

Sea turtle's DNA records human exploitation

October 29 2013



Olive ridley turtle. Credit: Jacinto Rodriguez

(Phys.org) —Endangered and iconic sea turtles have a record in their DNA pointing to loss of genetic diversity caused by recent human exploitation, a Flinders University study has revealed for the first time.

Between 1960 and 1990, more than 2 million olive ridley turtles (as many as 350,000 in 1968 alone) and their eggs were commercially harvested along the coast of Mexico.

The study, which demonstrated the significant consequences of human overexploitation of marine life, was conducted by PhD student Jimena Rodríguez-Zárata and Professor Luciano Beheregaray from the Molecular Ecology Laboratory at Flinders University.

The work used samples from 334 turtles collected across 18 nesting sites and around 3000 kilometres of Mexico's Pacific coast.

"We not only found signal associated with recent loss of genetic diversity but two other interesting results: first, the intensive exploitation of a few nesting sites caused a reduction in genetic diversity in olive ridley [turtles](#) along the entire coastal region," Ms Rodríguez-Zárata said.

"Second, the harvesting of individuals and nests had led to a change in the behaviour of nesting females who no longer nest in synchronized and massive mode with other females. Instead, they now seek a solitary nest," she said.

Olive ridley turtle numbers are bouncing back since the introduction in 1990 of a prohibition on harvesting. The study findings, nevertheless, have important implications for marine conservation policy.

"The results serve as a guide to where to set up marine reserves, for instance," Professor Beheregaray said.

"Genetic diversity is fundamental for the persistence of species. Keeping species with high levels of [genetic diversity](#) is what is needed to ensure long-term maintenance of biodiversity," he said.

The main message for conservation, Professor Beheregaray said, was that localised human activities, as seen here at the level of the nesting colony, could have a detrimental impact at a large-scale, regional level.

"This study contributes to the notion that humans have to stop seeing the oceans as an endless source of goods and resources."

The paper has been published in the prestigious journal *Biological Conservation* and can be [accessed via this link](#).

Provided by Flinders University

Citation: Sea turtle's DNA records human exploitation (2013, October 29) retrieved 24 April 2024 from <https://phys.org/news/2013-10-sea-turtle-dna-human-exploitation.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.