

PLENARY SPEAKERS ABSTRACTS

NATURAL HISTORY AND LONG-TERM STUDIES ARE FUNDAMENTAL TO SCIENCE

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Natural history is an important component of science because it helps us determine what to measure to best test our hypotheses. Whether by experimental design or long-term observation of responses of species and ecosystems, natural history is the fundamental guide to how we and other species are going to live on this planet in the future. This is increasingly important in a human dominated world. Seabirds are long-lived, have delayed maturity, small clutches, and both parents are needed to successfully raise young. Because penguins do not fly and are central place foragers, small modifications in their distribution, abundance, and reproductive success provide insights into environmental variability. The natural history of the 18 species of penguins is remarkably variable. King penguins, a sub-Antarctic species, lay one egg and it takes 18 months to successfully rear one chick. In contrast, Galapagos penguins, living on the equator, can lay 3 clutches of 2 eggs in a year and can rear two chicks in just over 3 months. These extremes in natural history, and the penguin's dependence on the environment where they breed, make them useful sentinels of environmental variability. When penguins are breeding and molting, they are relatively easy to observe. When they are at sea, new technology allows us to assess where penguins are and their environment. Penguin ecology and population dynamics are intertwined with climate variability. The distance a penguin must travel to find food is a major determinate of its reproductive success. By investigating the natural history and success of individual penguins comprising a colony, we can understand how by modifying human behavior to use the environment with more concern for wildlife (e.g., tanker lanes routes, oil discharge, and designation of marine protective area, marine zoning, and providing quality nest sites). Knowledge used well by humans and our institutions can promote the success and resilience of penguins.

THE IMPORTANCE AND UNIMPORTANCE OF SEABIRDS IN THE NEW ABNORMAL

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At a time of major concern for the natural world and its fate, we are entering a unique period where the seabird conservation and research priorities of previous decades may no longer be relevant or appropriate. As seabird populations struggle to maintain themselves in a rapidly changing ocean, they are receiving growing attention from media and conservation groups. However, it is increasingly unclear what seabird conservation and research should address as the earth's ocean paradigm shifts.

Earlier seabird conservation strategies of setting aside refuges and marine protected areas or focusing on “endangered” species appear to be less appropriate given current broad-scale and long-term threats as an increasing human population warms and acidifies the oceans, through emission of fossil fuels, and overexploits fishery resources. Similarly, seabird research that recognizes the importance and magnitude of ongoing climatic modifications are increasingly hard to identify. Recent advances in technology provide heretofore unthinkable detail of the lives of seabirds, but the importance of life history and physiological minutiae during the Sixth Great Extinction is not clear. Seabird researchers seeking a government career, or conducting research with government funds, face the additional problem of working with or relying on agencies that have among their major tasks the facilitation of the fossil fuel extraction and seafood exploitation that are primary causes of the ocean's decline.

Seabird conservationists and researchers cannot reverse the global processes that will be affecting seabirds in coming decades. But, identifying and implementing meaningful conservation efforts and appropriate research is now more important than ever.