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**MONITORING OF
CLIFF BIRDS IN THE
WESTFJORDS**

FINAL REPORT: 2022-2023

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Front page picture: Langikambur in Hælavíkurbjarg, in the background is a researcher from NAVE during counts. Photo: Ingrid Bobeková, 24.6.2023

Forsíðumynd: Langikambur við Hælavíkurbjarg, í bakgrunni sést starfsmaður NAVE við talningar. Mynd Ingrid Bobeková 24.6.2023.

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ABSTRACT/ ÚTDRÁTTUR <p>Monitoring of cliff birds in the Westfjords is conducted by Náttúrustofa Vestfjarða (NAVE), which is responsible for data collection in the field, in collaboration with Náttúrustofa Norðausturlands (NNA), the institution responsible for seabird monitoring nationwide which therefore analyse the collected data. Counting takes place on Látrabjarg and Hælavíkurbjarg. All Individuals of Common Guillemots, Brünnich's Guillemots and Razorbill are counted in the field. Photographs were also taken of the same transects and those are later used to confirm the number for each these species, as well as to count Fulmars and Kittiwakes. In 2022 NAVE took over the oversight of four fixed monitoring cameras at Látrabjarg and Hælavíkurbjarg from NNA. Photographs taken by these fixed cameras are analysed to acquire start of incubation/ egg laying dates and breeding success for Common Guillemots, Brünnich's Guillemots, Fulmars and Kittiwake. Population trends for the overmentioned species are described.</p> <p>Náttúrustofa Vestfjarða (NAVE) sinnir vöktun bjargfugla á Vestfjörðum og er verkefnið unnið í nánú samstarfi við Náttúrustofu Norðausturlands (NNA). Á landsvísu eru nú vaktaðir 12 staðir og eru tveir þeirra Látrabjarg og Hælavíkurbjarg. Árið 2022 tóku starfsmenn NAVE að sér að sjá um eftirlitsmyndavélar sem eru á björgunum. Myndavélin við Hælavíkurbjarg stendur úti allt árið en skipta þarf um kort í henni og sjá til þess að allt sé í lagi. Á Látrabjargi eru myndavélar hansvegar settar upp að vori áður en varp hefst og teknar niður að hausti. Í lok júní er aftur farið að björgunum og svartfuglar taldir á vettvangi. Í sömu ferð eru auk þess teknar myndir af sniðunum og þær síðan sendar NNA til úrvinnslu. Í lok ágúst árin 2022 og 2023 töldu starfsmenn NAVE einnig unga fýla í Látrabjargi og í Geitaskor með sniðtalningum á vettvangi til mats á varpárangri. Niðurstöður talninga sem gerðar voru í Hælavíkurbjargi og Látrabjargi á árunum 2013-2022 hafa verið teknar saman fyrir hverja tegund, en úrvinnsla gagna fyrir árið 2023 stendur yfir.</p>		
Signature of project manager/Undirskrift verkefnastjóra: 		Reviewed by/ Yfirfarið af: Sigurður Halldór Árnason

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INTRODUCTION

This study is part of the project, "Bird Monitoring in the Westfjords" ("Fuglavöktun á Vestfjörðum"), which is funded by the Icelandic Ministry of Environment, Energy and Climate (URN). In 2019 Náttúrustofa Vestfjarða (Nave) secured funding directly through URN specifically allocated towards the monitoring of birds in the Westfjords by Nave. This funding is based on an older contract between Nave and URN (2009) which derives from the initiative "Strengthening Rural communities in the Westfjords" (sérstakra byggðaaðgerða á Vestfjörðum 2009"). The project, "Bird Monitoring in the Westfjords", includes monitoring of the Glaucous gull (*Larus hyperboreus*), seabirds in Látrabjarg and Hælavíkurbjarg, the Arctic tern (*Sterna paradisaea*) throughout the Westfjords, the black Guillemot (*Cepphus grille*) on the island of Vigur, and birds in the Westfjords in winter.

In this report we focus specifically on the monitoring of seabirds on the cliffs of Látrabjarg and Hælavíkurbjarg in the Westfjords region. This includes counts of the number of individuals of Common Guillemots (*Uria aalge*), Brünnich's Guillemots (*Uria lomvia*), Razorbills (*Alca torda*), Fulmars (*Fulmarus glacialis*) and Kittiwakes (*Rita tridactyla*). Using these counts, estimates on population sizes are made by the project leader for all Iceland at NNA. Egg date laying and breeding success are also determined both from field counts and pictures analyses from fixed cameras located at the cliffs. Results of egg laying dates and breeding success are detailed in (Kolbeinsson et al., 2023).

Seabird monitoring is conducted in twelve locations nationwide (figure 1) in close collaboration with Náttúrustofa Vesturlands, Náttúrustofa Suðvesturlands, Náttúrustofa Suðausturlands, Rannsóknasetur Háskóla Íslands á Snæfellsnesi, as well as Náttúrustofa Norðausturlands, the institution responsible for seabird monitoring nationwide (Kolbeinsson et al., 2023). This report is the final report from the Westfjords region for the time-period 2022-2023, however trends from the last ten years are considered.

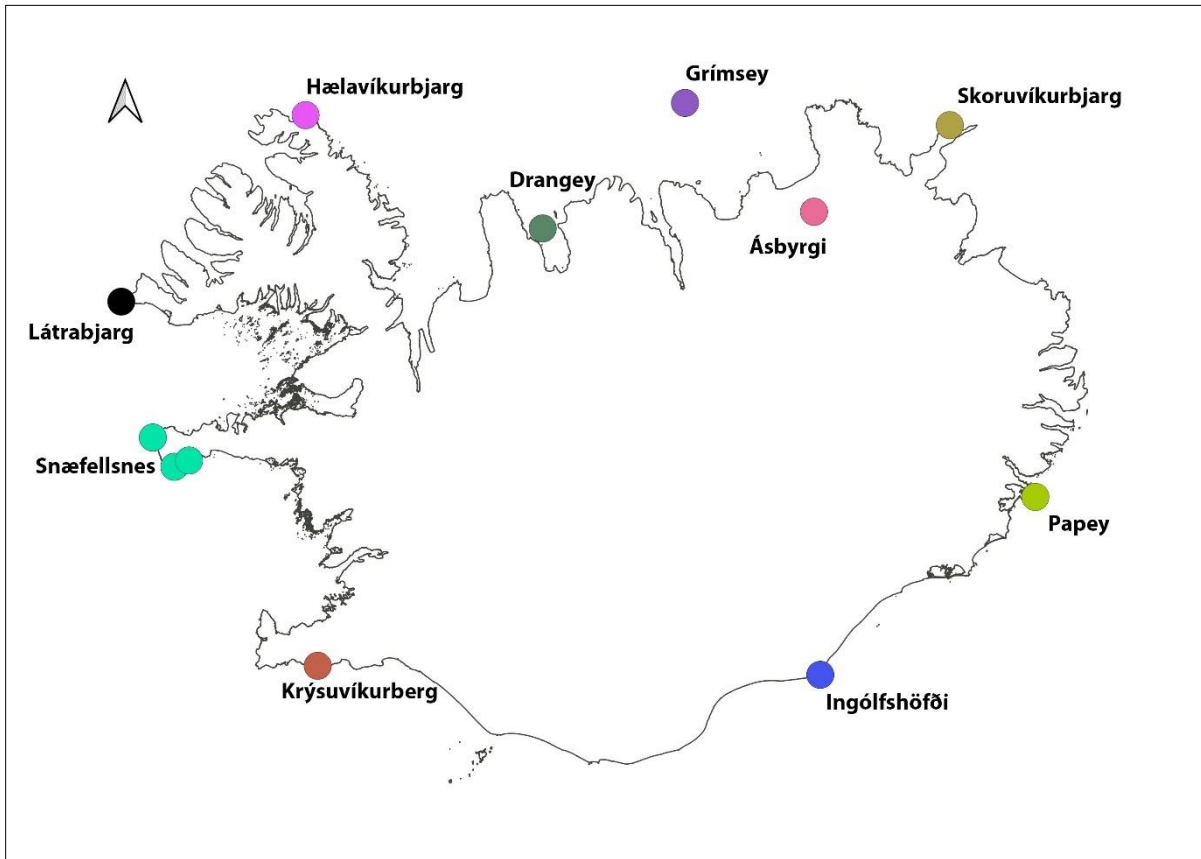


Figure 1. Seabird cliffs which are part of the nationwide, transect based monitoring scheme. The map is borrowed from Kolbeinsson et. al.2023.

METHODOLOGY

Counts of birds on cliffs are conducted using methodology developed by Arnþór Garðarsson and used since 2013 at both Látrabjarg and Hælavíkurbjarg. In the field, birds are counted once between the 3rd of June and 5th of July, from 8 am till 6 pm (Kolbeinsson et al. 2019). Counting takes place on four transects on Látrabjarg and five transects on Hælavíkurbjarg. All Individuals of Common Guillemots, Brünnich's Guillemots and Razorbill are counted using binoculars and a Carl Zeiss Diascope (85T*FL). Photographs were also taken of the same transects using a Nikon D3200 with a Sigma 150-600mm lens. Photographs are later used to confirm the number of Common Guillemots, Brünnich's Guillemots, and Razorbills. These photographs are also used to count Fulmars and Kittiwakes as they can be easily counts on photographs.

These counts have been conducted with some irregularity since 2009 and on a yearly basis since 2016, except for 2021 when scheduling conflicts did not permit counting in Hælavíkurbjarg (Gallo & Sigurðardóttir, 2022).

Along with counting the abovementioned species in the field a transect of exclusively fulmars is photographed around same date in Geitaskor near Látrabjarg. Photographs are sent to NNA and the number of individuals counted from them. This transect together with the overmentioned four transects in Látrabjarg were revisited at the end of August in 2022

and 2023 and young Fulmars, only, counted on them. These counts will be used by NNA to calculate the breeding success of Fulmars in Látrabjarg and Geitaskor.

In 2022 Nave took over the oversight of fixed monitoring cameras at Látrabjarg and Hælavíkurbjarg from NNA (fig. 2 and 3). Two cameras were set up at Látrabjarg and removed before winter (see Table 1 for exact timing). Two cameras were set up at Hælavíkurbjarg and will remain there throughout the winter as new memory cards were installed at the beginning of September 2023 (Figure 4, Table 1). Photographs taken by these fixed cameras are analysed in order to acquire start of incubation/ egg laying dates and breeding success for Common Guillemots, Brünnich's Guillemots, Fulmars and Kittiwake. This pictures analyzation was done by NNA until 2022 but pictures from 2023 will be analysed by NAVE and NNA together.

Table 1. Timing of monitoring, camera setup, retrieval and memory card replacement for Hælavíkurbjarg, Látrabjarg and Geitaskor for the years 2022-2023.

	Set up fixed cameras	Counting and taking pictures in the field	Counting young Fulmar in the field	Take down fixed cameras	Change cards on fixed cameras
Year	2022				
Hælavíkurbjarg		30.6.2022			8.9.2022
Látrabjarg	3.5.2022	25.6.2022	27.8.2022	27.8.2022	
Geitaskor		24.6.2022	27.8.2022		
Year	2023				
Hælavíkurbjarg		24.6.2023			31.8.2023
Látrabjarg	2.4.2023	21.6.2023	24.8.2023	24.8.2023	
Geitaskor		21.6.2023	24.8.2023		



Figure 2. Researchers from Nave in the field at Látrabjarg bird cliff 2.4.2023.



Figure 3. Cristian Gallo and Ingrid Bobeková setting up a monitoring camera at Látrabjarg bird cliff 2.4.2023.



Figure 4. Cristian Gallo checking the monitoring camera at Hælavíkurbjarg in 2023. Photo: Ingrid Bobeková.

RESULTS

Counts for population size

Table 2 shows the results of counts of individuals of Common Guillemots, Brünnich's Guillemots, Razorbills, Fulmars and Kittiwake conducted from 2013-2022 in both Látrabjarg and Hælavíkurbjarg. These results, along with comparable data from other seabird cliffs throughout Iceland, were also published in the report Seabird Monitoring in Iceland 2020-2022 (Kolbeinsson et. Al., 2023).

Table 2. Numbers of Common Guillemots, Brünnich's Guillemots, Razorbills, Fulmars and Kittiwakes for Hælavíkurbjarg and Látrabjarg from 2013 to 2022.

Hælavíkurbjarg	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Common Guillemot	848	698	672	790	828	971	1014	961	----	953
Brünnich's Guillemot	765	610	356	369	689	824	875	809	----	830
Razorbill	3	23	3	2	2	18	18	24	----	34
Fulmar	85	76	70	81	61	65	65	71	----	70
Kittiwake	698	895	799	1026	1232	642	1139	1175	----	1253
Látrabjarg	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Common Guillemot				2014	1870	1826	2064	2104	1898	2045
Brünnich's Guillemot				412	391	316	366	372	392	397
Razorbill				153	103	104	75	84	132	156
Fulmar	73	63	52	82	57	60	67	69	70	70
Kittiwake	305	388	372	373	349	283	323	420	347	362

The number of Common Guillemot in the surveyed transects appears to be relatively stable in both Látrabjarg and Hælavíkurbjarg (Figure 5).

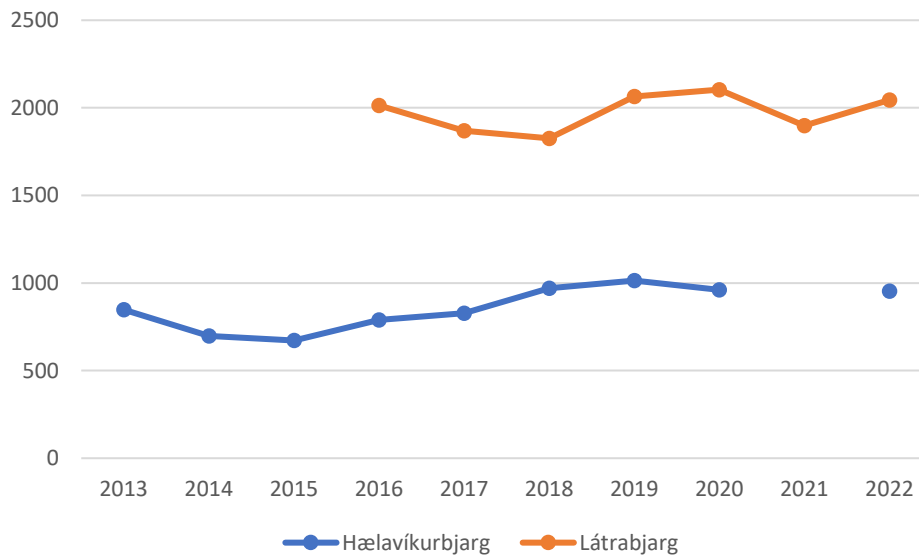


Figure 5. Number of Common Guillemots from transect counts in Hælavíkurbjarg from 2013-2022 and Látrabjarg from 2016 to 2022.

The number of Brünnich's Guillemots in the surveyed transects seems to be relatively stable during the period 2017-2022 in both locations but decreased significantly between 2014 and 2016 in Hælavíkurbjarg (fig. 6).

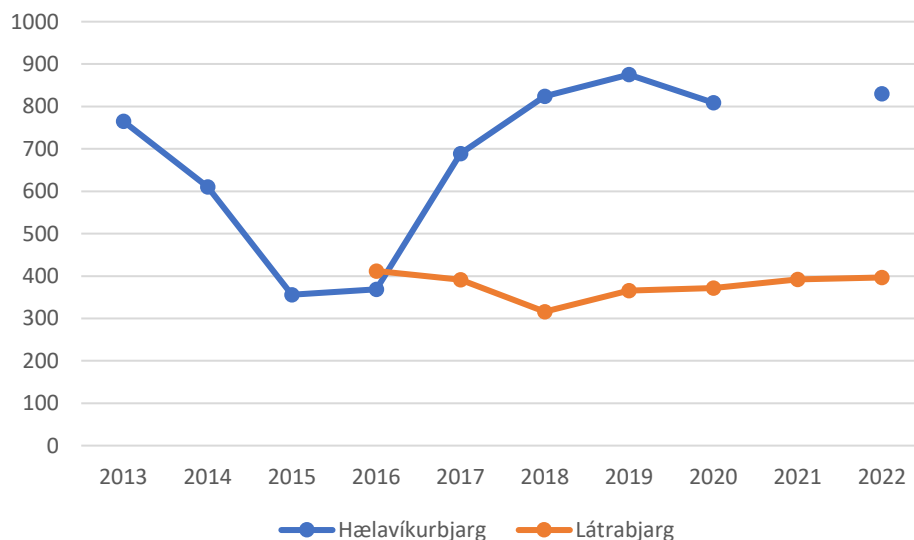


Figure 6. Number of Brünnich's Guillemots from transect counts in Hælavíkurbjarg from 2013-2022 and Látrabjarg from 2016 to 2022.

The number of Razorbills in Hælavíkurbjarg is low compared to Látrabjarg, ranging between 2 and 24 birds, with recent years showing an increase in number. The number of breeding pairs of Razorbills in Látrabjarg reduced by half from 2016 to 2019 but has been on the rise in recent years, with that trend continuing during the period 2022-2023 (Figure 7).

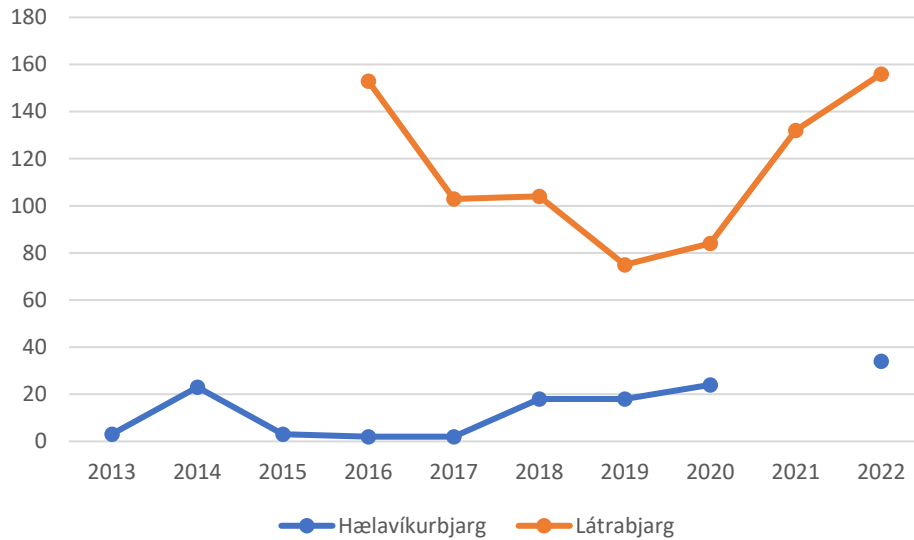


Figure 7. Number of Razorbill from transect counts in Hælavíkurbjarg from 2013-2022 and in Látrabjarg from 2016 to 2022.

The number of Kittiwakes has been relatively stable over the last decade in Látrabjarg but has varied considerably between years in Hælavíkurbjarg. For example, between 2015 and 2017 the population in Hælavíkurbjarg increased from 799 to 1232 individuals, while from 2017-2018 the number dropped from 1232 to 642 individuals (Figure 8).

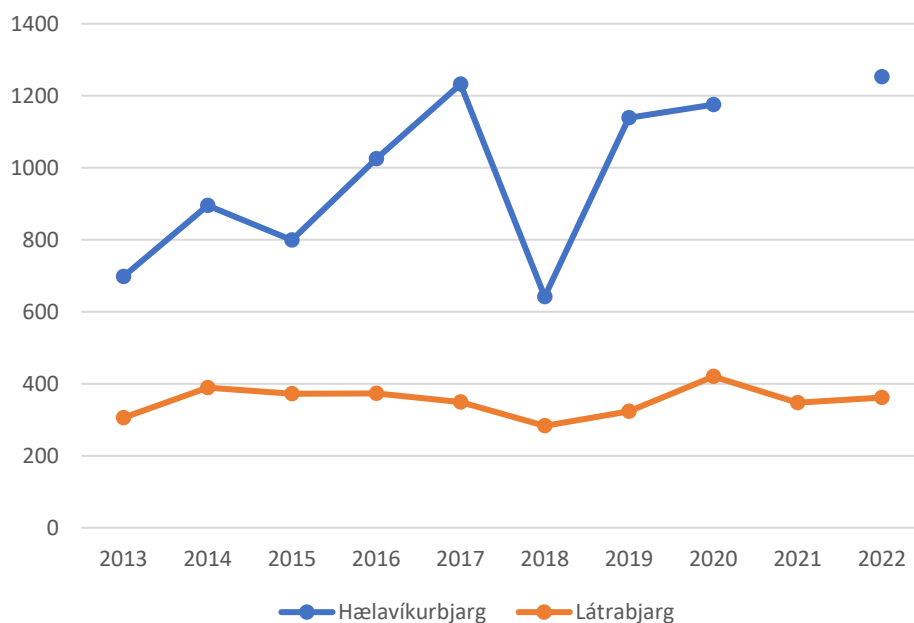


Figure 8. Number of Kittiwake from transect counts in Hælavíkurbjarg and Látrabjarg from 2013-2022.

The number of Fulmars in Hælavíkurbjarg and Látrabjarg seem to be rather stable and follow a similar pattern. The number of Fulmars in Geitaskor seems to fluctuate considerably more than that in the two aforementioned cliffs, dropping from 145 in 2017 to just 84 in 2019, and back to 144 in 2021 (Figure 9).

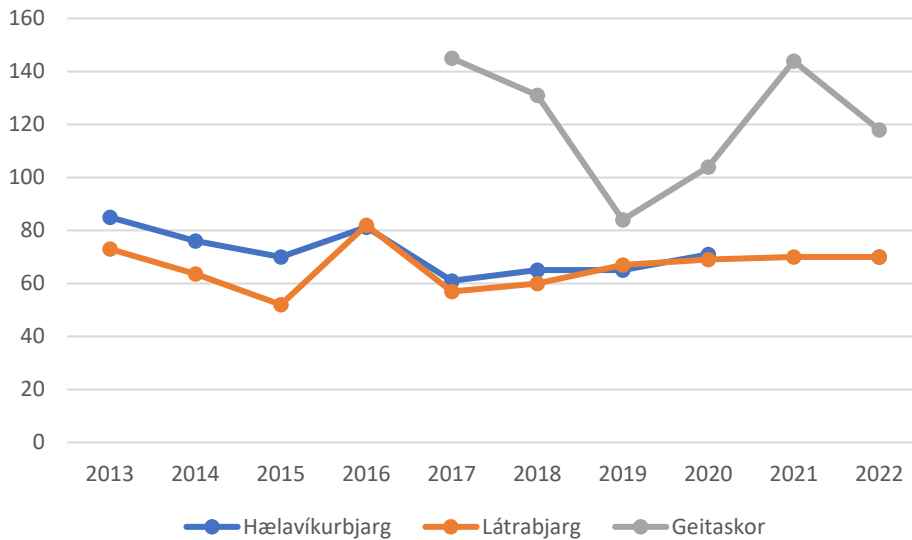


Figure 9. Number of Fulmars from transect counts in Hælavíkurbjarg and Látrabjarg from 2013-2022.

Counts for breeding success

Researchers at Nave have started counting young fulmar in Látrabjarg and Geitaskor from 2022. The transects are counted at the end of summer and provide data used by NNA for the calculations of breeding success for this species (Table 3).

Table 3. Numbers of young Fulmars from field counts in Látrabjarg and Geitaskor for the year 2022 and 2023.

Transect	2022	2023
LB1	0	0
LB2	1	0
LB3	3	0
LB4	10	3
LB5	36	28

CONCLUSION

Population of cliff birds which breed in Iceland have decreased drastically in the last decades (Garðarsson et al., 2008; 2015; Garðarsson, 2014; Kolbeinsson, 2010). To understand these changes longtime monitoring is essential.

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