

Table S1. Modelling structures for each analysis presented before and after model selection.

Model type	Section	Response variable	Explanatory variables	Error structure	Link function	
Full model	Vessel interactions	Occurrence of vessel interaction per trip	Season + Sex + Brood size+ Proportion tag weight	Binomial	Logit	
		Trip duration (hours)		Gamma	Inverse	
		Maximum distance (km)		Gamma	Inverse	
	Foraging effort	Total distance (km)	Vessel + Season + Sex + Brood size + Proportion tag weight	Gamma	Inverse	
		Mean ODBA (g)		Gaussian	Identity	
		Trip ODBA (g hours)		Gamma	Inverse	
		Dive time (seconds)		Negative binomial	Log	
	Vessel availability	Number of foraging trips without/without vessels per day	Fishing effort within 33 km + within 120 km + Season	Binomial	Logit	
	Final model	Vessel interactions	Occurrence of vessel interaction per trip	Brood size	Binomial	Logit
			Trip duration (hours)	None	Gamma	Inverse
Maximum distance (km)			Season	Gamma	Inverse	
Foraging effort		Total distance (km)	Season	Gamma	Inverse	
		Mean ODBA (g)	Season	Gaussian	Identity	
		Trip ODBA (g hours)	Vessel + Season	Gamma	Inverse	
		Dive time (seconds)	Sex + Proportion tag weight	Negative binomial	Log	
Vessel availability		Number of foraging trips without/without vessels per day	Fishing effort within 33 km	Binomial	Logit	

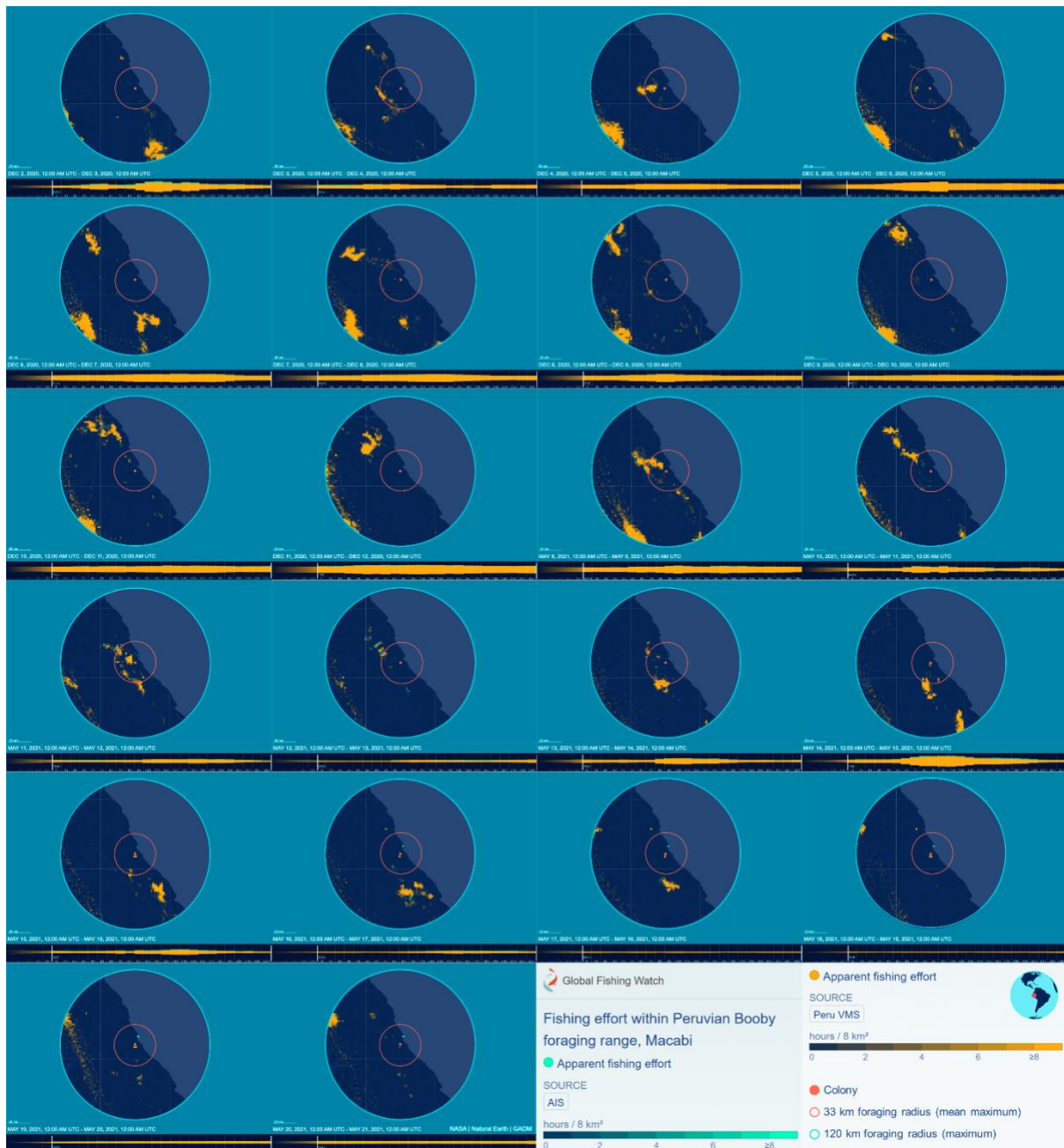


Fig. S1. Apparent fishing effort mapped by Global Fishing Watch for each day during which Peruvian Boobies foraging trips were analysed in this study: 2–11 December 2020, 8 and 10–20 May 2021 within the mean maximum distance from the colony (33 km), and the maximum distance reached by any bird (120 km inclusive of the 33 km radius). Bar charts under each map show the relative estimated total fishing hours across all vessels for each hour of the day. Copyright 2022 Global Fishing Watch, Inc., www.globalfishingwatch.org). Data are sourced from vessel monitoring system (VMS) data provided by the Peruvian Government’s Ministry of Production, Fisheries Sector, and automatic identification system (AIS) data. Screenshots have been adapted in accordance with the Commons Attribution Non-Commercial 4.0 license (“CC BY-NC”): <https://creativecommons.org/licenses/by-nc/4.0/> (adaptation not specifically endorsed by Global Fishing Watch). Disclaimer: Global Fishing Watch has made every attempt to ensure the completeness, accuracy and reliability of the information provided. However, due to the nature and inherent limitations in source materials for information provided, Global Fishing Watch qualifies all designations of vessel fishing activity, including synonyms of the term “fishing activity,” such as “fishing” or “fishing effort,” as “apparent,” rather than certain. And accordingly, the information is provided “as is” without warranty of any kind.

Table S2. Apparent fishing effort estimated by Global Fishing Watch (sourced from vessel monitoring system (VMS) data provided by the Peruvian Government’s Ministry of Production, Fisheries Sector, and automatic identification system (AIS) data) for each day during which Peruvian Boobies foraging trips were analysed in this study within the maximum distance reached from the colony (120 km) and the mean maximum distance reached in each foraging trip (33 km).

Season	Date	Trips without vessels	Trips with vessels	Est. fishing effort within 120 km (hrs)	Est fishing effort within 33 km (hrs)
Dec 2020	2	1	0	1604.33	1.98
	3	3	0	882.29	21.03
	4	0	2	2296.93	413.96
	5	4	0	2635.37	33.22
	6	3	0	5048.17	0
	7	2	0	4122.07	3.85
	8	4	0	2130.2	2.39
	9	1	0	2876.88	9.25
	10	2	0	2260.36	13.61
	11	2	1	1924.66	1.07
	May 2021	8	0	3	1946.05
10		2	1	1731	19.71
11		0	4	1335.21	626.32
12		5	0	401.18	5.1
13		4	2	1465.41	143.27
14		5	1	2092.94	54.34
15		7	0	1434.3	51.94
16		6	0	1323.69	57.94
17		6	0	691.11	70.2
18		2	0	186.27	78.53
19		2	0	537.08	129.9
20	2	0	272.22	80.87	