

Seagulls: Are males the weaker sex?

May 7 2008

Male seagulls may be more vulnerable to their environment during embryonic development than females, according to Maria Bogdanova and Ruedi Nager from the University of Glasgow in the UK. Until now, the sex differences in developmental rate and susceptibility to unfavorable conditions during the embryonic stage in birds have received little attention. The paper has just been published in Springer's journal, *Behavioral Ecology and Sociobiology*.

In many birds, siblings hatch at different times, resulting in age hierarchies within broods, with younger chicks often suffering reduced competitive ability and poorer survival compared to older siblings. During the last phase of incubation, birds' auditory system is developed and embryos communicate with each other by auditory stimuli. These vocalizations may act as a cue for later-developing embryos about forthcoming competition, and there is evidence that they can respond to these cues by accelerating their hatching time, to reduce their age disadvantage. However, it is unclear whether this flexibility in developmental rates is sex-specific.

Bogdanova and Nager experimentally manipulated the social environment of herring gull embryos and tested whether sibling contact during the embryonic stage affects the developmental rate of males and females differently, and whether this has consequences for their post-hatching performance. The last-laid eggs – female gulls commonly lay three eggs - were incubated either alone with no information about the presence of older siblings (experimental group), or in contact with other eggs which provided information about the presence of more advanced

embryos (control group, replicating natural conditions). Post-hatching, the chicks were reared either with nest mates or alone.

The researchers found a sex-specific effect of social environment on hatching duration and fledging* condition. When incubated in isolation, males hatched faster than females but both sexes fledged in similar, relatively good, condition. In contrast, when incubated with normal between-embryo contact, males were unable to hatch as fast and fledged in significantly poorer condition than females, regardless of whether they were reared singly or in a brood.

The authors conclude that their findings confirm that there are differences in the way male and female herring gull chicks respond to the challenges of hatching at different times. It would appear that females have the upper hand.

Source: Springer

Citation: Seagulls: Are males the weaker sex? (2008, May 7) retrieved 23 April 2024 from <https://phys.org/news/2008-05-seagulls-males-weaker-sex.html>

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