Variation In Weddell Seal Pup Mass: Maternal Investment In Offspring

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Life history theory predicts that individuals face physiological tradeoffs between current and future reproduction. These tradeoffs ultimately lead to reproductive costs which can affect survival, fecundity, condition of the female and offspring survival. Reproduction itself is costly and involves a number of sequential physiological processes that require different levels of energetic investment. In mammalian species gestation and lactation require the most energy and energy expenditure during these times is a characteristic of females and can vary among individuals. Mass measurements, used to quantify pre- and post-partum maternal investment, were collected from 887 Weddell seal (*Leptonychotes weddellii*) pups at parturition and throughout lactation in Erebus Bay, Antarctica during the 2002 through 2010 field seasons. Preliminary analysis demonstrated high individual variation in pup mass within a season and modest variation among seasons suggesting that pup mass may be affected more by individual animal attributes than annual variation in environmental conditions. This variation in maternal investment was investigated using maternal traits taken from the long term database. We found that maternal traits have different affects on pup mass at different stages of investment. Maternal age and birth date were found to be influential on pre- and post-partum investment along with age at first reproduction on pre-natal investment and breeding status the previous year on post-natal investment. The variation in the influence of maternal traits on maternal investment may be due to the increased energy requirement of lactation and reproductive costs that females accrue throughout their lifetime.