

MORAY FIRTH PARTNERSHIP BEACH GUARDIANS

Report on beach litter around the Moray Firth February 2006



Prepared by:
Duncan Bryden for the Beach Guardians project.

BEACH GUARDIANS – report on beaches around the Moray Firth

Summary

1. This report was commissioned as part of the Moray Firth Partnership Beach Guardians project. Its purpose was to examine baseline information on the state of the beaches around the Moray Firth. Beach Guardians is a project managed by the Moray Firth Partnership. The project aims to;
 - Raise awareness and change attitudes and behaviour
 - Reduce through clean ups
 - Carry out stakeholder initiatives
 - Carry out research, survey and reporting
2. Along the 800km Moray Firth coastline, over 80 beaches have been identified in reports, studies, awards and designations relating to beach quality. The majority of these beaches are close to settlements and are predominantly sandy or shingle in nature.
3. Beach litter management throughout the Moray Firth remains very patchy in its application. A small number of beaches are regularly cleaned or have dedicated local interest. In 2005 fourteen beaches participated in the Beach Watch scheme. Approximately half of these had been in the scheme since 2001.
4. Poor record keeping on beach management by councils and by volunteer groups means it is difficult to track litter trends and cleaning effort. There have been a significant number of ad hoc clean ups.
5. Given spending constraints on local authority budgets it seem unlikely new resources will be allocated to beach cleaning efforts.
6. In the last decade there have been major changes in the nature of beach litter, with SRD items declining significantly. Beach visitor litter remains the major identifiable component of beach litter at levels over twice that of litter from fishing sources. It can be difficult to attribute litter to a specific source as litter can break up into unidentifiable pieces and be persistent and remain in the Moray Firth ecosystem for many years.
7. Reducing the beach visitor litter component is a complex challenge and it should be noted that an increase in beach users may be the cause and the actual ‘unit of litter per user’ may have remained constant. This conclusion points to the need to get the litter message to a wider audience.
8. There are no measures of beach user satisfaction. A clearer view of satisfaction levels may help release greater levels of resources and participation.
9. **In line with these aims it is recommended the Beach Guardians project should**
 - (a) Encourage groups who participate in the Beach Watch scheme to submit their data both to MCS and local authorities with coordination by MFP in order to create a ‘regional’ report for the Moray Firth.
 - (b) Encourage cross compliance whereby beaches go for multi awards and schemes. Using a ‘lead’ designation will avoid confusion amongst communities and users. eg All Seaside Award Beaches (lead designation) should also be in Beach Watch and Adopt a Beach.
 - (c) Encourage tourism and community stakeholders to record both levels use and of beach user satisfaction.
 - (d) Prioritise awareness raising amongst key target stakeholder groups including
 - Beach users and tourism providers
 - Fishing interests
 - Shipping

1 Introduction

- 1.1 The 800 km coastline of the Moray Firth stretches from Fraserburgh in the south to Duncansby Head in the north and to the east is open to the North Sea. Several large settlements occur along the coast. Inverness city has a population of approximately 65,000 residents and is one of the fastest growing populations in the UK.
- 1.2 The intertidal zone of the Firth includes a wide range of rocky and soft shores. Over 80 sites are listed in Appendix 2. Approximately 50 beaches around the Moray Firth are sandy beaches like those at Dornoch, Nairn or Rosehearty which provide a hugely valuable recreational resource for local people and visitors. The rocky shores include the dramatic cliff lines in parts of Caithness and near Burghead and around Pennan and Gardenstown in particular.
- 1.3 The Moray Firth is the destination for many rivers and burns. The River Spey, entering the Firth at Spey Bay, is the seventh largest river in Britain, with a catchment of over 3,000 km² and a stream network of 36,500 km of which the main river comprises 157km. The Ness, the Beaully, the Connon and the Deveron are just some of the major rivers flowing into the Firth. Water discharge levels increase dramatically as a result of storm events and may result in additional litter being washed down stream.
- 1.4 Around the Firth beach litter comes from both terrestrial and marine sources. Clearly beach litter does get deposited directly by beach users, sewage outfalls or washed ashore from shipping sources. In addition litter from many miles away may reach the beaches via the many rivers and drains entering the Firth. Litter from nearby settlements and industrial sites may also be blown onto the beaches by the wind.
- 1.5 Beach litter does occur on all types of shores around the Moray Firth. There may also be significant levels of sub sea litter that goes unrecorded. Beach litter tends to be more visible on sandy shores. Wind and wave action can drive litter inland onto the dune areas which often occur behind sandy beaches. Small inlets on rocky shores can accumulate significant amounts of litter. However litter on exposed rocky shores may be washed back out to sea or broken into smaller pieces.
- 1.6 In the last two decades some key changes in the Moray Firth have apparently affected the amount and distribution of beach litter in the area
- Closure of the Longman landfill site
 - Improvements to sewage infrastructure especially the Longman and Lossiemouth outfalls
 - Reduction in shipping related debris
 - Beach cleaning activity by local authorities
 - An unknown amount of ad hoc beach cleaning by private individuals and groups

2 Background

- 2.1 Litter on the beaches around the Moray Firth is known to impact on a range of activities including tourism, recreational and commercial vessels and biodiversity. Plastic litter in particular may persist for many years even when it is broken down into smaller pieces by the action of the sea and UV light.
- 2.1.1 Tourism is a key industry in many communities around the Firth. Visitors are drawn by the beaches and coastline. However, although tourism is an important industry in the North of Scotland, there are marked variations in tourism activity across the Moray Firth area. Inverness has an extensive infrastructure of visitor accommodation and services, and some of the busiest visitor attractions in the Highlands. In other parts of the Moray Firth, visitor numbers and occupancy rates are lower, and tourism businesses can find it is challenging to operate out with the main tourist season. The experience of the foot and mouth disease outbreak in 2001 showed the impact of closure of the countryside. Closure of beaches for reasons of hazardous litter, pollution or sewage could have significant impacts on local tourism.
- 2.1.2 Beach litter impacts on the enjoyment of beach users. Experience from the Fife coast suggests visitors are more affected by beach litter than local day visitors. Litter is unsightly and may put people off visiting an area again. A recent Blue flag report showed half the UK population enjoys at least one day a year at the beach; 20% of these come with families to play on the beach and over 30% walk on the beach. But increasingly they require reassurance that the beach is both safe and clean. Scotland is known for its beautiful countryside, but visitors' experiences can be spoilt by debris washed in on the tide. Comments from participants interviewed by Keep Scotland Beautiful in 2004 ranged from; 'there are bags of litter in the dunes as you walk to the beach – it puts you off really', to 'Look at that piece of glass there it would cut your feet to shreds'. Overall coastal/marine litter was believed to be the most offensive element of a beach visit that people were likely to remember.
- 2.1.3 The area is important for wildlife. Some of the species and habitats are of international importance. Of particular significance are the population of bottlenose dolphins and wintering waders and wildfowl. Research suggests litter is found in 96% of seabird stomachs leading to poor breeding success and death. Surface feeders like fulmars and plankton feeding divers like auks and puffins pick up floating plastic particles, mistaking them for food. Plastic bags have been found in stomach of a dead Minke whale and seals have become entangled in plastic strapping bands. Entanglement in fishing related debris like net fragments and ingesting litter appear to be the main cause of injury or death. There is little research on the effects of chemicals and small particles released from the break down of plastics and other materials on the marine environment.
- 2.1.4 Beach litter does present a hazard to beach users. Physical injury to beach users, especially children, often results from items like cans and broken bottles. Water users in particular may be at risk from infection due to the presence of sewage related items.
- 2.1.5 Recreational and commercial water craft users are at risk from collision with larger floating items to damage to engines and fouled propellers from entanglement and plastic getting sucked into cooling water intakes. KIMO estimate 20,000 tonnes of marine litter enter the North Sea each year. Of that 70% sinks to the bottom, 15% floats on the surface and 15% are washed up on our coasts. The 'sink' of 70% may be periodically disturbed leading to more litter on the beaches. A KIMO report published in 2000 estimated Shetland fishermen's annual loss due to marine litter could be as much as £30,000 per boat in the worst case scenario. The Save the North Sea project demonstrated that, on average, each tonne of marine litter that accumulates in fisherman's nets costs £1,300 in lost time alone.

- 2.1.6 In addition to the more obvious sources, marine litter may arise from a range of sources around the coast. The Moray Firth has agricultural operations, construction yards, industrial sites, business parks aquaculture sites, oil drilling rigs, transport corridors and defence establishments along the coastline.
- 2.1.7 Land base beach cleaning costs local authorities throughout the UK in excess of £2million. Fife Council spends in the order of £110,000 per annum on beach management or £8,700 per beach. Approximately one third is for safety cover. In 1993 Banff and Buchan estimated that their expenditure was £65,000 annually on beach cleaning. Beach cleaning to these levels around 50 Moray Firth beaches could in theory cost £5,000 per beach or £250,000.
- 2.1.8 Although the beaches are physically robust elements of Moray Firth beaches are ecologically sensitive. Mechanical cleaning can remove naturally occurring seaweeds and debris which support invertebrate populations and provide feeding for shore line birds. Even hand picking at certain times of the year can disturb beach nesting birds like terns.
- 2.2 Over the last two decades there have been various efforts to tackle beach litter at sites throughout the Moray Firth.
- 2.3 A 1990 report on the proposals for improvements to the Inverness Main Drainage Scheme noted that sewage related debris was observed on the shore between the River Ness and the Inverness Beacon. Other types of litter were noted on the upper shore near Longman Point including refrigerators, tyres, plastic sheeting and old mattresses, with smaller items of domestic refuse adjacent to the Longman tip.
- 2.3.1 Shore line litter assessments were undertaken in 1990 at 22 sample site on the shore of the Beaully and Inverness Firths. These were compared with eight sample sites from the wider Firth.
- 2.4 The following activities by local authorities in the Moray Firth area were identified in a 1994 report by ASH consultants for the Tourism and Environment Forum.
- 2.4.2 Caithness (Caithness District Council)**
Litter bin cleaning and occasional car park cleaning at South Head Wick
- 2.4.3 Nairn (Inverness and Nairn District Council)**
Nairn East and Nairn Central designated as Amenity beaches by Environmental Protection Agency (EPA) in 1990. Cleanliness was to EPA code of practice standards.
April to October – daily cleaning by Ranger. Additional mechanical cleaning to remove seaweed and twigs etc. No intensive cleaning in winter. Pre season clean up in March. Animal carcasses removed as soon as possible.
- 2.4.4 Ross and Cromarty (Ross and Cromarty District Council)**
No formal programme. On off clean ups usually in March/April. Temporary seasonal staff employed April to September. Better beaches campaign launched in 1991.
Ross and Cromarty was identified as a case study area in the report
- Vessel source debris is considered to form the dominant proportion of beach litter in Ross and Cromarty. In the MFP area, general domestic refuse and some sewage related debris is more common. The Longman Landfill site is considered a significant source of domestic refuse.
 - In 1991 the Better Beaches Campaign was launched. The campaign focuses on communities as the primary force in litter management in the area and aims to provide them with the means and support to achieve effective guardianship of their local resource. An annual budget of £20k is provided to support
 - One off clean ups – Cromarty, Avoch
 - Community clean ups – Balintore, Tain, Rosemarkie, Cromarty, Inver

- Temporary Seasonal labour – Balintore
- New Wheelie Bins – Inver, Tain, Rosemarkie, Avoch, Cromarty, Balintore, Invergordon, Portmahomack, Nigg
- Education and resources – writing to all schools and community councils, giving talks, video – keeping Ross and Cromarty Green

2.4.5 Sutherland (Sutherland District Council)

Dornoch designated as an amenity beach by EPA in 1990. Council aim to achieve Seaside and Blue Flag Awards for Dornoch.

2.4.6 Banff and Buchan (Banff and Buchan District Council)

The following beaches in the Banff and Buchan part of the Moray Firth were identified as amenity beaches by the Environmental Protection Area in 1990. These beaches were then included in a cleaning regime adopted by the council until regionalisation.

Sunnyside	Palmer Cove	New Aberdour
Sandend	Banff	Roseheartly
Portsoy	Tarlair Macduff	Sandhaven
Whitehills	Gardenstown	Broardsea
Inverboyndie	Cullykhan	Fraserburgh
Banff Bridge	Pennan Bay	Fraserburgh Bay

From April to October these beaches were cleaned on a 2-3 week cycle by a squad 3 men and a beach cleaning machine. Hand picking was carried out on those beaches unsuitable for mechanical cleaning. The squad carried out supplementary cleaning of Fraserburgh Bay. It was estimated in the early 1990 that 90% of beach litter was sea borne.

Banff and Buchan was also identified as a case study area in which:

- Banff and Buchan District Council set up a comprehensive cleaning coverage of all public accessible beaches
- On a 90 mile coastline 24 beaches have been recognised as Amenity Beaches (18 are within the MFP area)
- The cleaning programme began in 1989
- In 1993 an estimated 364 tonnes of litter was removed during April to October. The greatest weight of litter was lifted in April. It was believed 90% came from shipping or fishing sources. Faris and Hart (1994) estimated 80% of marine litter originated from land based source so this figure could be questioned.
- The justification for cleaning was the importance of beaches for tourism. Fraserburgh was considered the most visited beach ‘resort’ centre, with Sandend and Inverboyndie considered the most popular ‘rural’ beaches
- All beaches are brought up to the Grade A standard (no litter)

2.5 Beach promotion

A leaflet produced by the Highlands of Scotland Tourist Board in 2001 called *Beaches in the North Highlands* identified 14 beaches in the section of coastline from Rosemarkie to John o Groats.

Shell Beach & Sannick (JoG)	Reiss	Embo
Freswick	Brora	Dornoch
Keiss	Golspie	Portmahomack
	Littleferry	Shandwick

2.6 Community Effort

There are over 80 beaches, bays, shores and points which have been recorded since 1990 as having some form of beach management from surveys to cleanups. Since 2000 some 30 beaches have participated in Adopt a Beach, Seaside Award, Beach Watch and ad hoc clean ups; accurate records are limited. There are only a few sites that have consistently participated in Beach Watch. Communities have commented on the difficulty of maintaining long term commitments, especially in rural areas with small populations.

With the exception of schools and some youth groups clean ups are often driven by community councils. The age of volunteers is not noted, other than children, but observations suggest that most volunteers are older people often pensioners. Clearly volunteers at beach cleans do not tend to represent the profile of local communities.

2.7 Community Cleaning and Adoption

Of the 80 beaches recorded only 7 claimed to be in the Adopt a Beach scheme. Several respondents suggested the commitment to be too onerous. There is however, interest in ad hoc beach cleans. It is suggested Adopt a beach offers a cluster approach through which one group takes charge but other groups are encouraged to participate by carrying out one of four annual cleans.

3 General Trends

3.1 National sources of beach litter 1995 – 2003

- Beach visitor's litter – as a percentage of the total litter from beach visitors has remained relatively consistent. (average 35%) However, the number of items appears to have increased
- Fishing debris – the percentage of fishing related debris also appears to have remained relatively constant (average 13%) with possibly a small decline in the number of items
- Sewage related debris – the percentage of SRD appears to have declined (range 13.5% to 3.9%) by around half over the eight years although 2003 saw a surge in items recorded
- Shipping waste – this type of waste only makes up a small percentage of beach litter (average 2.5%) and possibly has seen a slight decline
- Fly Tipped Litter – fly tipped litter only makes a small contribution to beach litter (Average 1.2%) and has remained relatively constant
- Medical items – these only make up a tiny proportion of beach litter (average 0.1%), but the number of items recorded appears to be growing
- Non sourced litter – this type of litter with no clear source makes up the largest proportion of beach litter (average 38%). This proportion has remained relatively consistent. The number of items appears to be falling but as larger items can break up into smaller pieces this fall might not be significant.

3.2 The Scottish picture 1995 - 2003

In 2003, 42 beaches were surveyed. The number of items found per km, were approximately 25% less than the UK average, but greater than was recorded in the 2002 survey. However, if a small number of highly littered beaches on the Clyde are removed from the sample, the density of items recorded per km since 1998 has remained relatively static. In Scotland, of beach litter that could be attributed to a particular source, beach visitors remain the greatest contributors, followed by fishing debris, SRD and shipping debris. In a small number of locations SRD was recorded at levels twice that of the national average and in these locations SRD was clearly the second most common source of beach litter.

3.3 Moray Firth Picture

Over the last 15 years it would appear that the beach litter situation in the Moray Firth has changed significantly, especially in particular areas. See Table 1 below: For example the level of SRD on both Lossiemouth and Golspie beaches has dropped dramatically. In the early 1990 SRD was accounting for nearly 50% of the items found. In beach watch activity in 2004/5 SRD was virtually absent. Also in the early 1990 anecdotal evidence pointed to almost 90% of litter on Aberdeenshire beaches came from shipping or fishing sources. Beachwatch activity in 2004/5 suggests ship generated litter has declined to a few percent and fishing related debris at around 25% of the total, while significant, is reduced. However, remaining stubbornly high appears to be litter dropped by beach visitors. In the absence of any alternative information, these figures however, should be taken as something of a snapshot and perhaps viewed with a little caution, although trends appear consistent over five years. Data gathered during Beach Watch is taken from a relatively small number of beaches by a small number of volunteers. Identification of items is not always easy.

3.3 Analysis

3.3.1 High level of visitor generated litter does suggest more people are using beaches, which is a 'good thing', but it appears their behaviour is not always responsible. What is not clear is how much litter, attributed to beach visitors is in fact being blown from settlements onto the beach or being washed into rivers and burns by storm water and then being washed back onto beaches. If, as predicted,

storm events increase, this runoff pathway may allow more general urban and road side litter to reach the beaches.

- 3.3.2 Recent closure of the Longman Landfill site, although better managed in recent years, has clearly closed down a source and pathway of wind blown rubbish. However, increasing waste disposal charges and other controls have spawned an increase in fly tipping by unscrupulous operators. Section 33 (1) (a) of the Environmental Protection Act 1990 has been used by some local authorities to prosecute fly tippers. Improvements in waste handling facilities at ports and harbours must also have reduced marine disposal. The down sizing of the fishing fleet over the last decade may also have reduced fishing generated sources of litter, although plastic fishing debris can have a long life in the marine ecosystem.
- 3.3.3 Massive investment in sewage and effluent treatment plants has certainly reduced SRD through the Moray Firth. Larger items that made up SRD are now routinely screened out although water quality, especially after storm events, can still be variable in certain areas.
- 3.3.4 Investment in beach cleaning by local authorities around the Moray Firth peaked in the early 1990 but appeared to drop following reorganisation when budgets were reprioritised. However, there now appears to be a greater interest in beaches and beach cleaning by local authorities, partly due to the development of beach accreditation schemes like the Seaside Awards. This could also be interpreted as local authorities prioritising expenditure as Highland Council has no plans to allocate new resources to additional beach management measures. Donnet 2006 (pers com) Application of the Seaside Award rural category does not take into account the relative remoteness of many Moray Firth beaches, where provision of on shore facilities may be prohibitively expensive.
- 3.3.5 Concerns have been expressed in local communities about litter collection on the long lengths of beach not directly associated with communities. These beaches are frequently remote or relatively inaccessible, but are used by walkers and others engaging in recreation like sea kayaking. As well as the direct problems caused by beach litter, these sites may accumulate litter for many years; some of which could be released back into the sea by high tides or storm events.
- 3.3.6 On some community beaches entanglement of litter with naturally occurring organic material like weed has made hand picking difficult, leaving extraction by machine the only practical option. In addition to the costs of machine hire and disposal, removal of weed from the marine ecosystem is not the most desirable option.
- 3.3.7 Section 4.3 below outlines the role of the Marine Conservation Society in collecting and compiling data. There is clearly a question mark over the capacity of the MCS to collect and analyse large volumes of data. Reliance on volunteers submitting information may also give rise to questions over the reliability of data. The recommendations in 6.1 below raise the possibility of more local control, management and dissemination of information.

3.38 Table 1: % Composition of Beach litter in the Moray Firth 2000 to 2005

year	No of Beaches	Length	Beach Visitors	Fishing	SRD	Shipping	Fly Tipped	Medical	Non sourced
2005	15								
Scot Average 2004			35	13	3.9	2.5	1.2	0.1	38
2004	7		37.3	12.3	3.1	2.8	2.7	0.4	41.3
2003	7		52.3	14	0.8	1.7	0.8	1.3	30.2
2002	6		46	18.4	1.3	2.7	0.9	0.2	30.5

2001	8		46.2	12.8	2.6	1.8	2.8	0.1	33.6
2000	2		44.7	9.75	1.7	3.2	1.1	0	39.6
1990	30				30				

Note 2005 results not publish in February 2006 for inclusion in this paper

4 Legislation and Policy Context

There are a number of policies, strategies and codes that impact on beach litter. Equally there are a range of organisations and associated schemes which touch on beach litter. The range of schemes may be a source of confusion to beach managers and in particular amongst beach users.

Table 2

Litter Sources	International Conventions	EU Directives	UK & Scottish Legislation	Projects and Codes
Beach Visitors		Under the Bathing Water Directive (76/160/EEC) tarry residues, floating materials such as wood, plastic articles, bottles, containers of glass, rubber or any other substances, waste or splinters must be absent from the Bathing Water to meet the guideline standard.	Environmental Protection Act 1990 Code of practice on Litter and Refuse	ENCAMS and Keep Scotland Beautiful Seaside Award Beaches Blue Flag Beaches Under the Environment Act 1990 all coastal local authorities have a duty to remove litter from mean high water spring line and above from amenity beaches from May to September.
Fishing Shipping	The International Convention for the Prevention of Pollution from Ships' (MARPOL 73/78) forbids dumping at sea, and so does the London Convention 1972	Port reception facilities for Ship generated waste and cargo residues directive EC2000/59 Hazardous Waste Directive (91/689/EEC)	Marine Shipping (Prevention of Pollution by Garbage) Regulations 1998	KIMO Fishing for Litter Project A review is planned by the European Commission in 2006 of the EC Directive on Port Reception Facilities. The UK needs to be in a position to quantify the problem of marine litter from shipping, ensuring that forthcoming national and international projects and legislation are efficient, effective, and respond to perceived need, this project aims to support further work in identifying the problem of marine litter. MCA is UK lead Individual Blue Flag Award Campaign for private boat owners
SRD		Under the Urban Waste Water Treatment Directive 97/27EEC all significant discharges (more than 2000 population equivalent to estuaries	UWWT (Scotland) regulations 1994	Bag it and Bin it national water Industry led campaign http://www.bagandbin.org/

		and 10,000 to coastal waters) will require a minimum of primary treatment. This means that by 2005 all significant coastal discharges will have screening, which should reduce inputs of sewage related debris.		
Fly Tipping		The EC Packaging and Packaging Waste Directive (94/62/EEC) is implemented, through Producer Responsibility Obligations (Packaging Waste) Regulations 1997. Under the UK Regulations businesses handling more than 50 tonnes of packaging wastes (90% of the market) will be required to recycle more than half of their packaging waste by 2001.	Control of Pollution Act 1974 Environmental Protection Act 1990	
Medical				
All sources	Convention on the Protection of the marine Environment of the North East Atlantic (OSPAR)			MCS – Beach watch and Adopt a Beach UNEP Global Marine Litter Information Gateway http://www.marine-litter.gpa.unep.org/nodes/nodes.htm OSPAR Pilot project on Monitoring Marine Beach Litter KIMO Save the North Sea project

Table 1 shows the legislative and policy measures that can be applied to sources of beach litter

4.1 Keep Scotland Beautiful (KSB)

Keep Scotland Beautiful (KSB) has been operating as an organisation to improve the quality of local environments in Scotland for over 40 years. Formerly known as Keep Scotland Tidy, the group has been at the forefront of anti litter, waste and marine issues to encourage good practice and sustainable development. KSB is an environmental charity and coordinates a number of programmes including the Blue Flag and Seaside Awards

4.2 Clean Coast Scotland Campaign

The Clean Coast Scotland campaign has been developed by a range of government and non-government organisations to promote the sustainable use and management of Scotland's coastline. One of the major goals of Clean Coast Scotland is to build on improvements carried out to waste water treatment networks by establishing pilot beach and bathing water management groups in line with proposals for the European Union Bathing Directive, currently being revised.

The Campaign Objectives are:

1. To achieve greater and better co-ordinated local and national action to demonstrably improve the quality and sustainability of our coastal environment
2. To publicise this effort and its achievements for the benefit of communities, tourism, the Scottish economy and the general understanding, enjoyment and perception of the coastal environment
3. To create a Scotland wide working group between the organisations taking an interest in improving the coastal environment
4. To increase the number of Blue Flags, Seaside Awards and Adopt-a-Beach.
5. To develop a system to measure social, economic and environmental impacts of Clean Coast Scotland

4.3 Marine Conservation Society (MCS)

Beachwatch, the flagship event of the Adopt-a-Beach project, is a coastal environmental initiative organised by the Marine Conservation Society (MCS) - the UK charity dedicated to the protection of the marine environment and its wildlife.

The Beachwatch litter survey and clean-up is a national event that has taken place on the third weekend of September every year since 1993. Thousands of volunteers from around the UK spend a few hours of the Beachwatch weekend helping to clean up our coastline, supporting MCS's campaign to reduce litter on our beaches and at sea. The beach watch results are coordinated with the International Coastal Clean Up staged on the same weekend in the USA.

The Adopt-a-Beach campaign was launched in 1999 to raise awareness about the problem of marine and coastal litter, and help MCS build a better understanding of how litter varies with environmental factors and seasonal use. The aim is to establish a network of adopted beaches around the UK to ensure beach litter is collected and data on the sources is obtained. Communities that adopt a beach are encouraged to carry out four surveys a year. This data is used by MCS at a national level to influence government policy and beach management, and at regional and local levels by those who have adopted the beaches, encouraging local community involvement. See Appendix 2 for Adopt a beach lists for the Moray Firth. However, it would appear resource limitations means that Adopt a Beach data has not been analysed to the extent the MCS might wish.

Discussions with MCS have revealed they will not be publishing a report for 2005. Beach owners in Wales raised concerns over the 2005 report, which they allege was used by the media to target them unfairly. This

means data will not be presented in a way which is comparable with previous reports. The MCS is also insisting that beach owners give permission prior to collection data being released.

The Suffolk Coast and Heaths project has gained permissions from beach owners and has commissioned MCS to produce regional report. A draft is included with this report.

4.4 Blue Flag

The Blue Flag is an exclusive eco-label awarded to around 3100 beaches and marinas in 35 countries across Europe, South Africa, New Zealand, Canada and the Caribbean in 2005. The Blue Flag Campaign is owned and run by the independent non-profit organisation Foundation for Environmental Education (FEE). The Blue Flag works towards sustainable development at beaches/marinas through strict criteria dealing with water quality, environmental education and information, environmental management, and safety and other services.

4.5 The Green Blue

In 2005, the British Marine Federation and Royal Yachting Association were awarded funding from the UK Government's Environment Action Fund to deliver an environmental awareness programme to their members and the wider boating public. The project was branded "The Green Blue". The Crown Estate is supporting the project through its Marine Stewardship Fund enabling the project to focus on issues that are relevant to Scotland.

The Green Blue works in three ways: awareness raising, practical projects and research. The Green Blue has already raised awareness in around 300,000 recreational boaters about key environmental messages. Setting up practical 'demonstration' projects to try out new technology or new ways of doing things already looks likely to bear fruit, with the development of a low-cost technology to clean up boat wash-down from pressure washing.

A desk study of existing data sources led to a report 'The Environmental Interactions of Recreational Boating'. Around 400 papers, reports and data sources have been collated in a searchable database and are now being analysed to assess what quantitative data exists to provide evidence for recommendations and to identify where knowledge gaps lie.

Current figures show that in Scotland there are 8,576 RYA members, 148 RYA affiliated clubs, 200 RYA sail training centres and 50 BMF member companies (leading marine companies including hire/charter businesses, marina operators etc). The industry is a growing one and it is important to ensure that this growth is carried out in a sustainable way.

The Green Blue hopes to educate and inform the recreational boating community about their environmental impacts, emphasising how to avoid or minimise these by taking a few incremental steps. The campaign aims to be positive in tone, encouraging rather than lecturing to encourage working towards an environmentally self-regulating boating community.

4.6 National Aquatic Litter Group

UK National Aquatic Litter Group (NALG) aims to achieve a quantifiable reduction in the amount of litter in rivers and the sea around the United Kingdom from domestic and international sources and to enhance the quality of local aquatic environments through systematic programmes of work." www.nalg.org.uk The group appears to be dormant

4.7 KIMO (Kommunenenes Internasjonale Miljøorganisasjon)

4.7.1 Fishing for Litter Project

The Fishing for Litter Scotland is a three-year project, 2005 –2008, funded by Scottish Natural Heritage, The Crown Estate, Scottish Executive, Shetland Enterprise, Aberdeenshire Council and the Western Isles Council which aims to engage the fishing industry in reducing marine litter. Participating boats are given hard wearing 1m³ bags in which to collect marine litter which accumulates in their nets during normal fishing activity. The bags are then taken ashore and disposed of on land removing the litter from the marine environment and preventing it washing ashore. The aim of the Project is to establish a network of ten harbours with 100 participating boats and to collect 500 tonnes of marine litter over the three-year period. The Fishing for Litter Scotland Project, co-ordinated by KIMO UK and launched in May 2005, has added another two harbours to its existing network. Fraserburgh and Aberdeen have joined the scheme adding to the existing harbours in Lerwick, Scalloway and Peterhead. This allows the 40 boats currently involved in the scheme to participate even when they are not landing at their homeport. Over the next year the project hopes to add another six harbours providing a Scotland wide network for participating boats.

Captain Andrew Ironside, Harbourmaster at Fraserburgh stated, *“In the port we are always giving consideration to ways of improving the quality of the local environment. We agreed to participate in this scheme because we saw that it could be a simple yet effective way of tackling the problem of marine litter.”*

4.7.2 Save the North Sea Project

Over 20 000 tons of marine litter is annually dumped into the North Sea. This makes marine litter one of the worst environmental problems in the North Sea region. The goal of the [Save the North Sea project](#) is to reduce marine litter in the North Sea by changing the attitudes and behaviour of the people using the area. The project is focused on reducing the environmental impact of marine litter and its social, economic and ecological consequences.

- Changing attitudes and behaviour

The project works towards changing the attitudes and behaviour of those stakeholders who are part of the sources of marine litter and investigate why the marine litter situation persists despite EU directives and conventions. A campaign will tie together research, market surveys, and training course activities into one united project with a common message.

- Contribution to a sustainable development

The main aim of the project is to contribute to a sustainable and balanced development in the North Sea Region. This will be done by influencing the attitudes and behaviour among the shipping, offshore, fishing and recreational sectors that use the region for commercial and recreational purposes.

4.8 OSPAR

The OSPAR Convention is an international agreement for the protection of the North East Atlantic. The Convention was ratified by 16 contracting parties and entered into force on 25 March 1998. The Paris and Oslo Conventions have covered marine pollution in the area of the North East Atlantic since the early 1970's. Under the new OSPAR Convention contracting parties are required to take all possible action to prevent and eliminate pollution of the North East Atlantic. They must:

- Adopt programmes and measures in pursuit of these objectives;
- Harmonise their policies and strategies;
- Apply the precautionary principle; and,
- Impose controls corresponding to best available techniques and best environmental practice.

The work of OSPAR is conducted through a secretariat and a number of working groups. The Working Group on Impacts on the Marine Environment (IMPACT), now part of the Biodiversity Committee of OSPAR, has litter included in its remit.

5 Monitoring

5.1 Beach Quality Measures

There is little co-ordinated effort to monitor the effects of beach litter around the Moray Firth. The most consistent data set is from the Marine Conservation Society, Beach Watch and Adopt a Beach schemes. Since 1998 beach litter has been recorded in a consistent manner. Pre 1998 there is some patchy information derived from consultancy reports and Tidy Britain Beach cleans in the late 1980s. However, comparisons are difficult as information has not been collected in a similar way.

The Beach Watch information is considered relatively robust and responses suggest a relative consistency in the data collected. There has been modest increase since 2002 in the number of Moray Firth beaches covered by the Beach Watch scheme.

- Beach Watch Surveys on 11 Moray Firth Beaches in 2005
- Eight Seaside Award Beaches in Moray Firth area in 2005

Brora	Portmahomack
Dornoch	Shandwick Bay
Embo	Nairn central (Resort category)
Golspie North	Moray – none
Golspie South	Aberdeenshire - none

- No Blue Flag Beach Awards in Moray Firth area in 2005
- No Blue Flag Marina Awards in Moray Firth area in 2005

5.2 User satisfaction levels

The largest source of beach litter is beach users; they are also the group most likely to be affected by beach litter, especially litter. However, there are no measures that record user satisfaction with the 'beach product'. It is proposed that contact be made with tourist organisations to seek indications of visitor satisfaction. For example in 1993 Banff and Buchan District Council recorded 6 complaints about beach litter per annum

6 Conclusions

- Over 80 beaches around the Moray Firth have been identified in reports, studies, awards and designations relating to beach quality.
- Beach litter management throughout the Moray Firth remains very patchy in its application.
- There are a confusing number of schemes with different titles and objectives. Coordination between the schemes is not apparent.
- The number of beaches submitting records to Beachwatch is slowly increasing. However, the number of volunteers remains relatively low. In September 2005 one third of Beachwatch events attracted 5 or less participants.
- Poor record keeping on beach management by councils and by volunteer groups means it is difficult to track litter trends and cleaning effort.
- In the last decade there have been major changes in the nature of beach litter, with SRD items in particular declining significantly.
- Beach visitor litter remains the major identifiable component of beach litter at levels over twice that of litter from fishing sources.
- There are no measures of beach user satisfaction
- It is difficult to attribute litter to a specific source as litter can be persistent and remain in the Moray Firth ecosystem for many years.
- Reducing this component is a complex challenge and it should be noted that an increase in beach users may be the cause and the actual 'unit of litter per user' may have remained constant. This conclusion points to the need to get the litter message to a wider audience.

6.1 Recommendations

Beach Guardians is a project managed by the Moray Firth Partnership. The project aims to;

- Raise awareness and change attitudes and behaviour
- Reduce through clean ups
- Carry out stakeholder initiatives
- Research, survey and reporting

In line with these aims it is recommended the Moray Firth Partnership Beach Guardians project should:

- a) Encourage more groups, organisations and individuals to participate in Beach Watch and Adopt a Beach.
- b) Encourage groups who participate in the Beach Watch scheme to submit their data to the Marine Conservation Society and to the MFP.
- c) MFP to coordinate, in partnership with local authorities in the collation of regional level information on beach quality and beach cleans
- d) Promote cross compliance whereby beaches are encouraged to go for multi awards and scheme Using a 'lead' designation will avoid confusion amongst communities and users. eg All Seaside Award Beaches (lead designation) should also be in Beach Watch and Adopt a Beach.
- e) Commission the Marine Conservation Society to prepare a regional beach report for dissemination around the Moray Firth along the lines of the Suffolk report.
- f) Encourage tourism and community stakeholders to record both levels use and of beach user satisfaction.
- g) Prioritise awareness raising amongst key target groups particularly
 - Community councils
 - Beach users
 - Tourism providers
 - Fishing interests
 - Shipping

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www.marlab.ac.uk

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8 Contacts

KIMO (Local Authorities International Environmental Organisation)

KIMO Secretariat

Shetland Islands Council

Infrastructure Services Dept

Grantfield, Lerwick, Shetland

ZE1 0NT

United Kingdom

Tel +44 (0)1595 744800

Fax +44 (0) 1595 695887

Website www.kimointernational.org

Appendix 1 – Moray Firth MCS Beachwatch results 2000 to 2005

Beach County	Beach Name	Beach Length Surveyed	Beach Visitors		Fishing		SRD		Shipping		Fly Tipped		Medical		Non sourced Items		Total Vols	No of items	
			(no of volunteers)	Items /m	%	Items /m	%	Items/ m	%	Items/ m	%	Items/ m	%	Items/ m	%	Items/ m			%
2005 (14)																			
Caith	Keiss	200 (14)																	
Suth	Golspie	100 (36)																	
Suth	Domoch																		
Ross	Munlochy	100 (1)																	
Ross	Hilton of Cadboll																		
Moray	Spey Bay	350 (20)																	
Moray	East Beach Lossiemouth	500 (13)																	
Moray	West beach Lossiemouth	100(4)																	
Moray	Covesea Westside	100 (2)																	
Moray	Covesea Eastside	100 (2)																	
Moray	Hopeman	120 (25)																	
Abdn	Banff Links	700 (55)																	
Abdn	Sandhaven	100(30)																	
Abdn	Fraserburgh Bay	100 (5)																	
AV																			
2004(7)																			
Abd	Rosehearty	1000	0.1	20.1	0.1	14.9	0.0	0	0.0	1.0	0	7.4	0.0	0.2	0.3	54.9	9	497	
Caith	Keiss	500	0.8	24.2	0.8	23.3	0.0	0.1	0.3	9.7	0.0	1.4	0.0	0.1	1.4	41.3	28	1660	
Moray	East Beach Lossiemouth	500	0.4	45.6	0.1	14.1	0.0	2.6	0.0	1.3	0.1	7.4	0.0	0.2	0.3	28.9	15	461	
Moray	Roseisle	2375	0.2	51.1	0.1	22.0	0.0	1.5	0.0	1.8	0.0	0.5	0.0	0.2	0.1	23.1	22	979	
Moray	Spey Bay	100	4.8	48.5	0.4	4.4	0.0	0.1	0.3	2.5	0.1	0.6	0.0	0.2	4.3	43.7	24	985	
Inverness	Ardeseir	100	3.0	33.4	0.5	5.7	1.0	11	0.18	2.0	0.06	0.7	0.12	1.3	4.1	45.8	10	895	
Inverness	N Kessock	100	3.0	38.25	0.14	1.8	0.5	6.3	0.08	1.0	0.07	1.0	0.04	0.5	4.0	51.2	16	779	
AV				37.3		12.3		3.1		2.8		2.7		0.4		41.3			
2003 (7)																			
Caith	Freswick	100	0.6	11.3	2.2	44.4	0.0	0.2	0.1	2.2	0.0	0.4	0.0	0.0	2.1	41.4		495	
Caith	North Baths Wick Harbour	200	2.0	43.7	0.6	12.1	0.0	0.2	0.2	3.7	0.1	2.0	0.0	0.0	1.7	38.3		909	
Moray	East Beach Lossiemouth	500	0.8	56	0.2	11.8	0.0	1.6	0.0	1.2	0.0	0.3	0.0	0.4	0.4	28.8		757	
Moray	Lossiemouth West	100	2.7	84.5	0.1	1.9	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.4	13		316	
Moray	Roseisle	2746	0.3	48.7	0.1	19	0.0	0.8	0.0	1.4	0.0	0.7	0.0	0.1	0.2	29.3		1547	
Moray	Spey Bay	100	7.5	56.9	0.8	6.3	0.1	0.9	0.4	2.7	0.1	0.5	0.0	0.0	4.3	32.7		1311	
Moray	Findhom Bay	1000	0.3	64.9	0.0	2.7	0.0	2.0	0.0	0.7	0.0	1.4	0.0	0.0	0.1	28.3		441	
AV				52.3		14		0.8		1.7		0.8		1.3		30.2			

2002 (6)																		
Abd	Fraserburgh	150	3.8	28.3	6	44.8	0	0.3	0.3	1.9	0	0.3	0	0	3.3	24.5		2000
Caith	Berriedale	300	0.2	27.6	0.2	21.7	0	0	0	5.9	0	3.2	0	0.5	0.3	41.2		221
Caith	North Baths Wick Harbour	200	3.3	40.1	1.2	14.9	0	0.4	0.3	3.6	0.1	0.9	0	0	3.3	40.1		1628
Moray	East Beach Lossiemouth	1610	0.3	54	0.1	10.7	0	3.3	0	2.6	0	0.8	0	0.2	0.2	28.4		932
Moray	West Beach Lossiemouth	100	3.4	82.5	0	0.7	0	0.5	0	0.5	0	0	0	0.2	0.7	15.6		417
Moray	Roseisle	2976	0.3	43.9	0.1	17.6	0	3.3	0	1.6	0	0.4	0	0.1	0.2	33.1		1987
AV				46		18.4		1.3		2.7		0.9		0.2		30.5		
2001(8)																		
Ahn	Fraserburgh Bay	1500	1.1	36.2	0.6	18.2	0	0.3	0	2.1	0	0.5	0	0	1.4	42.6		4776
Caith	Berriedale	300	0	25.3	0	26.5	0	1.2	0	3.6	0	1.2	0	0	0.1	42.2		83
Moray	East Beach Lossiemouth	500	0.6	57.5	0	2	0	4.5	0	1.1	0	0.4	0	0.7	0.38	33.9		555
Moray	Findhom Back Shore	750	0.3	36.2	0.3	33.2	0	1.3	0	1.0	0	0.9	0	0	0.26	27.5		699
Moray	Roseisle	2376	0.2	43.8	0	16.6	0	2.5	0	2	0	0.5	0	0.2	0.15	34.3		1034
Moray	West Beach Lossiemouth	100	3	74.3	0	1.7	0	0.7	0	1.2	0.14	3.5	0	0	0.7	18.5		401
Rosshire	Alness Point	200	0.2	30.5	0	3.8	0	9.9	0	3.1	0	1.5	0	0	0.3	51.1		131
Rosshire	Kilteam	270	2.9	65.8	0	0.6	0	0.4	0	0.4	0.6	13.9	0	0	0.8	18.8		1173
AV				46.2		12.8		2.6		1.8		2.8		0.1		33.6		
2000 (2)																		
Caith	Wick Harbour North Shore	200	2.9	41.5	0.3	5.1	0	0.6	0.2	3.8	0	1.2	0	0	3.3	47.8		1411
Moray	Roseisle	1876	0.3	47.9	0	14.4	0	2.8	0	2.8	0	1	0	0	0.2	31.1		1278
AV				44.7		9.75		1.7		3.3		1.1		0		39.6		
1999 to 1993	No MF beaches recorded in the MCS scheme																	

1990 Sample Sites		1990 SRD items/m	1990 SRD proportion of finds %	Non sourced items
	<i>Median from 7 sites in the Beuly Firth</i>	0.8	33	2
	<i>Median from 15 sites in the Inverness Firth</i>	1.0	32	2.4
	Helmsdale	0	0	2.6
	Brora	0	0	0
	Golspie	0.6	43	0.8
	Domoch	0.2	12	1.4
	Findhom	0.4	18	1.8
	Lossiemouth	2.6	52	2.4
	Rosehearty	2.2	52	2.0
	Rosehearty	0.8	33	1.6
<i>Median</i>		0.5	25	1.7

Appendix 2 Relationship between Moray Firth Beaches and management activity

	All beaches mentioned in the reports	2005 Adopt a beach	2005 Seaside award	2005 Designated Bathing Waters	2005 Beach watch	2004 Beach watch	2003 Beach watch	1994 Cleaning Report	1990 Beach Survey	Ad hoc cleans	2001 HOST leaflet	Eco Schools Register plus schools close (walking distance) to beaches
1	Shell Beach John o Groats										X	
2	Sannick										X	
3	Keiss/Sanigoe	X				X					X	Keiss PS
4	Freswick						X				X	
5	Reiss										X	
6	North Baths Wick Harbour						X					Wick PS
7	Helmsdale Portgower Lothabeg								X			
8	Brora		X						X		X	
9	Golspie North		X						X			Golspie PS
10	Golspie South		X		X						X	Golspie High School
11	Littleferry									2004	X	
12	Embo		X								X	
13	Domoch		X	X				X	X		X	Domoch Academy Edderton PS
14	Tain							X				Tain Royal Academy St Duthus PS
15	Inver							X				Inver PS
16	Portmahomack		X					X			X	Tarbat Old PS
17	Rockfield	X										
18	Hilton of Cadboll				X							Hilton PS
19	Shandwick Bay Balintore		X					X			X	Hill of Fearn PS
20	Nigg Beach											Milton PS
21	Cromarty							X				
22	Udale Bay										X	
23	Invergordon											South Lodge PS
24	Alness Point									200?		
25	Balconie Point Evanton									200?		Kilteam PS
26	Rosemarkie Channory Point							X			X	
27	Avoch							X				Avoch PS
28	North Kessock									2004		North Kessock PS
29	7 sites in the Beaully Firth Brichnain House								X			Kirkhill PS Beaully PS

	Bundrew Hotel Phopachy Redcastle Corgrain Point Craigory Charlestown											
30	15 sites in the Invemess Firth Longman Outfall N Kessock Outfall Allanfearn Outfall Kilmuir Crosshill Avoch Fortrose Chanony Ness Chanony Point Longman Point Milton of Culloden Blackhill Bothyhill Ardeiseir Fort George								X	Ardesier 2004		Ardesier PS
31	Naim West											
32	Naim East			X				X				
33	Naim Central		X	X				X				
34	Culbin sands											Dyke PS
35	Findhorn	X					X		X			
36	Spey Bay				X	X						
37	Burghead Roseisle	X			X	X						Burghead PS
38	Hopeman East	X										Hopeman PS
39	Covesea	X										
40	Lossiemouth W	X					X					
41	Lossiemouth E				X	X			X			
42	Buckie											Buckie High School Portgordon PS
43	Portessie Findochty											Portessie PS
44	Sunnyside							X				
45	Cullen			X								Portknockie PS
46	Sandend							X				
47	Portsoy							X				
48	Whitehills Knock head							X				Whitehills PS
49	Inveboyndie- Banff Links			X	X			X				Banff PS
50	Banff Bridge							X				
51	Palmer Cove							X				

52	Banff						X				
53	Tarlair Macduff						X				MacDuff PS
54	Gamrie Bay Gardenstown						X				
55	Cullykhan						X				
56	Pennan Bay						X				
57	New Aberdour						X				
58	Rosehearty	X		X		X	X	X			
59	Sandhaven	X			X		X				Sandhaven PS
60	Broadsea						X				
61	Fraserburgh			X			X				
62	Fraserburgh Bay			X			X				

Appendix 3 Adopt a beach sites in the Moray Firth from the MCS web site

Caithness	"Sandigoe Beach, next to Sindsair-Girnigoe castles, off Sindsair Bay"	Ian	Sinclair	Either	01955 606700	01955 606700	ian@clansinclair.co.uk
Ross-shire	"Balloan, by Rockfield"			Contact MCS			aab@mcsuk.org
Moray	Covesea E and W (Primrose Bay)			Contact MCS			aab@mcsuk.org
Moray	Lossiemouth West			Contact MCS			aab@mcsuk.org
Moray	Roseisle	Bill	Wardlaw	Email			bill_wardlaw@hotmail.com
Morayshire	Findhorn Bay	Doug	Hawkes	Either	01343 557 048	07967 748937	doug.hawkes@moray.gov.uk
Aberdeenshire	Sandhaven Beach	Dutch	Mulholland	Phone	01346 583118		dutch_mulholland@lineone.net
Aberdeenshire	Rosehearty			Contact MCS			aab@mcsuk.org