

PLASMA ELECTROLYTE CONCENTRATIONS FOR AFRICAN PENGUINS (*SPHENISCUS DEMERSUS*) AND THEIR RELATIONSHIP TO HABITAT TYPE AND SALT SUPPLEMENTATION

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Abstract

African penguins are common display animals in North American zoos and aquariums. At present 43 American Zoo and Aquarium (AZA) accredited institutions, maintaining over 700 African penguins, participate in a species survival plan (SSP) for this species. There are currently some institutions that maintain their birds in freshwater without salt supplementation. No associated health issues have been reported by these institutions. By assaying and comparing plasma electrolyte concentrations, this ten-month, controlled study objectively addresses the question of whether plasma electrolytes of salt supplemented African penguins maintained in freshwater differ from those of similarly maintained non-supplemented conspecifics.

Thirty-eight captive African penguins from four facilities were utilized in this study. Facilities in the United States included Mystic Aquarium, Mystic, CT; Seneca Park Zoo, Rochester, NY; and, Potawatomi Zoo, South Bend, IN (Table 1). Additionally, electrolyte data were obtained from free-ranging birds in South Africa (SA) (n=20) and long term residents (n=13) and rehabilitated oil spill birds (n=47) at the Southern African Foundation for the Conservation of Coastal Birds (SANCCOB) facility. Data were checked for normality using the Shapiro-Wilk test and found to have a normal distribution. Analysis of variance (ANOVA) and repeated measures ANOVA were used to compare means between groups as well as between time periods. This study supports the hypothesis that African penguins maintained in freshwater exhibits, on a herring and capelin based diet, do not require salt supplementation.