

Tiger shark sex life fuels sustainability risk

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Credit: University of Queensland

Tiger sharks appear to be genetically monogamous – and it could be putting the species at risk.

University of Queensland research has found [tiger sharks](#) differ from many other sharks in that they don't use multiple paternity as a [reproductive strategy](#).

UQ researcher Dr. Bonnie Holmes said multiple paternity occurred when a single litter of offspring was fertilised by multiple males, resulting in pups from the same brood having different fathers – which may ultimately increase the genetic diversity of a species.

Dr. Holmes said it was previously believed this was a wide-spread reproductive [strategy](#) among sharks, with half-siblings born at the same time.

"The DNA of 112 tiger shark pups from Cairns, Rainbow Beach and the Gold Coast was tested to see if they had different fathers," Dr. Holmes said.

"Surprisingly, all pups in each litter appeared to have the same father, except one."

Dr. Holmes said this provided critical information for managing the sustainability of tiger sharks globally.

"It is the first genetic assessment of the reproductive strategy of these sharks," she said.

"On the Australian east coast, the species is targeted heavily in shark control operations, recreational game fishing activities and commercial fishing operations.

"Tiger sharks in this region may have a reduced capacity to withstand significant fishing pressure, compounded by a reproductive strategy that may make them more vulnerable to loss of [genetic diversity](#) and reductions in effective population size."

Dr. Holmes said successful mating in sharks might depend on the rate of encounter between potential mates.

"Because tiger sharks roam widely, multiple mating is probably less common as they are less likely to encounter a member of the same species."

She said further studies of tiger shark litters were required to corroborate the findings.

"Although multiple paternity is widely accepted as a common reproductive strategy in elasmobranchs (sharks, rays and skates), the frequency and prevalence may vary between species and populations.

"If [multiple paternity](#) does occur in [tiger sharks](#), it does so at extremely low frequencies within litters."

The research is published in *Royal Society Open Science*.

More information: Lack of multiple paternity in the oceanodromous tiger shark (*Galeocerdo cuvier*). *Royal Society Open Science*, [rsos.royalsocietypublishing.org ... /10.1098/rsos.171385](https://royalsocietypublishing.org/.../10.1098/rsos.171385)

Provided by University of Queensland

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