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Evaluating Spatial & Temporal Patterns of Green Turtle Distribution at a Foraging Hotspot in Kailua Bay, O‘ahu.

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In the summer of 2008 we initiated a year-long study in collaboration with NOAA Pacific Islands Fisheries Science Center to assess the significance of Kaimalino (Kailua, O‘ahu) as an aggregation hotspot for green turtles (*Chelonia mydas*). This ongoing study has two primary objectives: (i) quantifying the number of turtles using the site throughout the year, and (ii) determining their spatial and temporal distribution patterns. Mark-resight techniques are used with the Peterson estimator to evaluate the resident turtle population that utilizes Kaimalino on a seasonal basis. To achieve four discrete population estimates, turtles were marked with identification numbers in November, February, and May; the fourth marking session is scheduled for August. The resighting surveys occur < 24 days post-marking and sample different combinations of tidal phases (rising, falling) and times of the day (morning, midday, afternoon). Additionally, twelve individual turtles are being tracked using acoustic tags, and their movements are assessed in relation to tidal phases, diel cycles, and seasons. This poster focuses on the results from fall (November 2008) and winter (February 2009). These population estimates indicate a 35% decline in turtle abundance from fall (62, 95% CI 50 – 75) to winter (40, 95% CI 29 – 56), which may reflect suboptimal seasonal conditions. Despite this, individual turtles have used the site consistently throughout the study period. Additionally, all tagged individuals returned to the study site after they were released, underscoring the importance of Kaimalino for green sea turtles that utilize Kailua Bay during the juvenile stages of their lives.