



## **Filey-Cayton Seabird Monitoring Report 2012**



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## **Summary**

Monitoring priorities that were agreed between RSPB and Natural England in 2011 to inform the proposal for the Flamborough Head and Bempton Cliffs SPA (Special Protection Area) extension were completed in 2012. Productivity monitoring for Black-legged Kittiwake was undertaken for the first time by RSPB staff and volunteers and a whole-colony census was completed for a fourth year running.

This was the first year of Kittiwake productivity monitoring using common standard techniques. Monitoring had an unfortunate start this year with three out of five monitoring plots lost due to a combination of severe weather conditions causing localised slippage as well as washing substantial numbers of nest sites away, and corvid and gull predation. This left an exceptionally low productivity result, productivity averaged 0.23 per apparently occupied nest (AON). This is well below the national average of 0.68 per AON and was the cause of severe weather, land slip and predation – not due to any obvious signs of food shortage.

Whole-colony counts were completed again this year providing four consecutive years of population data. The census was conducted later in the season than we would had hoped, unfavourable sea conditions throughout May and June however resulted in one suitable opportunity to carry out the boat-based survey before it was deemed unfeasible. The results show a drop in population from 21,825 individuals in 2011, to 19,039 individuals in 2012; a decline of 2,786.

Breeding Guillemot declined from 3,007 individuals in 2011 to 2,717 in 2012. Razorbill increased from 1,120 individuals in 2011 to 1,325 in 2012. Fulmar declined from 1,542 in 2011 to 1,116 in 2012. Kittiwake declined from 15,554 to 13,664. Herring Gull declined from 490 in 2011 to 380 in 2012. Puffin showed a marginal increase from 32 individuals in 2011 to 47 individuals in 2012. Cormorant and Shag both experienced declines from 76 in 2011 to 47 in 2012 and 4 in 2011 to 2 in 2012 respectively.

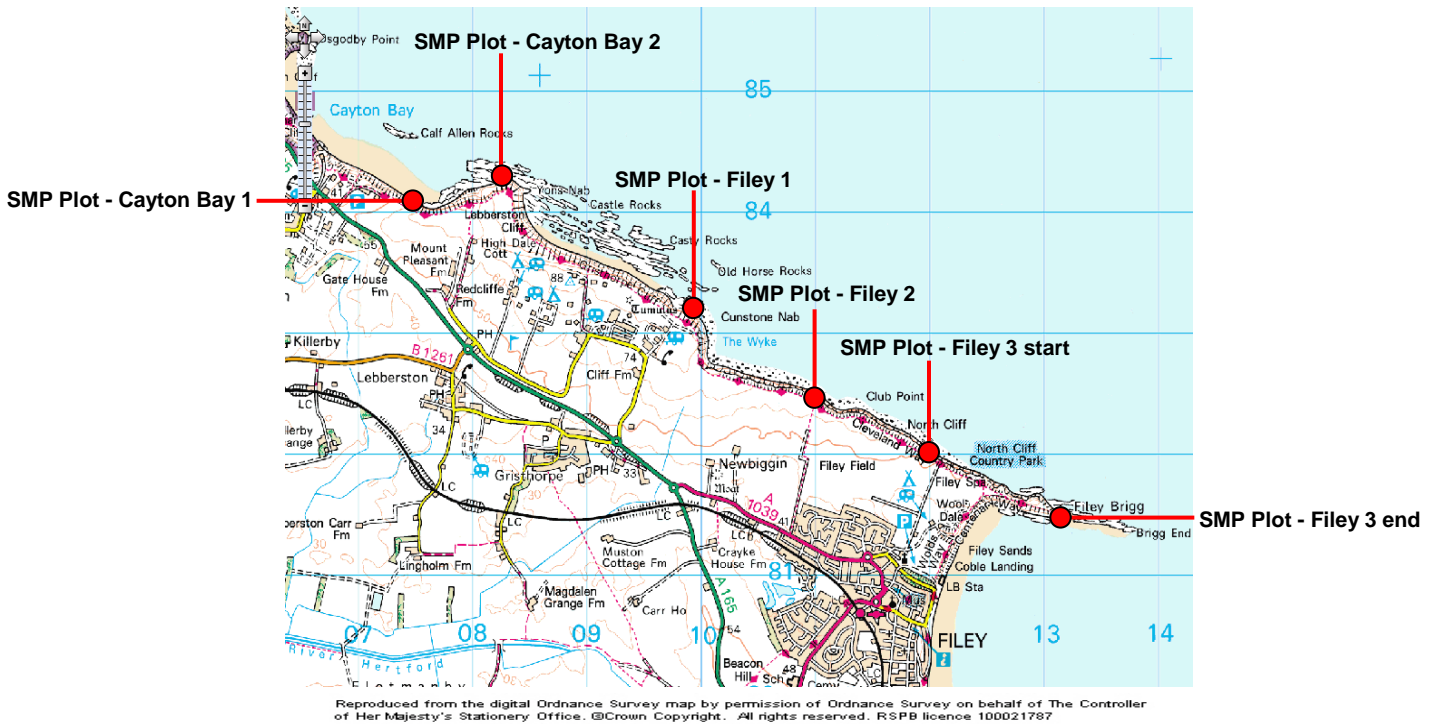
Two species show a year on year trend with Herring Gull and Razorbill declining and increasing over the last four years respectively.

Recommendations for 2013 are that productivity monitoring for Kittiwake and a whole-colony census are repeated again, enabling continued assessment and monitoring on the state of the colony. In addition, the potential to undertake Kittiwakes tagging to determine key foraging areas be explored, funding permitted.

## 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 RSPB Bempton Cliffs, on the east coast of Yorkshire, England (Figure 1).

Figure 1 – Filey and Cayton seabird colony location and SMP plot boundaries



The cliff height ranges from 49 meters to the south to 82 meters in the north. In the most part, the cliff face is vertical, with ledges and crevices providing suitable nesting areas for a range of breeding seabirds. Other sections of cliff line are more gradual and covered in vegetation, the result of previous landslips and are largely unsuitable for nesting seabirds.

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

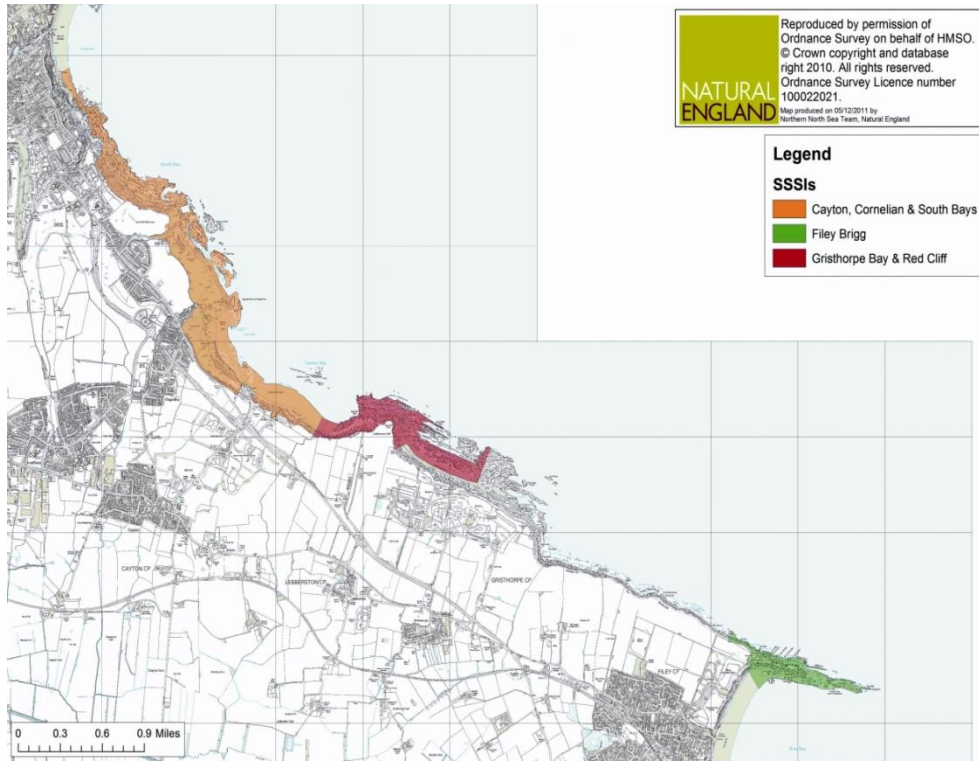
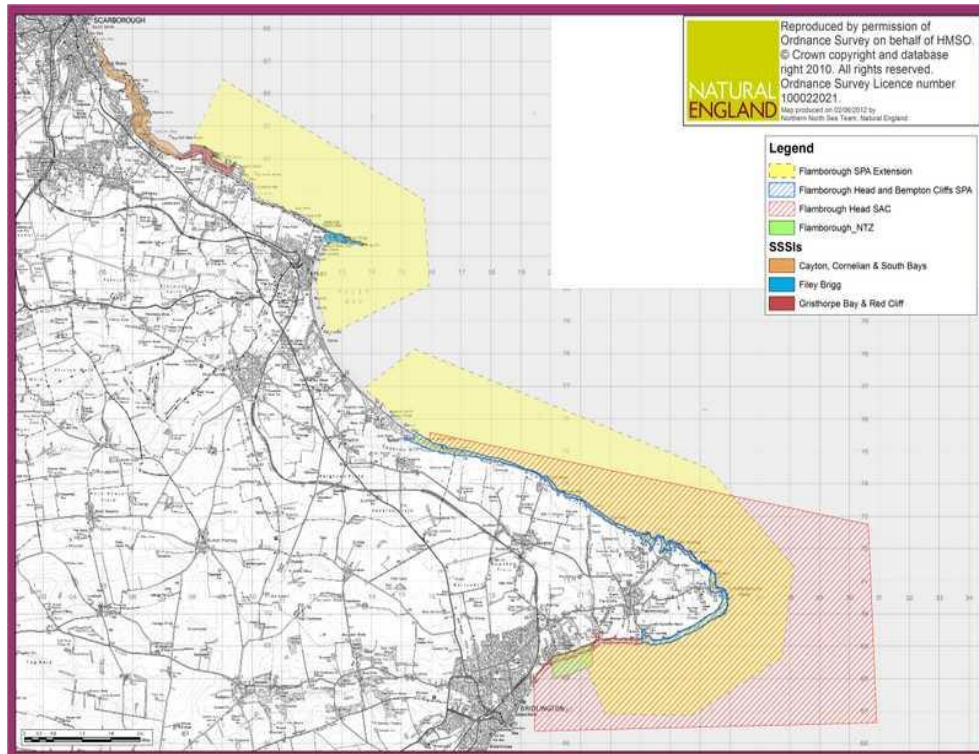


Figure 3 – Proposed Flamborough and Bempton SPA extension



Whole colony counts carried out in 1986 (Williams 1996) and in 2002, as part of Seabird 2000, major initiatives 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 no 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 (Figure 3). In response to this evidence the RSPB, with funding support from Natural England, undertook and mapped whole colony counts, using the JNCC Seabird Monitoring Programme (SMP) plots, in 2010, 2011 and 2012 (Figure 1). The results of these counts are compared with earlier counts to determine population trends and compared with results from the Flamborough Head and Bempton Cliffs SPA population trends.

In addition to this, recommendations were made to carry out productivity monitoring for Kittiwake as the colony currently supports more than 1% of the UK Kittiwake population; these were completed this year.

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 of the 2012 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**

Seabird productivity monitoring and whole-colony counts completed in 2012 followed the guidelines and methodologies set out in the *Seabird monitoring handbook for Britain and Ireland*. By 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 and productivity monitoring techniques for seabirds around the UK, and the appropriate method was followed according to resources and practicality at this colony. Please refer to the '*Seabird monitoring handbook for Britain and Ireland, 1995*' for details on individual methodologies for each study undertaken.

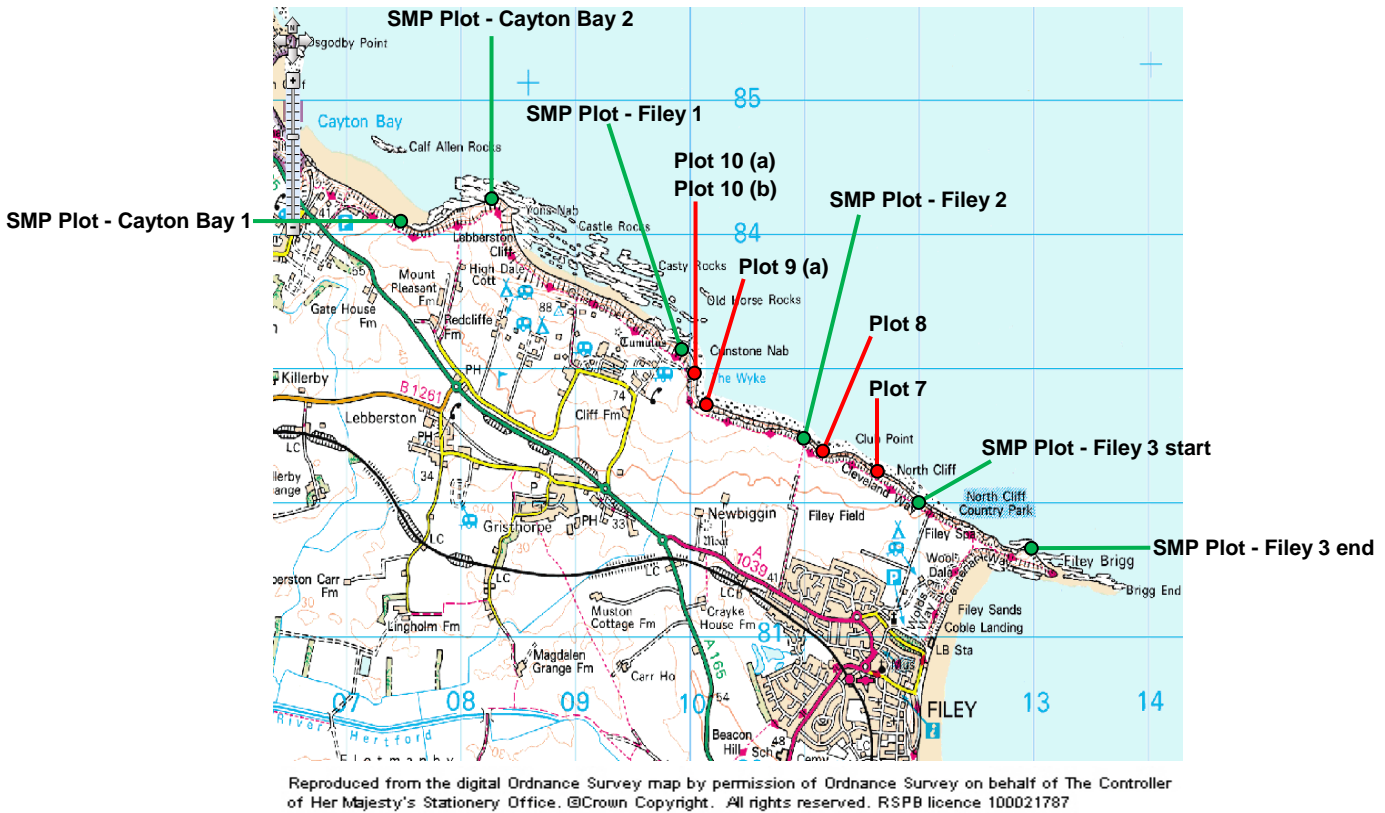
The programme of seabird research at Filey is headed up by RSPB Bempton Cliffs; lead by David Aitken, Assistant Warden, with a team of volunteer seabird researchers. Links with FBOG were established this year with the hope that they will continue to grow as the monitoring programme develops.

### **Productivity monitoring:**

Productivity monitoring for Black-legged Kittiwake was carried out at this colony for the first time in 2012. Historically, Kittiwake productivity monitoring has been undertaken by Filey Brigg Ornithological Group (Syd Cochrane pers comm.), however it did not follow the methodology set out in the '*Seabird monitoring handbook for Britain and Ireland, 1995*'. A repeatable baseline census for productivity monitoring is now established for Kittiwake at this site, following nation wide common standards techniques.

Following on from initial site visits in 2011 to establish suitable monitoring plots for Kittiwake, five productivity plots were selected that provided an adequate sample size, as well as providing safe vantage points for the observer and little or no disturbance to breeding seabirds (Figure 4). All productivity plots were mapped and photographed (Appendix 1).

Figure 4 – SMP boundaries and Kittiwake productivity plot locations



**Colony counts:**

The Filey whole-colony count was conducted on 18<sup>th</sup> June 2012 and took approximately seven hours to complete. This was a boat-based census, comparable to previous years, and was carried out by Keith and Clare Clarkson and David Aitken from the RSPB, with assistance from Filey Sailing Club.

The colony is divided into 5 primary recording boundaries (Figure 4), taken from the JNCC Seabird Monitoring Programme (SMP) website; within these boundaries 24 sub-sections have been established to assist with the colony counts (Appendix 2).



## **Results**

### **Productivity monitoring:**

The results from 2012 show an unsuccessful start to the monitoring of Kittiwake at Filey. A severe weather event which occurred on the 7<sup>th</sup> and 8<sup>th</sup> June washed out a substantial number of nests on plots 9(a), 10(a) and 10(b). Gull and corvid predation are thought to be responsible for further losses causing total nest failure and as such, zero productivity was recorded at these three sites.

Data was successfully collected for plots 7 and 8 but show they suffered losses through what is also thought to be corvid predation. Productivity for plot 7 averaged 0.52 chicks per apparently occupied nest (AON) and productivity for plot 8 average 0.62 chicks per AON (Table 5). The average productivity for this study was 0.23 chicks per AON.

**Table 5 – Kittiwake productivity results**

	<b>Plot 7</b>	<b>Plot 8</b>	<b>Plot 9 (a)</b>	<b>Plot 10 (a)</b>	<b>Plot 10 (b)</b>	<b>Total</b>
<b>Nests Fledging 0 Chicks</b>	33	26	0	0	0	<b>59</b>
<b>Nests Fledging 1 Chicks</b>	5	14	0	0	0	<b>19</b>
<b>Nests Fledging 2 Chicks</b>	10	8	0	0	0	<b>18</b>
<b>Nests Fledging 3 Chicks</b>	0	0	0	0	0	<b>0</b>
<b>Total Fledged</b>	25	30	0	0	0	<b>55</b>
<b>Total AON</b>	48	48	50	45	50	<b>241</b>
<b>Total Fledged Per Nest</b>	<b>0.52</b>	<b>0.62</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.23</b>

NB – The results show that breeding productivity was below the national mean of 0.68 chicks per AON, recorded between 1986-2005 from between thirty and sixty-one colonies annually (Mavor et al. 2008). Due to the unforeseen nature of this years weather impact of three of the five monitoring plots, this figure is not a cause for concern at this stage; however, future monitoring at these sites will show if productivity output over the years is consistently low.

For full plot locations and boundaries, see Appendix 1.

**Whole-colony counts:**

The results of the whole-colony census carried out in 2009-'11 and 2012 are shown below and are compared with the 1986 (Williams 1996) and 2002 counts (Table 1).

Table 1 – Comparison of boat based whole-colony counts between 1986 & 2012

	1986 (14 Jun)	2002	2009 (20 June)	2010 (21 May)	2011 (3 June)	2012 (18 June)
Fulmar	252 pairs	243 AOS	410 AOS	842 AOS	771 AOS	558 AOS
Cormorant	25 pairs	23 AOS	42 AOS	20 AOS	38 AOS	29 AOS
Shag	0	0	0	0	4 ind.	2 ind.
Herring Gull	200 pairs	110 AOS	339 AOS	240 AOS	245 AOS	190 AOS
Kittiwake	5666 pairs	5120 AOS	6413 AOS	6420 AOS	7777 AOS	6832 AOS
Guillemot	416 pairs	470 ind.	2695 ind.	3100 ind.	3007 ind.	2717 ind.
Razorbill	104 pairs	72 ind.	613 ind.	814 ind.	1120 ind.	1325 ind.
Puffin	36 ind.	35 ind.	19 ind.	15 ind.	32 ind.	47 ind.

The results from 2012 show a decline in 6 of the breeding seabirds found between Filey Brigg and Cayton Bay, with the exception of Atlantic Puffin and Razorbill; the former species is not recommended to survey using this particular methodology. A decline in population may be accounted for due to the completion of counts later into the season than is ideally suitable, when fledging young and failed breeders are starting to leave the cliffs. This may be particularly pertinent in 2012 due to extreme weather conditions resulting in heavy losses, particularly that of Kittiwake.

The data shows a drop in population size of 19,039 individuals in 2012, from 21,825 in 2011; a decline of 2,786 individuals between years, again this may in part be due to late count date.

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

Table 2 – Distribution of breeding assemblage using SMP Plots in 2012

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

Table 3 – Distribution of breeding assemblage using SMP Plots in 2011

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

Table 4 – Distribution of breeding assemblage using SMP Plots in 2002

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

## **Discussion and conclusion**

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

After successfully completing a full colony census in 2012, the results show a drop in the number of breeding seabirds since 2011. The number of birds recorded in 2011 was 21,825; by 2012 the number had dropped to 19,039 showing a decline of 2,786 individuals between years. This may be accounted for due to the lateness of conducting a census, when fledged young and failed breeders have begun to leave the colony. This was unavoidable however due to unfavourable sea conditions throughout May and June resulting in only one suitable opportunity to carry out the boat-based survey before it was deemed unfeasible. We are only able to respond when sea conditions allow; the flexibility and commitment from Filey Sailing Club was hugely advantageous and enabled us to respond quickly when the opportunity presents itself. There is a good relationship between RSPB and the sailing club and one both parties wish to continue.

Following on from initial land-based inspections to assess suitability of Kittiwake productivity monitoring; this area of research was completed in 2012, with mixed results. Three out of five monitoring plots suffered total losses due mainly to a severe weather event which occurred at the beginning of June, washing many nests away and caused some localised coastal erosion, followed by corvid and gull predation. The data obtained from two recording sites does not provide an adequate sample size for representation across the whole colony; however, it does give a basis of data to build upon in future years.

One issue that came to light from productivity monitoring is the need for high powered telescopes enabling adequate views for nest monitoring. Fortunately the team had sufficient personal telescopic equipment to carry out monitoring, however, this luxury may not be afforded in future years and so suitable equipment will need to be in place.

Productivity and whole-colony census monitoring is set to take place in 2013. The opportunity to tag Kittiwakes to determine key foraging areas and help inform offshore MPA's still need to be explored – subject to funding.

## **Acknowledgements**

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

Huge thanks goes 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 funding support, allowing us to carry out a programme of monitoring works at the Filey colony.

Support from the Blue Dolphin Holiday Park allowed access on site which enabled us to reach sections of the colony for essential monitoring works.

**Appendix 1**

**Kittiwake productivity plots:**

**Plot 7**

Observer: Syd Cochrane

Dates monitored: 26<sup>th</sup> May – 21<sup>st</sup> July

Visit requirements: Once a week



**Plot 8**

Observer: Mark Pearson

Dates monitored: 28<sup>th</sup> May – 26<sup>th</sup> July

Visit requirements: Once a week



**Plot 9 (a)**

Observer: Tim Morley

Dates monitored: 22<sup>nd</sup> May – 26<sup>th</sup> June

Visit requirements: Once a week



**Plot 10 (a)**

Observer: David Aitken

Dates monitored: 22<sup>nd</sup> May – 26<sup>th</sup> June

Visit requirements: Once a week



**Plot 10 (b)**

Observer: John Sanderson

Dates monitored: 28<sup>th</sup> May – 17<sup>th</sup> June

Visit requirements: Once a week



**Appendix 2**

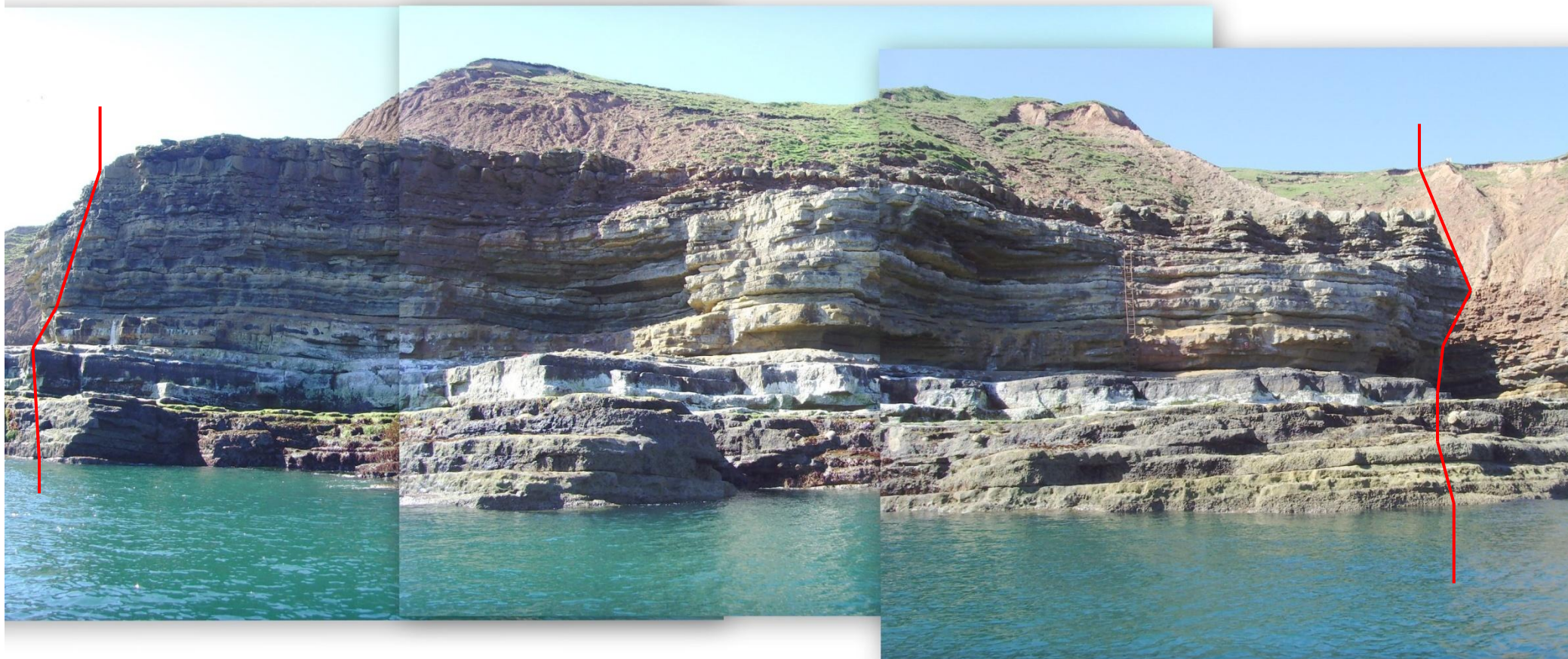


**SMP Location: Filey 3 - Plot 1**





**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**



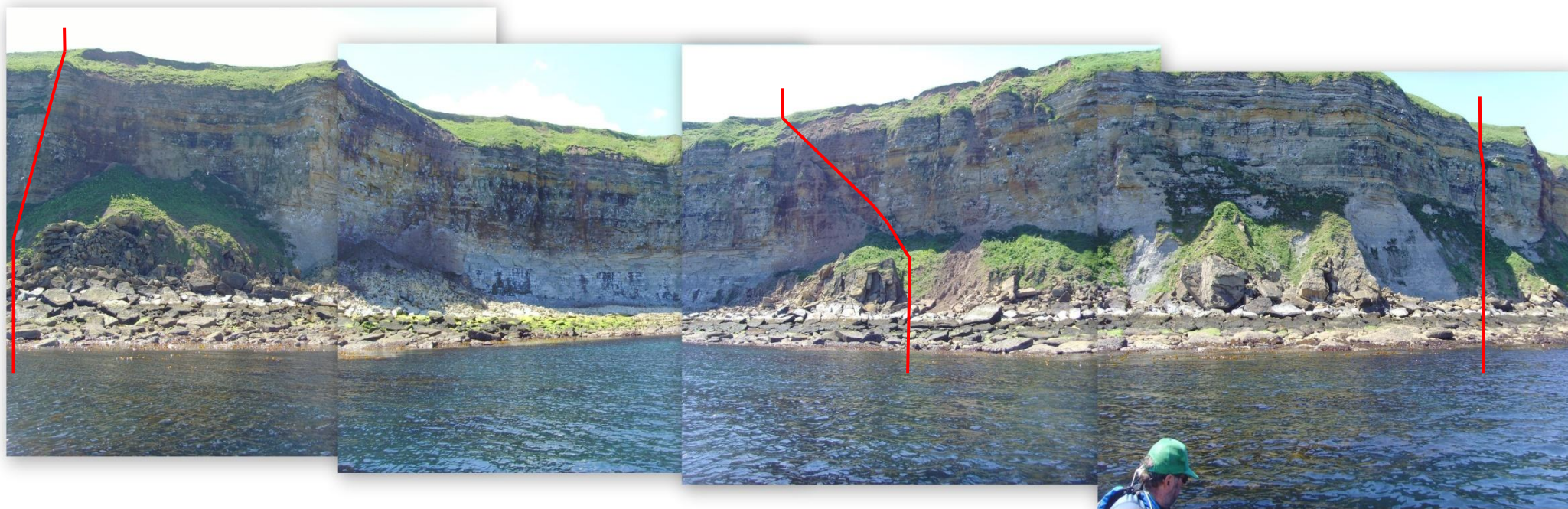
**SMP Location: Filey 2 - Plot 1**



**SMP Location: Filey 2 - Plot 2**

**Plot 3**

**Plot 4**



**SMP Location: Filey 2 - Plot 3 & 4**

