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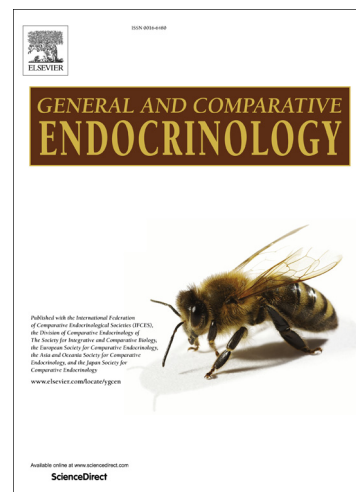
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**Adrenal responses of large whales: integrating fecal aldosterone as a complementary biomarker to glucocorticoids**

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**ABSTRACT**

Until now, physiological stress assessment of large whales has predominantly focused on adrenal glucocorticoid (GC) measures. Elevated GC concentrations in feces (fGC) are known to reflect stressful disturbances, such as fishing gear entanglement and human-generated underwater noise, in North Atlantic right whales (*Eubalaena glacialis*). However, there can be considerable variation in GC production as a function of sex and life history stage, which may confound the interpretation of fGC levels. Additionally, GC antibodies used in immunoassays can cross-react with other fecal metabolites (i.e., non-target steroids), potentially influencing fGC data. Here, aldosterone concentrations (fALD; aldosterone and related metabolites) were measured in fecal samples from right whales (total n = 315 samples), including samples from identified individuals of known life history (n = 82 individual whales), to evaluate its utility as a complementary biomarker to fGC for identifying adrenal activation. Concentrations of fALD were positively correlated with fGCs in right whales ( $r = 0.59$ ,  $P < 0.001$ ), suggesting concurrent secretion of these hormones by the adrenal gland. However, fALD levels were

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