

Population dynamics of Adelie penguins and environmental change

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In Hukuro Cove, Lutzow-Holm Bay, Antarctica, a 5 year research project named SIPENS (Sea Ice and PENGuin Study) has been conducted. One result of particular interest in the 1998/99 periods was that the survival of chicks in this season was extremely low (as less than 400 of initial numbers). This value was much lower than those previously reported 63.3-83.2% in various areas such as Cape Royds, Cape Bird, and Cape Crozier. The purpose of this study was to clarify the possible causes of low chick survival in the 1998/99 yr period through time-series data of chick growth, trip duration and diving depth of parent birds, parent gut content weight/composition, and ice conditions around the colony. A rapid decrease in chick survival occurred during January 31 to February 15 1999, after the chicks entered the creche period. Cause of death was mostly due to starvation. This corresponded to a decrease in chick weight mass in late January. Trip duration of the parent birds in this period was 4 times longer than in the previous period. Mean wet weight of the parent gut contents was significantly lower than in the previous period. These suggest that the rapid decrease in chick survival is directly related to lower feeding frequency and decreases in the amount of food given to chicks by parents. Further discussion will be made using data on diving depth of parent birds, diet composition, and ice conditions around the colony.