

Transequatorial migration and mixing in the wintering areas in a pelagic seabird

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Despite the increasing interest in long distance migration, the wintering areas, migration corridors and population mix in winter quarters of most pelagic marine predators are unknown, and thus our understanding of these critical periods in their annual cycle is very limited. Here we present the first study to track migration movements of shearwaters throughout the complete nonbreeding period. We used geolocators (global location sensing (GLS) units based on ambient light levels) to track 22 Cory's shearwaters *Calonectris diomedea*, breeding in three different areas. Most birds wintered in one or more of three relatively small areas, all clearly associated with major coastal upwelling systems of the tropical and south Atlantic. Transequatorial movements were dominated by prevailing trade winds and westerlies and avoided calm oligotrophic areas. Breeding populations clearly differed in their main preference amongst the three major wintering areas but showed substantial mixing. This illustrates the exceptional value of GLS not only for describing and determining the influence of oceanographic features on migration patterns, but also to determine population mix in winter quarters. This knowledge is essential to assess the impact of population level threats, such as longlining, offshore windfarms and oil spills, to multiple breeding sites and ultimately critical in devising conservation policies that guarantee the sustainable exploitation of the oceans.