NATIONAL TOURISM MONITORING PROGRAMME 2021-2025

ANNUAL RESULTS FOR 2021

HOOK LIGHTHOUSE

for: **Fáilte Ireland**

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October 2022

Document Control

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Status of this version	Final	

Contents

Hook Lighthouse – Interesting Finds

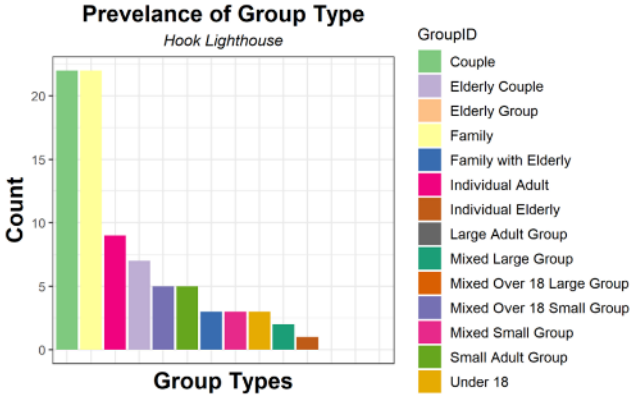
ECOLOGICAL HIGHLIGHTS

Due to the coastal nature of the site, there are a wide variety of marine mammals within the area of Hook Lighthouse including a large number of grey seals and various other sightings such as humpback whales.

The cliffs of Hook Lighthouse provide ample habitat to support a wide range of birds such as kittiwakes and northern gannets.

VISITOR NUMBERS AND DWELL TIME

- 210 people visited the site over 8 hours
- Average dwell time of 50 minutes



KEY RECOMMENDATIONS

- There is insufficient parking on site for the volume of visitors resulting in disperse damage to the natural features of the site – however, these features have negligible ecological value but this creates a negative astatic for the site.
- Given the high volume of visitor s, this is a missed opportunity for nature communication through informative signage focused on the natural assets in the area.

VISITOR INTERACTION & MANAGEMENT

- There are high levels of erosion and compaction along these desire lines with a large percentage of the habitat surrounding these pathways being damaged.
- Despite the evident damage on site – none of the visitors observed has perceivable effects individually.
- Majority of visitors only undertook walking on site.
- Most of the visitors to the site stayed for at least 50 minutes.
- Majority of visitors read signage that was available on site.

Highlights:

- Parking issues need to be examined.
- Long site dwell time of at least 50 minutes.
- Site signage on ecology is limited – missed opportunity for wildlife and habitats.



1 Hook Lighthouse

1.1 Purpose & Outputs of the Programme

Building on the success of the Wild Atlantic Way (WAW) environmental monitoring programme which ran from 2015-2019 – Fáilte Ireland has decided to expand the programme to a national level. The programme will monitor 19 individual sites located in all of Fáilte Irelands regional areas; The Wild Atlantic Way, Irelands Hidden Heartlands, Irelands Ancient East and Dublin. The programme will run for 5 years from 2021-2025.

The sites that are included in the programme vary in type from inland forest parks, to coastal sites, to privately owned attractions and diverse urban locations - can be seen below.

The purpose of the programme is as follows:

- To gain more insight from an environmental perspective as to what is happening at a variety of sites where we encourage visitors to frequent,
- To gather information (visitor behaviour, movement, path and trail conditions, surveys for birds, flora etc) for each site over the course of 5 years,
- To understand if there are observable trends and/or observable variations amongst site types over a 5-year period,
- To note good & bad practice at sites in order to;
- Make recommendations where appropriate for site management which is intended will have

sustainable benefits for the site, the visitor and the natural environment.

The Wild Atlantic Way Environmental Monitoring Programme allowed us to monitor the behaviour & movement of over 26,000 visitors, identify where there were stresses on the environment or potential future risks as well as good and bad practice.

This culminated in our ability to make useful recommendations to site owners and managers and ultimately to development a practical set of Guidelines for Visitor management (from Planning thorough to Site Operation).

It is hoped that we can build on the learnings of this previous programme and by engaging with site managers, to knowledge share, can enhance the information that we gather for each site chosen nationally for this new programme.

The key areas of focus within the data being gathered is to answer the following questions:

- How do the learning outcomes from the WAW monitoring compare when using repeat measures at fixed locations over a long period? Hence, what are the predictors of impact occurrence and severity?
- Following on from the WAW monitoring data – with the refined methods we aim to understand what activities cause which impact; and what are the factors which influence these activity choices in visitors?
- Understanding visitor movement patterns with respect to ranging behaviours – i.e., is there a distance threshold where impacts are less severe or negligible?
- Undertake pathway condition assessments to understand the relative sensitivities or tolerances of path types to visitor movements – taking note of habitat type and visitor numbers/load capacity.

These questions will be answered upon completion of the full suite of surveys and data collected annually over the course of the monitoring programme. However, each year will have annual interim reports to enable emerging findings and management recommendation to be identified and shared with the relevant stakeholders to support progressive management practices.

1.2 Methods & Surveys

The following surveys were undertaken at Hook Lighthouse:

1.2.1 Visitor Characterisation Survey

Visitor characterisation surveys were undertaken at each of the monitoring sites during the weekend period between June-August. The survey at Hook Lighthouse was undertaken on the 31st of July 2021, with max temperatures reaching approximately 18.5° C, low levels of rainfall and low levels of wind on the day[1]. These surveys followed an 8-hour time period recording samples of visitor behaviour of an many visitors on site as possible. Visitor movement patterns, demographic data and activities undertaken were recorded for all sampled visitors. Where activities had associated impacts, these were also recorded and the relevant severity was recorded using the same coding system as with the WAW monitoring (see Appendix I for details). It is important to note that the visitor characterisation surveys are indiscriminate between visitors and local amenity use.

1.2.2 Ecological & Path Assessments

In addition to the visitor movement and behavioural records an ecological assessment and path network assessment was undertaken at each site. This consisted of mapping all tracks and trails – with records of hazards, notable damage etc. In addition to this, all habitats were mapped according to the Fossitt Habitat coding system while information on bird populations was gathered from National Biodiversity Centre Data.

[1] Weather data gathered from: https://www.met.ie/climate/available-data/historical-data

1.2.3 Other Surveys

Additional sample surveys were undertaken at Hook Lighthouse to identify the species presence of wintering birds and mammals. This information can inform potential management actions related to amenity services such as lighting which could conflict with sensitive species on site.

1.3 Site Description of Hook Lighthouse

Aside from the attraction of Hook Lighthouse (Figure 10.1) being the oldest operational lighthouse in the world, it is considered to host one of the most stunning views in County Wexford, located at the tip of Hook Head. Guided tours of the lighthouse are plentiful and various species of marine wildlife can be spotted from the area, particularly during the winter. The lighthouse is contained within the Hook Head SAC and includes a range of habitats such as dry meadows and grassy verges and rocky see cliffs.

Figure 1.1 Hook Lighthouse

Hook Head SAC

Figure 1.2 Study Area within Hook Head SAC

1.4 Pathways and Features Condition Results

1.4.1 Pathway Condition

There are two sets of conditions at this site. Those within the lighthouse compound, which are well managed and those surrounding which are not. There are high levels of erosion and compaction especially between the road and sea with hardly any vegetation growth in places. Longer stay patterns caused by campervans and caravans are intensifying this issue. To the east of the lighthouse there is severe pathway erosion through grasslands above the shore. with a large percentage of the habitat surrounding these pathways being damaged.

Figure 1.3 Pathways identified at Hook Lighthouse

Figure 1.4 Pathway at Hook Lighthouse

1.4.2 Features Condition

The site itself contains numerous features such as Hook Lighthouse itself a long with a playground area (Figure 1.1). There is also a large sit-down area with benches along with a car park and set down areas for visitors to the site. The majority of the signage at Hook Lighthouse rightfully relates to warning signs that alert visitors of the potential of hazardous currents in the area. The remaining signage in the

area are directional signage which guide visitors around Hook Lighthouse. There is a lack of signage in the area which relates to the ecology and wildlife of the surrounding area.

Figure 1.5 Features recorded at Hook Lighthouse

Figure 1.6 Features at Hook Lighthouse

1.4.3 Hazards

The hazard mapping identified multiple points at Hook Lighthouse where strong currents have been observed along the edge of the site (Figure 1.8) and cliff edges where there are no barriers.

Figure 1.7 Hazards recorded at Hook Lighthouse

Figure 1.8 Hazards at Hook Lighthouse

1.5 Visitor Characterisation Survey

The visitor monitoring surveys resulted in a total of 210 visitors (which represent 82 group observations). The site is most popular amongst the Couple Family group with the dominant mode of transport being car. The average dwell time for the site was 50 minutes; with the following activities undertaken during the survey (listed in order of occurrence rate):

Activity Type
Picnicking
Cycling
Dog walking (on lead)
Exploring off trail
Photographing
Sitting
BBQing
Delivery to lighthouse
Dog walking (off lead)
Jogging

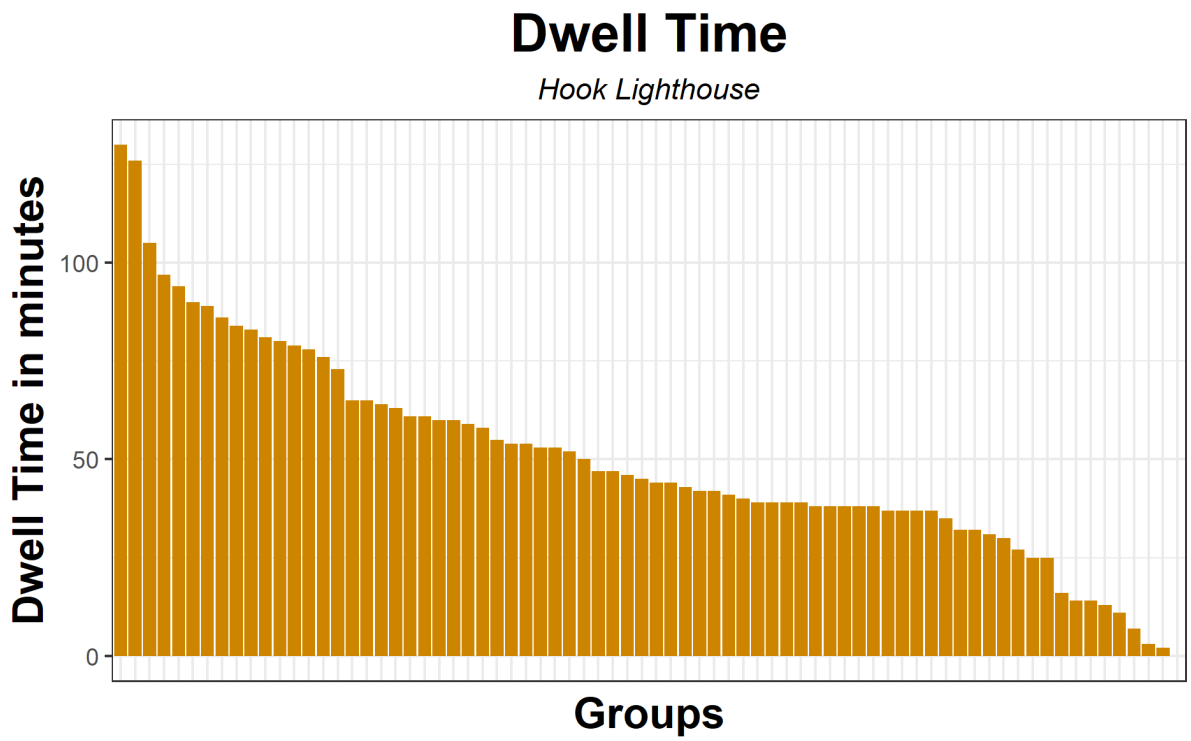


Figure 1.9 Duration of Time Spent at Hook Lighthouse

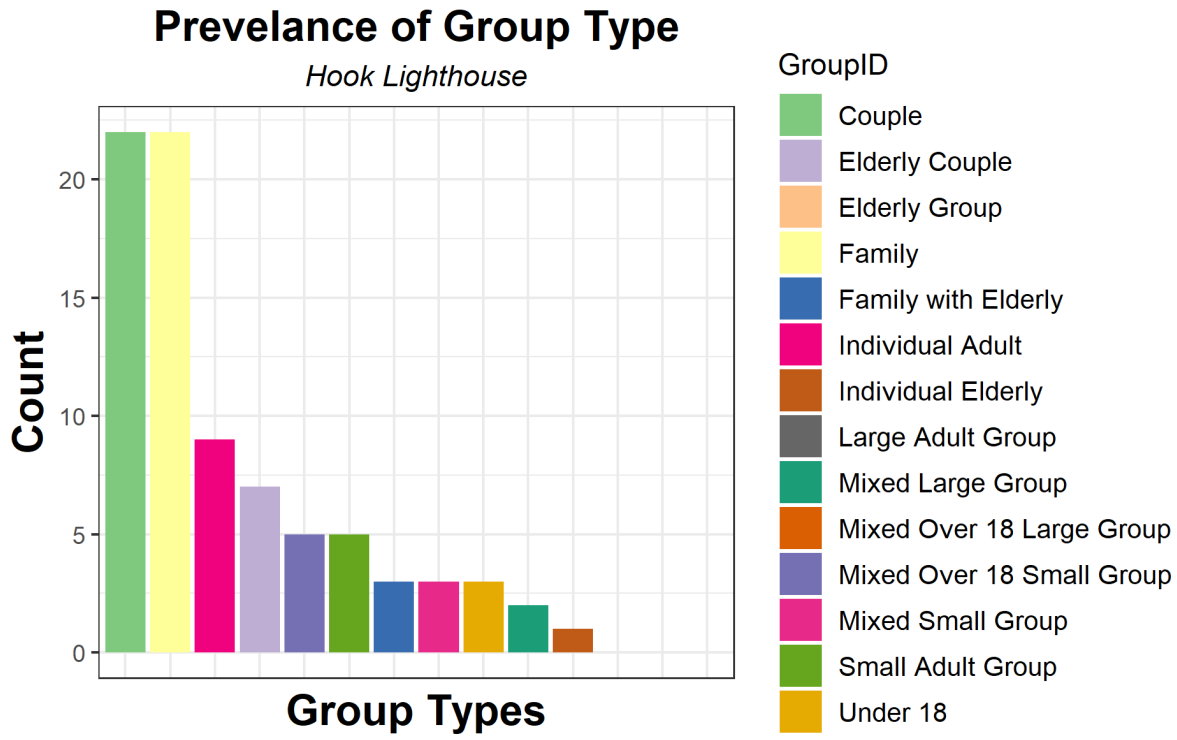


Figure 1.10 Groups of visitors that visited Hook Lighthouse

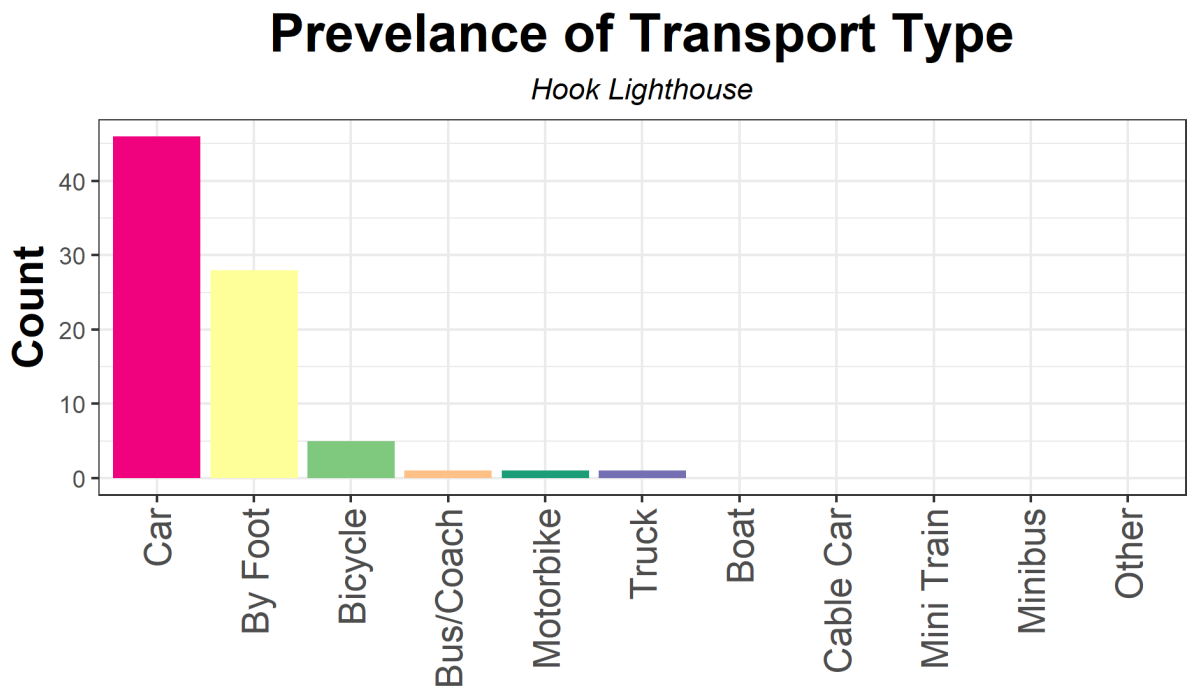


Figure 1.11 Mode of transport used to visit Hook Lighthouse

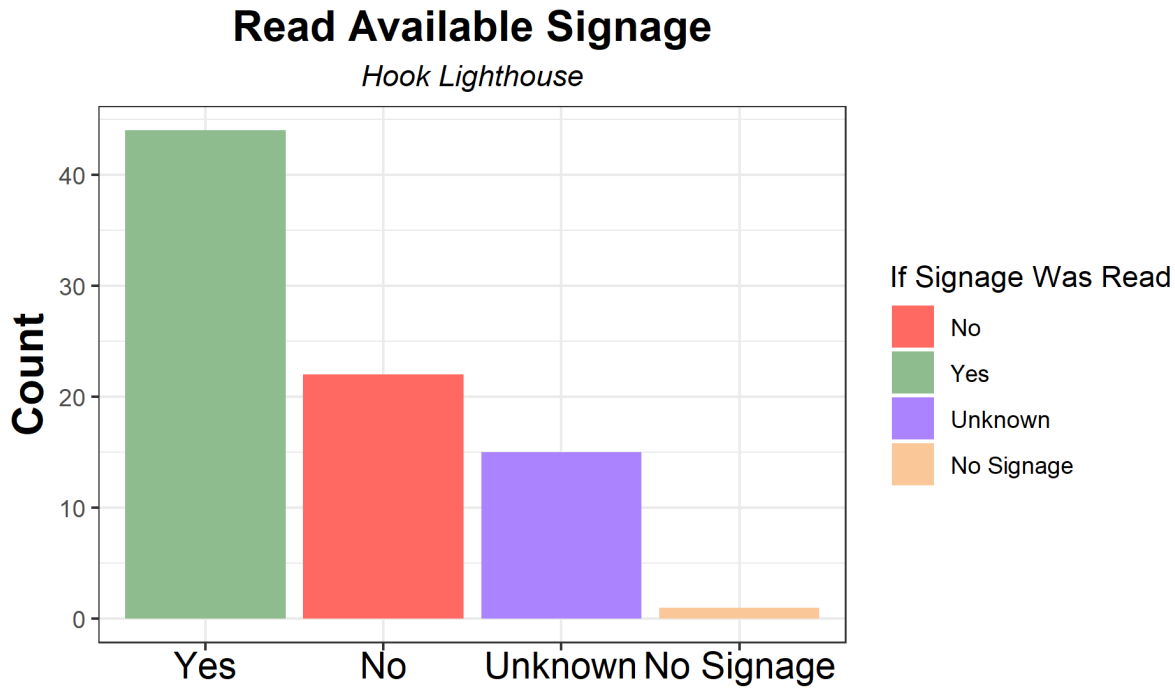


Figure 1.12 Use of Interpretive Material at Hook Lighthouse

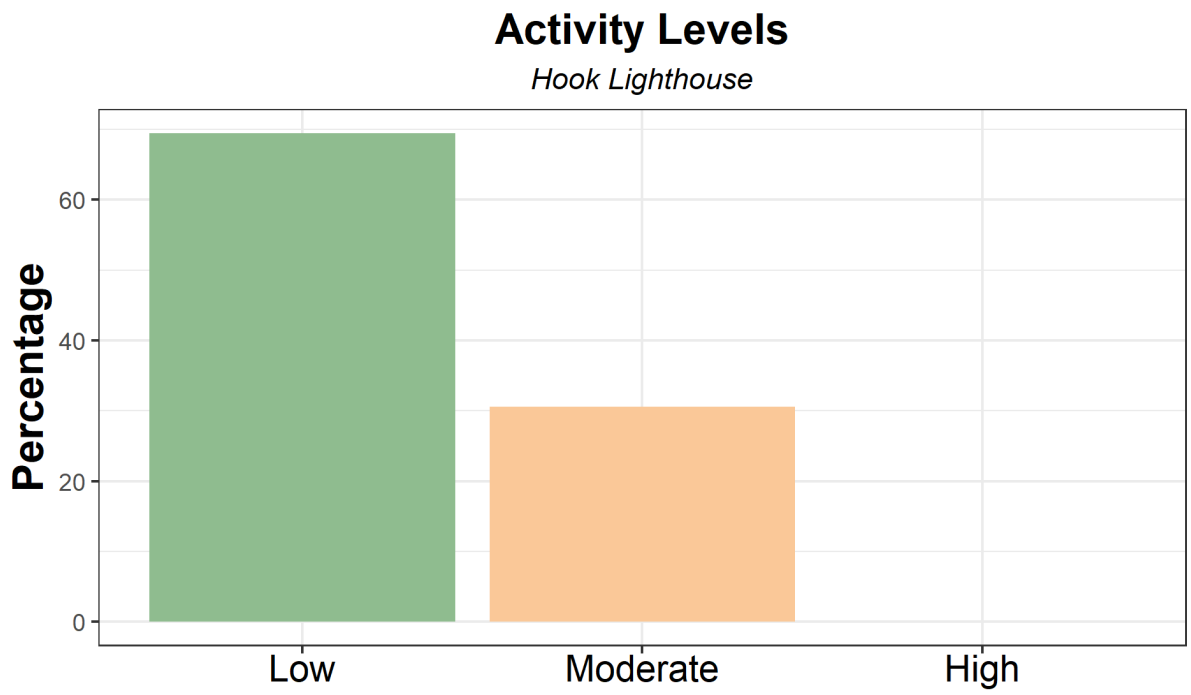


Figure 1.13 Categories of Activity Levels Observed at Hook Lighthouse

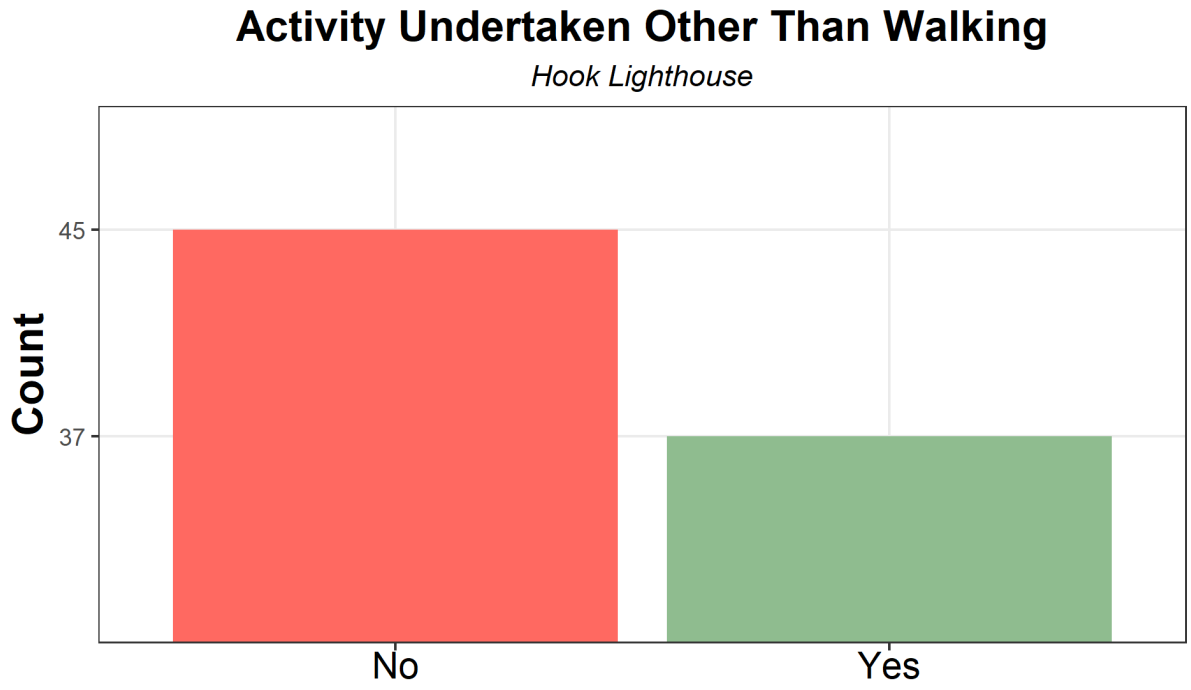


Figure 1.14 Activities undertaken other than walking

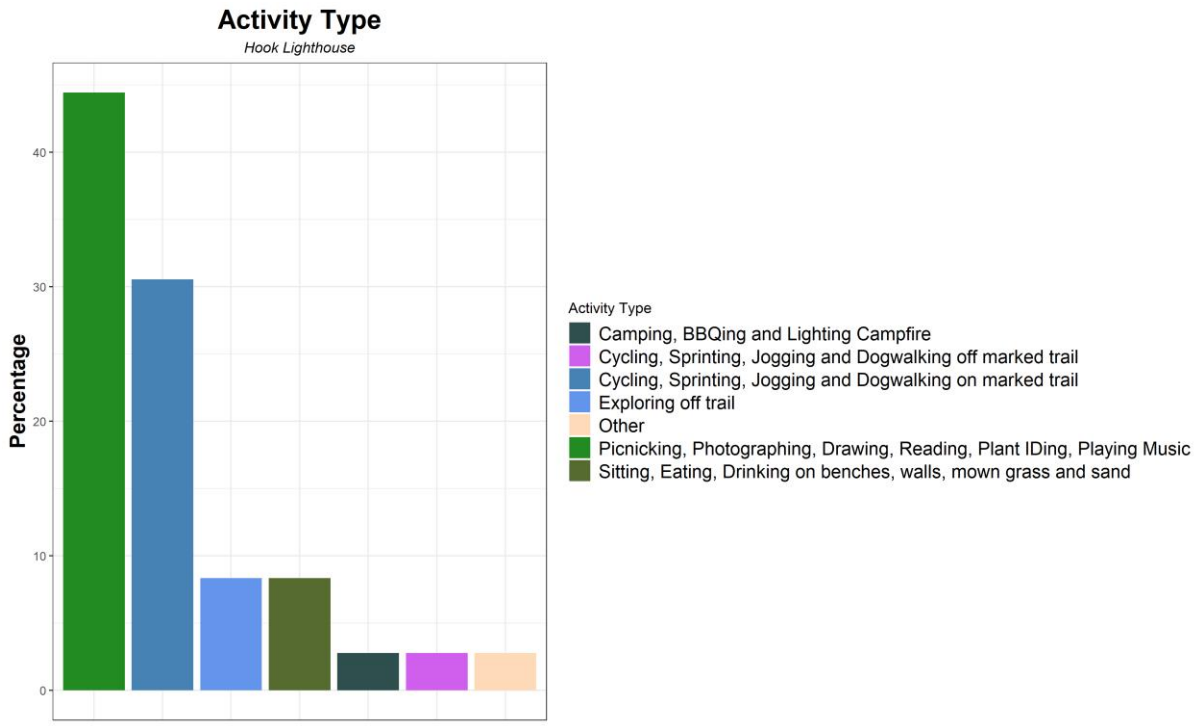


Figure 1.15 Range of Visitor Activities Observed at Hook Lighthouse

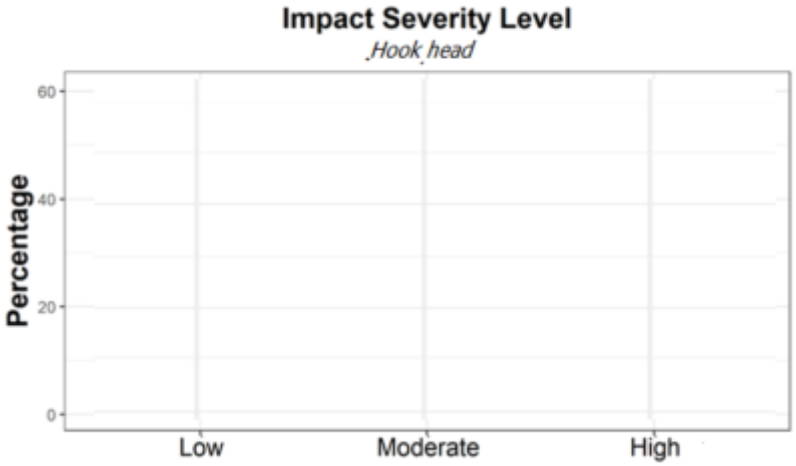


Figure 10.8 Categories of Environmental Impact Levels Observed at Hook Lighthouse as a result of Visitor Activities

Figure 1.16 Visitor movement patterns to the west of Hook Lighthouse

Of the 82 groups recorded on site 45% of them undertook activities other than walking. These activities (identified above) resulted in no observable impacts to the receiving environment individually. However, there is clear evidence that the site is impacted by visitor interactions in combination (see below).

1.6 Ecological Monitoring Results

1.6.1 Ecological Constraints

The habitats around hook lighthouse are sensitive to land use management, pollution, alien species and anthropogenic disturbance.

Table 1.1 Designated sites within 2km of Hook Lighthouse and relevant ecological receptors

Site Code	Site Name	Distance (km)	Site Type	Qualifying Feature
[000764]	Hook Head pNHA	0	pNHA	
[000764]	Hook Head SAC	0	SAC	Reefs [1170], Large shallow inlets and bays [1160], Vegetated Sea cliffs of the Atlantic and Baltic Coasts [1230]

1.6.2 Habitat Descriptions

The majority of Hook Lighthouse is made up of rocky sea cliffs (Fossitt Code CS1), which align with the SAC, Hook Head, is designated (Vegetated Sea cliffs of the Atlantic and Baltic Coasts [1230]). The area surrounding Hook Lighthouse itself is made up of a more managed habitat in dry meadows and grassy verges (Fossitt Code GS2).

There is serious erosion and damage caused by carparking, vehicular movement and overuse/trampling from visitors on the grassland habitats on site. This has resulted in exposed areas and a poorly presented site – however, the affected habitats have negligible ecological value and therefore hard infrastructure carparking could be explored to improve the overall aesthetic of the site.

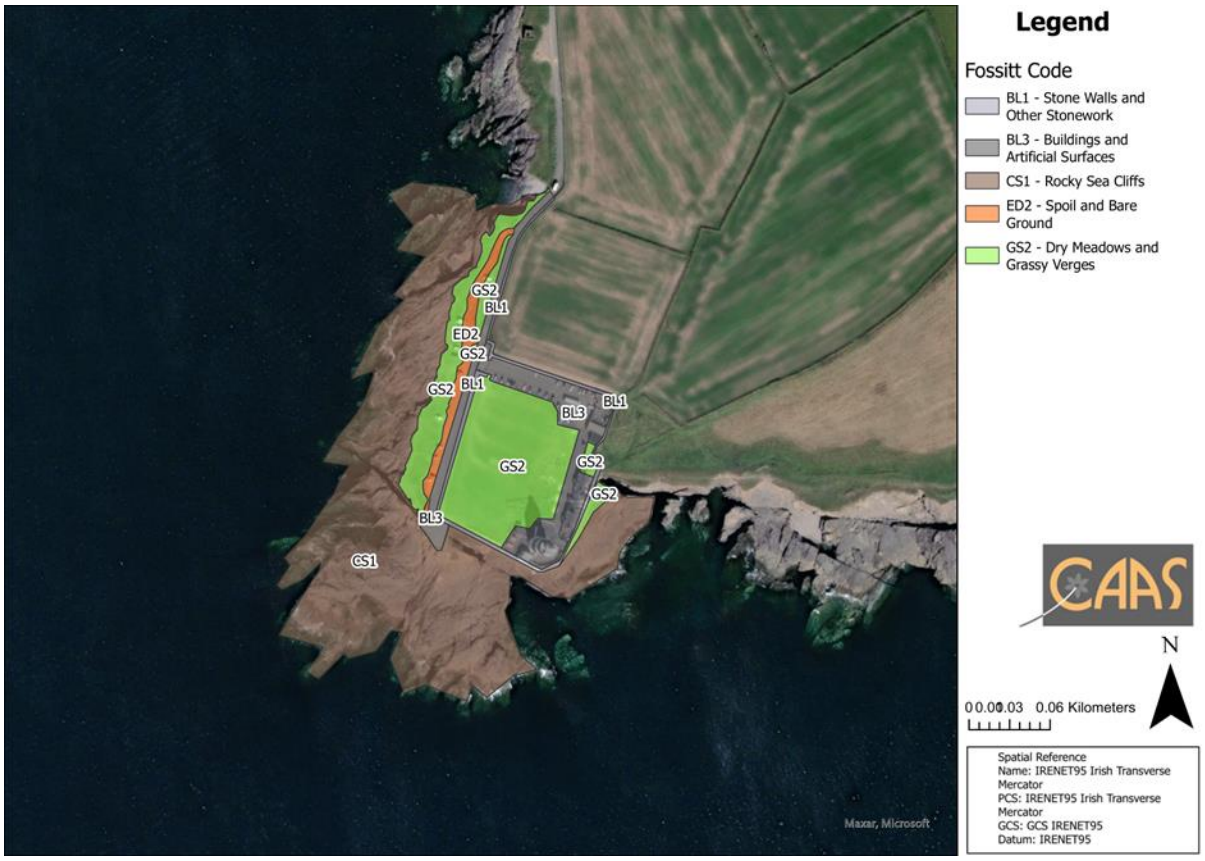


Figure 1.17 Habitats present at Hook Lighthouse

1.6.3 Condition Assessment

There are a range of habitats present on site, the assessment of habitat condition identified that the overall habitat quality[2] following the assessment scale was "3" which means the majority of the habitats have a widespread degree of negative impact, but slight and capable of rapid recovery. There were 4 recorded incidents of damage to habitats occurring off the marked paths on site. The causes of the damage were identified to vehicles, camping and fires.

The causes of the damage were identified to be parking and turning vehicles, camping, burning fires and general site overuse.

1.6.4 Mammals on Site

No mammals were recorded at Hook Lighthouse. The NBDC data shows that the majority of mammals observed in the area are marine mammals, especially whales due to the coastal nature of Hook Lighthouse. The terrestrial mammals in the area are made of species such as badgers and hares while fin whales and grey seals were the most observed marine mammals.

Table 1.2 List of mammals that have been recorded at NBDC Hectad X79

Taxonomic group	Common name	Scientific name	Record count
Marine mammal	Bottle-nosed Dolphin	*Tursiops truncatus*	3
Marine mammal	Common Dolphin	*Delphinus delphis*	18
Marine mammal	Common Porpoise	*Phocoena phocoena*	20
Marine mammal	Common Seal	*Phoca vitulina*	1
Marine mammal	Delphinidae	*Delphinidae*	2
Marine mammal	Fin Whale	*Balaenoptera physalus*	48
Marine mammal	Grey Seal	*Halichoerus grypus*	33
Marine mammal	Humpback Whale	*Megaptera novaeangliae*	23
Marine mammal	Minke Whale	*Balaenoptera acutorostrata*	5

[2] This value was calculated using the methods set out in Appendix II

Taxonomic group	Common name	Scientific name	Record count
Marine mammal	Phocidae	*Phocidae*	2
Marine mammal	Risso's Dolphin	*Grampus griseus*	3
Terrestrial mammal	Brown Rat	*Rattus norvegicus*	2
Terrestrial mammal	Eurasian Badger	*Meles meles*	5
Terrestrial mammal	European Otter	*Lutra lutra*	1
Terrestrial mammal	European Rabbit	*Oryctolagus cuniculus*	2
Terrestrial mammal	Irish Hare	*Lepus timidus subsp. hibernicus*	2
Terrestrial mammal	Pipistrelle	*Pipistrellus pipistrellus*	1
Terrestrial mammal	Red Fox	*Vulpes vulpes*	1
Terrestrial mammal	Soprano Pipistrelle	*Pipistrellus pygmaeus*	1
Terrestrial mammal	Wood Mouse	*Apodemus sylvaticus*	1

1.6.5 Wintering Bird Survey

Common gull species were observed foraging off the coast of hook head during the survey.

Table 1.3 Results of the wintering bird survey conducted at Hook Lighthouse

Common name	Scientific name	Record count
Herring Gull	*Larus argentatus*	16
Black-headed Gull	*Larus ridibundus*	26

Table 1.4 List of wintering birds that have been recorded at NBDC Hectad X79

Taxonomic group	Common name	Scientific name	Record count
Bird	Atlantic Puffin	*Fratercula arctica*	1
Bird	Black-headed Gull	*Larus ridibundus*	8
Bird	Black-legged Kittiwake	*Rissa tridactyla*	26
Bird	Brent Goose	*Branta bernicla*	1
Bird	Common Crane	*Grus grus*	2
Bird	Common Greenshank	*Tringa nebularia*	1
Bird	Common Guillemot	*Uria aalge*	9
Bird	Common Moorhen	*Gallinula chloropus*	9
Bird	Common Redshank	*Tringa totanus*	5
Bird	Common Shelduck	*Tadorna tadorna*	1
Bird	Common Snipe	*Gallinago gallinago*	4
Bird	Common Tern	*Sterna hirundo*	2
Bird	Dunlin	*Calidris alpina*	3
Bird	Eurasian Curlew	*Numenius arquata*	7
Bird	Eurasian Dotterel	*Charadrius morinellus*	5
Bird	Eurasian Oystercatcher	*Haematopus ostralegus*	14
Bird	Eurasian Teal	*Anas crecca*	3
Bird	Eurasian Wigeon	*Anas penelope*	1
Bird	Eurasian Woodcock	*Scolopax rusticola*	1
Bird	European Golden Plover	*Pluvialis apricaria*	3
Bird	European Shag	*Phalacrocorax aristotelis*	10
Bird	European Storm-petrel	*Hydrobates pelagicus*	4
Bird	Fea's Petrel	*Pterodroma feae*	1
Bird	Glaucous Gull	*Larus hyperboreus*	1
Bird	Goldcrest	*Regulus regulus*	1
Bird	Great Black-backed Gull	*Larus marinus*	16
Bird	Great Cormorant	*Phalacrocorax carbo*	13
Bird	Great Egret	*Ardea alba*	1
Bird	Great Northern Diver	*Gavia immer*	6
Bird	Great Skua	*Stercorarius skua*	1
Bird	Greater White-fronted Goose	*Anser albifrons*	1
Bird	Grey Heron	*Ardea cinerea*	5
Bird	Grey Plover	*Pluvialis squatarola*	4
Bird	Herring Gull	*Larus argentatus*	14

Taxonomic group	Common name	Scientific name	Record count
Bird	Iceland Gull	*Larus glaucoides*	2
Bird	Larus	*Larus*	4
Bird	Lesser Black-backed Gull	*Larus fuscus*	12
Bird	Little Auk	*Alle alle*	1
Bird	Little Plover	*Charadrius dubius*	1
Bird	Mallard	*Anas platyrhynchos*	9
Bird	Manx Shearwater	*Puffinus puffinus*	8
Bird	Mew Gull	*Larus canus*	8
Bird	Northern Fulmar	*Fulmarus glacialis*	16
Bird	Northern Gannet	*Morus bassanus*	31
Bird	Northern Lapwing	*Vanellus vanellus*	5
Bird	Purple Sandpiper	*Calidris maritima*	3
Bird	Razorbill	*Alca torda*	3
Bird	Red-throated Diver	*Gavia stellata*	5
Bird	Ringed Plover	*Charadrius hiaticula*	6
Bird	Ruddy Turnstone	*Arenaria interpres*	7
Bird	Sandwich Tern	*Sterna sandvicensis*	2
Bird	Upland Sandpiper	*Bartramia longicauda*	1
Bird	Water Rail	*Rallus aquaticus*	1
Bird	Whimbrel	*Numenius phaeopus*	5

1.7 Recommendations

- There is insufficient parking around the lighthouse site for the volume of visitors resulting in disperse damage to the natural features of the site – however, these features have negligible ecological value but this gives rise to a poor appearance.
- Shore edge access management, including path provision needs to be addressed as amenity and safety issues.
- Given the high volume of visitors, this is a missed opportunity for nature communication through informative signage focused on the natural assets in the area.

Appendix I

Activities		
Category 1 Low Level		
Walking, running or cycling on paths, marked trails or hard surfaces		LA 1
Walking, running, cycling or playing in mown grass, managed grassland or level sand		LA 2
Sitting on benches, walls, mown grass, sand		LA 3
Swimming, sailing, surfing, kayaking in water		LA 4
Resting, reading, looking, picnicking, sightseeing, painting, photographing		LA 5
Vehicular movement on roads and parking areas		LA 6
Watching nature in hedges, woods, streams, pools and intertidal areas		LA 7
Category 2 Medium Level		
Powered movement through water		MA 1
Any movement leaving an existing trail or marked path		MA 2
Any movement leaving a trail through leafy vegetation		MA 3
Any movement leaving a trail through woody vegetation		MA 4
Climbing on walls, loose stones, sand, soil etc.		MA 5
Fishing		MA 6
Category 3 High Level		
Walking through wet/muddy soil		HA 1
Scrambling on steep or loose slopes		HA 2
Off road vehicular movement		HA 3
Disturbance of wildlife		HA 4
Deliberate building or moving or knocking site materials - parts of monuments, walls, stones, sand etc.		HA 5
Picking herbaceous vegetation		HA 6

Appendix I Activity and impact code index used for recording visitor behaviours on site

Category 1 Low Impact		
No identifiable effect		LIE 1
Desire lines or trails visible on grass and leafy vegetation		LIE 2
Temporary disturbance (including chasing and feeding) of insects, fish, amphibian, reptiles, insects, birds and mammals		LIE 3
Temporary change of character - due to the appearance or nature of activities (noise, crowds, etc.)		LIE 4
General/light littering		LIE 5
Category 2 Medium Impact		
Desire lines or tracks visible outside of existing trail or marked path		MIE 1
Trampling of herbaceous vegetation		MIE 2
Damage to woody vegetation		MIE 3
Incidentally moving or knocking site materials - parts of monuments, walls, stones, sand, rooted vegetation, flora, fauna etc.		MIE 4
Addition/alteration of site features, transient emissions, noise		MIE 5
Transient disturbance, emissions, noise		MIE 6
Disturbance of wildlife		MIE 7
Category 3 Severe Impact		
Direct interference with site material - parts of monuments, walls, stones, sand, rooted vegetation, flora, fauna etc.		SIE 1
Removal of material - parts of monuments, walls, stones, sand, rooted vegetation, flora, fauna etc.		SIE 2
Vandalism or graffiti		SIE 3
Destruction of structures, vegetation or fauna		SIE 4
Heavy littering or dumping quantities of waste		SIE 5
Burning materials or lighting a fire		SIE 6
Injuring, killing or taking wildlife		SIE 7

Appendix II

Habitat Condition Assessment Methodology

A rating scale has been designed for this monitoring programme as a standardised, repeatable measurement for assessing habitat condition across all sites[3]. For the purposes of this monitoring programme, habitat condition is assessed at every site by the surveyor examining four core criteria:

1. The extent to which habitat degradation (due to human activity), if any, is observed;
2. If habitat degradation is observed, the degree to which the impact is localised or widespread;
3. The potential ability for the habitat to recover (related to scale of degradation); and,
4. The requirement for intervention (related to the degree of the previous 3 elements).

For these assessments the term 'degradation' is taken to mean any change that reduces the long-term viability habitats and its qualifying interests [flora and fauna]. Degradation can include readily visible evidence of factors such as surface erosion or compaction, vegetation loss, crowd disturbance [noise], disturbance by pets, littering, burning or pollution.

Based on these four criteria, each site is walked along transects established by the principal pathways that are used for visitor access and movement through each site. At 100 metres intervals along the selected pathways, an assessment of habitat condition is made, using an established rating scale of 1 to 5; 1 being no impact and 5 being high impact. Each rating is then translated into a condition assessment, as displayed in Table II - 1 below.

These ratings are gathered for each site, and are then grouped; from which the mode is taken (i.e., the rating that occurs most frequently. This then recorded and reported as the resultant overall rating of the assessed habitat condition assessment for each site.

Table II-1 Habitat rating scale and condition assessment

Scale	Condition
1	No evidence of any habitat degradation observed.
2	Localised habitat degradation, but slight and capable of rapid recovery.
3	Widespread habitat degradation, but slight and capable of rapid recovery.
4	Localised habitat degradation, requiring intervention to allow full recovery.
5	Widespread habitat degradation, requiring intervention to allow full recovery.

[3] Note: Where possible, the same surveyor is used across multiple sites – but in some instances, different surveyors survey different sites. This can lead to a human variation in the assigning of the rating scale for impact. However, there will be sufficient repetition of the data through the several years of the monitoring programme to account for any variations in human interpretation on this scale.