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Seal Mothers Show Risk-Taking Parenting Traits With Their Pups

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Alan McStravick for redOrbit.com – Your Universe Online

A duck will carefully wade into the water before allowing her ducklings to follow suit. Bears will leave their young undercover before beckoning them into a clearing they have deemed safe. Your own mother would insist upon taking you by the hand before venturing across a city street. These are all protective acts of mothers in the animal kingdom. But not every mother necessarily subscribes to this model of parenting.

Researchers from Durham University, UK and the University of St. Andrews studied one such mother that feels engaging in riskier tactics might actually give their young a leg up, evolutionarily speaking.

The team set the focus of their study on the grey seal, whose colonies are off the coast of Scotland. They discovered that some of the grey seal mothers employ a very flexible parenting style while others in the colony chose to play it far more safely with the rearing of their pups.

This study, the first of its kind, was able to show how the mother's own personality traits could persist in the wild, rather than there being a single, successful personality type that pervades the population.

The mothers who chose to play it safe with their pups usually employed a very fixed approach to how they would rear their pups. This behavior was noted regardless of location. Safe rearing of pups was noted in crowded and busy locations, as well as in a less disturbed region. These grey seal mothers typically would rate their parenting success based on the weight gain their pups were able to achieve. Weight gain is crucial to future survival of the pup.

On the other hand, grey seal mothers who employed the more flexible approach to their mothering style would often make adjustments to their behavior based upon factors found in their local conditions. Mothering on the fly like this, in unpredictable situations, is very risky. If the gamble pays off, the pups can fare very well. However, if their risky behavior goes awry, a negative and potentially mortal outcome can befall the pups.

The team published their findings in the open source journal PLoS ONE. They were able to determine that individual animals can present varying degrees of ability to adjust their behaviors to their local environmental conditions. This ability to change behaviors shows how large variations of behavioral strategies can persist within a select species.

The researchers claim that the retention of this behavioral diversity within a species can help in making that species more resilient in the face of environmental changes. The presence of both extremes of personality shows how natural selection plays a role in the maintenance of each of these behaviors.

According to the study, their findings will be beneficial to the re-working of environmental and conservation policies. In too many cases, these policies are established with a one-size-fits-all approach and do not take into account the individual differences in animal personality.

Dr. Sean Twiss of the School of Biological and Biomedical Sciences at Durham University, and lead author on the study, said, "Some mums have a very fixed way of caring for their pups, come what may, whilst others are more flexible. Seals that 'gamble' and try to fit their behavior [sic] to their immediate surroundings can do very well, if they get it right! However, being flexible can be risky – a mum might 'mis-judge' the conditions and fail to match her behavior to the prevailing conditions."

"In either resting or disturbed situations, seal mums behaved in very individual ways, some showing high levels of maternal attentiveness, others showing low levels. Some behaved the same when disturbed as they did at rest while other individuals changed their behavior dramatically when disturbed," Twiss said in a statement.

To conduct their study, the research team ran 30-minute observations on 14 females to see how they behaved while at rest. The overall attentiveness of the mother toward her pups was determined by recording how many times in the 30-minutes she would make a pup check. A pup check, according to the researchers, is when a mother will raise her head off the ground and move it in the direction of her young in order to check their well-being.

By repeating these observations twice on each seal showed how the mothers' behaviors could vary considerably, and consistently. Some showed low levels of maternal attentiveness, while others checked their pups much more often.

To observe the mothers' behaviors and reactions to mild disturbance, the team utilized a remote-control vehicle fitted with a video camera. The vehicle would approach the colony and would project wolf calls.

The responses from the mothers varied greatly. Some would ignore it almost completely, whereas others would approach and push it with their muzzles. The numbers of pup checks made during the disturbances were considerably varied, as well.

These variances in maternal style, both fixed and flexible, can have an important effect on the pup. The mother will watch her young pup for the first 2 weeks of its life. After that point, the pup is left to its own devices for feeding and general survival. If a mother seal is able to properly fatten her pup before this time, the pup has more time in which to teach itself how to feed. This increases its overall chances for survival dramatically.

Overall, the researchers observed behaviors over a two year period. They performed their research on seals that breed on the Scottish island of North Rona. The team felt it was important to monitor their behavior in their natural habitat to accurately learn how they respond, both while at rest and during mild disturbances.

Dr. Paddy Pomeroy, co-author of the study, said, "What's really interesting about these short term tests is the way behavioral [sic] types map onto individual measures of reproductive success. If more flexible mothers are better or worse pup rearers, one of our next tasks will be to see how breeding successes and failures are apportioned over lifetimes, which can only be done in this type of study."

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