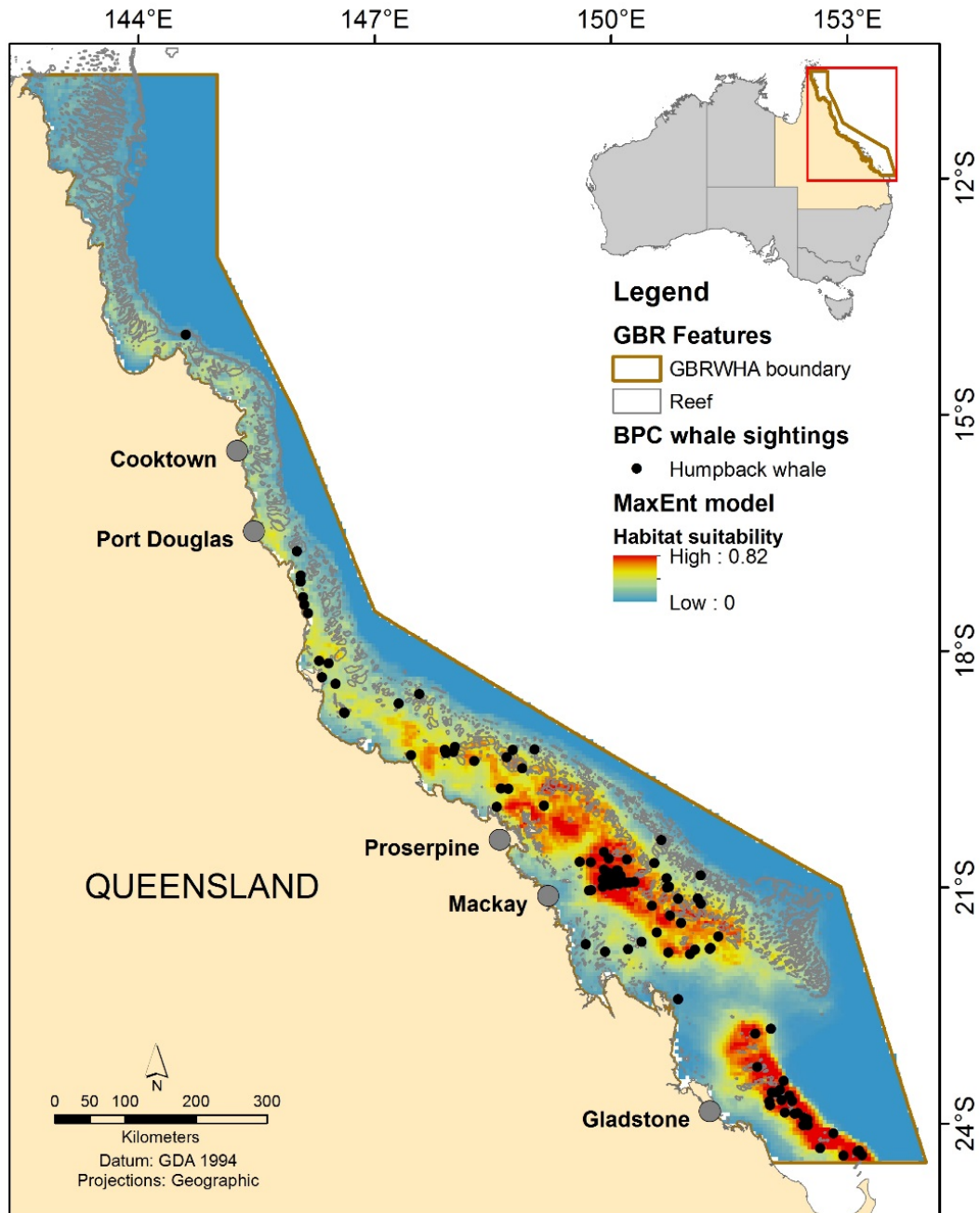
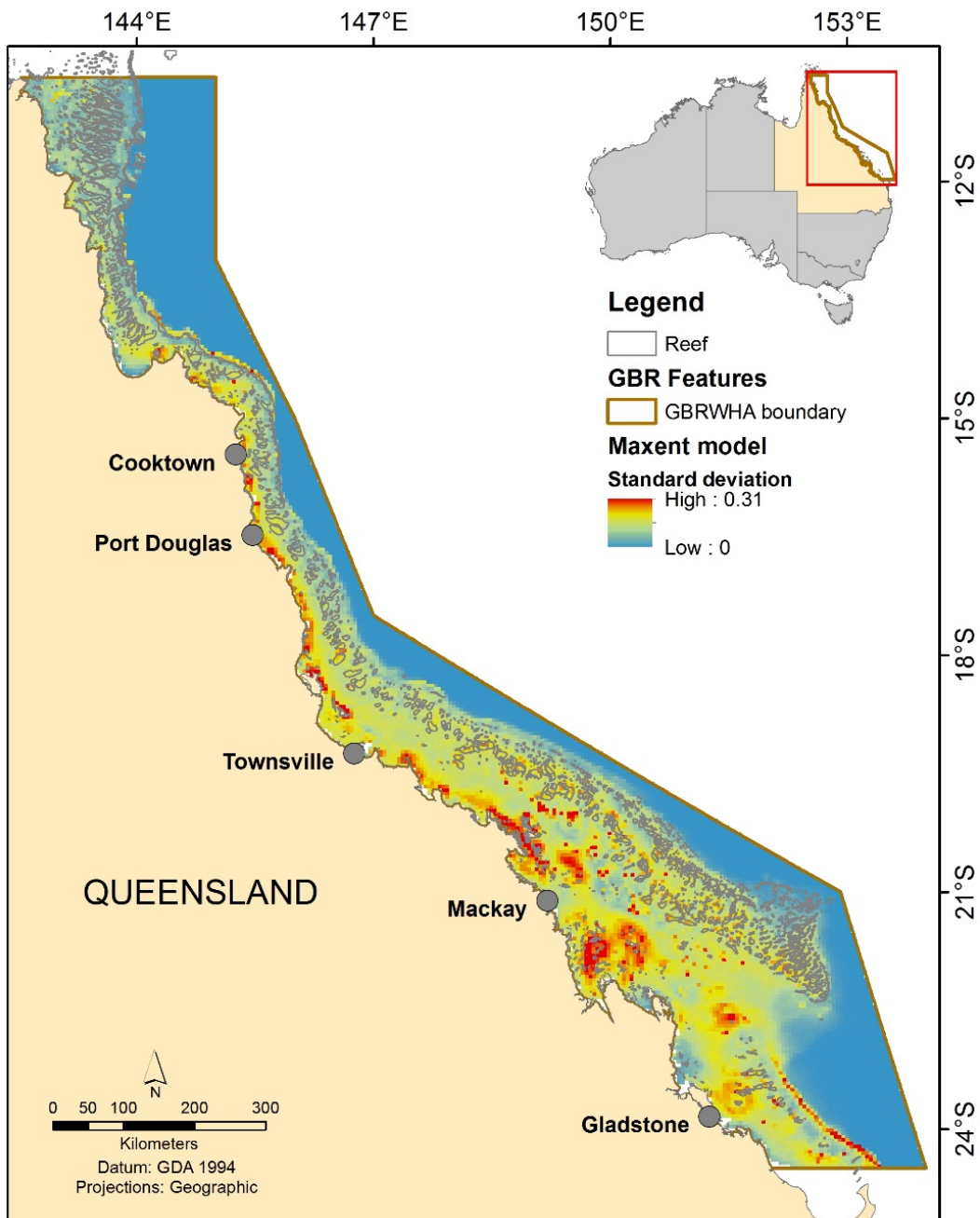


**Supporting Information.** Smith, J.N., N. Kelly, and I.W. Renner. 2020. Validation of presence-only models for conservation planning and the application to whales in a multiple-use marine park. *Ecological Applications*.

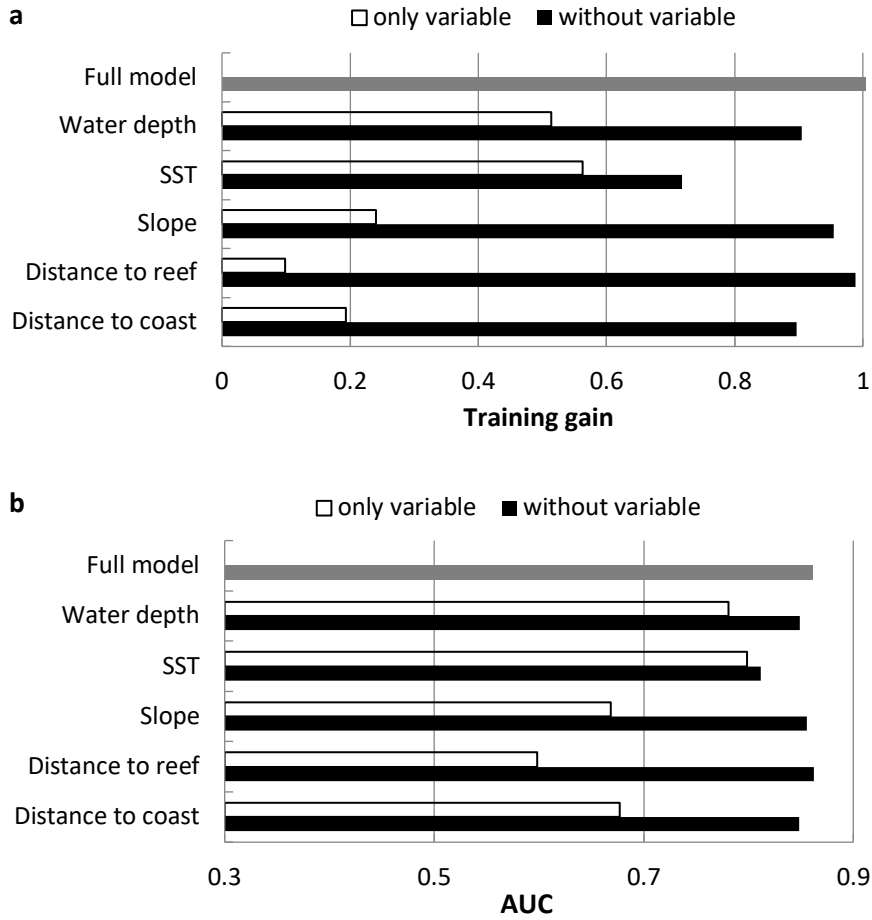
**Appendix S1 – Supporting Figures**



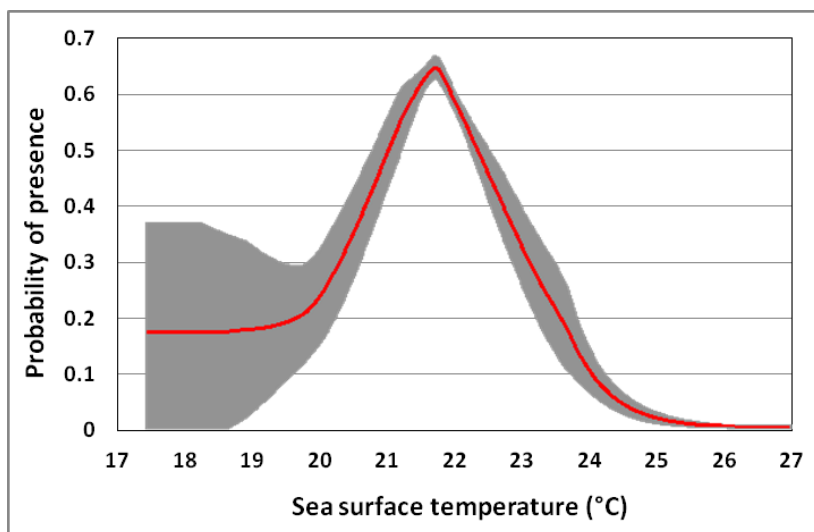
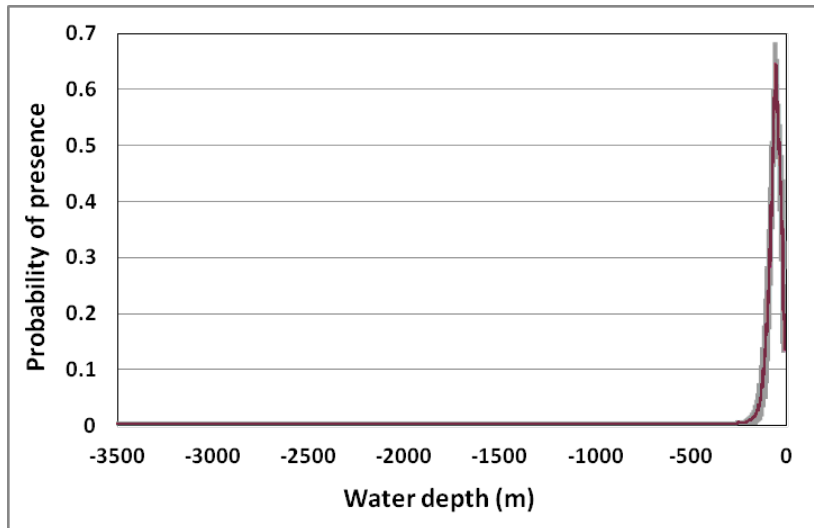
**Figure S1.** MaxEnt model overlaid with the BPC aerial surveillance program presence-only whale sightings (Jul/Aug. 2003–2007).



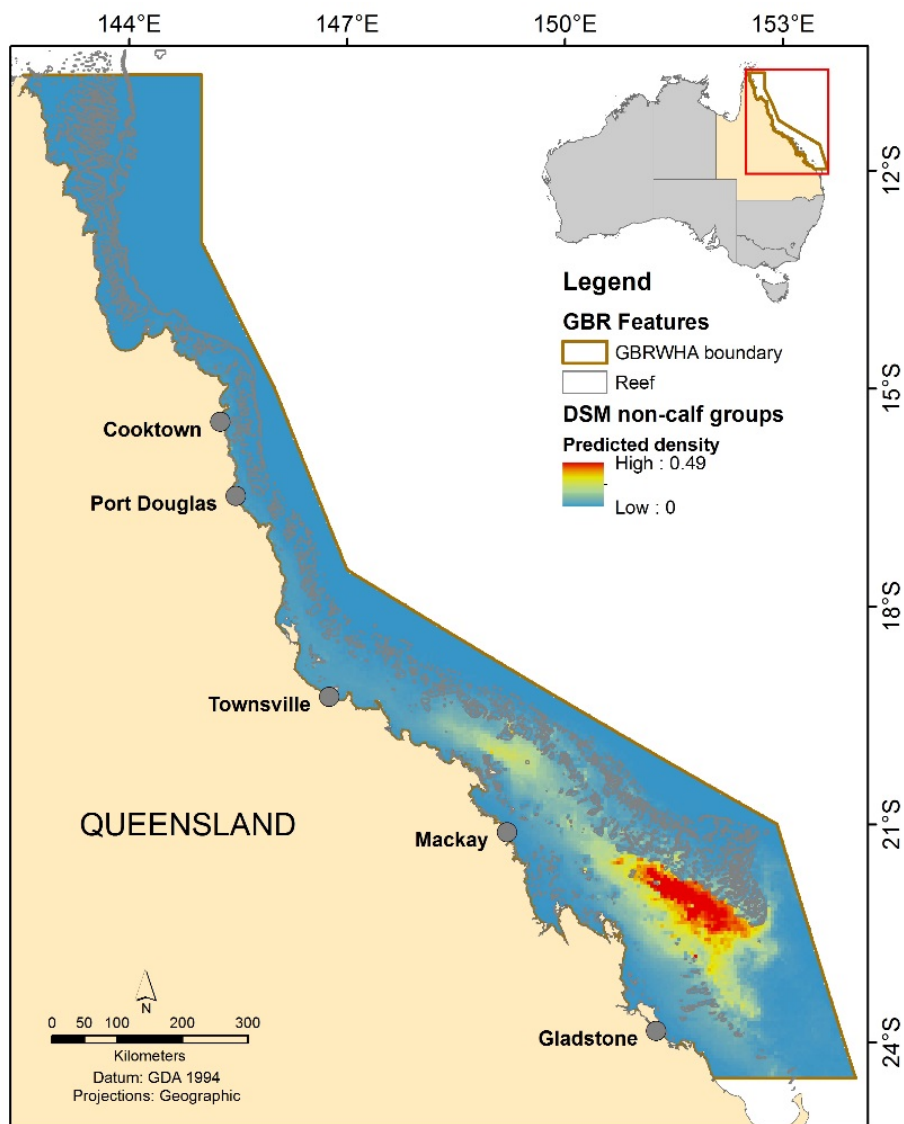
**Figure S2.** Standard deviation of the MaxEnt model developed using BPC aerial surveillance program presence-only whale sightings (Jul/Aug. 2003–2007).



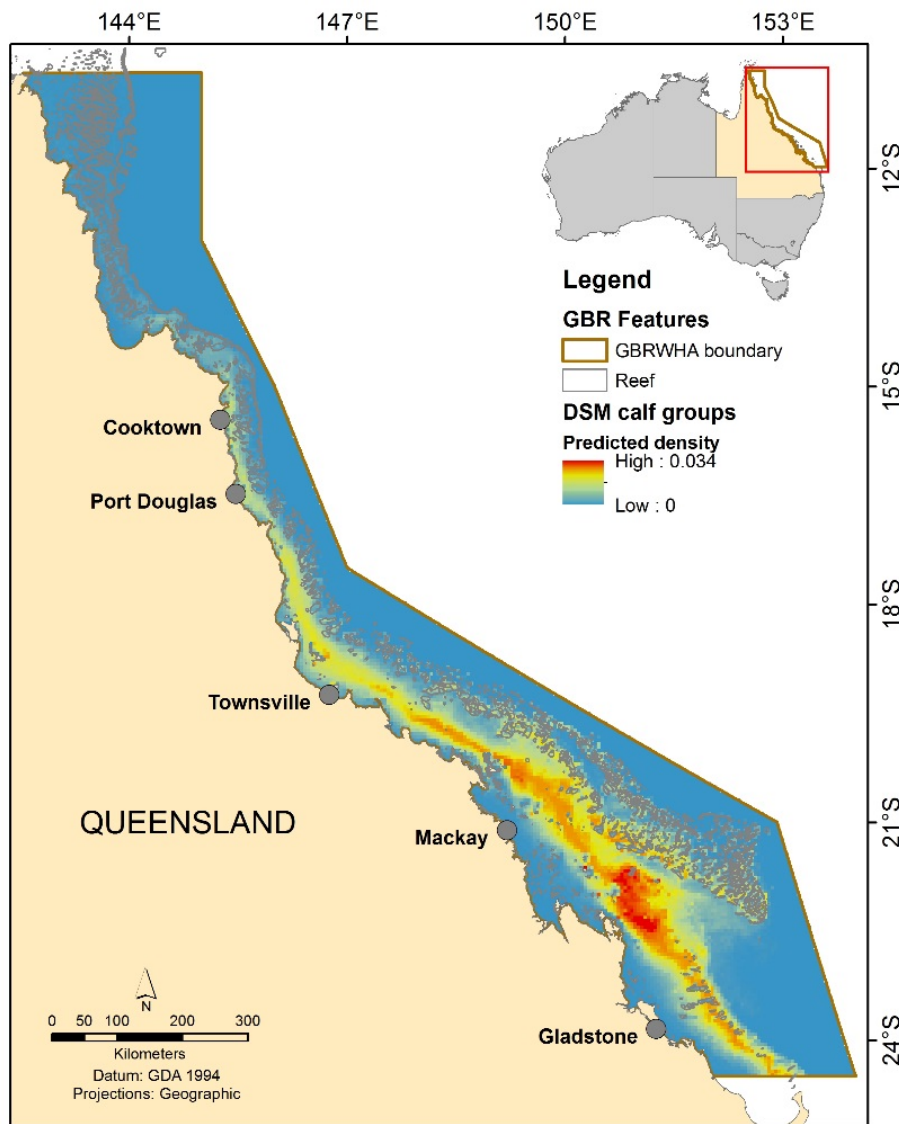
**Figure S3.** Variable contributions from the jack knife test to **a)** training gain and **b)** AUC of the model for humpback whales in the GBRMP. Higher values indicate a greater contribution to the model. ‘Only variable’ indicates the results of the model when a single variable is run in isolation; ‘without variable’ indicates the effect of removing a single variable from the full model (jack-knife). Reported in Smith et al. (2012).



**Figure S4.** Response curves for the top two most informative environmental predictors illustrating the relationship between the probability of occurrence and **a)** water depth and **b)** SST. These curves show how the shape of the response changes for a particular variable while all other variables remain at their mean sample value. Reported in Smith et al. (2012).



**Figure S5.** Density surface model (4.8 x 4.8 km) of the predicted density and distribution of 'non-calf' humpback whale groups in the GBRMP based on 2012 line-transect aerial survey data.



**Figure S6.** Density surface model (4.8 x 4.8 km) of the predicted density and distribution of 'calf' humpback whale groups in the GBRMP based on 2012 line-transect aerial survey data.

### Literature Cited

Smith, J. N., H. S. Grantham, N. Gales, M. C. Double, M. J. Noad, and D. Paton. 2012. Identification of humpback whale breeding habitat in the Great Barrier Reef. *Marine Ecology Progress Series* 447:259–272. <https://doi.org/10.3354/meps09462>