

# Lesser Black-backed Gull *Larus fuscus*

## Summary

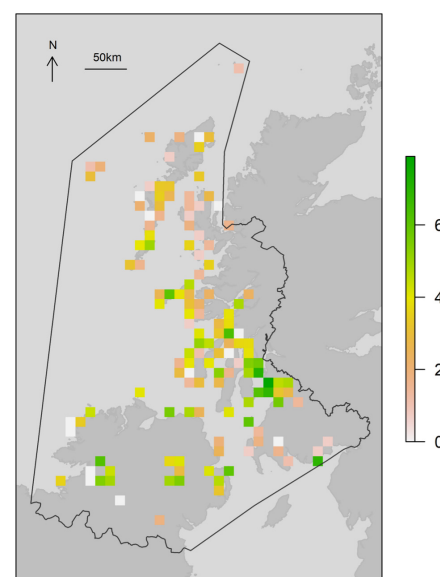
Lesser Black-backed Gull is projected to increase considerably in population size in the INTERREG VA area from 1998-2002 to 2050 under climate change, particularly in the north. Overall, Lesser Black-backed Gull is projected (with poor confidence) to have high opportunity under climate change in the INTERREG VA area.

**Table 1.** Current (observed) and future (projected) Lesser Black-backed Gull population size (breeding pairs) in GB & Ireland, INTERREG VA area and MarPAMM management areas.

Area	1998-2002	Projection for 2050
GB & Ireland	116640	126622 ↑+9%
INTERREG VA area	14080	41934 ↑+198%
Argyll	2390	9632 ↑+303%
Co. Down – Co. Louth	548	1539 ↑+181%
N Coast Ireland – N Channel	1346	3148 ↑+134%
Outer Hebrides	550	2778 ↑+408%

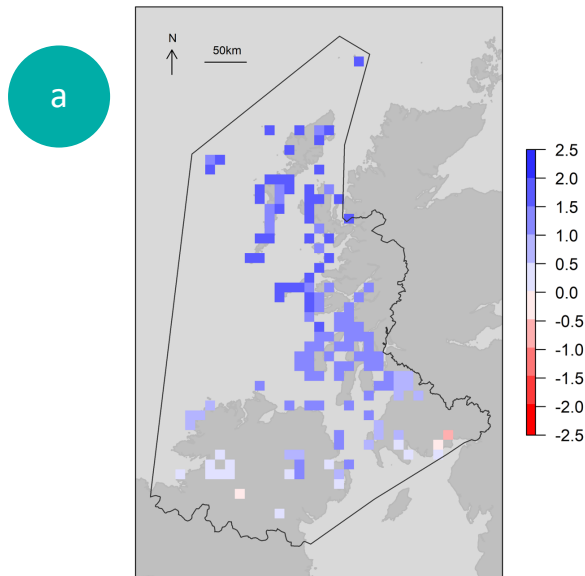
Under climate change, Lesser Black-backed Gull **population size** is projected to **increase** considerably in the INTERREG VA area between 1998-2002 and 2050, at a much greater rate than across Britain and Ireland as a whole (Table 1, Fig. 2a).

Lesser Black-backed Gull is projected to **increase** in **abundance** almost everywhere across the INTERREG VA area, particularly in the north (Fig. 2a). Additionally, much of the south of the INTERREG VA area is likely to become more suitable for Lesser Black-backed Gull under climate change (Fig. 2b); therefore this projected increase in abundance at existing sites may be supplemented by additional colonisation of new sites.

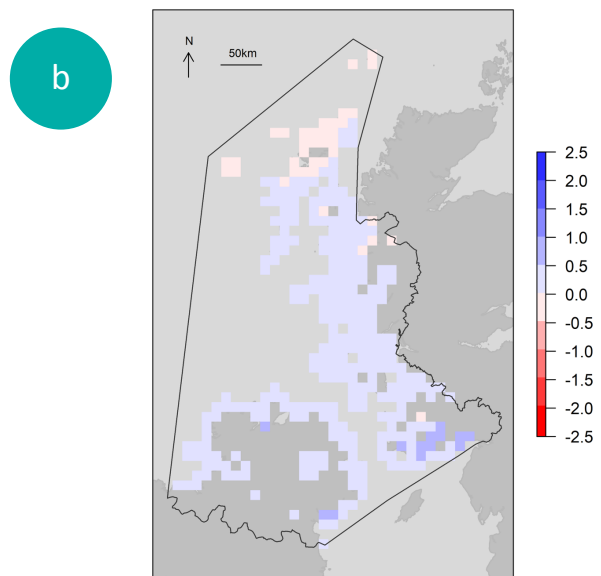


**Figure 1.** Observed Lesser Black-backed Gull abundance (log breeding pairs), 1998-2002. Black polygon = INTERREG VA area.

## Projected change in breeding pairs



## Projected change in presence probability



**Figure 2.** Projected change (1998-2002 to 2050; log proportional change) in: a) Lesser Black-backed Gull breeding pairs, for all cells where Lesser Black-backed Gull was present in 1998-2002; (b) Lesser Black-backed Gull presence probability for all squares where any seabird was censused in 1985-1988 or 1998-2002. White/blue = increase, red = decrease. Black polygon = INTERREG VA area.

Model predictive power was moderate for the presence/absence component of the model, but poor for the abundance component\*. Lesser Black-backed Gull presence/absence and abundance had significant relationships with terrestrial climate, oceanographic and nuisance variables (Table 2).



**Table 2.** Effect on presence and abundance for significant variables in model\*. Variables included in table if significant in at least one model component; field left blank if variable not significant in that model component. Variables shown in parentheses represent quadratic terms. Projections made using full model (i.e. not just significant variables).

Variable	Presence	Abundance
Breeding season maximum temperature	-	
(Breeding season maximum temperature) <sup>2</sup>	+	-
Winter minimum temperature	+	+
Winter precipitation		-
Breeding season sea surface temperature	+	
(Winter sea surface temperature) <sup>2</sup>	-	
Bathymetry		-
(Bathymetry) <sup>2</sup>		+
Coast length	+	
Small islands area	+	+

**Table 3.** Projected change for Lesser Black-backed Gull at the ten sites with the most breeding pairs in 1998-2002. Sites are as defined in Seabird 2000 census. Superscript denotes MarPAMM management region, where applicable: <sup>A</sup>, Argyll; <sup>B</sup>, Co. Down - Co. Louth; <sup>C</sup>, North Coast Ireland - North Channel; <sup>D</sup>, Outer Hebrides.

Site	Breeding pairs, 1998-2002 (count)	Projected breeding pairs, 2050 (median & 95% CI*)	Projected % change in breeding pairs (median & 95% CI*)
Horse Island	2677	7465 (934, 39857)	+178.8 (-65.1, +1388.9)
Little Cumbrae	1200	4208 (446, 24319)	+250.7 (-62.8, +1926.6)
Almorness Point	1023	1244 (129, 6950)	+21.6 (-87.4, +579.4)
Lady Isle	1000	2762 (173, 30602)	+176.2 (-82.7, +2960.2)
Tiree <sup>A</sup>	540	2540 (250, 16691)	+370.4 (-53.8, +2990.9)
Lough Derg SPA <sup>C</sup>	500	750 (133, 4119)	+49.9 (-73.4, +723.9)
Holy Island, Strathclyde	494	1640 (129, 13589)	+231.9 (-73.8, +2650.8)
Sound of Jura <sup>A</sup>	473	1688 (161, 11397)	+256.8 (-66, +2309.5)
Bute	450	1477 (116, 12317)	+228.2 (-74.3, +2637.1)

\* See main report for details of modelling, variables, categories of model predictive power and derivation of confidence intervals for projections.

## Climate Change Mechanisms

The review of climate change mechanisms affecting seabirds (Johnston et al. 2021) identified that gulls as a group are typically influenced indirectly by climatic variation, mediated through food supply. Low-lying gull nests are susceptible to flooding, and so sea level rise or increased storminess under climate change may reduce population size or productivity. In the north-east Atlantic, Lesser Black-backed Gull population size is generally positively related to winter temperature and SST, perhaps through herring and gadoid availability.

Overall, climate change is projected (with **poor confidence**) to present Lesser Black-backed Gull with **low risk** and **very high opportunity** in the INTERREG VA area.

**Citation:** Lesser Black-backed Gull species factsheet. From Davies, J.G., Humphreys, E.M. & Pearce-Higgins, J.W. 2021. Projected future vulnerability of seabirds within the INTERREG VA area to climate change. Report to Agri-Food and Biosciences Institute and Marine Scotland Science as part of the MarPAMM Project. BTO, Thetford



For more information on the MarPAMM project please visit the project website:

[www.mpa-management.eu](http://www.mpa-management.eu)