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TITLE: A changing distribution of seabirds in South Africaâ??the possible impact of climate and its consequences

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ABSTRACT:

In the southern Benguela ecosystem off South Africa, there were recent shifts to the south and east in the distributions of three forage resources (anchovy, sardine, rock lobster), which probably were influenced by environmental change although fishing too may have played a part. In this study, we review information on trends in distributions and numbers of eight seabirds breeding in South Africa. For five species that feed predominantly on anchovy, sardine or rock lobster, their populations off northwest South Africa decreased markedly. For three of these species, which exhibit behavioural inertia and have restricted foraging ranges when breeding (African penguin, Cape cormorant, bank cormorant), there were large decreases in their overall populations in South Africa. Conversely, for two showing more plasticity and able to range over wide areas or move between breeding localities (Cape gannet, swift tern) there were increases. It is thought that movement of forage resources away from the northern islands led to a mismatch in the distributions of breeding localities and prey of dependent seabirds off western South Africa and to attempts by several species to establish colonies on the southern mainland closer to food resources. There also were shifts to the south and east in the distributions of three seabirds that do not compete with fisheries for prey (crowned cormorant, white-breasted cormorant, kelp gull), suggesting some environmental forcing, but decreases of these species off northwest South Africa were less severe and populations in South Africa remained stable or increased in the long term. It is likely, because many fishing plants are located in the northwest, that there was increased competition between seabirds and fisheries for prey as forage resources moved south and east. Potential interventions to mitigate the adverse impacts of distributional changes for seabirds include allocations of allowable catches of shared forage resources at regional levels,

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