REPORT TO MONITORING COMMITTEE
OF
2015
ENVIRONMENTAL SURVEYING AND MONITORING PROGRAMME
OF THE
WILD ATLANTIC WAY

WILD ATLANTIC WAY OPERATIONAL PROGRAMME 2015-2019

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1. Introduction

This is a first report to the Monitoring Committee about the results of the Environmental Surveying and Monitoring Programme that is being carried out to assess the effects of the implementation of the Wild Atlantic Way Operational Programme 2015 – 2019.

The ruggedness of Atlantic Ireland belies its environmental sensitivity, which is reflected in the fact that a significant portion of the length of the Wild Atlantic Way is designated to protect its ecological, scenic, historic and cultural sensitivity.

From the outset, Fáilte Ireland have been aware of concerns that the Wild Atlantic Way could increase pressures on these sensitive areas. A Strategic Environmental Assessment and the Appropriate Assessment [of the ecological effects] informed the design and development of the Operational project – from the outset.

The result was that Wild Atlantic Way Operational Programme aimed, in its conception, to avoid and minimise impacts on the natural environment and to raise awareness and engender protection of the wealth of natural assets along the Atlantic coast. As a result of this process Fáilte Ireland are committed to continuous monitoring of the environmental effects of the Wild Atlantic Way.

Reporting to Monitoring Group

Fáilte Ireland are committed to presenting the results of Wild Atlantic Way monitoring activities to a Monitoring Group twice each year.

The objective of the Monitoring Groups will be to ensure that that robust systems are in place, in appropriate existing authorities, to ensure that all key commitments made at the programme level will be delivered effectively (including at the appropriate time), and to ensure that no adverse effects on the integrity of the environment will result.

The first meeting will be to present and review the results of monitoring during the previous six months. The purpose of the meeting will be to identify areas where monitoring highlights the existence or emergence of excessive loading on the environment. This information can then be used by relevant members of the Working Group to identify protective, remedial or improvement actions within their own areas of responsibility during the following year.

The second meeting, in Q1 of the following year and in advance of the tourist season commencing, will be to approve the proposed next annual monitoring programme. The purpose of the meeting will be to ensure that monitoring is addressing areas of concern using methods and personnel that are appropriate. A secondary purpose would be to review progress made in addressing concerns raised by previous monitoring – in order to amend monitoring accordingly.

An annual summary of the results of monitoring will be publically available on the Fáilte Ireland

Background

The Wild Atlantic Way is a branding exercise that unifies a series of existing and long-established touring routes along existing roads, viewing points and lay-bys. These predominantly seasonal activities have evolved over many years and now co-exist with a wide range of other year-round uses including farming, forestry and uses associated with settlement.

Tourism and its promotion are long-established activities in Ireland. The first promotion of Irish tourism is generally credited to Thomas Browne, 4th Viscount Kenmare who began to promote Killarney and its environs in the 1750's. By the beginning of the 20th century, tourism was being actively branded and promoted on a national scale, initially by the Irish Tourism Association and

subsequently by Bord Fáilte since 1955 who have continually and consistently promoted Ireland as a tourist destination both as a country and as specific local/iconic destinations.

Touring guides to Ireland date to the late 18th century and large-scale touring in Ireland dates back to the latter part of the 19th century. At that time railways and associated large hotels offered access to areas, such as the West of Ireland, that had hitherto been remote and inaccessible. Indeed one major part of the Wild Atlantic Way (between Killarney and Glengarriff) has been in existence since the 1860's when it was known as The Prince of Wales Route.

Thus, it is important to understand that all Wild Atlantic Way routes are existing touring routes, on existing and long established public roads that have been subject to long-established promotion activities. The routes, their promotion and the intensity of their use are not new. It is acknowledged, however, that the Wild Atlantic Way itself constitutes a concerted promotional effort with the intention of sustainably growing revenue from tourism within the Atlantic coastal counties of Ireland.

Environmental Surveying and Monitoring Programme

To address the issue of ensuring that sustainably growing revenue from tourism within the Atlantic coastal counties of Ireland, without compromising the receiving environment, a surveying, monitoring and reporting strategy has been commenced to identify and assess environmental impacts of visitors at sites along the Wild Atlantic Way.

This investigates the actual effects of a range of representative tourism activities at a range of sites along the Wild Atlantic Way. The survey work commenced with a very detailed examination of the activities of visitors – to identify areas of concentration and pressure. The areas thus identified were then subjected to detailed ecological investigation to assess the actual effects. In parallel to this site-specific work a high-level monitoring programme has commenced that examines the well-being of the overall environment at the level of the counties in which the Wild Atlantic Way is located.

The monitoring includes the compilation of relevant regional data that is collected by other agencies as well as site specific data collected on behalf of Fáilte Ireland. Future monitoring will expand to include other candidate Discovery points prioritised in order of sensitivity and significance as directed by a Monitoring Group. Part of this work involves the development of generic monitoring methodologies and templates that may be used across a range of sites and conditions.

The principle concern is the capacity of the receiving environment, giving particular regard to European Sites, to sustainably absorb the impacts of the activities of existing visitors, and new. The monitoring examines individual sites as well as larger-scale and regional indicators. It examines the types, spatial patterns and intensity of existing visitor activities at and adjacent to candidate Discovery Points. This work serves to direct monitoring ecologists to areas known to receive maximum, moderate, minimum and no loading. The ecologists survey these and control areas, having particular regard to the specific conservation objectives of relevant European Sites.

Monitoring work is intended to describe the existing conditions of sites with a view to:

- contributing to Visitor Management Strategies;
- contributing to future editions of Fáilte Ireland's Wild Atlantic Way Guidelines;
- identifying medial action/works required;
- assessing the capacity for future loadings;
- integrating site management with future European Site Management Plans.

In particular, the benchmark surveys at particular sites are intended to provide a factual basis for the future development of evidence-based design guidelines for tourism projects in Ireland and for the prior assessment of likely effects in areas of likely intensification or development of future tourism activity. The Strategy is also intended to guide future monitoring, surveying and evaluation of the likely effects of tourism activities at ecologically sensitive sites. It can be used to guide decisions regarding the maintenance, protection and mitigation of likely effects at these sites using an evidence-based approach to support resolutions.

The Environmental Surveying and Monitoring Strategy is based on a pilot ex-post survey that has provided benchmarks for the effectiveness of survey methods and facilitated the preparation and presentation of evidence about the likely effects of tourism on the receiving environment with increased level of reliability. This pilot survey was undertaken as part of the Burren and Cliffs of Moher Geopark LIFE Project[1].

The Environmental Survey and Monitoring Strategy is intended to produce data relating to:

- movement patterns of visitors at sites along the route;
- variations in visitor/traffic numbers;

[1] The Burren and Cliffs of Moher Geopark Co. Clare have been designated as one the European Geoparks Network for its unique glacio-karst landscape. It is recognised by UNESCO and is involved in the EU Life Project. Demonstration sites within the Geopark have been chosen as part of the EU Life Project requirements. These sites differ in size and represent a range of environments. The Burren and Cliffs of Moher Geopark is one of a number of locations worldwide the form part of the Global Network of National Geoparks.

- water quality effects at tourism settlements along the route;
- increases in tourism related planning applications;
- patterns of visitor activity, movement and behaviour at candidate Discovery Points and control sites;
- an indication of types of impacting activities at candidate Discovery Points and control sites;
- an indication of extent of ecological effect zones at candidate Discovery Points and control sites; and the need and type of mitigation responses.

The results aim to identify the extent and significance of effects from both typical circumstances and those that give rise to increased effects. This evidence can then be used as a guide for designers, decision-makers and the general public at times when the likely effects of proposed tourism activities are being evaluated.

The Strategy for Environmental Surveying and Monitoring is an evolving tool that will be informed and updated by emerging findings. It promotes an opportunity to set a precedent for monitoring and to carry out research into the likely effects of implementing the Wild Atlantic Way Operational Programme. The results will facilitate a best practice approach when incorporating environmental considerations into all aspects of route implementation.

The purpose of the monitoring is to ensure that the effects of the implementation of the Operational Programme are understood and acted upon to ensure that there will be no delays in identifying existing or emerging activities that could threaten the environment. This document sets out the Strategy for Environmental Surveying and Monitoring for the Wild Atlantic Way Operational Programme.

The collection of a combination of macro data, observational and ecological evidence provides the basis for the definition of monitoring for site-specific vulnerabilities as well as site specific indicators in addition to the indicators used among all sites. The former can be used to guide specific project and management interventions, while the latter can be used to report on the sustainability of emerging use patterns on a larger over a longer time.

The carrying out of surveying and monitoring will form the basis for the development of evidence-based studies that will assist users in collecting data on patterns of adverse environmental effects for use in the development and management of the sites.

Objectives for surveying and monitoring impacts of visitor at sites

The Environmental Survey and Monitoring Strategy encompasses three levels of monitoring:

1. Macro monitoring of regional and/or County visitor numbers and associated level effects caused by the visitor contributions to loadings on transportation, waste and water infrastructure.

2. Site Surveys of visitor behaviour to describe general activities and associated environmental effects (including wear and tear of wildlife habitats, vegetation, monuments and site features.)

3. Site Surveys to describe the specific effects on the ecology of areas that were observed to have been used/trafficked by visitors and adjacent control areas.

The objectives of the Surveying and Monitoring Strategy are:

1. To establish

    - Visitor behaviour at sites (both tourist and local)
    - Environmental conditions (sensitivities or specific site issues)
    - Causes of pressures (effects, threats and trends)

2. To Understand

    - Nature and extent of behaviours and associated effects
    - Contribution of visitor behaviour to environmental effects
    - Causes of visitor behaviour causing adverse environmental effects

3. To Inform

    - Predictions about likely effects of future behaviour (at new or intensified sites)
    - Design and management measures to avoid adverse effects

4. To measure movement patterns

    - Vehicle types, numbers, age of visitors
    - Parking, arrival, departure
    - Times

5. To establish the extent of visitor movement at specific sites

    - the distances, routes and locations, movements (zones travelled from/to sensitivities and initial landing point)
    - the numbers, frequency and duration of activities

6. To establish the nature of the visitor behaviour at sites

    - Walking, climbing interacting with site features
    - Sitting, picnicking, playing
    - Filming, photography, drawing, writing etc.

7. To evaluate

    - Activities observed to most impact the resources

- Visitor types observed to most impact the resources

The methodology is replicable and will assist in establishing trends over time and across programmes. The information collected can be assessed to identify and isolate what can:

- most efficiently be measured in future monitoring programmes;
- provide the most reliable indicators to be used for future monitoring;
- provide the most effective methodologies to be used for observation; and
- identify site-specific dynamics and pathways to guide the development of mitigation responses if required.

The evidence collected from observing visitor behaviour has been used to direct monitoring ecologists to areas known to receive maximum, moderate, minimum and no loading. The ecologists surveyed these and control areas, having particular regard to the specific conservation objectives of relevant European Sites.

The combination of observation and quantitative evidence has been used to report on programme outcomes and advise on the present impacts arising from visitor behaviour onsite and assist in developing mitigation or remedial measures as directed by a Monitoring Group.

Outline of Summary Reporting

This summary will provide the following information

Summary Report on Strand One Monitoring - using Existing Datasets
Strand One of the monitoring concentrates on long-established, high quality, official baselines that measure inter alia the seasonal variances in environmental loading caused by visitors - such as water quality, road traffic, Blue Flag Beach conditions and Green Coast Awards.

Summary Report on Strand Two Monitoring - Visitor Observation Survey
Strand Two of the monitoring concentrates on the examination of patterns of visitor behaviour at sites along the Wild Atlantic Way. The aim of the Visitor Observation Survey is to collect evidence of stay duration, activities undertaken, location and direction of excursions from vehicles.

Summary Report on Strand Three Monitoring - Ecological Survey
Strand Three of the monitoring concentrates on the collection of ecological evidence The evidence collected identifies core and secondary movement areas trafficked by users. This informs and guides the collection of ecological evidence. The zones identified during the Visitor Observation Survey provides evidence about where to examine evidence for the location, number, shape and extent of detailed ecological surveys to provide quantitative evidence of effects that can be compared to unaffected similar 'control' sites elsewhere.

2. Summary Report on Strand 1- Macro Monitoring using Existing Datasets

Figure 2.1 Macro Monitoring Location

Background

Strand One of the monitoring strategy concentrates at nine long-established, high quality, official baselines at seven locations. These measures *inter alia* the seasonal variances in environmental loading caused by visitors - such as water quality, road traffic, Blue Flag Beach conditions and Green Coast Awards.

The use of existing, robust datasets will be annually assessed to identify any emerging trends and changes in a small number of key diagnostic environmental performance indicators. These macro-indicators provide a very high level of coordination for the cumulative impact assessment of other activities. Strategic Environmental Assessment of these plans and policies – at county, regional and sectoral levels utilise the same indicators. This also facilities the isolation of the contribution of tourism though in-combination effects.

The monitoring focuses on intra-urban settlements between gateway towns along the Wild Atlantic Way. Gateways such as Cork and Galway that capture the infiltration of visitors. These also supply the high-level 'input' data for the monitoring before they become dissipated among many smaller destinations and intra-urban settlements (See **Error! Reference source not found.**). The purpose of macro monitoring is to identify the state of the environment between the gateway settlements because these intra-urban settlements, such as Bundoran in Co. Donegal, often accommodate and entertain the bulk of overnight visitors.

This strategy facilitates the direct identification and assessment, at a high level, of the effects that visitor numbers have on key environmental indicators. These use long-established baselines (from agencies such as the National Roads Authority, Environmental Protection Agency, Department of Environment, Community and Local Government, Department of Arts, Heritage and the Gaeltacht, etc.).

The 9 macro Indicators were as follows:

1. Macro Indicator 1- Water Quality
2. Macro-Indicator 2- National Roads Authority Traffic Counter
3. Macro-Indicator 3- Blue Flag Beaches
4. Macro Indicator 4- Green Coast Award
    - Green Coasts at Monitoring Points
    - Green Coasts at Control Points
5. Monitoring Indicator 5- State of Knowledge of Irelands Biodiversity
6. Monitoring Indicator 6- EPA Ireland's Environment - An Assessment (2012)
7. Monitoring Indicator 7- The status of EU Protected Habitats and Species in Ireland
8. Monitoring Indicator 8- Visitor Numbers
    - Visitor Numbers at Monitoring Points
9. Monitoring Indicator 9- Tourism Related Planning Refusal

Summary of Findings

Monitoring Indicator 1- Water Quality

'Water Quality' was the first macro-indicator of environmental status to be examined at each of the monitoring points, and control sites. The 'Water Quality' indicator is broken into two sub-indicators: Wastewater treatment plant/Agglomeration operational status, and Bathing Water Status.

1a Wastewater treatment plant/ agglomeration operational status

A number of parameters related to the operational status of each facility were assessed. Non-conformances relating to minimum water quality standards and the licenced Population Equivalent (P.E) loading for the WWTP were examined. Where a non-conformance was identified, the reason for failure was detailed.

The numbers of complaints made to each facility during the year 2014, as well as the number of reported incidents were noted. Any improvements or upgrades made to any of the facilities during the year ending 2014 were summarised.

The results show that of the 7 monitoring points and 4 control points examined for this study, only 2 (Castleisland and Galway Mutton) wastewater treatment plants/ agglomerations were compliant with Emission Limit Values in 2014. Reasons for non-compliance were regularly attributable to exceedances in permitted ELV's of ammonia and other substances. Non-compliance with ELV's at wastewater treatment plants could suggest that the facilities are serving over-populated catchment areas. Increased visitor numbers to the monitoring points and control sites along the Wild Atlantic Way during the summer months could be putting pressure on these wastewater treatment facilities, resulting in breaches in annual ELV's. Future monitoring is required.

5 of the named facilities received complaints during the year 2014, and 5 of the sites reported incidents to the EPA.

2 of the 11 wastewater treatment plants/agglomerations examined for this study had improvements or upgrades made to the facilities during the year 2014.

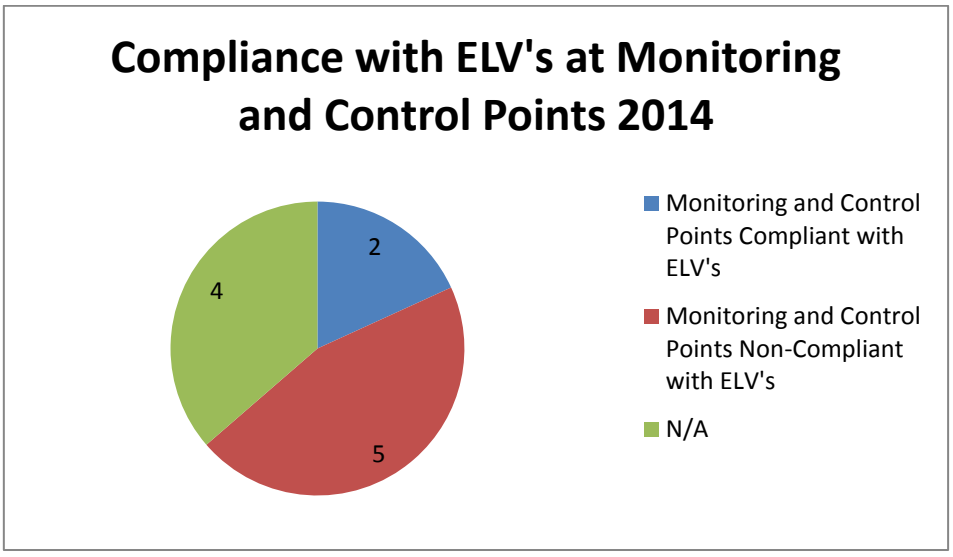

Figure 2.2 Compliance with ELV's at Monitoring and Control Points 2014

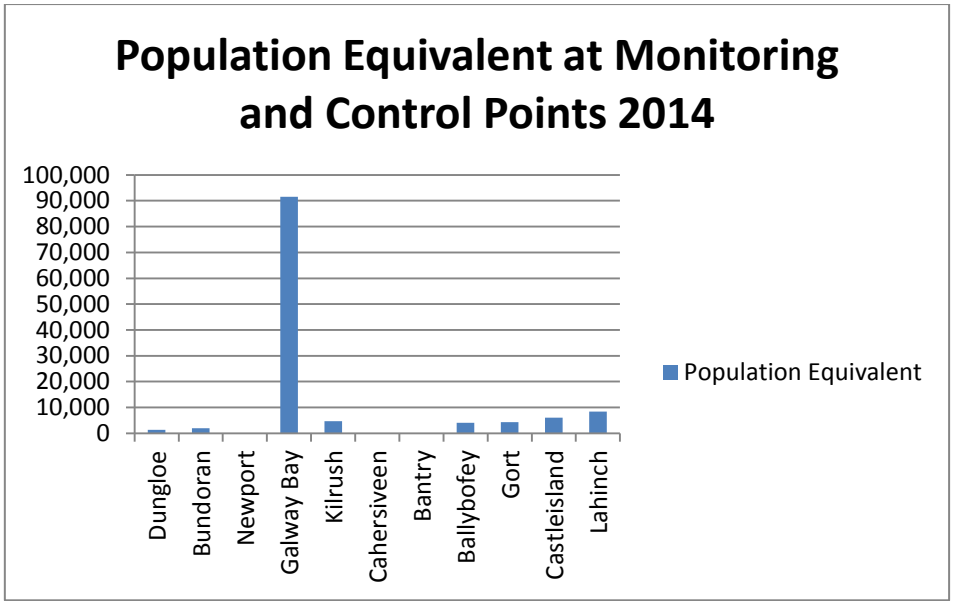

Figure 2.3 Population Equivalent at Monitoring and Control Points 2014

It should be noted that 4 of the abovementioned facilities had not published an Annual Review for the year ending 2014 at the time of this study. As such, it was not possible to determine the operational status of these four wastewater treatment plants/agglomerations.

1.b Bathing water status

The second aspect of the technical indicator 'Water Quality' involved the inspection of the bathing water status of each of the chosen settlements. This was done by comparing each of the monitoring points and control sites against its associated Bathing Water Profile, as documented on the website 'Splash' -the EPA run national bathing water information website. The 2014 Bathing Water status of each monitoring point and control site was noted, as well as any reason for non-conformity with legislative coastal water quality status, and days restricted by any short-term pollution. The bathing water status of a site is noted as being 'excellent,' 'good' 'sufficient' 'poor', or having 'no data.'

The results of this monitoring indicator should be reviewed and compared annually in order to determine upwards or downwards trends in bathing water quality. Continuous recordings of 'poor' or 'sufficient' water quality might indicate tourism related pollution of bathing waters.

15 'Bathing Water Monitoring Sites' at 7 of the established monitoring points and control sites along the Wild Atlantic Way were examined. Please note that some of these sites are associated with more than one EPA 'bathing water monitoring site' and thus have more than one definitive 'bathing water status.' Some of the monitoring points and control sites along the Wild Atlantic Way are not associated with any EPA 'bathing water monitoring sites', and thus the 'bathing water status' of these sites cannot be determined. .

Of the 15 bathing water monitoring sites examined, 13 were found to have 'Excellent' bathing water status. According to the Bathing Water Regulations, 2008, and as referenced by '*Splash*';

"Bathing waters are to be classified as "excellent":

1. if, in the set of bathing water quality data for the last assessment period, the percentile values for microbiological enumerations are equal to or better than the "excellent quality" values set out in Schedule 4, column B; and
2. if the bathing water is subject to short-term pollution, on condition that:
   (i) Adequate management measures are being taken, including surveillance, early warning systems monitoring, with a view to preventing bathers' exposure, by means of warning or, where necessary, a bathing prohibition;

(ii) Adequate management measures are being taken to prevent, reduce or eliminate the causes of pollution; and
(iii) the number of samples disregarded in accordance with Regulation 7(4) because of short-term pollution during the last assessment period represented no more than 15% of the total number of samples provided for in the monitoring calendars established for that period, or no more than one sample per bathing season, whichever is the greater.

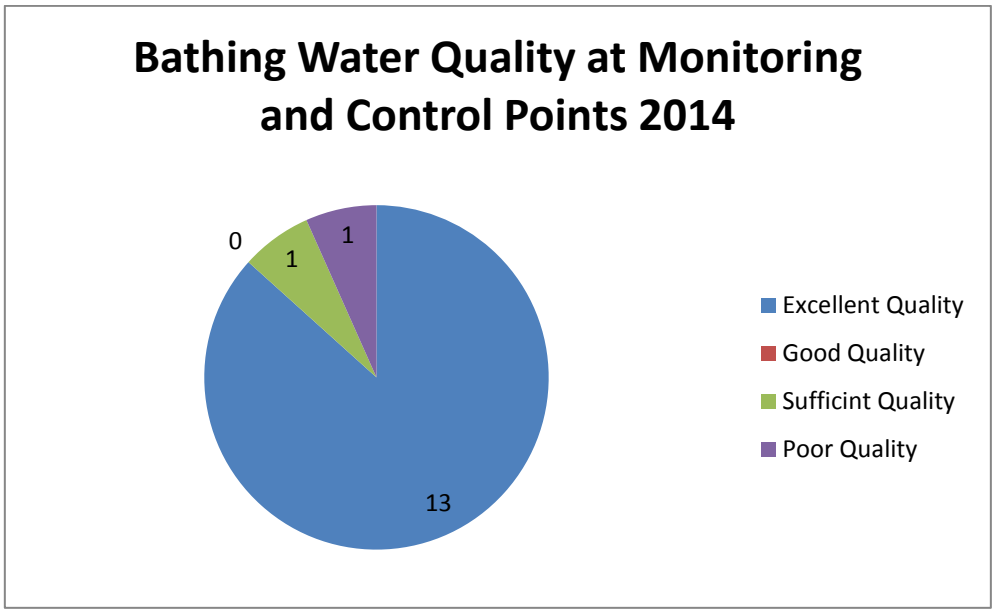

Figure 2.4 Bathing Water Quality at Monitoring and Control Points 2014

Monitoring Indicator 2- National Roads Authority Traffic Counter

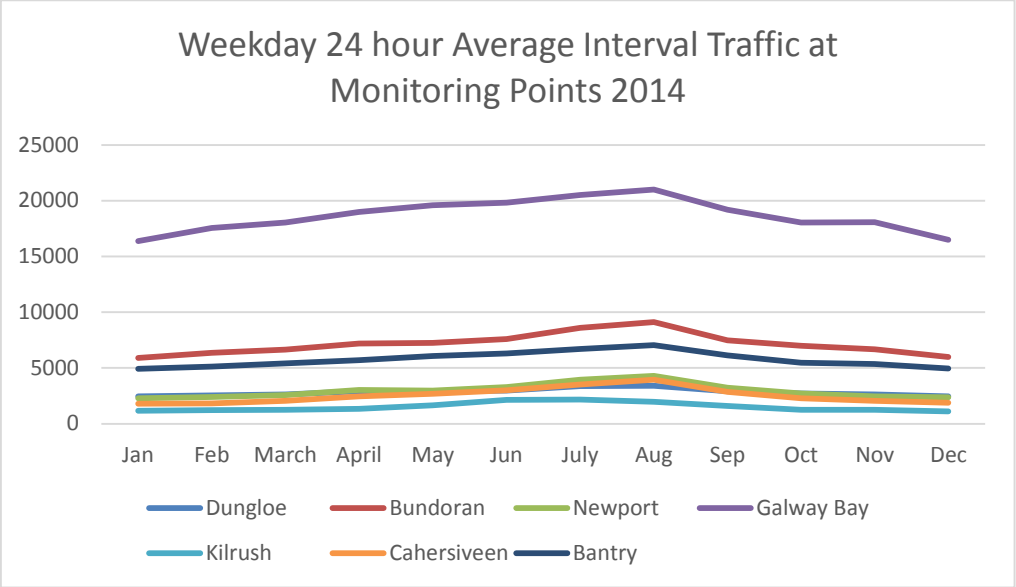

Figure 2.5 Weekday 24 hour average interval traffic at monitoring points 2014

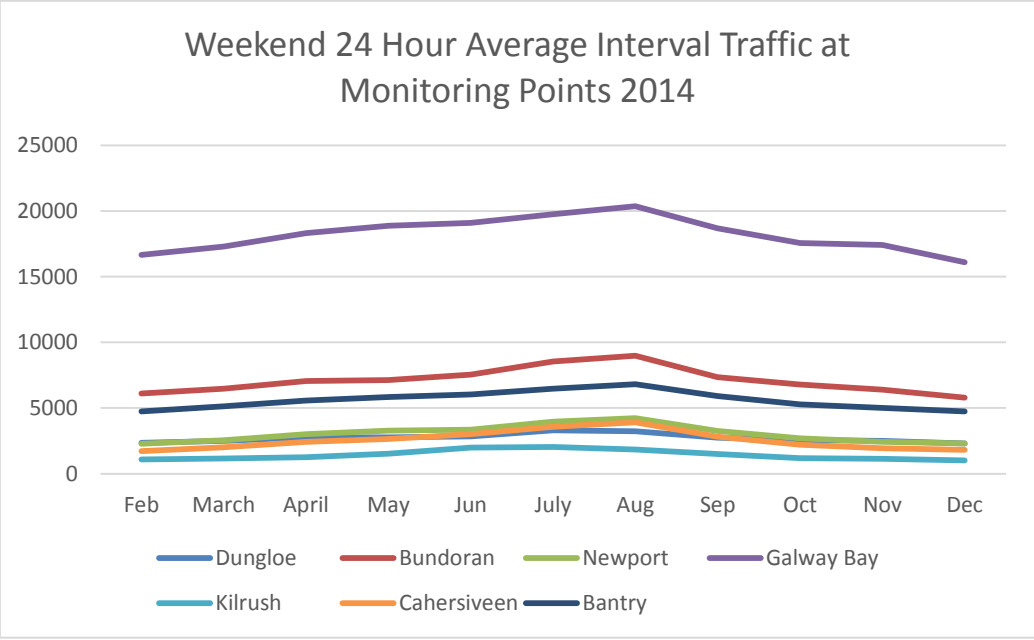

Figure 2.6 Weekday 24 hour average interval traffic at monitoring points 2014

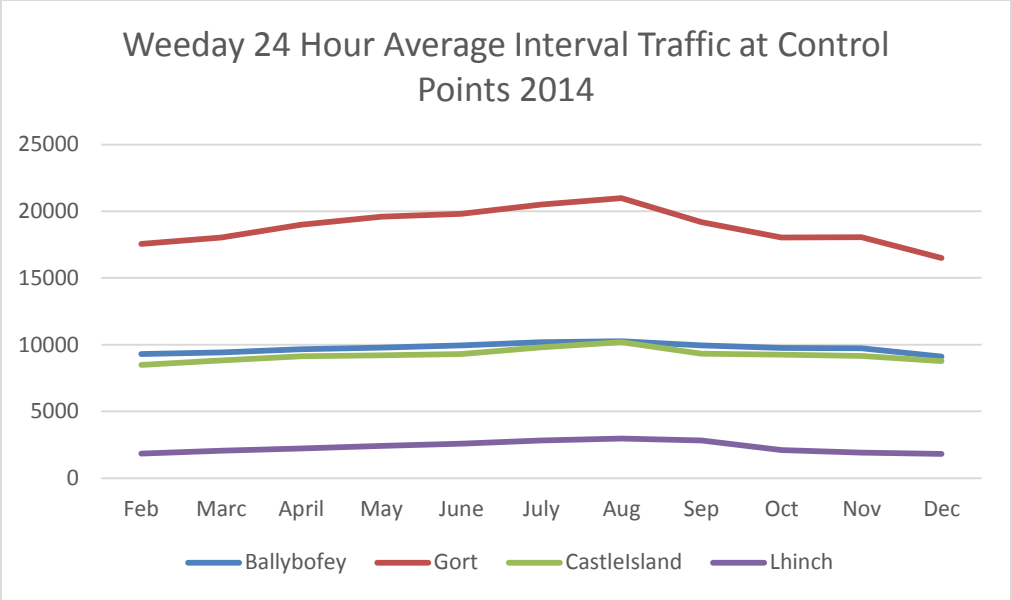

Figure 2.7 Weekday 24 hour average interval traffic at monitoring points 2014

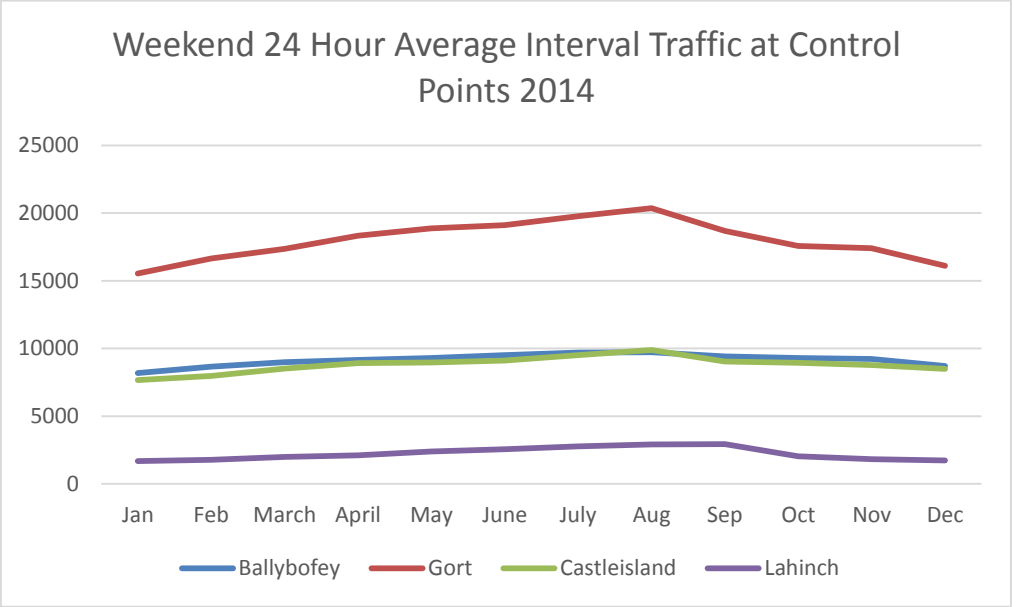

Figure 2.8 Weekend 24 hour average interval traffic at control points 2014

The results of this macro indicator show that in 2014 there was an increase in 24 hour average interval traffic volumes during both weekends and weekdays, at all monitoring and control points during the summer months. This increase in average interval traffic at the monitoring points and control sites examined is likely attributable to an influx of tourists (domestic and foreign) travelling to and from the Wild Atlantic Way sites during the summer months.

Monitoring Indicator 3- Blue Flag Beaches

The monitoring and technical Indicator 'Blue Flag Beaches' was applied to each of the monitoring points and control points. The Blue Flag is operated in Ireland by An Taisce on behalf of the Foundation for Environmental Education (FEE). Beaches and marinas that achieve this accolade must comply with a specific set of criteria relating to water quality, information provision, environmental education, safety and beach management. At beaches the bathing water must comply with the excellent standard in accordance with the EU Bathing Water Directive. The 'Blue Flag Beaches' locations map, as available on An Taisce's 'Blue Flag Beaches' website was examined against the list of the established monitoring and control points. All those monitoring and control points that have been awarded 'Blue Flag' status in the year 2014 were noted, as indicated in Tables 2.1 and 2.2 below.

County	Monitoring Point	Blue Flag
Donegal	Dungloe	N
Donegal (Sligo Border)	Bundoran	Y
Mayo	Newport	N
Galway	Galway Bay	N
Clare	Kilrush	N
Kerry	Cahersiveen	N
Cork	Bantry	N

Table 2.2 Blue Flag Beaches at Monitoring Points

County	Control Site	Blue Flag
Donegal	Ballybofey	N
Galway	Gort	N
Kerry	Castleisland	N
Clare	Lahinch	Y

Table 2.1 Blue Flag Beaches at Control Sites

Of the 11 beaches examined at the established monitoring and control points, 2 of the beaches had been awarded 'Blue Flag' status in 2014. These were Bundoran beach and Lahinch beach.

Monitoring Indicator 4- Green Coast Award

The monitoring and technical Indicator 'Green Coast Award' was applied to each of the monitoring points and control points. The Green Coast Awards is an An Taisce award for beaches that meet the excellent standard for water quality as set out in the Bathing Water Directive but may not have the necessary built infrastructure to achieve Blue Flag status. An important element of this award is that these beaches have a beach management plan in place and that the local community are engaged in this process. The 'Green Coast' locations map as accessed via An Taisce's 'Clean Coasts' website was examined against the list of the above mentioned monitoring and control points. All those monitoring and control points that had 'Green Coast' status in the year 2014 were noted, as indicated in Tables 2.3 and 2.4 below.

Green Coasts at Monitoring Points

County	Monitoring Point	Green Coast
Donegal	Dungloe	N
Donegal (Sligo Border)	Bundoran	N
Mayo	Newport	N
Galway	Galway Bay	N
Clare	Kilrush	N
Kerry	Cahersiveen	N
Cork	Bantry	N

Table 2.3 Green Coasts and Monitoring Points

Of the 11 monitoring and control points examined, none held an An Taisce 'Green Coast Award' in 2014

Green Coasts at Control Points

County	Control Site	Green Coast
Donegal	Ballybofey	N
Galway	Gort	N
Kerry	Castleisland	N
Clare	Lahinch	N

Table 2.4 Green coasts at control sites

Monitoring Indicator 5- State of Knowledge of Irelands Biodiversity

This general monitoring indicator is common to all of the above mentioned monitoring and control points. In 2010 the National Biodiversity Data Centre produced a document entitled 'State of Knowledge- Irelands Biodiversity 2012.' It is the first inventory of the principal sources of biodiversity data in the Republic of Ireland. The document is laid out in sections following taxonomic grouping. Each section follows the same format and provides information on; Irish species, number of species, primary sources of distribution data, National conservation assessment, and monitoring or repeat surveys in place. The status of this indicator can be informed and updated by emerging findings and information sources from Biodiversity Reports.

For monitoring purposes, the National Biodiversity Centre Annual Review was examined in order to inform on the State of Knowledge of Irelands Biodiversity for the year ending 2014. The following 2014 parameters were noted. Annual Review publications can be examined hereafter in order to assess any upward or downward trends in the state of knowledge of Irelands Biodiversity.

The National Biodiversity Center Annual Review shows a notable rise in both numbers of species, and records and datasets of species in 2014. The National Biodiversity Data Centre has continued its work of collating empirical data and growing the national biodiversity database. This database now contains 3,164,069 records from 105 datasets. Data on 14,352 species, which is almost half of all known Irish species, is available to map through the on-line data portal Biodiversity Maps. This is a growth of over 11% in the number of records added to the system during 2014. During 2014, Biodiversity Maps saw a growth of users from 5,967 in 2013 to 120,711.

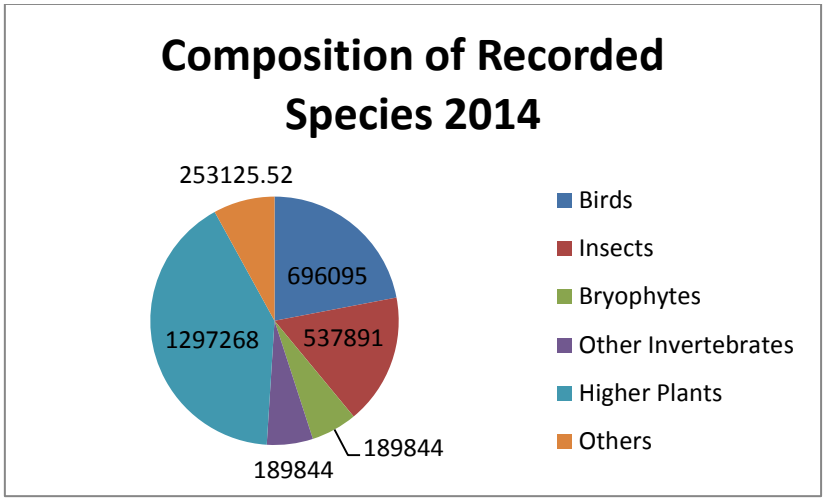

Figure 2.9 Composition of recorded species 2014

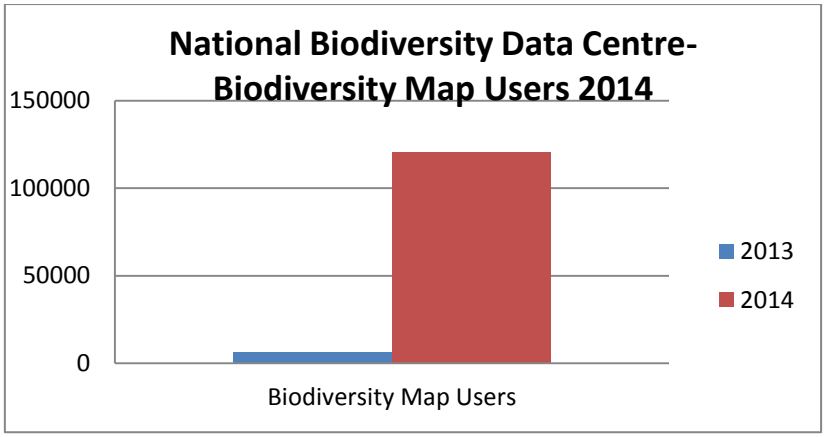

Figure 2.10 Biodiversity Map Users 2014

Monitoring Indicator 6- EPA Ireland's Environment - An Assessment (2012)

This general monitoring indicator is common to all of the above mentioned monitoring and control points. Ireland's Environment 2012 – An Assessment, is the Environmental Protection Agency's four-yearly state of the environment report. It provides an evidence-based assessment of the current state of the environment in Ireland and the pressures being placed on it. It outlines the trends and changes in environmental quality as well as the socio-economic activities that are linked with these changes. The status of this monitoring indicator can be informed and updated by emerging findings and information sources from this report. It should be reviewed on release- every four years, and any changes in the environmental status along the Wild Atlantic Way should be noted.

The overall finding of the 2012 report is that Ireland's environment is in a generally good condition overall. However, there is no room for complacency and the country faces tough challenges in the coming years to meet EU commitments and targets across a range of areas including water, waste, air quality and greenhouse gases to name but a few. The current recession has meant that levels of emissions and waste generation rates have paused and in some cases reduced. However, it must not be assumed that recession-induced reductions mean that environmental pressures are being managed in a sustainable way. Ireland needs to ensure that its economic renewal and recovery is based strongly on the principles of sustainable development, and that we decouple future economic growth from environmental pressures. In this context, the report has identified four key environmental challenges for Ireland: Valuing and protecting our natural environment; Building a resource-efficient, low-carbon economy; Implementing environmental legislation; and Putting the environment at the centre of our decision-making.

Monitoring Indicator 7- The status of EU Protected Habitats and Species in Ireland

This general monitoring indicator is common to all monitoring and control points. It provides for an assessment of the status of the habitats and species that Ireland is required to protect under the EU Habitats Directive. The status of this indicator can be informed and updated by emerging findings and information sources from the National Parks and Wildlife Service (NPWS) and other stakeholders on the status of EU Protected Habitats and Species.

The 2008 report 'The Status of EU Protected Habitats and Species in Ireland' as published by NPWS was reviewed in order to inform this monitoring indicator. The overall status of each of Irelands known habitats and species was noted as 'Good' 'Poor' or 'Bad,' for the period 2008-2014. This report should be review on release- every six years, and any changes in the status of Irish habitats or species along the Wild Atlantic Way should be noted.

The data shows that in the year 2014, of the 59 EU protected habitats in Ireland- 4 were of 'Good' status, 26 were of 'Poor' status and 29 were of 'Bad' status. Of the 60 EU protected species in Ireland- 25 were of 'Good' status, 15 were of 'Poor' status, 7 were of 'bad' status. The status of some 13 EU protected species in Ireland were 'Unknown' in 2014.

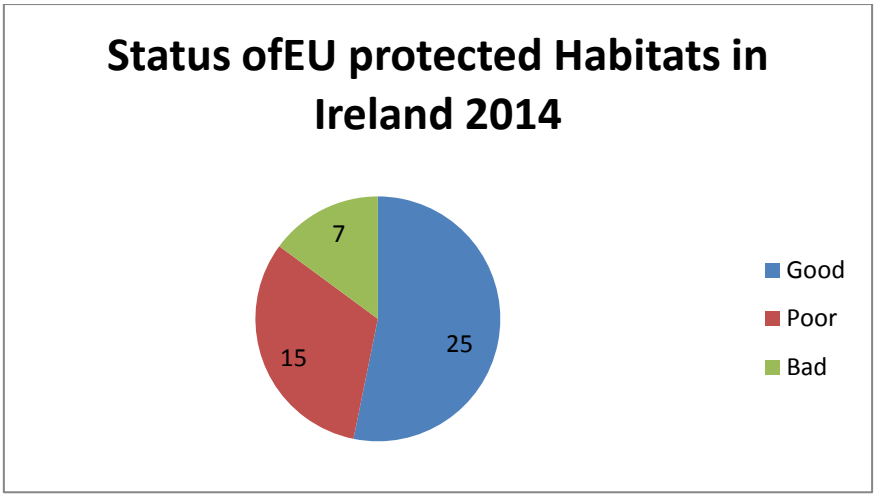

Figure 2.11 Status of EU Protected Habitats in Ireland 2014

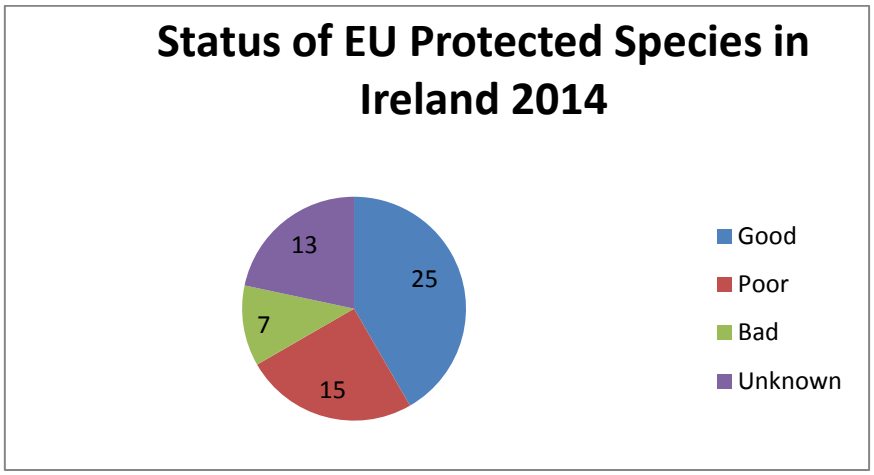

Figure 2.12 Status of EU Protected Species in Ireland 2014

Monitoring Indicator 8- Visitor Numbers

The monitoring and technical Indicator 'Visitor Numbers' was applied to each of the relevant counties for the year ending 2014. It should be noted that data on visitor numbers at the specific monitoring and control sites along the Wild Atlantic Way is not available at present time. Thus, in order to inform this monitoring indicator of environmental status, Fáilte Ireland visitor numbers at county level were reviewed instead.

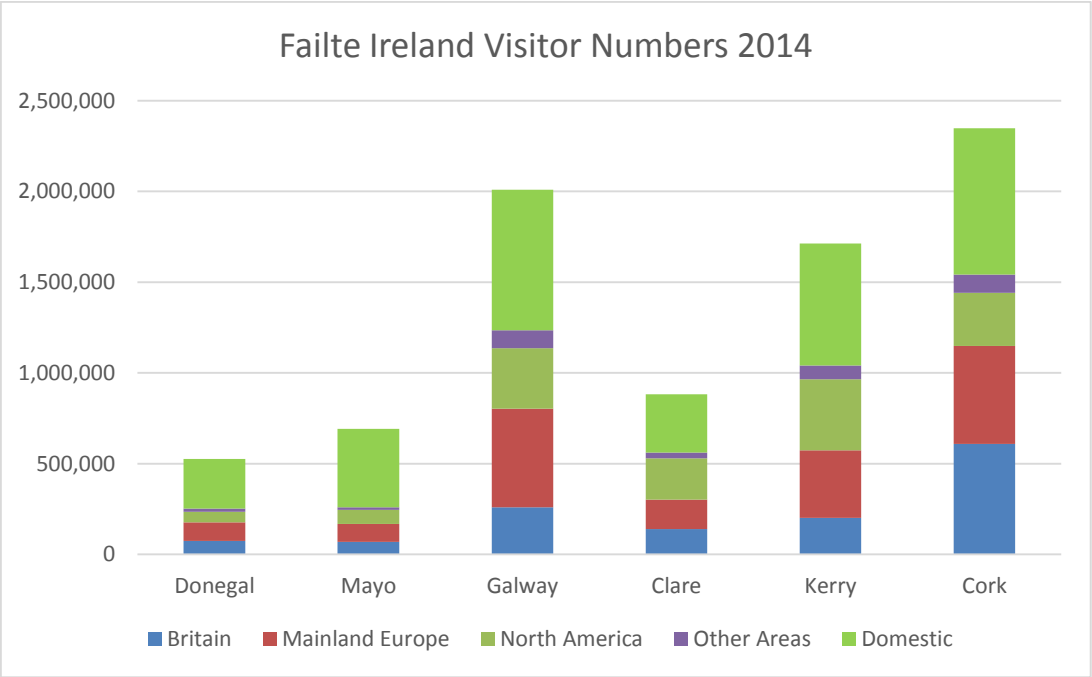

Figure 2.13 Fáilte Ireland Visitor Numbers at Counties along the WAW

Monitoring Indicator 9- Tourism Related Planning Refusals

The final macro-indicator of environmental status examined for this study is 'tourism related planning refusals.' A high level of tourism related refusals is a potential indicator of pressure on the environmental status of a County.

The An Bord Pleanala website was used to gain access to records of all 'decided cases' of planning appeals from the year 2014 at each of the counties along the Wild Atlantic Way. Where a decision was made by An Bord Pleanala to refuse planning for a development in any of these six counties (Galway, Mayo, Donegal, Clare, Cork and Kerry) during 2014, the reason for refusal was examined. All planning refusals during the year 2014 in each county were reviewed and all those with a decision which might be attributable to tourism were noted.

This method provides an official high level indicator as to where pressure points are occurring in Counties along the Wild Atlantic Way without the need to capture all planning applications to Local Authorities and or Foreshore Lease/Licence applications to the Department of Environment, Community and Local Government.

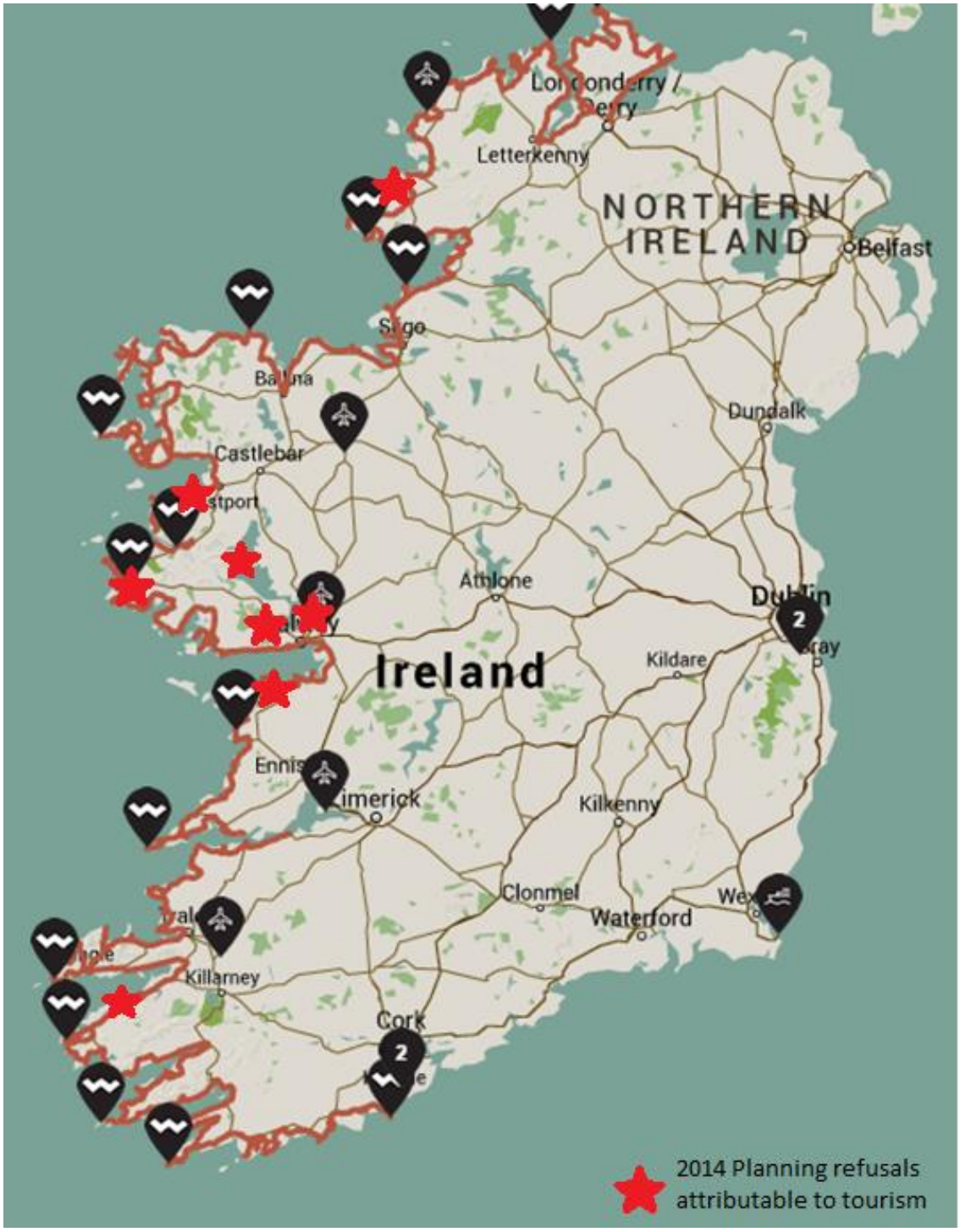

Figure 2.14 Locations of 2014 planning refusals along the WAW attributable to tourism

3. Summary Report on Strand Two Monitoring - Visitor Observation Survey

Strand Two of the monitoring concentrates on the examination of patterns of visitor behaviour at sites along the Wild Atlantic Way. The aim of the Visitor Observation Survey was to collect evidence of stay duration, activities undertaken, location and direction of excursions from vehicles.

The Environmental Surveying and Monitoring was carried out as part of Fáilte Ireland's commitments in the Wild Atlantic Way Operational Programme 2015-2019.

Effective methods for visitor observation have been designed and tested using Pilot Visitor Observation Studies at the Burren and Cliffs of Moher Geopark in Co. Clare. The studies were carried out at full spectrum of types of circumstances that range from small spatially-concentrated areas to large diffuse sites. The study sites had a range of existing management regimes that range from those that are complex and highly structured, private enterprises to the simpler smaller sites.

The method is designed to have a simple, replicable template that allows easy identification patterns of visitor activity, movement and behaviour using a standardised visitor observation and tracking methodology for a range of site types. The collation of the data including the tracking of onsite movement by visitors result in the identification of core and secondary movement zones. The initial sites chosen for monitoring are the fifteen candidate Signature Discovery Points along the Wild Atlantic Way. The candidate Signature Discovery Points range from having complex and highly structured existing management regimes to existing roadside laybys with little or no management. The candidate Signature Discovery Points and Control Sites represent the following habitats/landscape types:

1. Rocky shores
2. Soft shores/beaches/dunes
3. Montane/upland/peat
4. Marine areas (sea, estuaries, salt marsh)
5. Improved Grasslands (farm land)

The first round of monitoring focussed on the fifteen candidate Signature Discovery Points. Future monitoring will expand to include candidate Discovery points prioritised in order of sensitivity and significance as directed by a Monitoring Group. The monitoring targeted the conservation objectives of European sites, to facilitate monitoring, identification and highlighting of effects arising from the Wild Atlantic Way on its own and in combination with other plans and projects, taking existing uses, pressures and loadings into account.

A list of general activities and effects was developed to assist in the categorisation of visitor behaviour (See Appendix III). While these are generic to all sites, the list is non-exhaustive and was expanded depending on the individual site or emerging trends. Activities and effects were categorised depending on their severity to guide accurate reporting in an effective, efficient and easily replicated manner (See Table 3.1 and Table 3.2).

Activities	
Low Level	Activity for which the site is intended
Medium Level	Activities, often incidental, depending on site management whereby the visitor engages in behaviour that may result in an effect
High Level	Activity where visitors engage in behaviour that is likely to have an effect on the site but may not be directly linked to a high impact

Table 3.1 Description of Activity Categorisation

Effects	
Low Impact	No impact or a discernible impact i.e. no significant, lasting damage is identified
Medium Impact	A short term, reversible effect that is intermittent but will have no significant, long term impact
High/Severe Impact	Severe effect that has potential to have a significant, long-term, irreversible or permanent impact

Table 3.2 Description of Effects Categorisation

Results and Analysis for all sites

Site	Male	Female	Total No. of People	No. of Groups	Average Duration on Site
Malin Head	171	206	377	132	00:24:25
Fanad Head	134	140	274	113	00:16:01
Slieve League	198	163	361	112	00:30:02
Mullaghmore Head	149	159	308	150	00:13:52
Downpatrick Head	130	108	238	88	00:53:30
Keem Bay	156	174	330	113	00:52:39
Killary Harbour	498	617	1116	205	00:05:29
Derrigimlagh	51	33	84	36	00:09:08
Cliffs of Moher	187	193	380	134	00:36:25
Loop Head	207	230	437	133	00:41:29
Bray Head	187	204	391	161	00:38:51
Blaskets View	369	458	827	196	00:05:44
Dursey Island	144	133	277	110	00:46:01
Mizen Head	179	168	349	109	00:38:43
Old Head of Kinsale	145	149	294	110	00:40:39
Grand Total	**2905**	**3135**	**6043**	**1902**	**00:28:22**

Table 3.3 Overview of all sites

Of the 6043 visitors observed during the study, 89% were reported to have a low impact on the sites. 8% of visitors were reported to have a medium impact, these effects were not reported to result in any significant, long term adverse effects. 3% of visitors were recorded to have high impact on sites. When this is further analysed (See Table 3.3) it emerged that this was a very small number of people from larger groups and that their activities did not result in any measurable effects.

Transient short stay visitors were largely observed to be careful and aware of site sensitivities. The majority of visitors were primarily found to engage in low level activities such as sightseeing and photographing before moving on quickly. It was noted that as visitors spent more time on site, the likelihood of effects increased. In most cases, effects were caused by a small minority of visitors who carried out more significant harm. Almost 97% of visitors across all sites engaged in low or medium level activities i.e. walking on paths, mown grass, hard surfaces and sand, resting, reading, looking, photographing (all low level activity) or moving through leafy vegetation by leaving the pathway where a walking trail wasn't established (medium level activity).

The most consistent evidence that emerged from the survey is that there is a direct relationship between the degree of site management and the likelihood of environmental effects arising. Blaskets View displayed an example of best practice management at a layby type site and as a result recorded the least amount of impacts. Mizen Head displayed best practice management among the larger, more complex sites that have visitor centres and onsite personnel.

As the level of management decreased, visitors were more likely to engage in medium or high level activities. This was evident in the Cliffs of Moher where visitors left the pathways at the earliest opportunity and followed eroded tracks when walking along the less managed trails. In contrast, visitors around the centre and viewing platforms appeared to be aware of visitor management regimes and engaged in largely low level activities. Malin Head, a site with minimal visitor management in place, displayed a situation where visitors parked sporadically and walked off paved areas frequently.

Evidence of effects was less apparent at layby sites where visitors engaged in low levels of activity. A correlation between the amount of time spent on site and the likelihood of effects occurring was identified. At layby sites, visitors were observed to spend the least amount of time. Visitors spent less than five minutes at Blaskets View and Killary Harbour. Blaskets View recorded the least amount of

time spent and recorded no effects. This was also evident for Derrigimlagh and Fanad Head. It is apparent that visitors to layby type sites are likely to engage in low level activities including walking on paved areas, hard surfaces, resting, reading, looking, photographing. Killary Harbour and Blaskets View recorded the highest volume of visitors overall.

Visitors spent the most time at locations where activities, trails or looped walks were available such as Downpatrick Head (53 minutes), Keem Bay (52 minutes) and Dursey Island/Garnish Point (46 minutes). These sites recorded more Category 3 High Impacts – all of which resulted in no discernible effects.

Derrigimlagh recorded the least amount of visitors overall. The site is very remote and difficult to find. Volumes of rental cars and cars with overseas registrations were noted passing by the turn for the site. Fanad Head and Mullaghmore Head recorded a high volume of visitors not exiting their vehicles.

Where impacts did occur they were not reported to give rise to any significant, long term adverse effects.

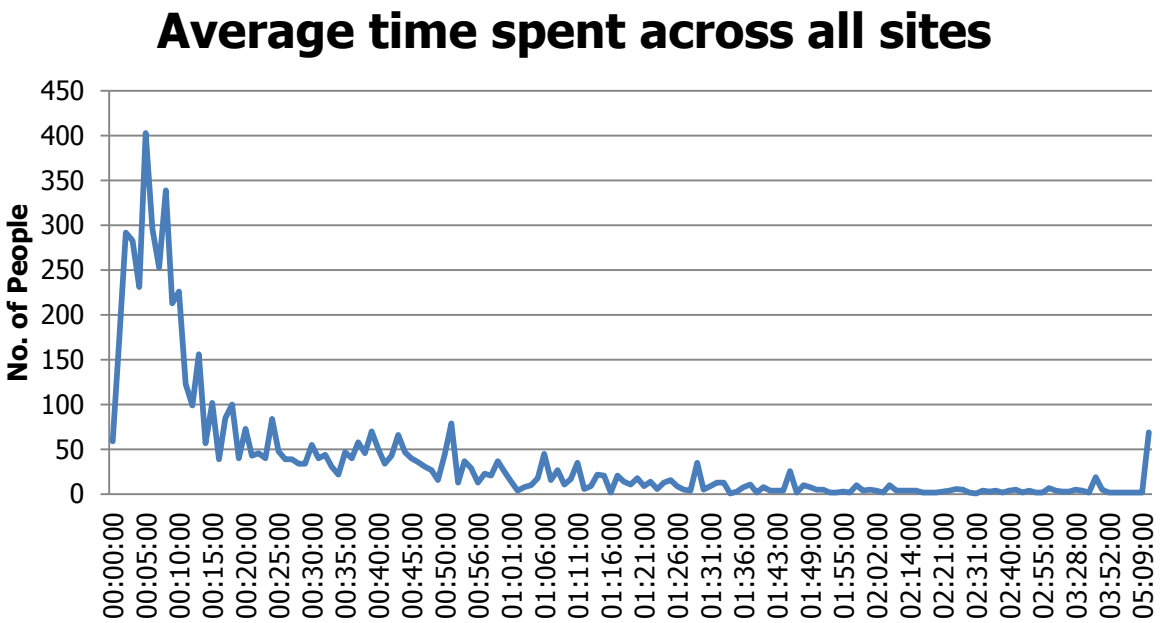

Figure 3.1 Duration of time spent by visitors across all sites

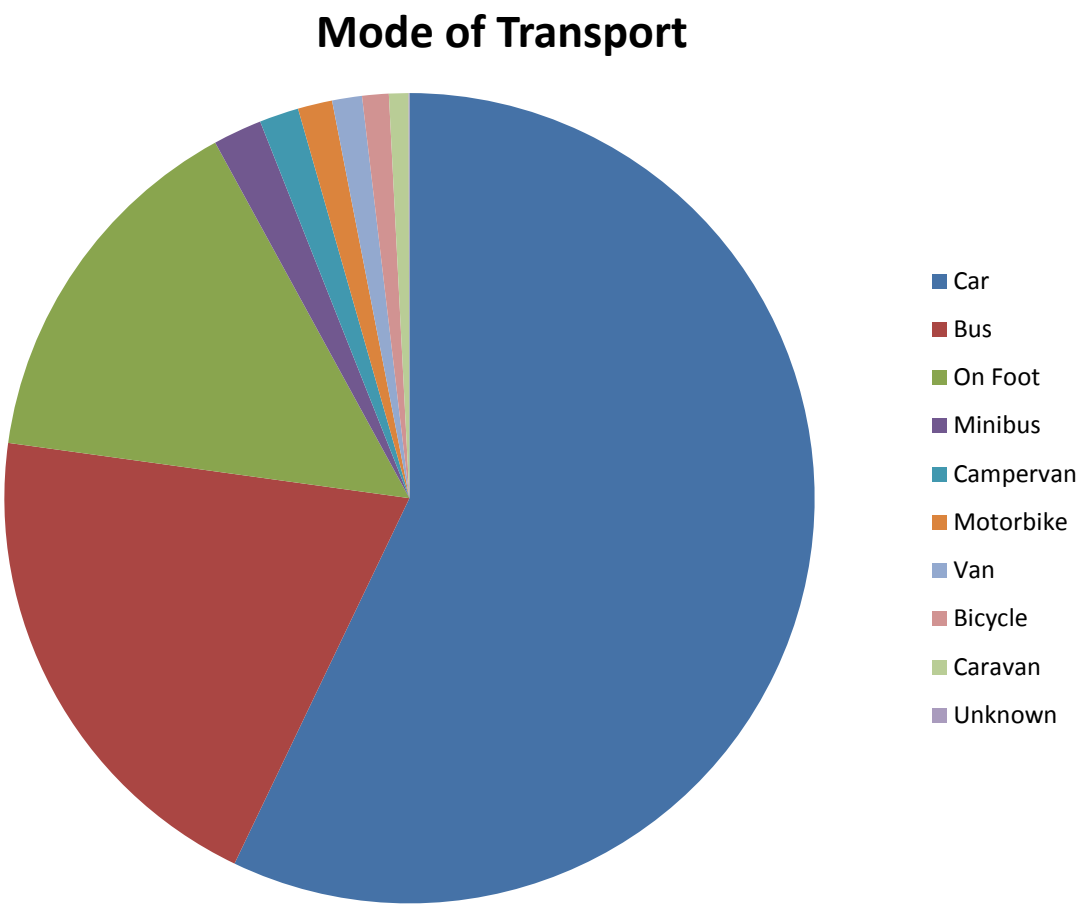

Figure 3.2 Modes of transport used across all sites

Mode of Transport	Number of People	Percentage of People
Car	3451	57.11%
Bus	1213	20.07%
On Foot	898	14.86%
Minibus	118	1.95%
Campervan	95	1.57%
Motorbike	83	1.37%
Van	72	1.19%
Bicycle	64	1.06%
Caravan	47	0.78%
Unknown	2	0.03%
Grand Total	**6043**	**100%**

Table 3.4 Breakdown of modes of transport used at all sites

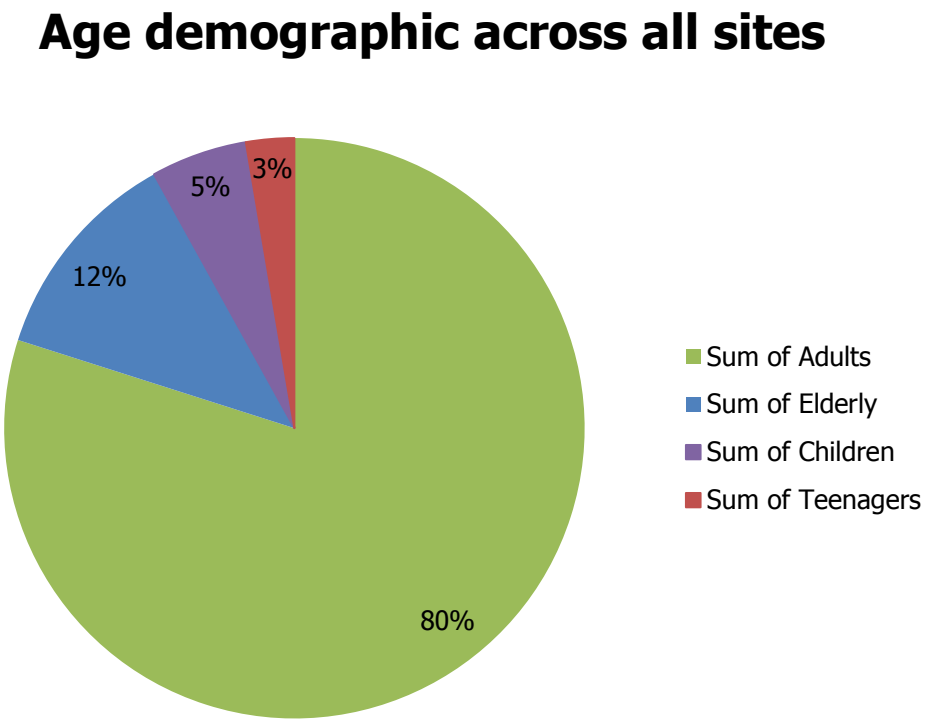

Figure 3.3 Age demographic across all sites

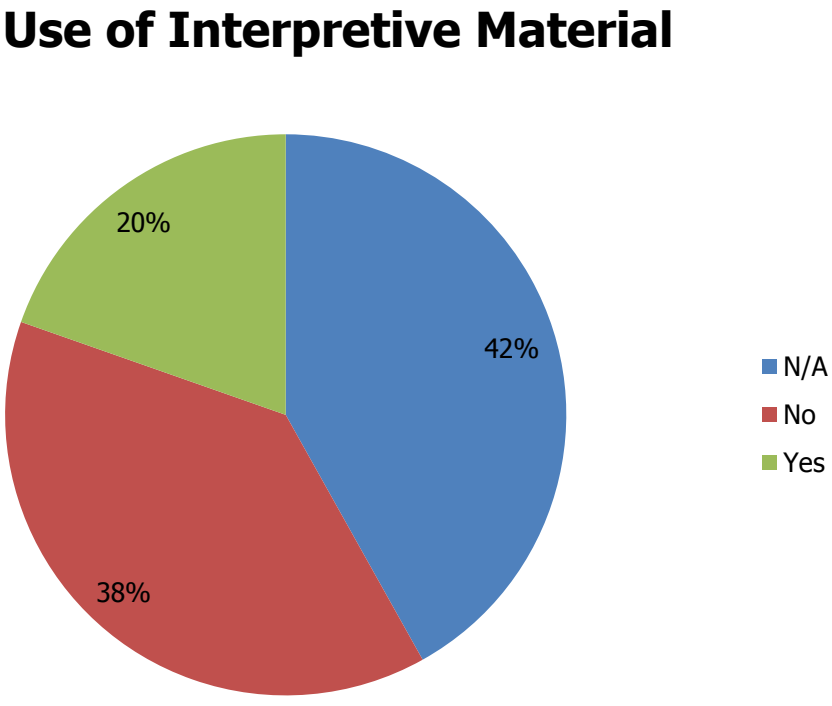

Figure 3.4 Use if interpretive material across all sites

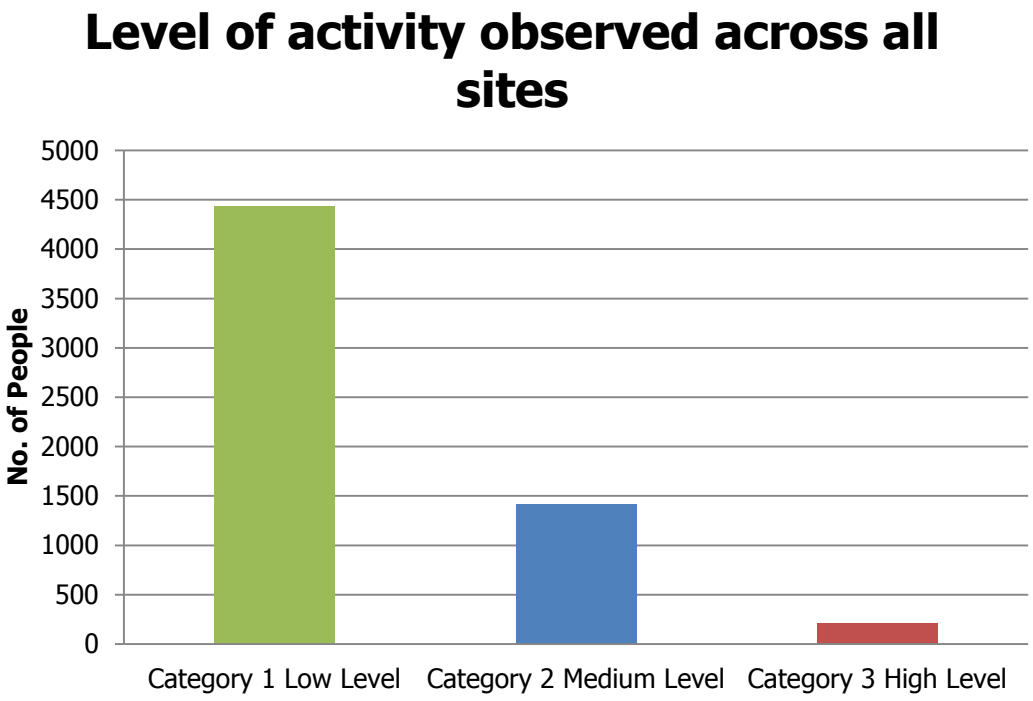

Figure 3.5 Overall level of activity recorded

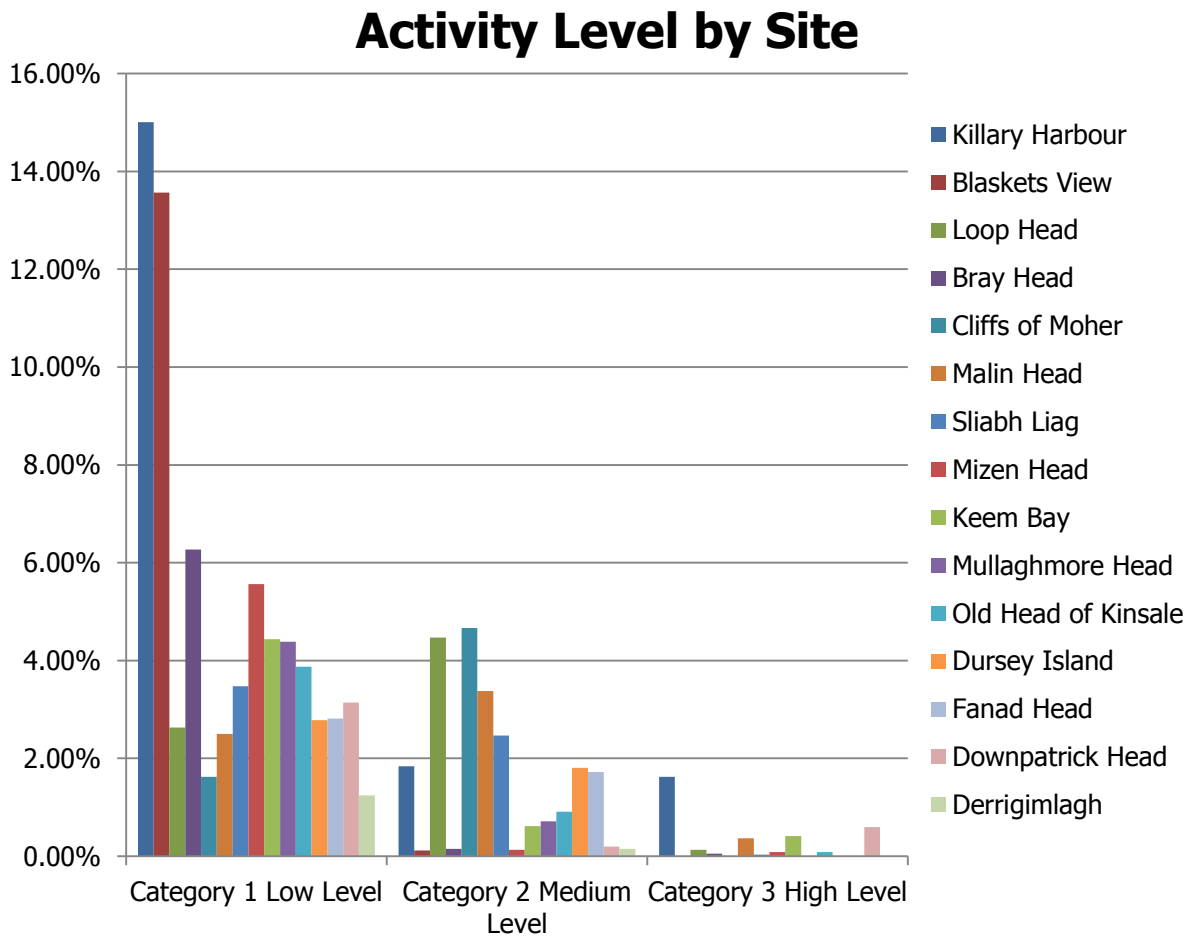

Figure 3.6 Level of Activity by Site

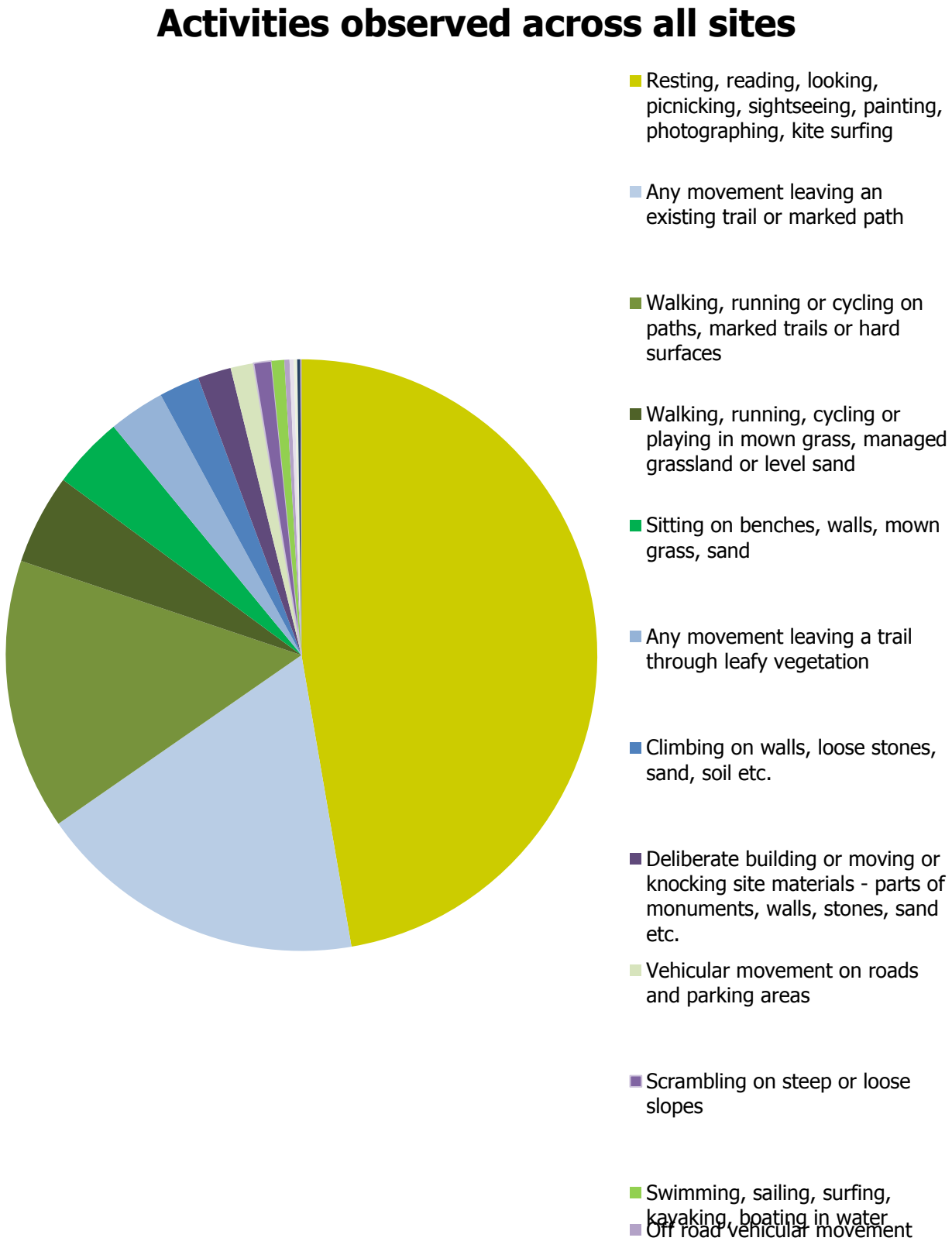

Figure 3.7 Range of activities recorded across all sites

Activities Observed	No. of People	% of People
Resting, reading, looking, picnicking, sightseeing, painting, photographing, kite surfing	2858	47.29%
Any movement leaving an existing trail or marked path	1091	18.05%
Walking, running or cycling on paths, marked trails or hard surfaces	895	14.81%
Walking, running, cycling or playing in mown grass, managed grassland or level sand	298	4.93%
Sitting on benches, walls, mown grass, sand	239	3.95%
Any movement leaving a trail through leafy vegetation	185	3.06%
Climbing on walls, loose stones, sand, soil etc.	134	2.22%
Deliberate building or moving or knocking site materials - parts of monuments, walls, stones, sand etc.	110	1.82%
Vehicular movement on roads and parking areas	76	1.26%
Scrambling on steep or loose slopes	59	0.98%
Swimming, sailing, surfing, kayaking, boating in water	42	0.70%
Off road vehicular movement	17	0.28%
Picking herbaceous vegetation	14	0.23%
Watching nature in hedges, woods, streams, pools and intertidal areas	11	0.18%
Fishing	10	0.17%
Disturbance of wildlife	4	0.07%
Grand Total	**6043**	**100%**

Table 3.5 Breakdown of activities recorded across all sites

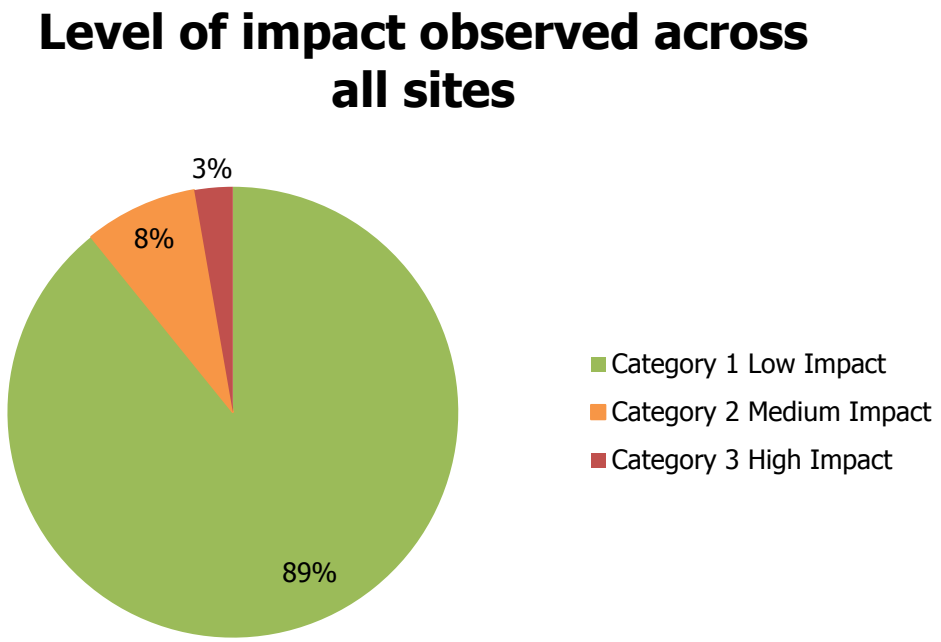

Figure 3.8 Overall level of impact recorded

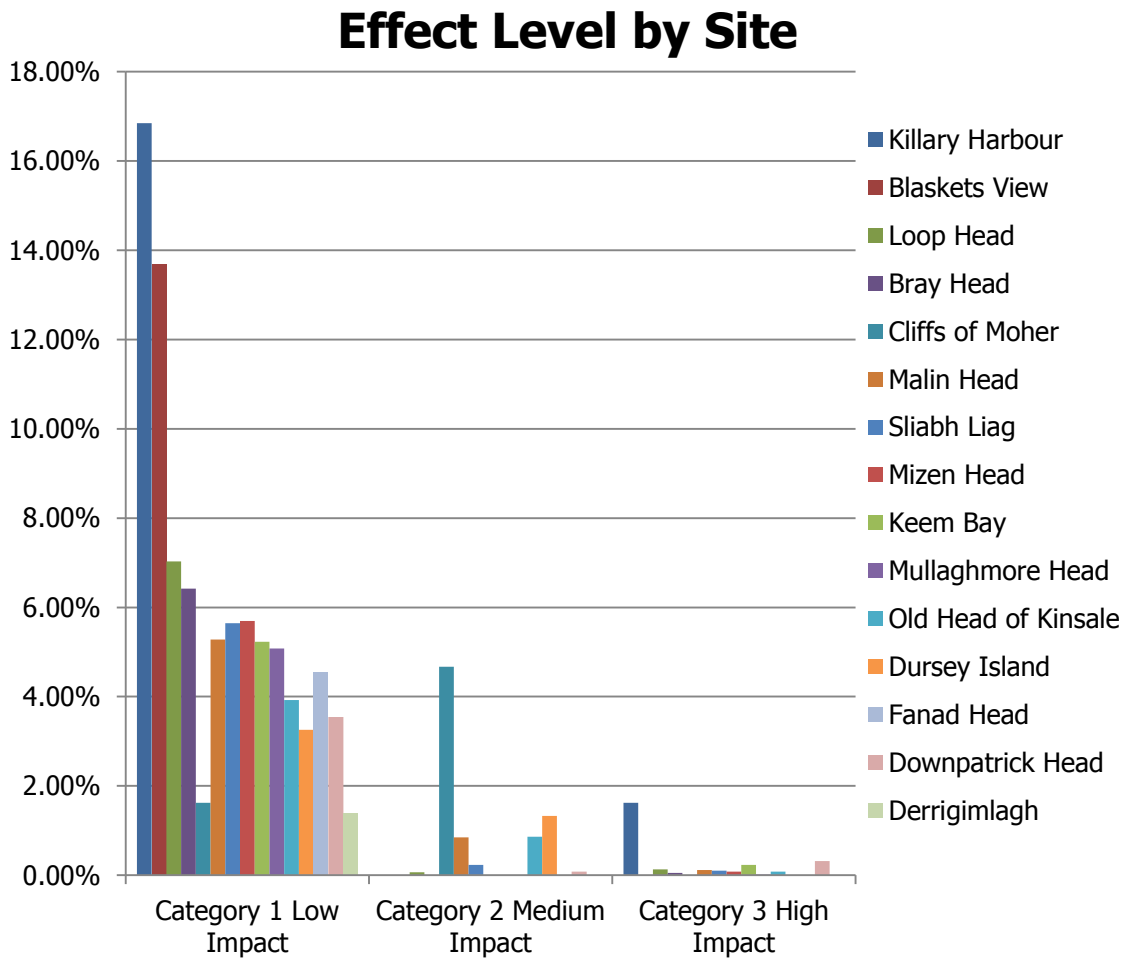

Figure 3.9 Level of Effect by Site

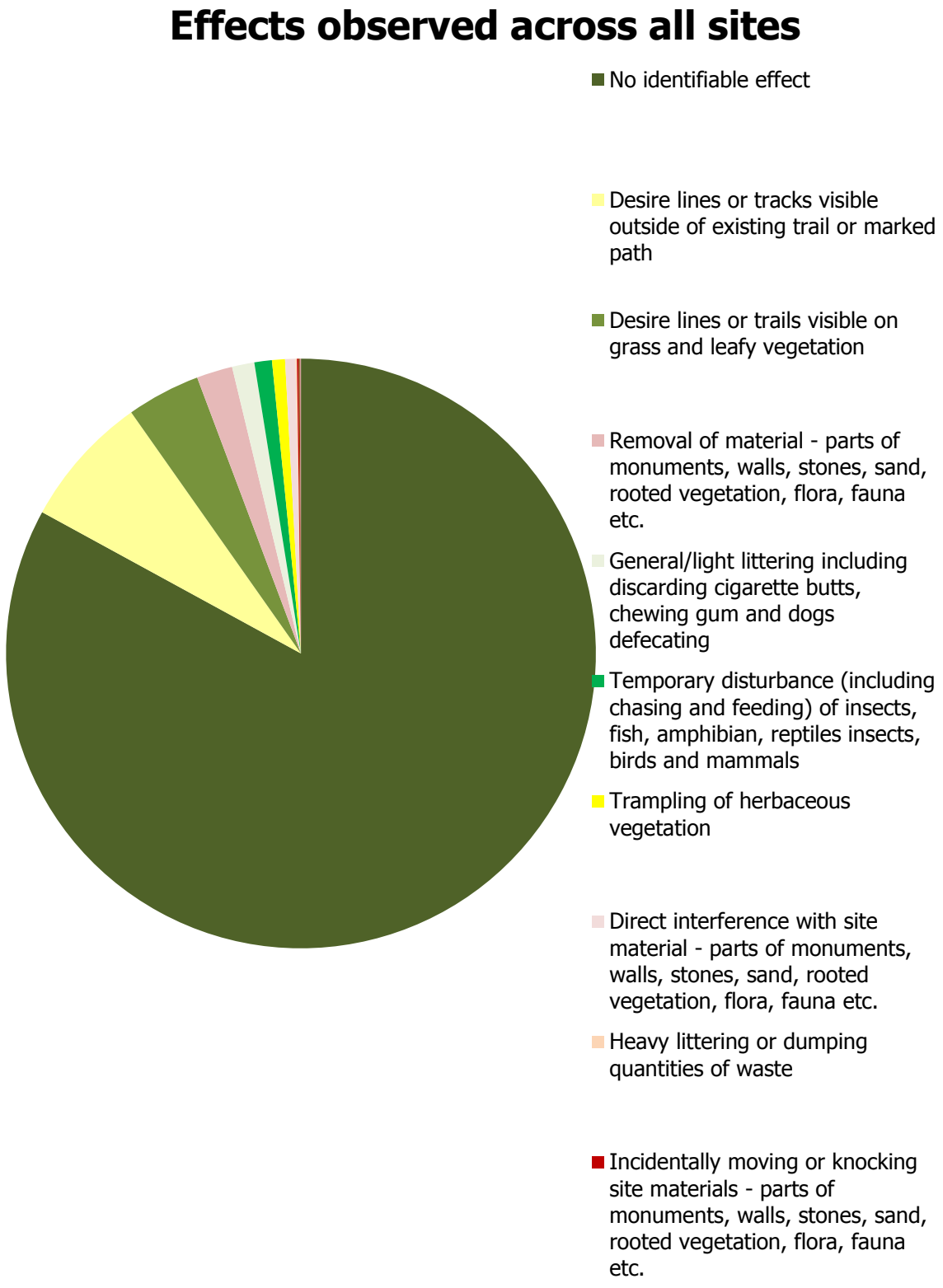

Figure 3.10 Range of effects recorded across all sites

Effects Observed	No. of People	% of People
No identifiable effect	5013	82.96%
Desire lines or tracks visible outside of existing trail or marked path	440	7.28%
Desire lines or trails visible on grass and leafy vegetation	244	4.04%
Removal of material - parts of monuments, walls, stones, sand, rooted vegetation, flora, fauna etc.	119	1.97%
General/light littering including discarding cigarette butts, chewing gum and dogs defecating	74	1.22%
Temporary disturbance (including chasing and feeding) of insects, fish, amphibian, reptiles insects, birds and mammals	58	0.96%
Trampling of herbaceous vegetation	43	0.71%
Direct interference with site material - parts of monuments, walls, stones, sand, rooted vegetation, flora, fauna etc.	34	0.56%
Incidentally moving or knocking site materials - parts of monuments, walls, stones, sand, rooted vegetation, flora, fauna etc.	5	0.08%
Heavy littering or dumping quantities of waste	5	0.08%
Disturbance of wildlife	4	0.07%
Destruction of structures, vegetation or fauna	2	0.03%
Vandalism or Graffiti	2	0.03%
Grand Total	**6043**	**100%**

Table 3.6 Breakdown of effects recorded across all sites

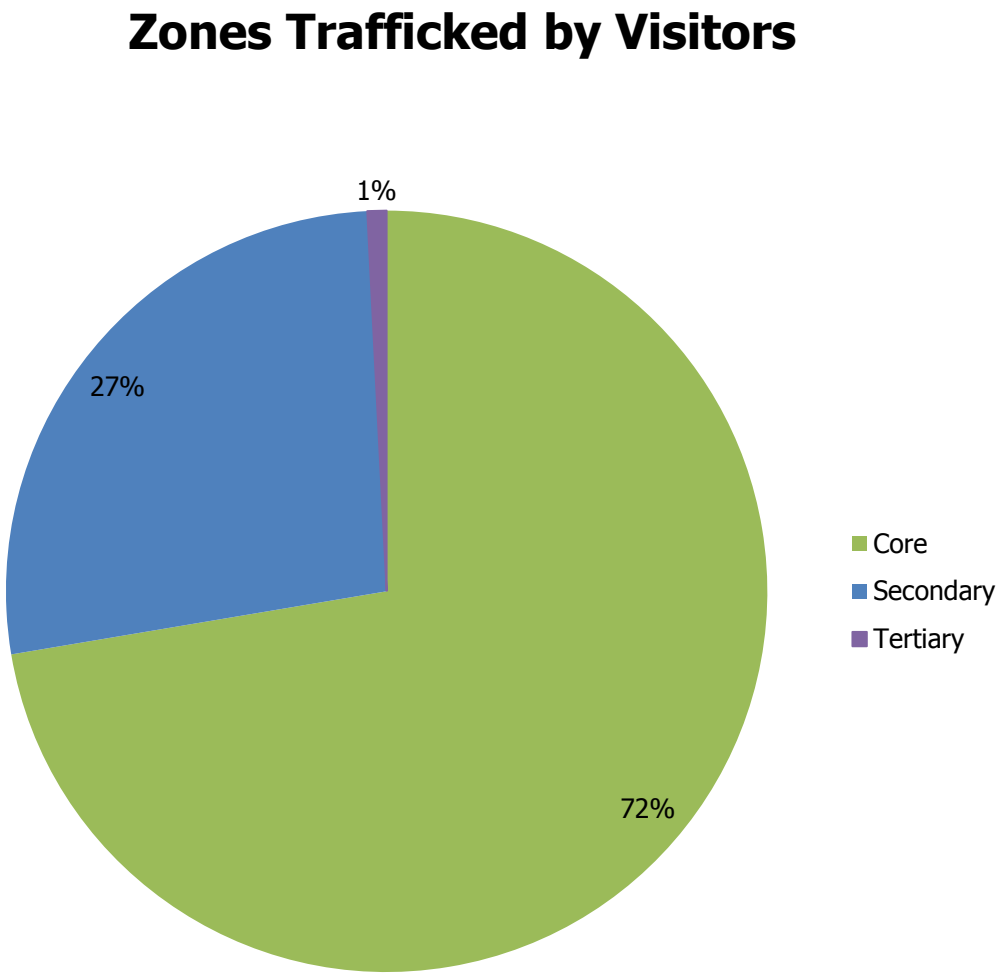

Figure 3.11 Zones trafficked by visitors at all sites

Core Zone	Existing car parks, paved areas, viewing platforms, marked pathways, trails, tracks and managed grassland and areas where pathways, trails or roads exist. The majority of visitors remain in these zones.
Secondary Zone	Areas outside of existing car park, paved areas, marked pathways, trails, tracks and managed grassland. Visitors are likely to traffic areas of grassland (in some cases farmland grazed by sheep or cattle), heath or bare rock, usually to get a better view of site attractions or to access trails at the site.
Tertiary Zone	Areas where no car park, paved areas, marked pathways, trails, tracks and managed grassland are identifiable and beyond the immediate boundaries of the site.

Conclusion

A total of 6,043 visitors were observed across fifteen candidate Signature Discovery Points in seven counties along the Wild Atlantic Way. The majority of visitors to these sites stay within designated areas and are very careful to respect the natural environment.

Of the 6043 visitors observed during the study, 89% were reported to have a low impact on the sites. 8% of visitors reported to have a medium impacts, these effects were not reported to result in any significant, long term adverse effects. 3% of visitors were recorded to have high impact on sites. When this is further analysed it emerged that this was a very small number of people from larger groups and that their activities did not result in any measurable effects.

The most consistent evidence that emerged from the survey is that there is a direct relationship between the degree of site management and the likelihood of environmental effects arising. It was also evident that as visitors spend more time on site, the likelihood of effects increased. Site management is recommended for sites where visitors are spending time in excess of approximately 15 minutes to control the flow of traffic and ensure good visitor behaviour.

Site management can range for intense management that includes site presence of personnel, through intermediate levels where there are site facilities that include signs and interpretative material to sites with no management. The size and scale of the site should be considered when deciding the level of site management required particularly at layby sites where typically visitors spends short amount of time and engage in low levels of activity.

Recommendations

All sites should be evaluated and developed using guidelines provided to ensure that facilities are put in place to manage the effects of visitor numbers without causing more harm. The option of doing nothing in most cases would cause any effects to continue and worsen. Careful consideration of the appropriateness of the proposed site management is recommended to ensure it does not result in continued or worsened effects.

All sites should give careful consideration to the following issues:

- Implementation of uniform signage maintaining consideration of site sensitivities during installation
- Clear signage to the entrances of all sites
- Careful consideration when proposing facilities such as toilet blocks and car parks
- Measures to improve the flow of visitor traffic, vehicles and parking issues

Research at candidate Signature Discovery Points shows that the average duration on site is less than 30 minutes. Blustery and unpredictable weather at these sites appears to be a major determinant in limiting the duration of stay. Visitors who remain on site longer may a snack or picnic, often in or beside their car due to wind and weather.

The results also show that if interpretative material/signs are present, approximately one third of visitors will take the time to read them.

Recommendations for future surveys

Repeat observation study for candidate Signature Discovery Points where sensitivities were identified during ecological study

Repeat observation study for candidate Signature Discovery Points where site dynamics have changed i.e. where a new car park or feature has been added since 2015 study

Carry out the monitoring and surveying strategy for new candidate Discovery Points (Fifteen minus the number of sites that do not require repeat surveys or the number of studies approved by Fáilte Ireland)

4. Summary Report on Strand Three Monitoring - Ecological Survey

Strand Three of the monitoring concentrates on the collection of ecological evidence The evidence collected identifies core and secondary movement areas trafficked by users. This informs and guides the collection of ecological evidence. The zones identified during the Visitor Observation Survey provides evidence about where to examine evidence for the location, number, shape and extent of detailed ecological surveys to provide quantitative evidence of effects that can be compared to unaffected similar 'control' sites elsewhere.

Wetland Surveys Ireland Ltd. were commissioned by *CAAS Ltd.* to undertake detailed ecological baseline surveys at fifteen signature discovery points on the Wild Atlantic Way.

The aim of the ecological study was to collect baseline ecological information on sites in order to inform an assessment of visitor impacts associated with the current level and pattern of use of each site. The data collected during the survey should prove useful as a baseline for any future ecological monitoring at the sites.

Prior to the ecological study, a visitor monitoring survey examined the types, spatial patterns, and intensity of existing visitor activities at and adjacent to each of the Discovery Points (CAAS 2015). This visitor monitoring survey informed the design of the ecological study so that baseline ecological conditions at each site could be investigated in areas known to receive; maximum, moderate, minimum, and no loading.

Study aims

The main aims of the ecological study included:

- Describe the existing ecological characteristics of areas at and in proximity to Signature Discover Points;
- Provide baseline ecological data against which future monitoring of potential visitor related impacts can be undertaken;
- Undertake a condition assessment of semi-natural habitats in those areas in proximity to each individual signature discovery point, and where degradation is recorded, elucidate on the likely causative factors taking into consideration the known visitor behaviour at each site;
- Determine, using evidence based data, those sites where current use or future development of signature discovery points are / or could potentially lead to significant ecological effects on habitats / species of conservation concern. This determination will make particular reference to habitats / species of conservation concern and areas designated for nature conservation (SAC / SPA / NHA);
- Make recommendations with regards the need for improved visitor management at particular sites based on the outcome of the study; and
- Make recommendations with regard to the benefit of undertaking future ecological monitoring at individual sites.

Site Name	County	GPS
Malin Head	Donegal	55.381018, -7.3738003
Cionn Fhánada (Fanad Head)	Donegal	55.275617, -7.6345941
Sliabh Liag	Donegal	54.627438, -8.6847138
Mullaghmore Head	Sligo	54.470555, -8.4630775
Downpatrick Head	Mayo	54.322906, -9.3459186
Keem Bay	Mayo	53.967177, -10.195409
Killary Harbour	Galway	53.595759, -9.7645229
Derrigimlagh	Galway	53.467003, -10.03306
Cliffs of Moher	Clare	52.971639, -9.4260442
Loop Head	Clare	52.560901, -9.9304605
Radharc na mBlascaodaí (Blaskets View)	Kerry	52.104973, -10.455488
Bray Head	Kerry	51.891958, -10.396685
Dursey Island	Cork	51.607717, -10.158341
Mizen Head	Cork	51.451562, -9.8109117
Old Head of Kinsale	Cork	51.619701, -8.542146

Table 4.1: Wild Atlantic Way Signature Discovery Points surveyed as part of the study

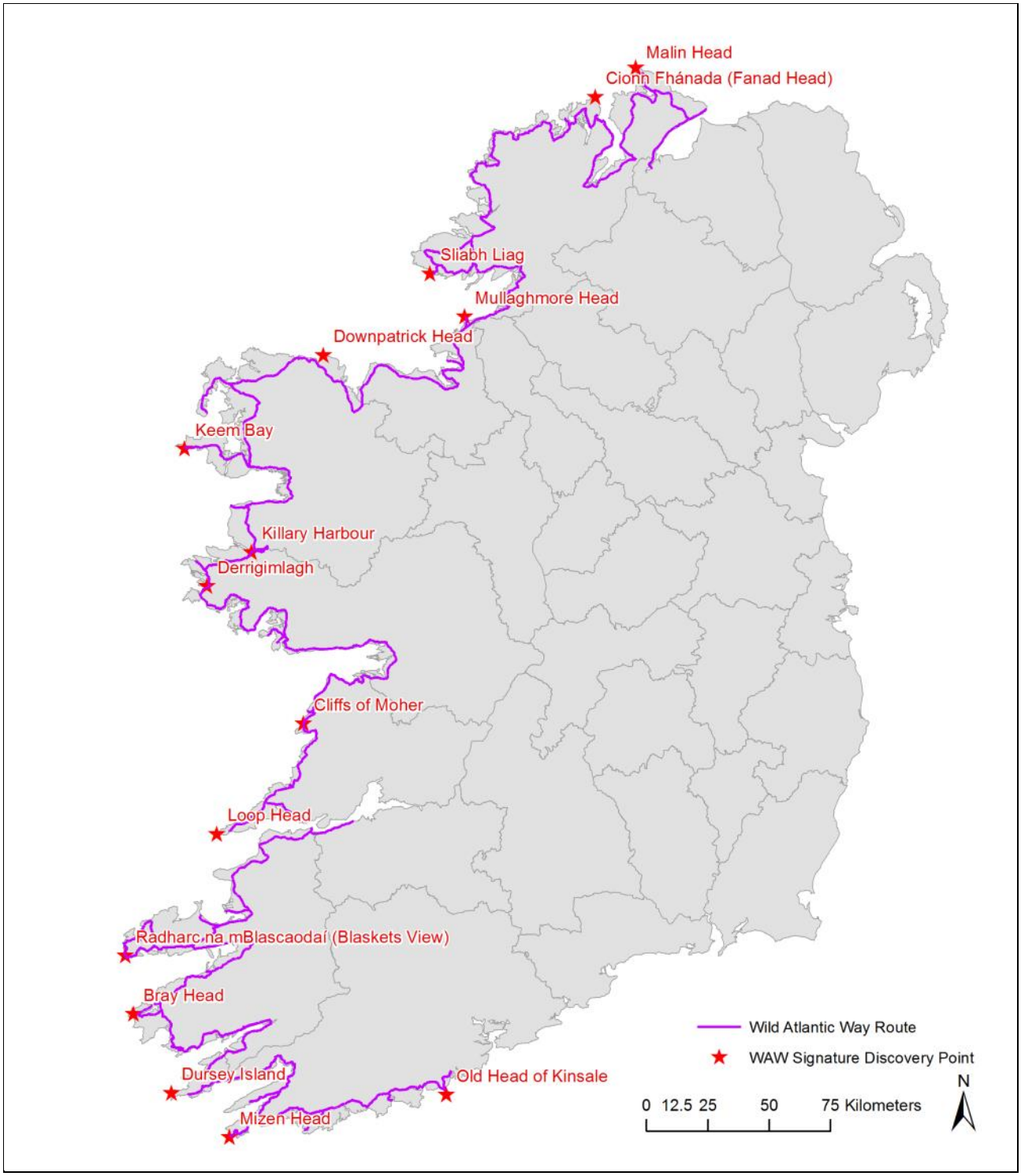

Figure 4.1: Signature Discovery Points along the Wild Atlantic Way surveyed during 2015

Methods

The methods followed during the ecological field survey were based on the standard approach to vegetation description and analysis by use of representative vegetation quadrats (or relevés). In all, 150 quadrats were recorded during the survey. The various parameters recorded at each quadrat location are described below.

Quadrat selection

A visitor behaviour survey undertaken during early 2015 examined the types, spatial patterns and intensity of existing visitor activities at and adjacent to each Discovery Point (CAAS 2015). This work served to direct the ecologists to areas known to receive maximum (core movement areas), moderate (secondary movement areas), and minimum and no loading (termed control areas).

The locations of quadrats representative of each of these three categories were chosen based on the outcome of the visitor surveys prior to the commencement of ecology surveys.

Desktop review

A desktop review of ecological datasets was undertaken with a view to determining known sensitive ecological receptors at each discovery point. This included a review of NPWS designated site datasets. Field maps were prepared which showed the location of each of the pre-assigned quadrat locations and designated site boundaries (where relevant).

Field survey methods

Quadrat recording

Quadrats of the different vegetation types on the site were recorded in a specially designed digital database (FileMaker Pro software application) running on a GPS enabled field computer. The location of each of the quadrats was determined with the assistance of field maps and GIS software running on the GPS enabled field computer.

Once located, a wooden frame was laid down (orientated according to cardinal points) to indicate the extent of the quadrat (1m X 1m). All plant species within the quadrat were recorded and cover abundance value applied. The Domin scale of cover abundance was used during the study as follows:

+: 1 individual, no measureable cover

1: <4% cover, with few individuals

2: <4% cover, with several individuals

3: <4% cover, with many individuals

4: 4-10% cover

5: 11-25% cover

6: 26-33% cover

7: 34-50% cover

8: 51-75% cover

9: 76-90% cover

10: 91-100% cover

A range of physical attributes were also recorded within each quadrat (e.g. slope, aspects, grazing impacts, soil type, soil/peat depth, substrate stability, cover and height values for different plant groups etc.).

A photographic record of each quadrat was taken in a north, south, east, and west direction, as well a view vertically down onto each quadrat. Photographs were geotagged to facilitate their incorporation into a GIS. Additional photographs were also taken at regular intervals during the field survey to assist with subsequent interpretation and to record features in the wider landscape. A small bamboo cane was located in the south-east corner of each quadrat to assist in identifying quadrats in any future monitoring.

General survey target notes were recorded on a GPS enabled field computer running a GIS software application (iGIS V7.4). These notes referred to features of interest within the site and areas adjacent to quadrats.

During the course of the survey habitats present at each site were classified according to Fossitt (2000) and where relevant according to Annex I of the EU Habitats Directive. Guidance in determining whether or not a habitat type may correspond to an EU Annex I type was sought from a variety of sources including European Commission (2013), O'Neill *et al.* (2013), Perrin *et al.* (2013), Barron *et. al.* (2011), Ryle *et al.* (2009), and Fossitt (2000).

Habitat condition assessment

An assessment of habitat condition was undertaken for each quadrat using a five point scale from good to bad as outlined in Table 4.2. The key criteria used when determining condition included; the presence (and abundance) or absence of indicator species, damage to vegetation (grazed, trampled, broken stems, etc.), erosion features, and presence and percentage cover of bare soil.

Ranking	Assessment	Description
1	Good	No evidence of any negative impact on habitats or other ecological features
2	Fair	Localised degree of negative impact, but slight and capable of rapid recovery
3	Doubtful	Widespread degree of negative impact, but slight and capable of rapid recovery
4	Poor	Localised negative impact, requiring intervention to allow full recovery
5	Bad	Widespread negative impact, requiring intervention to allow full recovery

Table 4.2 Condition assessment of terrestrial habitats

Nomenclature

During the field survey, attention was paid to the possible occurrence of plant species which are considered to be rare in both a national and local context (Scannell and Synnott 1987) with particular emphasis on plant species listed in the Irish Red Data Book for vascular plants (Curtis and McGough 1988), the 1999 Flora Protection Order, and Annex II of the E.U. Habitats Directive.

Plant species nomenclature in this report follows Parnell & Curtis (2012) for vascular plants, Atherton (2010) for mosses and liverworts, and Whelan (2011) for lichens. Moss species were mostly only keyed out to whether they belonged to the acrocarpous or pleurocarpous groups. Some mosses, liverworts, and higher plants not readily identified in the field were collected and keyed out at a later time using appropriate keys.

Survey Limitations

The survey was constrained by trampled vegetation, and over grazing which led to difficulties in the identification of floral species in some instances. The surveys were carried out over the summer period, an optimum time for most plant identification. Quadrat locations were recorded using portable GPS units which have an accuracy of up 5 metres. It is considered that, by referring to the GPS co-ordinates together with quadrat photographs and permanent wooden markers (used in most instances), it should be possible to re-locate quadrats to a high degree of accuracy during any future monitoring surveys.

Results

This section of the report presents an overview of the survey. In all, 150 quadrats were recorded during the survey. Information gathered during the survey of quadrats informed the individual site reports presented in this section.

Summary results of the survey in relation to each Discovery Point are presented in Table 4.3 below. Details that are presented include relevant designated sites, sensitive ecological features, impacts, and recommendations.

Of the fifteen sites surveyed thirteen occur within or almost directly adjacent to sites designated (or proposed for designation) for nature conservation. Most of the sites surveyed are coastal sites. The features of ecological importance are remarkably consistent throughout most sites comprising coastal habitats (principally dry heath, maritime grassland, and sea cliffs), and cliff nesting birds (including: Chough, Peregrine Falcon, Guillemot, Kittiwake, Fulmar, Puffin, and Razorbill,). Dunes, wetlands, or significant freshwater habitats are absent from all sites.

Two sites, Derrigimlagh and Killary, are somewhat removed from any designated sites. While both these sites have features of ecological interest in the surroundings, it is considered that visitor activities at these sites do not result in any adverse ecological impacts, due in part to the pattern of use by visitors. Similar conclusions are made with regards to Keem Bay, Radharc na mBlascaodaí (Blaskets View), Bray Head, and Mizen Head. Visitor management at these sites ensure that sensitive terrestrial and aquatic habitats in the surroundings are safeguarded from potential impacts.

At the remaining nine sites, some level of visitor impacts were noted on terrestrial habitats of ecological importance. These impacts are mainly associated with trampling of vegetation in areas regularly accessed by significant numbers of visitors. Such trampling may lead to exposure of bare soil surfaces and thereby making the areas vulnerable to further erosion. The impacts are usually localised in nature and confined to the area being directly traversed. The impacted habitats are usually cliff-top maritime grassland and / or heath. There is limited potential for vegetated sea cliffs (EU Annex I habitat) to be impacted as they are defined by their steep slopes thereby making them inaccessible to most visitors.

It is considered that the potential for sea bird colonies to be impacted is low, as the nest sites typically occur on the near vertical cliff faces that are inaccessible to most visitors and sufficiently removed that disturbance impacts would not occur. Most sea birds do not venture further inland than the coastal cliffs, spending most of their time foraging at sea.

Similarly Chough and Peregrine Falcon nest sites typically occur on the sea cliffs and therefore impacts on nesting birds are deemed unlikely. However, Chough are known to utilise cliff-top habitats such as semi-improved maritime grassland for foraging. There is therefore potential for adverse impacts on Chough due to displacement as a result of disturbance and habitat alteration. Incidental Chough observations recorded from the current survey confirms that the species have not been displaced from these areas.

Sea angling is occurring at a number of the sites (most notably at Loop Head and Downpatrick Head). This activity, if undertaken at certain sensitive locations, may pose a risk to cliff-nesting birds during the breeding season.

The key recommendations made during the current study relate to:

- Improve visitor management / controls: In those sites where ecological impacts have been recorded there is a requirement to improved visitor management. This can include (but not restricted to) such measures as:
    - Improved signage directing visitors away from sensitive areas;
    - Creation of surfaced pathways or raised boardwalks; and
    - Improved interpretation facilities informing visitors of the sensitivity of the area and appropriate behaviour / activities.

    - The choice of appropriate actions / measures will be site specific depending on the sensitivity and characteristics of the area.
- Ecological monitoring: In those sites where visitor pressures on ecological features have been recorded then further ecological monitoring is suggested. In other instances where there is an absence of sensitive ecological features in proximity to the Discovery Point and / or where visitor management is appropriate to the current and future levels of activity then monitoring is not recommended.

Discovery Point	Designated sites	Sensitive features	Ecological impacts[2]	Recommendation(s)
Malin Head	North Inishowen Coast SAC / pNHA	Coastal habitats (sea cliffs, maritime grassland and dry heath); Cliff nesting birds	Minor localised impacts on coastal habitats (QIs of SAC)	Improve visitor management Further monitoring
Cionn Fhánada (Fanad Head)	Ballyhorrisky Point to Fanad Head SAC / pNHA Horn Head to Fanad Head SPA	Coastal habitats (sea cliffs, maritime grassland); Cliff nesting birds	Minor localised impacts on coastal habitats No impacts on designated site QIs	Improve visitor management Further monitoring
Sliabh Liag	Slieve League SAC / pNHA West Donegal Coast SPA	Coastal and upland habitats (sea cliffs, wet heath); Cliff nesting birds	Minor localised impacts on coastal and upland habitats, though signs of recent recovery (QIs of SAC)	Improve visitor management Further monitoring
Mullaghmore Head	Bunduff Lough and Machair/Trawlua Mullaghmore SAC / pNHA	Coastal habitats (maritime grassland, dry heath)	Negligible localised impacts No impacts on designated site QIs	Improve visitor management Further monitoring
Downpatrick Head	Downpatrick Head pNHA	Coastal habitats (sea cliffs, maritime grassland, wet heath) Cliff nesting birds	Minor localised impacts on coastal habitats No impacts on designated site QIs	Improve visitor management Further monitoring
Keem Bay	Croaghaun/Slievemore SAC / pNHA Achill Head SAC	Wet heath Cliff nesting birds (Chough)	No impacts identified No impacts on designated site QIs	Further targeted monitoring
Killary Harbour	None (nearest is 120m away)	None	None	None
Derrigimlagh	None (nearest is 750m away)	Wet heath (surroundings)	None	None
Cliffs of Moher	Cliffs of Moher SPA / pNHA	Coastal habitats (sea cliffs, maritime grassland); Cliff nesting birds	Significant damage to cliff-top habitats recorded in areas removed from managed areas. No impacts on designated site QIs	Improve visitor management Further monitoring
Loop Head	Loop Head SPA /	Coastal habitats	Minor localised	Improve visitor

[2] This refers to potential impacts on terrestrial habitats. Potential impacts on birds were not considered in detail.

	pNHA Lower River Shannon SAC	(sea cliffs, maritime grassland and dry heath); Cliff nesting birds	impacts on coastal habitats No impacts on designated site QIs	management Further monitoring
Radharc na mBlascaodaí (Blaskets View)	Dingle Peninsula SPA Slea Head pNHA	Coastal habitats (sea cliffs, dry heath); Cliff nesting birds	None	None
Bray Head	Iveragh Peninsula SPA Valentia Island Cliffs pNHA	Coastal habitats (sea cliffs, maritime grassland and dry heath); Cliff nesting birds	None	None
Dursey Island	Beara Peninsula SPA Dursey Island pNHA Garnish Point pNHA	Coastal habitats (sea cliffs, maritime grassland and dry heath); Cliff nesting birds	Minor localised impacts on coastal habitats No impacts on designated site QIs	Improved visitor management Further monitoring
Mizen Head	Three Castle Head to Mizen Head SAC/pNHA Sheep's Head to Toe Head SPA	Coastal habitats (sea cliffs, maritime grassland and dry heath); Cliff nesting birds	None	None
Old Head of Kinsale	Old Head of Kinsale SPA / pNHA	Coastal habitats (sea cliffs, maritime grassland and dry heath); Cliff nesting birds	Minor local impacts on coastal habitats	Improved visitor management Further monitoring

Table 4.3: Summary results of ecological monitoring at WAW signature discovery points undertaken in 2015