

# Artificial light at night correlates with seabird groundings: mapping city lights near a seabird breeding hotspot

## INTRODUCTION

Artificial light at night (ALAN) is a growing conservation concern for seabirds, which can become disoriented and grounded by lights from buildings, bridges and boats. Many fledgling seabirds, especially Procellariiformes such as petrels and shearwaters, are susceptible to light pollution.

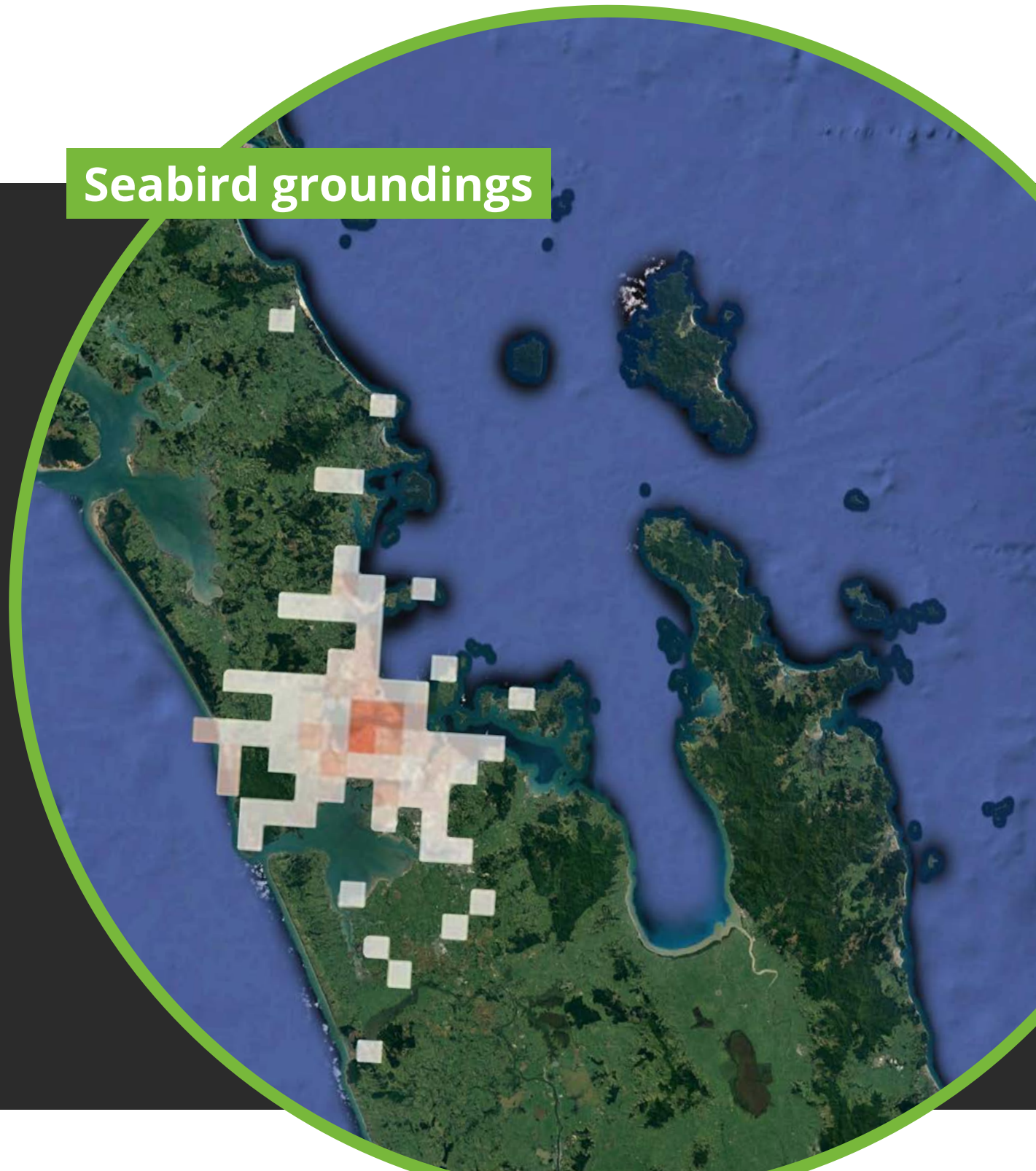


## LOCATION

The Hauraki Gulf is a seabird hotspot located near Tāmaki Makaurau/Auckland, New Zealand's largest urban city. Auckland has a considerable amount of light pollution and regularly documented events of seabird groundings.

## METHODS

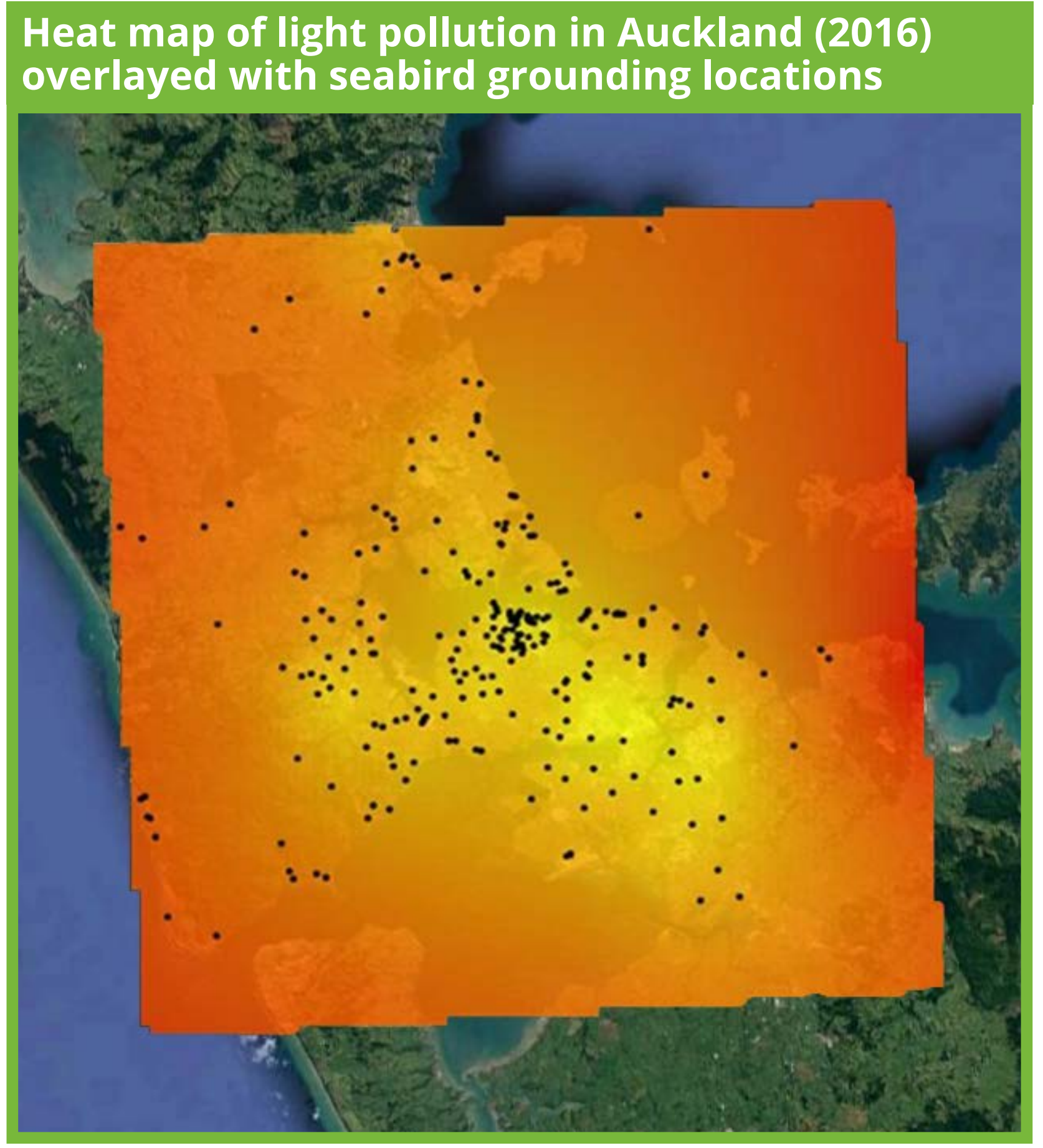
**Do areas with brighter city lights have more seabird groundings?** We used an online database of seabirds taken to a wildlife rescue facility by the public to map three years of seabird groundings and test for correlations between groundings and light pollution.



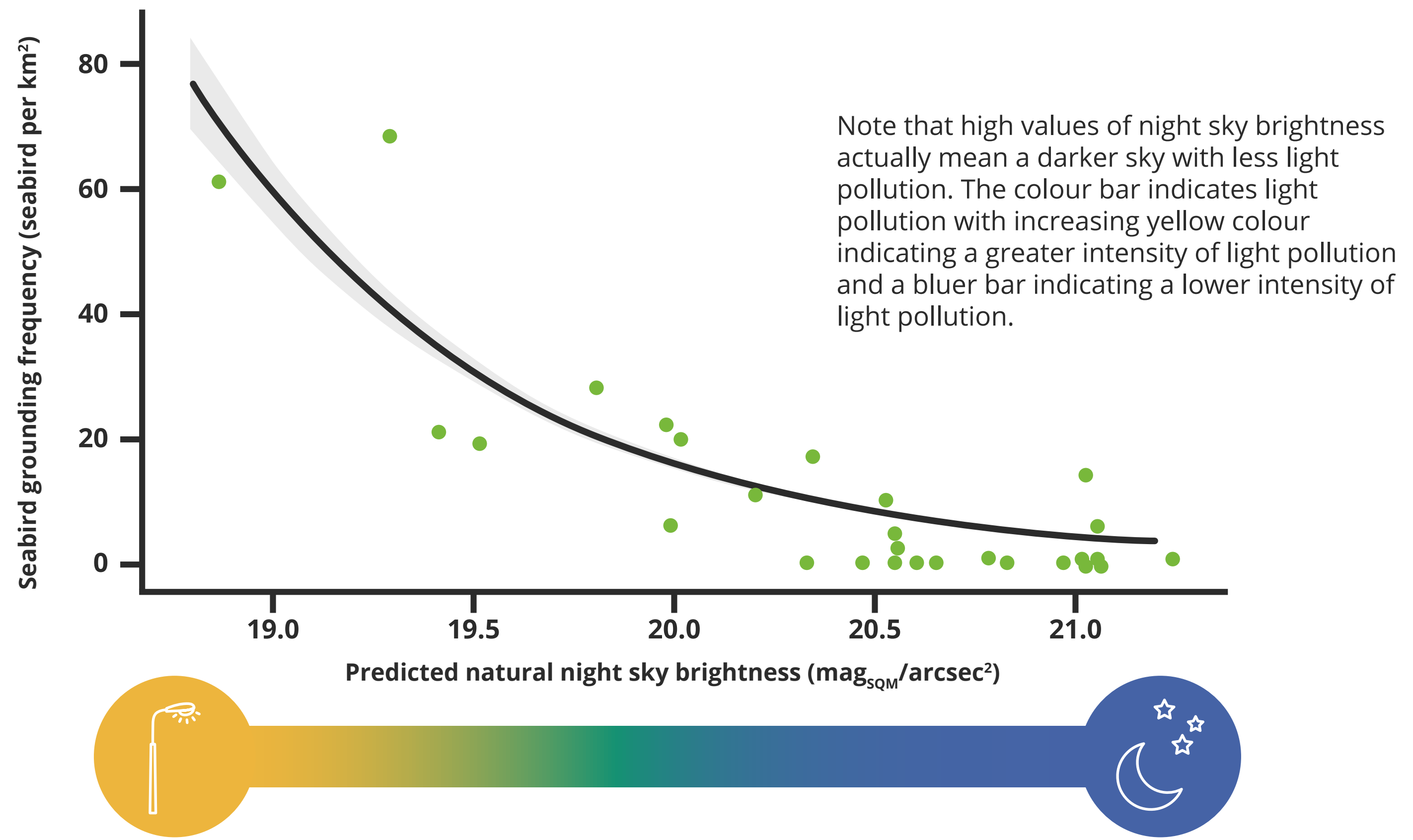
## RESULTS

**We found that areas with greater light pollution had more seabirds grounded.**

In general, seabird groundings correlate with the brightness of the area and are species-specific. Groundings may not be indicative of human or seabird population abundance considering some areas have a lower human population with high light levels and had high amounts of seabird groundings.



The seabird fallout frequency in 10 km by 10 km grid squares against the mean predicted night sky brightness



## CONCLUSION

**These findings can be applied worldwide to mitigate groundings** by searching for and targeting specific brightly lit anthropogenic structures. Those targeted structures and areas can then be the focus of light mitigation efforts to reduce seabird groundings.

Finally, this study illustrates how a combination of community science, a concern for seabirds grounded from light attraction, detailed animal welfare data, and natural night sky brightness data can be a powerful, collaborative tool to aid global conservation efforts for highly-at-risk animals such as seabirds.

