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QUANTIFYING ENVIRONMENTAL AND ANTHROPOGENIC DRIVERS OF WEDGE-TAILED SHEARWATER
FALLOUT ON A COASTAL HIGHWAY ON EAST O'AHU

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Every fledging season (November-December) in Hawaii, Wedge-tailed Shearwaters ('Ua 'u Kani, *Ardenna pacifica*) are attracted to onshore streetlights, leading to disorientation, stranding, and death by vehicle collision or predation. We investigated whether a change in the highway lighting from incandescent orange bulbs to white LEDs in 2016 lead to a change in the number of grounded shearwaters. To assess variations in annual fallout, we conducted systematic road surveys to quantify grounded shearwaters along a 16-km section of the Kalaniana'ole Highway on east O'ahu, for 8 years: 4 before (2012-15) and 4 after (2016-19) the change of the lighting. The number of carcasses detected during surveys each year ranged from 7 to 60. A mark-recapture assessment suggests fresher (days 1 – 2) carcasses are preferentially lost to scavenging, leading to carcass underestimation by up to 50% during road surveys at 3-day intervals. This study seeks to describe spatial and temporal distribution of shearwater carcasses, investigate the environmental drivers of fallout, provide a correction for underestimation due to carcass loss, and compare fallout under two streetlight conditions. We used a multiple linear regression analysis to assess the influence of moon illumination and Julian date for each year separately and the explanatory power ranged widely, from 0-38%. This result suggests that other variables drive fallout from year to year. Going forward, we are examining the effects of wind speed, wind direction, and rainfall. Pending the analysis of the ongoing fledging season (2019), our results suggest that fallout decreased under the new streetlights, contrary to our working hypothesis of increased light attraction.