

Filey Cliffs Seabird Monitoring Report 2013



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Summary

The Filey Cliffs seabird monitoring programme is an ongoing partnership between RSPB and Natural England. The programme was set up to monitor and report on the condition of this internationally important seabird colony. The project aims to establish repeatable baseline census monitoring of the colony, and to pursue a number of key areas of research and surveillance required to inform the conservation status of this site. The continued monitoring and research informs the review of the adjacent Flamborough Head and Bempton Cliffs Special Protection Area (SPA) and Site of Special Scientific Interests (SSSI) and provides critical data to the conservation agencies to enable the government to make informed decisions in the establishment of the Marine Protected Area (MPA) network.

The whole-colony population count was completed, providing a five year continuous trend in population data for this site. The total number of individual birds in the breeding seabird assemblage was 20,046 individuals, the second highest count on record.

Productivity monitoring for Black-legged Kittiwake was undertaken for a second year across five monitoring sites and were completed by staff and volunteers from RSPB and Filey Brigg Ornithological Group (FBOG). Productivity averaged 0.26 chicks per apparently occupied nest.

This season, prolonged storms in the North Sea during March and April had serious impacts on birds. Large numbers of auks were found washed up on beaches along the length of the east coast either dead or dying, from exhaustion or starvation. A secondary effect came to light when significant numbers of Kittiwake attempted to breed and only laid small clutches or didn't breed at all. This suggests that birds struggled to reach breeding condition. For some species this resulted in a protracted breeding season with birds laying up to three weeks later than in previous years, however, others were more traditional with their egg laying dates. Evidence from the Flamborough and Bempton monitoring programme (*Flamborough Head and Bempton Cliffs SPA Seabird Monitoring Programme Report 2013. Aitken, D et al.*) indicates that once the season was underway, weather conditions were favourable and the presence of large fish shoals off the Yorkshire coast meant birds that did breed where relatively successful and productivity remained above the national average for most species. Kittiwakes however, both at Flamborough and Bempton colony and at Filey, had a very difficult year and productivity across both sites was well below the national average of 0.68 chicks per pair.

The RSPB's Seabird Tracking and Research (STAR) project took place at Filey, led by Dr Ellie Owen, RSPB conservation scientist. The project is now in its fifth year of fieldwork and data collection at Flamborough Head, tracking Black-legged Kittiwake to investigate foraging behaviour. This year work was carried out at the pSPA site at Filey for the first time. Thirty-three GPS tags were deployed here, of which twenty were recovered. The findings from this year's tracking projects will be available on the RSPB website in 2014.

Introduction

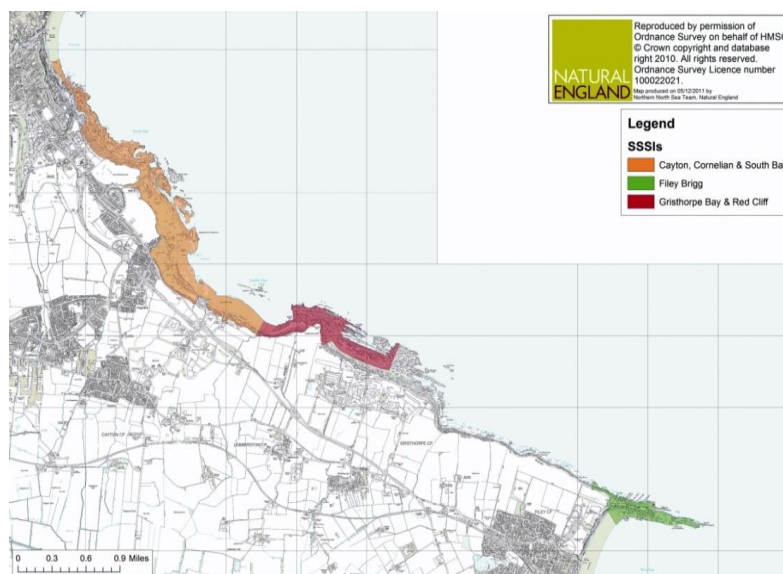
The Filey Brigg to Cayton Bay stretch of coastline falls within the county of North Yorkshire. It is approximately 7 kilometres long and situated 10 kilometres north of Bempton Cliffs, on the east coast of Yorkshire (Figure 1).

Figure 1 – Filey and Cayton seabird colony location



There are two SSSI (Site of Special Scientific Interest) designations that fall within the colony; these are the Filey Brigg SSSI to the south, and the Gristhorpe Bay and Red Cliff SSSI to the north (Figure 2).

Figure 2 – SSSI designations within and adjacent to the Filey to Cayton colony



The cliff height ranges from 160 foot to the south to 270 foot in the north. For the most part, the cliff face is vertical with ledges and crevices providing suitable nesting areas for Common Guillemot (*Uria aalge*), Razorbill (*Alca torda*), Atlantic Puffin (*Fratercula artica*), Black-legged Kittiwake (*Rissa tridactyla*), Northern Fulmar (*Fulmarus glacialis*), Herring Gull (*Larus argentatus*) and Great Cormorant (*Phalacrocorax carbo*). Other sections of cliff line are more gradual and covered in vegetation, the result of previous landslips and are largely unsuitable for nesting seabirds.

Whole colony counts carried out in 1986 (Williams 1996) and in 2002, as part of Seabird 2000, a major initiative to census all breeding seabirds in Britain and Ireland (Mitchell et al 2004) identified a significant seabird colony nesting on the cliffs to the north of Filey Bay. The significance of this colony came to light in 2008 in response to large numbers of razorbill and guillemot being caught and killed in gill nets set by fishermen in the adjacent Filey Bay. It was recognised that birds caught in the nets could have originated from either the Bempton and Flamborough colony or the Filey colony. Unfortunately, there was little current data about the state of the colony at Filey.

In 2009 a boat-based whole colony count of the breeding seabird assemblage nesting on the cliffs between Filey and Cayton was carried out by the RSPB. The results suggested that the total number of breeding seabirds in the colony exceeded 20,000 birds, and as such, under the EU Birds Directive met Special Protection Area (SPA) qualifying criteria. In response to this evidence the RSPB, with funding support from Natural England, have now completed five consecutive years of colony count data. The results are comparable with earlier counts enabling determination of population trends and comparison with results from the Flamborough and Bempton SPA.

In addition to this, recommendations were made to carry out productivity monitoring for Black-legged Kittiwake as the colony currently supports more than 1% of the UK Kittiwake population. In order to build up a more detailed understanding of the colony and its importance against other colonies around the UK. Continued annual census and productivity monitoring at this site will enable the assessment of population changes, trends, and variations in colony assemblage over time.

The results from the 2013 seabird monitoring works are detailed in this document with the intention of providing all raw data and monitoring procedures to enable interpretation by others in the future.

Method

Whole-colony Count

The Filey 2013 whole-colony count followed the methodologies set out in the '*Seabird monitoring handbook for Britain and Ireland. (Walsh, P.M., Halley, D.J., Harris, M.P., del Nevo, A., Sim, I.M.W., & Tasker, M.L. 1995). JNCC / RSPB / ITE / Seabird Group, Peterborough*'. The monitoring handbook summarises the current census techniques; the appropriate method was followed according to resources and practicality at this colony.

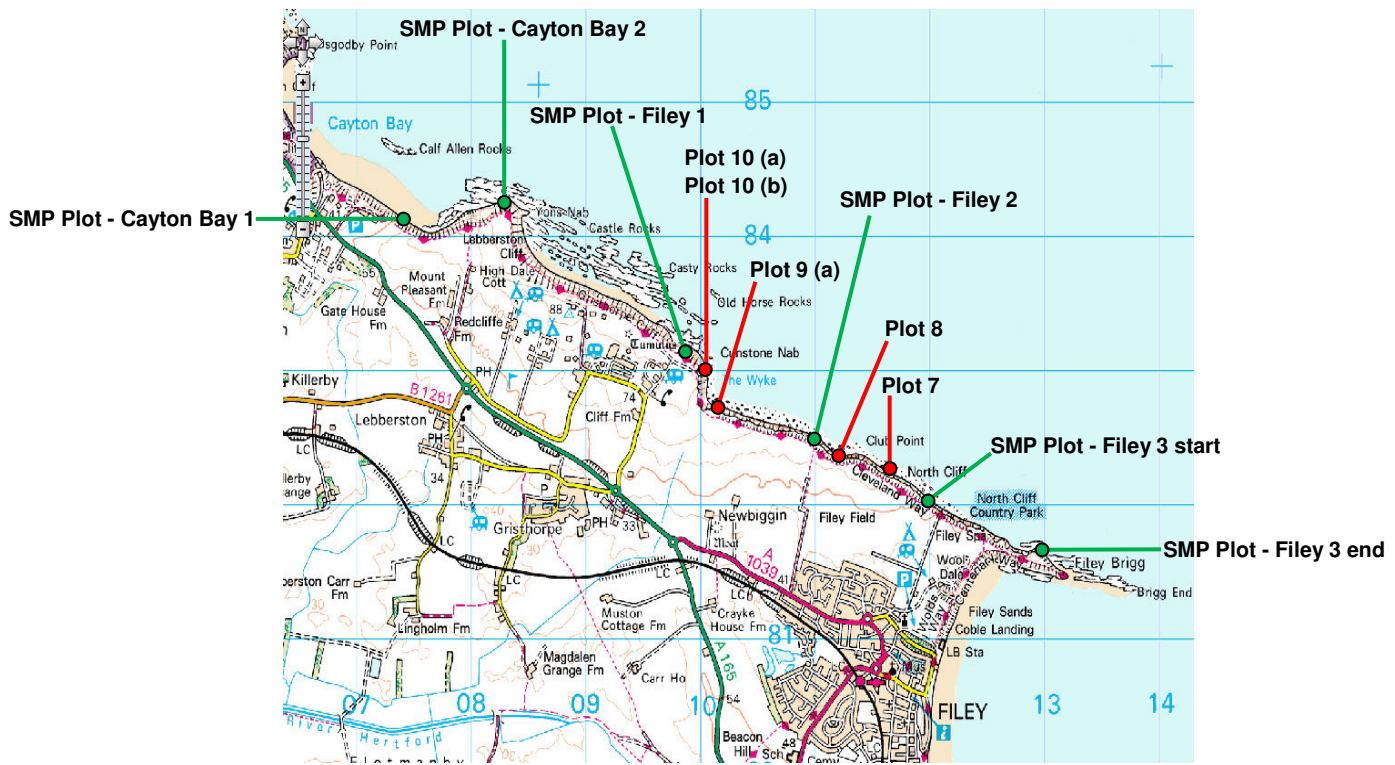
The count was conducted on 3rd June 2013 and took seven hours to complete. This was a boat-based census, comparable to previous years, and was carried out by David Aitken, Clare Clarkson and Keith Clarkson, with assistance from Filey Sailing Club. The colony is divided into five recording areas, taken from the JNCC Seabird Monitoring Programme (SMP) website; within these areas 24 sub-sections have been established to assist the counts (Appendix 2).

Productivity monitoring

Productivity monitoring for Black-legged Kittiwake followed methodologies set out in the '*Seabird monitoring handbook for Britain and Ireland. (Walsh, P.M., Halley, D.J., Harris, M.P., del Nevo, A., Sim, I.M.W., & Tasker, M.L. 1995). JNCC / RSPB / ITE / Seabird Group, Peterborough*'. Monitoring was carried out for the first time by RSPB staff and volunteers in 2012; this was completed again in 2013. Historically, monitoring has been undertaken by FBOG (Syd Cochrane pers comm.) however, it did not follow the methodologies set out in the seabird monitoring handbook. There is now a two year data set for Kittiwake productivity, comparable to other UK colonies.

Five productivity plots were established in 2011 which provided an adequate sample size, as well as providing safe vantage points for the observer and little or no disturbance to breeding seabirds (Figure3).

Figure 3 – SMP boundaries and Kittiwake productivity plot locations



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Results

Whole-colony counts

There is now a five year continuous data set of whole-colony counts carried out between 2009-2013, these are shown below and are compared to the 1986 (Williams 1996) and 2002 counts (Table 1).

Table 1 – Comparison of boat based whole-colony counts 1986-2013

	1986 (14 Jun)	2002	2009 (20 June)	2010 (21 May)	2011 (03 June)	2012 (18 June)	2013 (03 June)
Fulmar	252 pairs	243 AOS	410 AOS	842 AOS	771 AOS	558 AOS	576 AOS
Cormorant	25 pairs	23 AOS	42 AOS	20 AOS	38 AOS	29 AOS	21 AOS
Shag	0	0	0	0	4 ind.	2 ind.	2 ind.
Herring Gull	200 pairs	110 AOS	339 AOS	240 AOS	245 AOS	190 AOS	251 AOS
Kittiwake	5666 pairs	5120 AOS	6413 AOS	6420 AOS	7777 AOS	6832 AOS	6935 AOS
Guillemot	416 pairs	470 ind.	2695 ind.	3100 ind.	3007 ind.	2717 ind.	3064 ind.
Razorbill	104 pairs	72 ind.	613 ind.	814 ind.	1120 ind.	1325 ind.	1403 ind.
Puffin*	36 ind.	35 ind.	19 ind.	15 ind.	32 ind.	47 ind.	11 ind.
Total ind.	13362	11569	17735	18973	21825	19309	20046

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The results provide the second lowest count for Cormorant and the lowest recorded count for Puffin* since 1986. The highest count for Razorbill and the second highest Guillemot count were recorded. Fulmar numbers have declined by 32% since numbers peaked in 2010. Both Herring Gull and Kittiwake counts produced the second highest counts for both species this year. There are no breeding Shag at Filey, however, 2 individuals were present at the time of the count.

* This species is not recommended using this surveying technique owing to their secretive nature and inaccessible cliff habitat. Year on year counts do offer some understanding in trends over time.

The spatial distribution of breeding assemblage and changes in distribution between 2002 (Table 5) 2011 (Table 4), 2012 (Table 3) and 2013 (Table 2) are demonstrated below.

Table 2 – Distribution of breeding assemblage using SPM Plots in 2013

Cayton Bay to Filey Brigg Whole-colony Count 2013							
Species	Filey 1	Filey 2	Filey 3	Cayton 1	Cayton 2	Total	Total Individual
Common Guillemot (Ind.)	87	694	2283	0	0	3064	3064
Razorbill (Ind.)	148	326	929	0	0	1403	1403
Northern Fulmar (AOS)	171	154	95	78	78	576	1152
Black-legged Kittiwake (AON)	1030	3523	2382	0	0	6935	13870
Herring Gull (AON)	98	55	33	32	33	251	502
Atlantic Puffin (Ind.)	1	0	10	0	0	11	11
Great Cormorant (AON)	13	7	1	0	0	21	42
European Shag (Ind.)	0	0	2	0	0	2	2
Total							20046

Table 3 – Distribution of breeding assemblage using SPM Plots in 2012

Cayton Bay to Filey Brigg Whole-colony Count 2012							
Species	Filey 1	Filey 2	Filey 3	Cayton 1	Cayton 2	Total	Total Individual
Common Guillemot (Ind.)	66	661	1990	0	0	2717	2717
Razorbill (Ind.)	156	370	799	0	0	1325	1325
Northern Fulmar (AOS)	169	123	92	80	94	558	1116
Black-legged Kittiwake (AON)	839	3272	2696	25	0	6832	13664
Herring Gull (AON)	60	43	20	34	33	190	380
Atlantic Puffin (Ind.)	1	3	43	0	0	47	47
Great Cormorant (AON)	9	8	12	0	0	29	58
European Shag (Ind.)	0	0	2	0	0	2	2
Total							19039

Table 4 – Distribution of breeding assemblage using SPM Plots in 2011

Cayton Bay to Filey Brigg Whole-colony Count 2011							
Species	Filey 1	Filey 2	Filey 3	Cayton 1	Cayton 2	Total	Total Individual
Common Guillemot (Ind.)	80	708	2219	0	0	3007	3007
Razorbill (Ind.)	144	251	725	0	0	1120	1120
Northern Fulmar (AOS)	261	177	116	123	94	771	1542
Black-legged Kittiwake (AON)	1418	3941	2418	0	0	7777	15554
Herring Gull (AON)	101	57	40	24	23	245	490
Atlantic Puffin (Ind.)	7	2	23	0	0	32	32
Great Cormorant (AON)	4	19	15	0	0	38	76
European Shag (Ind.)	0	0	4	0	0	4	4
Total							21825

Table 5 – Distribution of breeding assemblage using SPM Plots in 2002

Cayton Bay to Filey Brigg Whole-colony Count 2002							
Species	Filey 1	Filey 2	Filey 3	Cayton 1	Cayton 2	Total	Total Individual
Common Guillemot (Ind.)	100	320	50	0	0	470	470
Razorbill (Ind.)	40	22	10	0	0	72	72
Northern Fulmar (AOS)	170	27	5	21	20	243	486
Black-legged Kittiwake (AON)	1800	3200	120	0	0	5120	10240
Herring Gull (AON)	60	20	5	20	5	110	220
Atlantic Puffin (Ind.)	20	5	10	0	0	35	35
Great Cormorant (AON)	23	0	0	0	0	23	46
Total							11569

Productivity monitoring

Overall productivity for Kittiwake averaged 0.26 chicks per pair. A total of 223 AON's were monitored across five plots, of which 58 chicks successfully fledged (Table 6). The national mean for kittiwake is 0.68 chicks per AON, recorded between 1986-2005 from between thirty and sixty-one colonies annually (Mavor et al. 2008).

The results from 2013 show a second year of below national average breeding success for Kittiwake. Prolonged storms in the North Sea during March and April had serious impacts on birds preparing to the breed. Anecdotal evidence suggests that birds struggled to reach breeding condition early on and appeared less committed to breeding, and birds that did attempt to breed either didn't lay or only laid small clutches. The breeding success of those birds which did attempt to breed was closer to this national average but the overall success was brought down by the number of 'breeding pairs' that failed to lay or produced a low clutch-size. In 2012, breeding success was lower still, the result of three out of the five recording sites experiencing total nest failure (Table 7).

For full plot locations and boundaries, see Appendix 1.

Table 6 – Kittiwake productivity results 2013

	Plot 7	Plot 8	Plot 9 (a)	Plot 10 (a)	Plot 10 (b)	Total
Nests fledging 0 chicks	40	34	38	43	19	174
Nests fledging 1 chick	9	14	8	4	5	40
Nests fledging 2 chicks	1	1	4	3	0	9
Nests fledging 3 chicks	0	0	0	0	0	0
Total fledged	11	16	16	10	5	58
Total AON	50	49	50	50	24	223
Productivity per plot	0.22	0.33	0.32	0.20	0.21	0.26

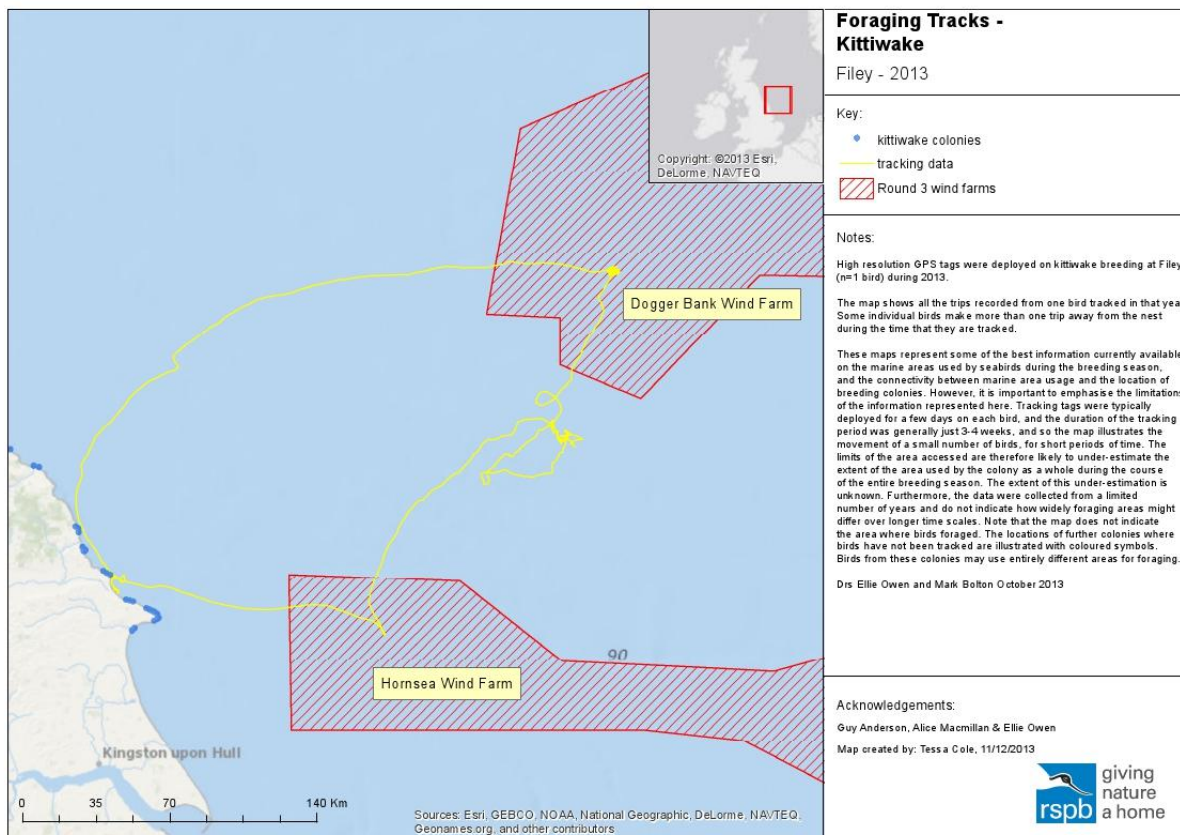
Table 7 – Kittiwake productivity results 2012

	Plot 7	Plot 8	Plot 9 (a)	Plot 10 (a)	Plot 10 (b)	Total
Nests fledging 0 chicks	33	26	0	0	0	59
Nests fledging 1 chick	5	14	0	0	0	19
Nests fledging 2 chicks	10	8	0	0	0	18
Nests fledging 3 chicks	0	0	0	0	0	0
Total fledged	25	30	0	0	0	55
Total AON	51	51	50	50	50	252
Productivity per plot	0.49	0.59	0.00	0.00	0.00	0.22

Kittiwake tracking

The RSPB's Seabird Tracking and Research (STAR) project took place at Filey, led by Dr Ellie Owen, RSPB conservation scientist. The project is now in its fifth year of fieldwork and data collection at Flamborough Head, tracking Black-legged Kittiwake to investigate foraging behaviour. This year work was also carried out at the pSPA site at Filey for the first time. Thirty-three GPS tags were deployed here, of which twenty were recovered. The findings from this year's tracking projects will be available on the RSPB website in 2014.

Figure 4 – Kittiwake foraging track from Filey Cliffs in 2013



Discussion and conclusion

Repeatable whole-colony census monitoring and Kittiwake productivity monitoring is now established at the Filey colony. Continued annual census and productivity monitoring of this site will enable assessment of changes in population size, trends, and variations in colony assemblage over time and comparisons with the adjacent Flamborough Head and Bempton Cliffs SPA.

After successfully completing a fifth consecutive year of colony counts, the results show the second highest recorded population count since 1986. Two very clear and contrasting trends are emerging. On the positive side, the Razorbill population has shown year-on-year increases for five successive years. In contrast, in the last four years the breeding Fulmar population has shown a year-on-year decline. The latter decline, which is reflected nationally, is likely to be driven by the 90% decline in white-fish discards that has been witnessed in the North Sea since the 1990's. The increase in the Razorbill population is less easily explained and requires more research to investigate causal relationships.

All five Kittiwake productivity monitoring plots were completed. Each produced fledging data, averaging 0.2 fledged chicks per pair. For two consecutive years productivity has been below both the national average of 0.68 chicks per pair and the adjacent Flamborough and Bempton Cliffs SPA colony, where productivity for Kittiwake averaged 0.51 chicks per pair in 2013.

One issue that has been highlighted from productivity monitoring is the ability to obtain adequate views for nest monitoring. Two out of the five monitoring sites are potentially too far away to give adequate views for data collection, even with high powered telescopes. This will need to be reviewed before the start of the next season.

The programme of seabird research is coordinated by the RSPB Bempton Cliffs seabird monitoring team lead by the reserves Assistant Warden with a team of dedicated volunteer seabird researchers. Links with FBOG continue to grow with ongoing support from FBOG members. Productivity and whole-colony census monitoring is set to take place again in 2014.

References

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Williams, D. (1996) *Bird-watching in Filey*.

Acknowledgements

Special thanks go to Syd Cochrane, Mark Pearson and John Sanderson, all members of Filey Brigg Ornithological Group and Bird Observatory, for their continued commitment to productivity monitoring of Black-legged Kittiwake.

Support also from Michael Babcock and Thomas Hibbert, both residential seabird researchers based at Bempton Cliffs, helped achieve productivity monitoring for Black-legged Kittiwake.

Thanks go to Chris Place and the Filey Sailing Club. Their help, commitment and flexibility to the monitoring programme allowed us to continue our boat based whole-colony census of the colony.

Thanks go to Natural England for vital funding support, allowing us to carry out a programme of monitoring works at the Filey colony as well as granting permissions to undertake Kittiwake tracking works.

Access at Blue Dolphin Holiday Park allowed us to reach sections of the colony for essential monitoring works.

Appendix 1

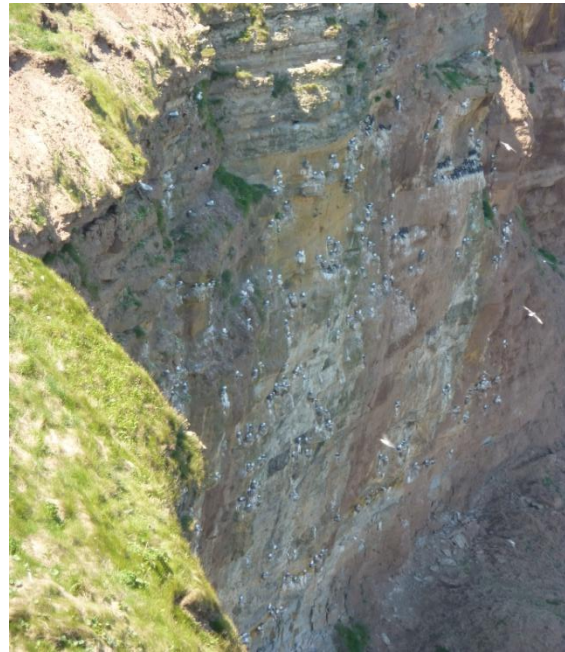
Kittiwake productivity plots

Plot 7

Observer: Syd Cochrane

Dates monitored: 10th June – 30th July

Visit requirements: Once a week

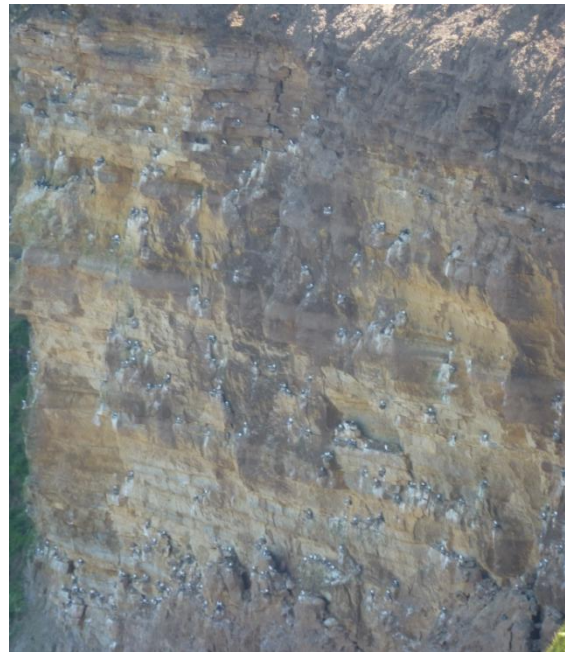


Plot 8

Observer: Mark Pearson

Dates monitored: 17th June – 7th August

Visit requirements: Once a week



Plot 9 (a)

Observer: Michael Babcock

Dates monitored: 11th June – 30th July

Visit requirements: Once a week



Plot 10 (a)

Observer: Thomas Hibbert

Dates monitored: 11th June – 30th July

Visit requirements: Once a week



Plot 10 (b)

Observer: John Sanderson

Dates monitored: 12th June – 10th August

Visit requirements: Once a week



Appendix 2



SMP Location: Filey 3 - Plot 1



SMP Location: Filey 3 - Plot 2



SMP Location: Filey 3 - Plot 3



SMP Location: Filey 3 - Plot 4



SPM Location: Filey 3 - Plot 5



SPM Location: Filey 3 - Plot 6



SMP Location: Filey 3 - Plot 7



SMP Location: Filey 3 - Plot 8



SMP Location: Filey 3 - Plot 9



SMP Location: Filey 3 - Plot 10



SMP Location: Filey 3 - Plot 11



SMP Location: Filey 3 - Plot 12

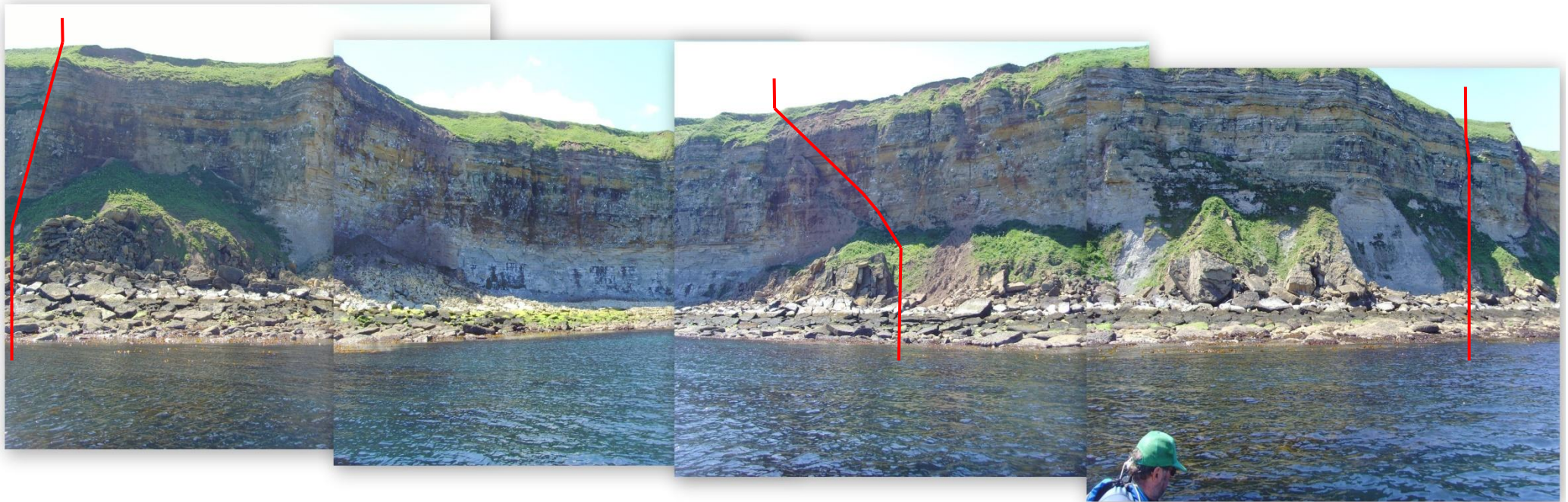


SMP Location: Filey 2 - Plot 1



SMP Location: Filey 2 - Plot 2

SMP Location: Filey 2 - Plot 3 & 4 (Cunstone Nab)



Plot 3

**Plot 4 -
(Cunstone
Nab)**

