

**SHORT COMMUNICATIONS**

**SHORT UNDERWATER OPENING OF THE BEAK FOLLOWING IMMERSION IN SEVEN PENGUIN SPECIES**

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*Abstract.* Videocamera recordings of seven species of penguin, Emperor (*Aptenodytes forsteri*), Humboldt (*Spheniscus humboldti*), Adélie (*Pygoscelis adeliae*), Chinstrap (*P. antarctica*), Gentoo (*P. papua*), Macaroni (*Eudyptes chrysolophus*) and Rockhopper (*E. chrysocome*), swimming in large aquaria revealed that birds opened their beak underwater for less than a second immediately after initiating a dive. Overall, this beak-opening occurred in 64% of the immersions but, in all species, was associated with quick transitions between air and water, such as in porpoising or dives that were initiated rapidly. Two hypotheses are proposed to explain this behavior: beak-opening may be a signal that initiates bradycardia, such as is observed in unrestrained diving animals, or beak-opening may be associated with chemoreception to help detect potential prey or predators.

*Key words:* beak-opening, captive penguins, chemoreception, diving response, immersion, physiology.