
TEMPORAL ANALYSIS OF THE HONU (*CHELONIA MYDAS*) POPULATION IN KAHALU'U BAY, HAWAI'I

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Kahalu'u Bay on Hawai'i Island is an important nearshore foraging habitat for Green sea turtles (Honu; *Chelonia mydas*). Kahalu'u is a culturally and ecologically significant area as well as a cherished community gathering place. Kahalu'u Bay is home to an ancient coral reef ecosystem. This reef provides habitat for hundreds of species including threatened honu, rare corals, and endemic species found nowhere else in the world. Over the last several decades, Kahalu'u has been damaged by an increase in chronic stressors. These stressors include physical damage from over 400,000 beachgoers each year, impaired water quality from nearby cesspools and runoff, more intense and frequent marine heatwaves and damage from sea level rise. In order to better understand the dynamics of the honu population in Kahalu'u we have been using photo identification to track individual honu within the bay. Over the last 6 years we have identified 54 individuals within the bay. The majority of the honu observed were juvenile or subadults based on carapace length. Individuals were identified based on their unique facial scale patterns. Honu counts were performed, on average, 12 times per month. Each month the total number of distinct individuals were recorded as well as how often each individual was observed. These data revealed that within the honu population some individuals were observed in more than 4 months of the year (classified as residents), others were observed in 3-4 months (classified as snowbirds) and others were only observed during one or two months (classified as tourists). Of the 54 individuals, 8 have been observed every year throughout the study. The total number of honu sightings as well as to a lesser extent the number of different individuals show a distinct distribution through the calendar year, with highest numbers being observed from August through February. Data also revealed that in 2024 there was a large increase in the number of new, juvenile honu observed in the bay; 14 new individuals as compared to 1-5 in previous years. The reason for the large increase in new juvenile honu in 2024 is not clear but it is intriguing that this same year the bay experienced a very unusual and robust bloom of limu kahili (*Tubinaria ornata*), which appeared to be a favorite food of the honu. During the COVID pandemic of 2020 the dramatic decrease in visitors to Kahalu'u allowed the bay to rest. Following this rest period there was a noticeable increase in limu, one of the honu's primary food sources, covering the papa (intertidal area) at Kahalu'u. In order to help preserve this important area, The Kohala Center's ReefTeach program, a community driven stewardship effort, initiated new educational outreach coupled with explanatory signage to help keep visitors from entering the intertidal area. The success of these outreach efforts is perhaps evident in the dramatically greater numbers of resident honu that we have seen in Kahalu'u over the last two years.

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