

Fig. S1. The explanatory variables used in the analysis relating West Coast rock lobster *Jasus lalandii* availability to the number of bank cormorant breeding pairs at three colonies. Left panels: the proportion of traps containing lobsters (TCL) around Jutten Island (open circles, dotted lines), Dassen Island (closed circles, solid lines) and Cape Point (black triangles, dashed lines), 1993–2015; Right panels: lobster catch per unit effort (CPUE) around Jutten Island (open circles, solid lines) and Cape Point (black triangles, dotted lines), Dassen Island (closed circles, solid lines) and Cape Point (black triangles, dashed lines), 1993–2015. Each row shows the rock lobster availability in one of the four distance intervals, 0–5 km (top), 0–10 km (upper middle), 0–20 km (lower middle) and 0–30 km (bottom).



Fig. S2. Autocorrelation plots from AR-1 models on (left panels) the State-space model estimates of the numbers of pairs of bank cormorants *Phalacrocorax neglectus* at the three study colonies and (right panels) the normalized residuals from the best fitting GAM models containing a lobster covariate: (A) estimated number of breeding pairs at Jutten Island; (B) residuals for model J3, Table A1; (C) estimated number of breeding pairs at Dassen Island; (D) residuals for model D4, Table A1; (E) estimated number of breeding pairs at Stony Point; (F) residuals for model S3, Table A1.



Fig. S3. Illustration for Dassen Island of the proposed MPAs in South Africa with no-catch of West Coast rock lobsters. The rock lobster no catch area is based on a 20 km radius (blue circle) around the centre of the island (total area: 1 121 km², excluding Dassen Island and the intersection with the mainland). This radius was chosen because 20 km (or 30 km) explained the maximum deviance (47%) in the models testing the effect of lobster availability on bank cormorant breeding numbers (see Results). In practice, respecting a no-catch area when navigating on the sea surface may be rendered difficult when its borders are delimited by a circle. For this reason, an alternative MPA design is proposed, which has clearer readability as it is based on a linear increment of 0°05' in both latitude and longitude (comprised between 33° 15' S – 33° 35' S and 17° 55' E – 18° 15' E). However, its surface area is slightly larger than with a circle (total area: 1 488 km² excluding Dassen Island and the intersection with the mainland).