Appendix S3
Initial data visualisation

A warming western boundary current increases the prevalence of commercially disruptive parasites in broadbill swordfish

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Figure S1

Variance-to-mean relationship for the intensity dataset. (Left) Histogram and density plot of the response. There is large variation, suggesting a negative binomial distribution will be more appropriate than poisson. (Right) Variance-to-mean relationship of the response aggregated for each boat trip, overlaid with the mean-variance relationship for the NB1 parameterisation (blue line) and NB2 parameterisation (red line). The variance of the response tends to scale quadratically with the mean, hence we use the NB2 parameterisation in our models.
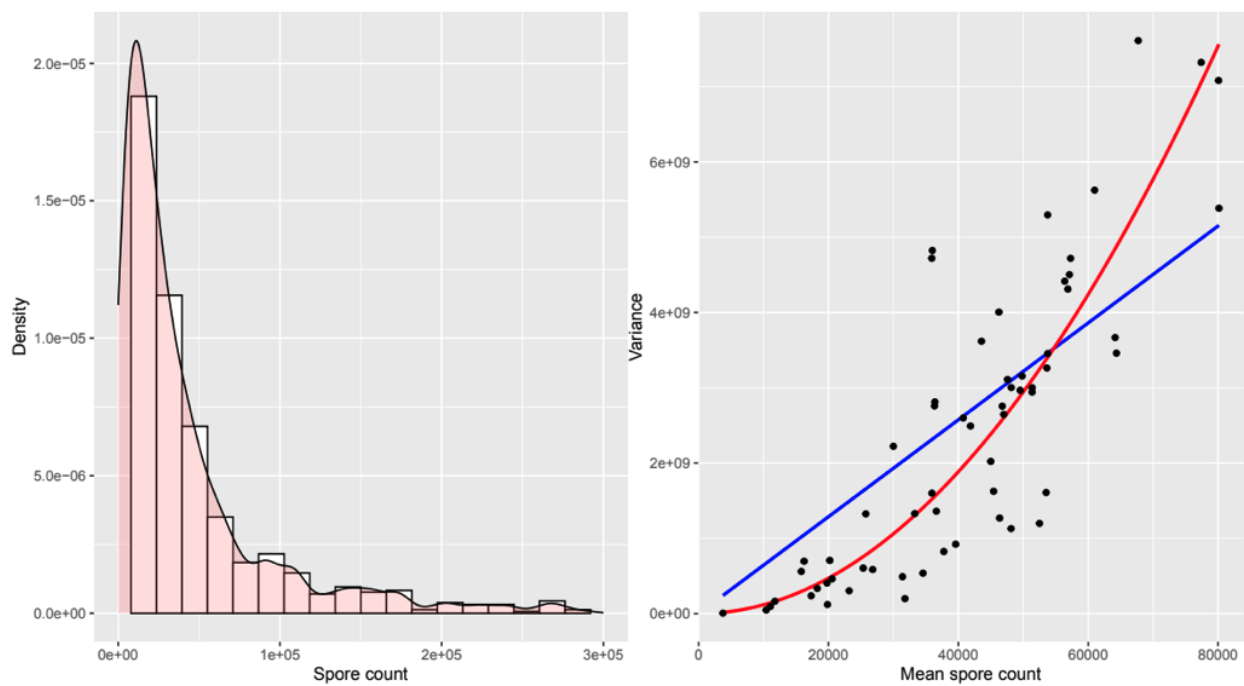
Figure S2

Dot plots of the number of observations for each de-identified boat trip (i.e., number of swordfish sampled for each level of the random intercept) for the (Left) prevalence dataset and (Right) intensity dataset. There is an unbalanced sampling design, with multiple trips having less than 10 observations (vertical line); therefore, we do not fit random slope models. Note that the operation ID used for the prevalence dataset does not correspond to the operation ID used in the intensity dataset.
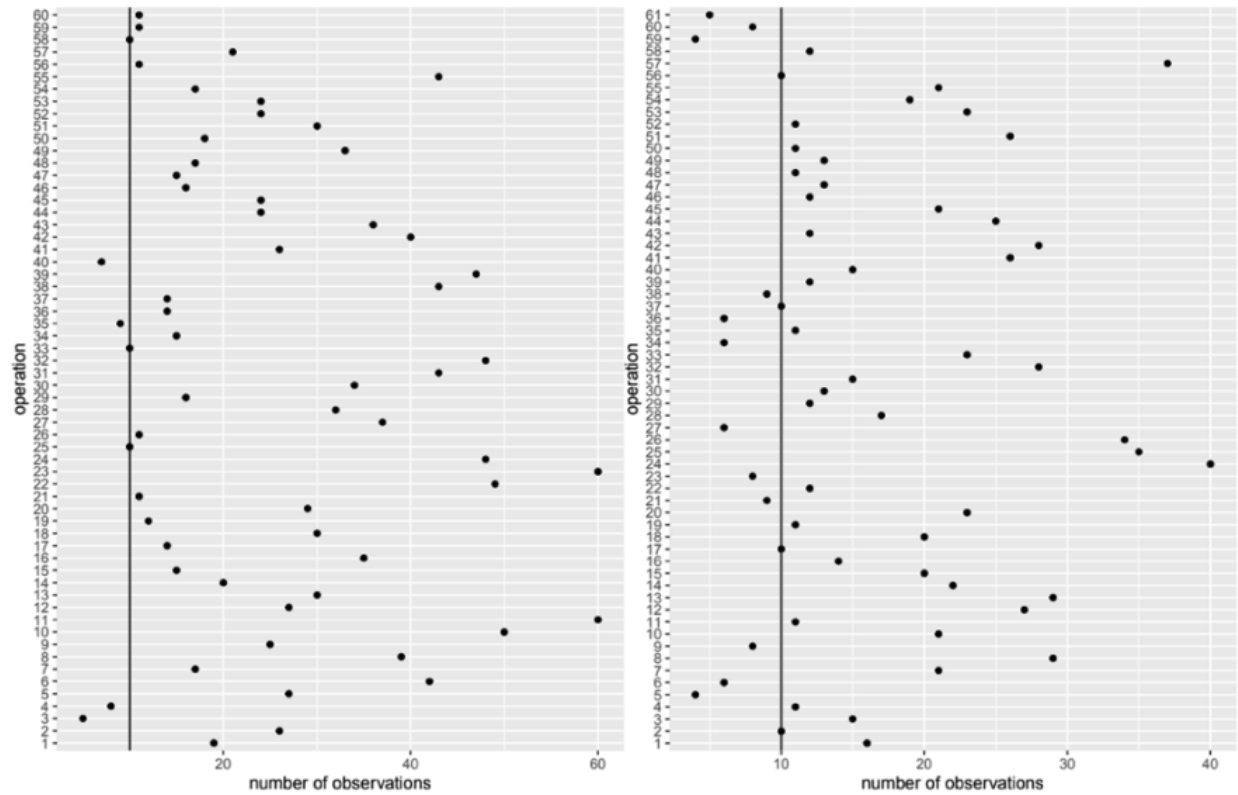
Figure S3

Cleveland dot plots of explanatory variables used for modelling to check for outliers. Top row = prevalence dataset, (top left) before and (top right) after extreme outliers were removed for `mean_eke`, `mean_speed` and `heat_rate`. Bottom row = intensity dataset, which exhibits no extreme outliers.
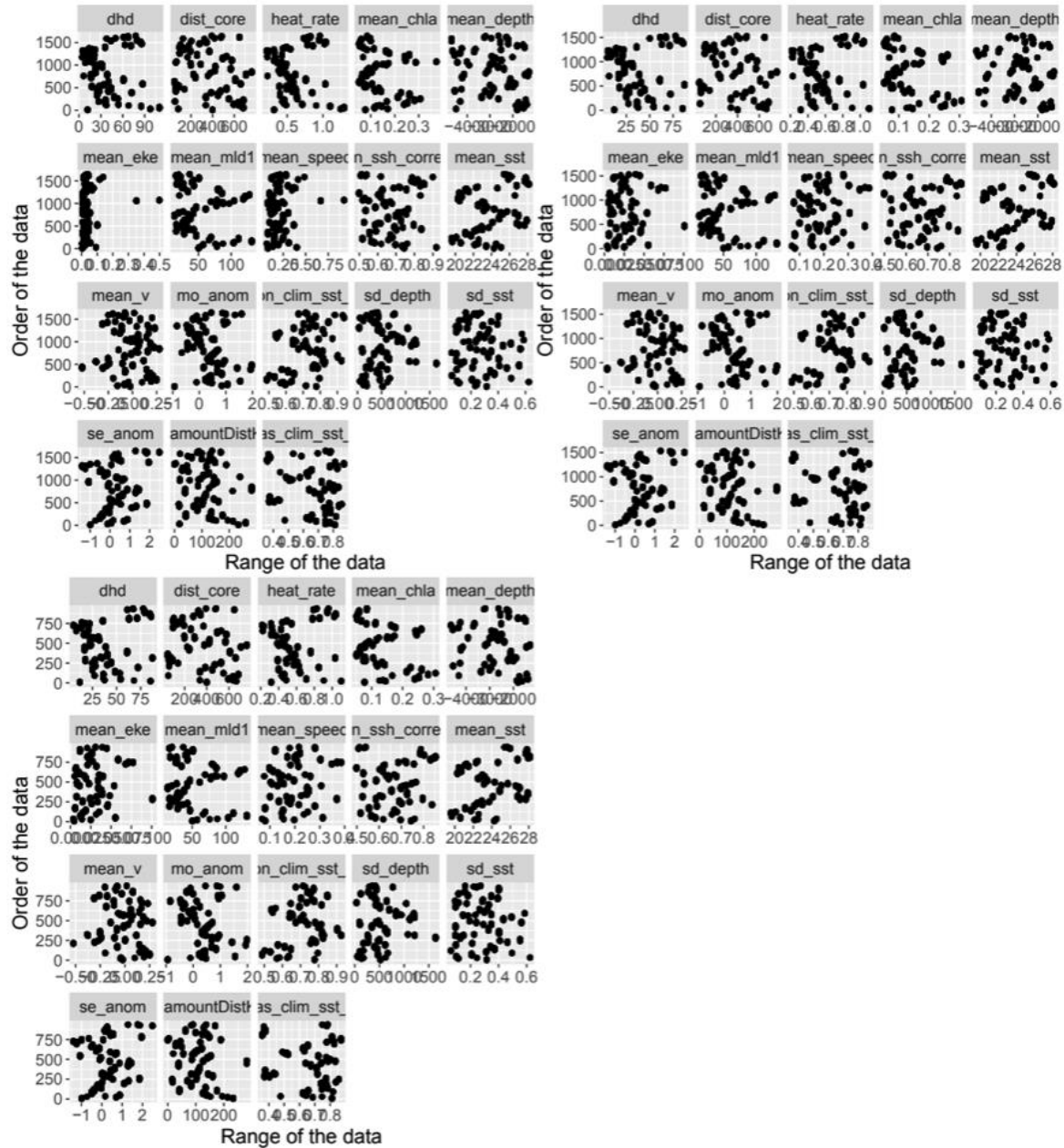
Figure S4

Relationships between prevalence of infected swordfish and explanatory covariates, after removing collinear variables and outliers.
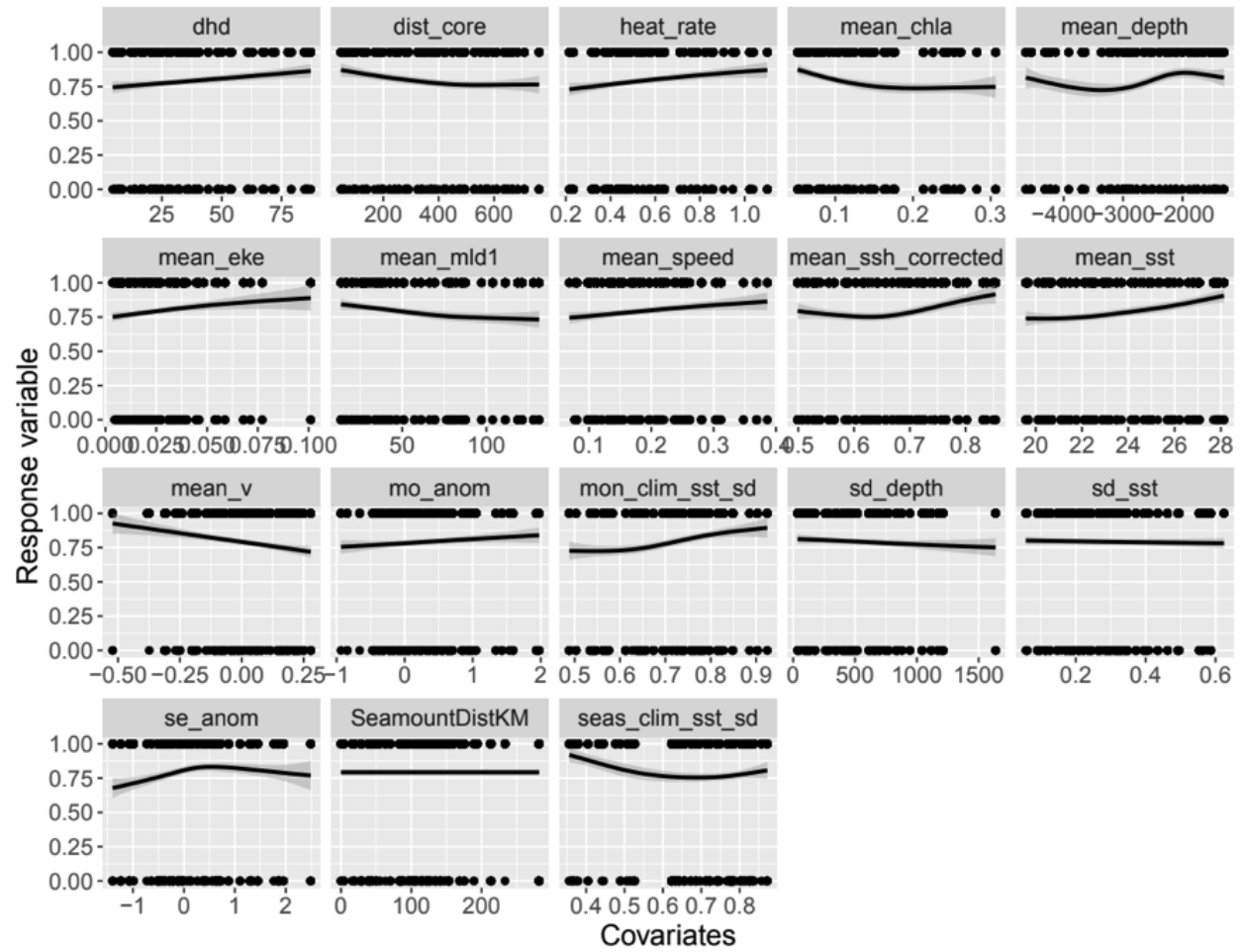
Figure S5

Relationships between intensity of infected swordfish and explanatory covariates, after removing collinear variables and outliers.