

Scientists find that 'fathers do matter' for the wandering albatross

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Male albatross sitting on the nest. Credit: Tina Cornioley, University of Zurich

One of the predicted consequences of climate change is a shift in body mass distributions within animal populations. Yet body mass, an important component of the physiological state of an organism, can

affect key life-history traits such as survival, chick mass and breeding success and population dynamics. Variation in body mass distribution is expected to have consequences for the conservation of particular species.

Swansea University scientist, Professor Luca Börger has therefore been working with partners in Switzerland, France and the USA on a study led by PhD student Tina Cornioley looking at the body mass of the wandering albatross. It is a monogamous and sexually dimorphic species (males are heavier) which shares parental care and has exhibited in the last decades an increase in average body mass and breeding success in parallel to experiencing increasing wind speeds.

The study concluded that there was a clear difference between the wandering albatross sexes: male body mass enhanced performance in adult survival, breeding success, chick mass and juvenile survival whereas this was not the case for females. Adult males also had heavier sons but not heavier daughters. This suggests that a higher investment by fathers in their sons but not in their daughters can increase their overall fitness.

Speaking about the research which has just been published by the Royal Society Luca Börger, Professor of Ecology and Biodiversity said:

"Our results showed that among long-lived species, a relationship between body mass and survival can be present independently of environmental conditions. The survival of only one of the two sexes can be affected by body mass but not the other, probably due to sex-specific energy requirements. Furthermore, we showed that life-history traits related to reproduction of species with sexual size dimorphism and bi-parental care can vary exclusively with [body](#) condition of the sex contributing the most to reproduction.

"How can this happen? Theory on resolution of parental conflict over care provides a framework to explain how such a pattern may emerge: when, for the same cost to the parents, the benefits derived by the offspring produced from the care of each parent are unequal, then the parents contributing less in absolute terms (the lighter females) may not be able to compensate.

"Our results also have wider implications, which we are addressing in further research. When some life-history traits are mass-dependent, variation in [mass](#) distribution is expected to have consequences at population level. Given that [body mass](#) has been reported to have changed over the past years with wind speed in both sexes, understanding how a climate-driven change in this trait will affect [population dynamics](#) will prove crucial for the conservation of this species.

"In other words "Fathers Matter" where the wandering albatross is concerned and this may be of importance also for the conservation of this [species](#)."

More information: Tina Cornioley et al, Fathers matter: male body mass affects life-history traits in a size-dimorphic seabird, *Proceedings of the Royal Society B: Biological Sciences* (2017). [DOI: 10.1098/rspb.2017.0397](#)

Provided by Swansea University

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