Tagging aquatic animals can disrupt natural behavior

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American and Canadian researchers have for the first time quantified the energy cost to aquatic animals when they carry satellite tags, video cameras and other research instruments.

Studying fibreglass casts of sea turtles in a wind tunnel, the team found that while most commercially available tags increased drag by less than five per cent for large adult animals in the wild, these same devices increased drag by more than 100 per cent on smaller or juvenile animals.

"Many marine animals make yearlong breeding migrations crossing entire oceans, while others may rely on high speeds and acceleration – enabling them to catch prey or to escape predators," says T. Todd Jones, a scientist with the National Oceanic and Atmospheric Administration Pacific Islands Fisheries Science Center in Hawaii, who led the study while a doctoral fellow at the University of British Columbia.

"If the drag costs from carrying tags disrupts their natural behaviour, they may miss out on breeding and foraging seasons, be unable to catch enough food, or even end up becoming someone else's meal."

The study, published today in the journal *Methods in Ecology and Evolution*, also includes a universal formula that allows scientists to calculate drag for a wide range of marine species including turtles, mammals, fish, and diving birds to inform study design.

"In addition to the animal welfare and conservation implications,

excessive drag may also impede the collection of research data in the wild," says Jones, whose previous research on leatherback sea turtle physiology has improved conservation practices.

"The guidelines we've developed can help ensure that the data collected accurately reflect the animals' natural behaviours in the wild, so we can devise conservation strategies accordingly."

Provided by University of British Columbia

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