Will warm-water events in the Gulf of California reduce seabird populations?

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Credit: Enriqueta Velarde

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A recent study by Enriqueta Velarde from the University of Veracruz and Exequiel Ezcurra from the University of California Riverside, published in *The Condor: Ornithological Applications*, analyzed four decades of nesting dynamics of the threatened Heermann's Gull (Larus heermanni), and modeled population growth under normal and high sea-surface temperature conditions.

Heermann's Gulls exhibit the main characteristics of seabirds. They can live for decades, but take many years to reach breeding age, and produce few young. These traits allow their populations to resist oceanographic anomalies of up to one event every five years, but population size may decline rapidly if the frequency of warm-phase anomalies is over two per decade. Under normal conditions, predicted population growth is around 4%, with production of fledglings contributing to the population increase. Under anomalous warm-water conditions, population growth drops to -15% and adult survival becomes the key condition for the survival of the species. Simulations project a rapid population decline if warm anomalies maintain the high frequencies they have shown during the last decade.

These results underscore the need to understand the dynamics of

warming ocean waters under current large-scale environmental change, as well as the importance of following the demographic dynamics of seabirds as indicators of oceanic conditions. Monitoring seabird populations may provide us with warning signals about the health and the future of our marine ecosystems.

More information: Enriqueta Velarde et al. Are seabirds' life history traits maladaptive under present oceanographic variability? The case of Heermann's Gull (Larus heermanni), *The Condor* (2018). DOI: 10.1650/CONDOR-17-5.1

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