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ATLANTIC BOTTLENOSE DOLPHIN (*TURSIOPS TRUNCATUS*) WHISTLE RATES AND BLOOD CORTISOL LEVELS DURING PERIODS OF PERCEIVED STRESS

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Stress is an inevitable component of life, and marine mammals are exposed to a variety of natural and anthropogenic stressors. Though physiological and behavioral responses to stress are integral to coping with adaptive challenges, prolonged activation of the stress response, typically measured by assessing glucocorticoid levels in blood, saliva, excreta, and/or integumentary structures, can lead to adverse health effects. Therefore, identifying non-invasive techniques to detect, measure, and potentially mitigate stress are crucial to marine mammal management and conservation. In this study, whistle rates were evaluated as a non-invasive indicator of stress in Atlantic bottlenose dolphins (*Tursiops truncatus*) in managed care and were quantified during medical and transport extractions, whereby subjects were removed from the water for various periods of time, and compared to cortisol blood concentration levels. Whistle rate has been shown to increase during periods of perceived stress, but this is the first paired comparison of whistle rate and cortisol levels in bottlenose dolphins. Both blood cortisol concentration and whistle rate increased significantly during extractions when compared to baseline values, validating the activation of the physiological stress response and the related vocal response. As such, whistle rate may be utilized to assess the presence/absence of stress among Atlantic bottlenose dolphins. This method is simple, non-invasive, and rapid, and has extensive management applications, including but not limited to the potential to better understand the impacts of anthropogenic activities on wild populations.