore - some types of rubbish can kill, poison or injure whales and dolphins - DON'T POLLUTE OUR SEAS!

Seeing whales and dolphins in the wild is a great privilege - enjoy it!

Common seals (Phoca vitulina): photograph courtesy of Sea Life Surveys

- If you see a seal swimming nearby when at sea - SLOW DOWN (to no wake speed).
- Keep a slow steady speed and DO NOT CHASE the seal - let the seal come to you.
- Avoid beaches with pups on them - visitors can cause the seals to panic and the small pups can get crushed and killed. Don't approach these beaches ON FOOT and keep more than 100m away if in a boat.
- Common seals have pups from May-July and grey seals have pups from September-November, so be extremely cautious around seal sites at these times.
- DO NOT APPROACH closer than 20m to an adult seal and never try to TOUCH a seal - even seal pups CAN BE DANGEROUS.
- If you see a seal pup on its own LEAVE IT! Mothers often leave their pups alone for hours while they search for food. If no other seals are around keep an eye on it for 24 hours and if still concerned, or if it's injured, contact a local vet, wildlife organisation or the SSPCA.

APPENDIX 2: Threats to Cetaceans.

Cetaceans face a number of threats, the majority of which threaten the marine environment as a whole rather than cetaceans specifically. Human activities both on land and at sea can have direct effects on the quality of the marine habitat. While the range of potential threats is well known, scientific proof is limited. Without the base line data, changes to such populations are difficult to prove.

Commercial whaling activities have caused catastrophic reductions or, in some cases, near extinction of the majority of the world’s populations of large whales. Commercial whaling in Scotland ceased several decades ago and, other than the management of some seal populations around fish farms and fishery enterprises, marine mammals are relatively safe in Scottish waters. Whilst safe from hunters in local waters, the migration paths of the larger whales through the waters of nations who continue to hunt, such as Norway, still pose a potential threat and catches of cetaceans by these nations are significant. The most recent minke population estimates from the International Whaling Commission are between 642,888 and 1,370,600 whales world wide and since resuming whaling in 1993, Norwegian whalers have killed a total of 2,238 minke whales[113].

The fishing industry now presents the greatest threat to cetaceans, especially the smaller species. Inadvertent entrapment of dolphins and porpoises in fishing gear causes more cetacean deaths per year than whaling did at its peak[114]. Information on the incidental by-catches of marine mammals by fishermen is limited, but it appears that grey seals, common seals and harbour porpoises are the species most likely to be caught in Scottish waters[115]. Concern is growing over the impact that declining fish stocks due to over-fishing is having on cetaceans.

Environmental degradation also affects cetaceans. The ever-increasing man-made flotsam and jetsam such as bottles, discarded nets, plastic bags and non-degradable refuse become caught around, or are swallowed by, cetaceans, often resulting in death. Oil spills not only poison cetaceans unlucky enough to be caught in them, but also poison the marine environment on which they depend by affecting the entire food chain.

[113] ENS, 1999
[114] Heimlich-Boran, 1996
[115] Northridge, 1988

Other than direct pollution through the conscious dumping of waste into the sea, intensive farming and fishing methods may results in changes in food availability or habitat structures[116]. Damming, mining, logging and other developments on land may have deleterious effects by causing erosion and destroying watersheds important to freshwater-spawning fish, a major food source for riverine and coastal cetaceans. Cetacean populations with localised distribution such as coastal species, are especially vulnerable to habitat disturbance.

Toxic chemical compounds accumulate in cetaceans who feed at the top of the food chain. Samples are taken from as many cetacean strandings as possible to try and establish levels of toxicity in blubber. Organochlorine pollution has received the most attention in recent years and contaminant levels in harbour porpoises (and seals) have been recorded since the 1960s[117]. It appears that levels in Scottish animals are comparatively low compared with levels found in the southern North Sea[118].

Other than accumulating in individuals, such toxins can also pass from mother to foetus through the placenta, thereby perpetuating the build-up of chemicals known to be toxic to mammals. The contamination of odontocete tissues can be high but the wider effects on metabolism are difficult to detect[119].

Sound pollution also affects cetaceans. Disturbance responses include longer dives, movements away from sound sources and temporary displacement from feeding or breeding areas, Before regulations were imposed in Hawaii, the number of Humpback whales present in the area varied inversely with increasing amounts of daily boat traffic and activity on the military bombing range[120].

Some military activities including weapon testing and explosions may affect cetacean hearing[121]. Marine seismic surveys are also sources of potentially harmful sound. Tests are often conducted at frequency ranges and decibel levels which may interfere with the hearing of both baleen and the larger toothed whales. With the establishment of regular whale watching boat trips and the recording of cetacean sightings, the effect of the military testing area is beginning to be considered as a potential threat to cetaceans. However the sensitive

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[116] Thompson, 1994
[117] Hall et al, 1992
[118] Thompson, 1994
[119] Heimlich-Boran, 1996
[120] as above

nature of this problem results in limited data being made available. The media is beginning to take interest in the issue and the situation is now being monitored[122].

Engine noise can be a major irritant to cetaceans and there is variation in the amount of noise different types of boat emit. Evans (1992) recorded that jet skis could only be detected from a range of about 80m while speedboats were heard when approximately 400m away. It is important to note that whilst jet skis may not cause noise pollution, their high speed, erratic course and short detection distance could increase the potential for collisions.

Leisure craft generate sound in the 1-50kHz range[123] and studies on the effects of pleasure craft on bottlenose dolphins show that there is a significant increase in negative responses such as increased dive time and repulsion to an approaching boat[124]. Quieter, faster boats resulted in more disturbance than slower larger boats. High-speed boats were detected at a closer distance therefore provoking a ‘startle’ reaction.

In the UK there are relatively few examples of cetaceans being directly injured by collisions with boat traffic. However in other parts of the world, shipping accidents have been identified as a serious threat. In the western North Atlantic, 27% of all known Right whale mortalities were due to ship collision, a figure which is potentially threatening to an already endangered species[125]. Precautions, such as the fitting of propeller guards, have been recommended in areas such as the Florida Keys where species such as manatees are increasingly killed by direct collision with leisure crafts[126].

In other parts of the world where whale watching is both a larger and more established operation, the impacts of the industry, both long and short term, are beginning to be recognised[127]. At Monkey Mia in Australia, short-term changes in foraging behaviour were recorded in hand fed wild bottlenose dolphins. Long term, this resulted in decreased mortality of juveniles owing to the lack of investment by mothers in protecting young from predators and poor foraging skills by younger generations[128].

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[121] Ketten, 1995
[122] Winkler, 1999; Nuttall, 1999
[123] Evans, 1990
[124] Evans *et al*, 1992
[125] Kenney and Kraus, 1993
[126] Carwardine *et al*, 1998
[127] Janik & Thompson, 1996; Heimlich-Boran *et al*, 1994; Gordon *et al*, 1992
[128] Payne *et al*, 1995

In Stellwagen Bank, New England, a significant change in the distribution of humpback whales which feed during the summer months, was noted in 1985-86. By 1993-94 numbers had declined drastically. It was difficult to conclude whether whale watching, which has remained constant in its intensity throughout this period, has affected the population or whether another factor such as a change in the distribution of the food source is the reason[129].

[129] IFAW *et al*, 1995

APPENDIX 3: Marine Wildlife Watching Opportunities.

1. Cetaceans.

The West coast of Scotland is one of the most important habitats for whales, dolphins and porpoises in Europe. Twenty-four species - nearly a third of the world total - have been reported from this region, from the mighty blue whale to the tiny harbour porpoise

Cetaceans are most regularly sighted in the months April to October although data is patchy owing to weather and sea conditions. Most sightings are made when sea conditions and visibility are good and these tend to be during the warmer summer months. Annual recorded sightings have shown seasonality of species with species being sighted more or less frequently as the season progresses[130].

The most commonly sighted species is the harbour porpoise (*Phocena phocena*) which tends to be seen in coastal waters, often in groups throughout the season. Although regularly seen, individuals rarely associate with boats although more than 379 individuals were recorded in 1998[131].

Minke whales (*Balaenoptera acutorostrata*) are known to associate with boats and can be seen from April to mid October although September and October are particularly good months when the whales are feeding before the breeding season. They are the smallest of the baleen whales (7-10m long) and weigh around 8 tons. They are fast swimmers, able to cruise at speeds of 15mph or more; they have an indistinct blow that is visible only in the calmest conditions and show little of themselves at the surface[132]. Sightings in 1998 totalled 249 sightings, the majority of which were recorded between June and October[133].

Common dolphins (*Delphinus delphis*) are also sighted regularly and their energetic activities always delight onlookers. This species is often seen in large groups of 30 or more individuals and enjoys bowriding and breaching. They are usually seen early in the season[134], although sightings have been recorded as late as August[135].

[130] Evans et al, 1997
[131] HWDT, unpublished
[132] Carwardine 1994
[133] HWDT, unpublished
[134] Gill, 1998
[135] Fairbairns, *pers comm*

Bottlenose dolphins (*Tursiops truncatus*), made famous by the Flipper television series, are seen close in shore and travel in groups. A group of up to 10 individuals has been seen in Tobermory Bay regularly over a number of years and there is some discussion as to whether this group is resident to the Mull waters[136].

Killer whales (*Orcinus orca*) are seen occasionally and there is usually at least one sighting of a pod of killer whales each year. Last year a group of seven was seen[137] and a group of fifteen was seen in August 1999[138].

Other whales have been sighted this year. Sei whales (*Balaenoptera borealis*) were seen in waters off the coast of Coll and Muck. They are similar in appearance to minke whales but are larger in size (reaching lengths of more than 20m) and have a distinct blow[139].

2. Pinnipeds.

Both grey seals (*Halichoerus grypus*) and common seals (*Phoca vitulina*) are found in Scottish coastal waters. It has been estimated that as many as 40% of the world's seal population is resident in the UK[140], of which Scotland has 36% of the common and 49% of the grey seal populations[141]. Other estimates have stated that the grey seal population in Scotland could be as high as 90% of the UK population[142]. However there is little dispute that the population is significant.

Unlike cetaceans seals offer a guaranteed wildlife viewing experience from land or by boat. Their fixed territories and favoured haul-out sites mean that onlookers can see, on a regular basis, these charismatic animals in their entirety (unlike cetaceans where the view is often of the dorsal fin only). There are over 117 seal watch establishments in the UK and Ireland, attracting 0.5 million visitors in 1996[143].

The best time to see seals is during the pupping season, which for grey seals is from mid September to mid November and for common seals from mid June to early August, although the seals are resident all year round. While the seals are more easily viewed when they are

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136 Parsons, *pers comm*
137 Gill, 1998
138 Fairbairns, *pers comm*
139 Longman, 1985
140 Young, 1998
141 Duck, 1996
142 McCarthy, 1998
143 Young, 1998

hauled out during pupping there are also issues of disturbance and the speed and behaviour of boats can have a significant impact of the survival rate of the pups[144]. Sites which are frequently visited by tour operators are, on Mull, around Fionnphort in the south, Salen in the Sound of Mull and Croig and Mingary Bay in the north. Nearby sites include, the Treshnish Islands, Coll and Loch Sunart.

3. Birds.

An enormous variety of birds can be seen during the boat trips from Mull. The breeding season corresponds with the beginning of the tourist season in May when many cliff breeding seabirds come ashore to breed.

Boat operators take visitors to the islands of Staffa and Lunga where the charismatic puffins breed. On Lunga, razorbills, guillemots, shag and kittiwakes also breed in large numbers resulting in a cacophony of sound and smells.

Other birds such as gannets, Manx shearwaters, arctic terns, greylag geese, corncrakes (recently reintroduced to Lunga, Coll and Tiree), eider ducks, storm petrels (nationally important population), fulmers, several species of gull and skuas (arctic and Great) are also seen regularly and many bird watchers recognise the importance of this area for bird life.

Golden and sea eagles also live on Mull and can be seen on occasions from the sea.

4. Basking sharks.

Basking sharks (*Cetarrhinus maximus*) have been seen with increasing regularity. Little is known about this species other than it is the largest fish in British waters (and the second largest fish in the world). Since 1989 when records began numbers have been in decline (decrease of 85%) although population numbers are now thought to be more stable[145]. This fish can reach lengths are over 10metres and can weigh up to 5 tonnes. On first glance, they are often mistaken for whales or seals. Since 1998, over 75 individuals have been sighted in the vicinity of Mull and Coll.[146]

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[144] Young, 1998
[145] King, 1999
[146] Hebridean Whale and Dolphin Trust, 1999