

Western Australia's Fitzroy River flow critical for survival of endangered sawfish

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Credit: Karissa Lear, Murdoch University

Changing water levels in Western Australia's Fitzroy River are impacting freshwater sawfish growth and survival, new research from Murdoch University's Harry Butler institute has found.

The study, published in *Science of the Total Environment*, found freshwater [sawfish](#) can lose around ten percent of their body mass each year during the long dry season, implying they aren't able to catch enough prey to satisfy their energy requirements.

Lead researcher Dr. Karissa Lear said the project revealed sawfish were considerably healthier in years with greater wet season river flows, allowing them to build a higher resilience to the long dry seasons that follow.

"We could physically see sawfish becoming much fatter following large floods, after they have had more opportunity to feed during periods where the river floodplains were inundated," Dr. Lear said.

"Productivity and [food availability](#) in the Fitzroy River are highly dependent on the level of wet season flooding; large floods pull in more nutrients and increase the amount of fish and crustaceans in the river for sawfish to eat. The increased weight sawfish have accumulated following bigger wet-seasons provides an important buffer for the following harsh dry season and help to prevent individuals from perishing from starvation."

Dr. Lear added that large [water](#) flows during wet seasons could also hold great economic potential for agricultural projects in the Kimberley region.

"There are currently a number of proposals for water resource development that could change river flows during the wet and dry seasons. Our data may be crucial to help inform the water resource management of the river, so that the population of sawfish in the Fitzroy, and the ecosystem as a whole, can be protected."

Sawfish are listed as Critically Endangered by the International Union

for Conservation of Nature.

Project Leader Dr. Adrian Gleiss said although it is widely known that terrestrial animals suffer from droughts, surprisingly little is known about how [aquatic species](#) respond.

"We had long assumed that the dry [season](#) is a very harsh time for sawfish, but only now are we able to see how tough these fish do have it when rivers do not flow," he said.

"Importantly, the Fitzroy River is considered one of the last bastions for a species that has disappeared from more than 60 percent of its historical distribution. Given the importance of this area for sawfish, we are pleased that our data can contribute to the sustainable management of the Fitzroy River's [water resources](#)."

More information: Karissa O. Lear et al. Wet season flood magnitude drives resilience to dry season drought of a euryhaline elasmobranch in a dry-land river, *Science of The Total Environment* (2020). [DOI: 10.1016/j.scitotenv.2020.142234](#)

Provided by Murdoch University

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