

Seals gamble with their pups' futures

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This shows a grey seal mother and pup "playing." Credit: Durham University

Some grey seal mums adopt risky tactics when it comes to the future of their young, a strategy that can give their pup a real advantage, according to scientists.

Researchers from Durham University, UK, and the University of St Andrews, looking at [grey seal](#) colonies in Scotland, found that some seal mothers are flexible in the [parenting style](#) they adopt and 'gamble' on the outcome of their actions, whilst other play it safe and steady.

The study is the first to demonstrate how variation in [personality traits](#) in large marine mammals in the wild can persist, rather than a single, successful, [personality type](#) dominating the population.

The research shows that some seal mothers have a very fixed approach

to looking after their [pups](#), and tend to behave in a similar fashion whatever the local conditions on the breeding colony are; whether they are in a crowded and busy location, or in a less disturbed situation. These mums tend to achieve average success in terms of their pups' [weight gain](#) (crucial to the future [survival](#) of the pup), so that, by-and-large, they generally do well. These mums seem to have a 'play it safe' approach to life.

Some seal mothers have a very different approach. These mums are more flexible and try to adjust their mothering behaviour according to the local conditions. In potentially unpredictable situations, this can be risky; sometimes they get it right and their pups fare very well, but other times they might get it wrong and their pups do rather badly.

The findings, published in the journal [PLoS One](#), show that individual animals can differ markedly in their ability to adjust their behaviour to their local [environmental conditions](#) and that large variations in behavioural strategies can persist within a species.

According to the researchers, the results for both extremes of personality show how different types can be maintained by selection. This retains behavioural [diversity](#) within a species, potentially making the species more resilient to environmental change.

The results are relevant to environment and conservation policies that use a one-size-fits-all approach, as these may need to be re-evaluated to take into account individual differences in animal personality, the researchers say.

Lead author, Dr Sean Twiss, School of Biological and Biomedical Sciences, Durham University, 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 behaviour 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 behaviour 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 behaviour dramatically when disturbed."

These differences in mothers' behaviour, either fixed or flexible, can have profound effects on their pups. After about 2 weeks of being looked after by their mothers, all pups are left to fend for themselves, and have to teach themselves to feed. The fatter a mum leaves her pup, the more time the pup has to learn, and its chances of surviving are better.

The scientists observed seals on the Scottish island of North Rona during the breeding season over two years. The team observed seals in their natural habitat to analyse responses to unusual stimuli (disturbances) and to assess seal behaviour at rest.

Co-author Dr Paddy Pomeroy said: "What's really interesting about these short term tests is the way behavioural types map onto individual measures of reproductive success. If more flexible mothers are better and 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."

More information: [dx.plos.org/10.1371/journal.pone.0049598](https://doi.org/10.1371/journal.pone.0049598)

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