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Applying welfare science to bottlenose dolphins (*Tursiops truncatus*)

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Abstract

*Animal welfare science is a burgeoning field, but research on cetaceans (whales, dolphins and porpoises) is lacking. Bottlenose dolphins (*Tursiops truncatus*) are the most well-known and studied cetaceans, particularly in captivity, and thus are used in this review as a model for other cetacean species. Despite the public interest and need for such research, studies specifically investigating dolphin welfare are lacking. This review uses the three broad categories of behaviour, health, and cognition, to discuss how dolphin welfare has been assessed thus far, and could be assessed in future. We present welfare indicators validated in other species that could be applied to dolphins, including innovative measures, such as cognitive appraisal of emotions. We provide a summary of practical recommendations for validating the indicators of bottlenose dolphin welfare. This paper aims to stimulate further research into dolphin welfare which could improve the lives of the animals themselves and ultimately support regulatory decisions. We recommend uniting expertise in cetology and welfare science in order to develop a holistic approach to dolphin welfare assessment.*

Keywords: *affective states, animal-based measures, animal welfare, bottlenose dolphins, cetaceans, welfare assessment*