48 hours after consumption. In the field, 35 strombid conch shell fragments, along with control water samples, were collected and swabbed for DNA in the Upper Florida Keys. Preliminary results show that predator DNA was detected on prey shell fragments both in controlled feeding trials out to 48 hours and in the wild. By integrating insights from both experimental and natural settings, this study will enable non-invasive monitoring of loggerhead and whitespotted eagle ray feeding activity and improve our understanding of their ecological impact on molluscan populations.

PROMISE OR PERIL IN A WARMING OCEAN? AN EMERGENT PATHWAY LEADS NORTH PACIFIC LOGGERHEAD SEA TURTLES INTO THE NORTHERN CALIFORNIA CURRENT SYSTEM*

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Over recent decades, the eastern North Pacific Ocean (ENP) has undergone significant climate-driven change, characterized by rising sea surface temperatures (SSTs), a northward expansion of the North Pacific Transition Zone (NPTZ), and more frequent marine heatwaves. Juvenile North Pacific loggerhead sea turtles (*Caretta caretta*), a highly mobile species sensitive to environmental variability, have emerged as a sentinel species within the region. When loggerheads migrate from the eastern subtropical gyre to coastal habitat, they do so offshore of the Baja California Peninsula, Mexico. Analysis of an extensive satellite tracking data set (n=285,1997–2023) revealed no prior observations of juveniles entering the colder, nutrient-rich waters of the northern California Current System (CCS). However, the gradual northward shift of loggerhead foraging habitat has been observed in parallel with an increasingly oligotrophic NPTZ. In 2024, four of 28 satellite-tracked individuals deviated from historic migratory routes and entered the northern CCS. To understand the physical mechanisms that enabled these novel movements, we integrated SST, chlorophyll-a concentrations, and surface current conditions experienced by these individuals and compared them to historical records within the region. During September-October 2024, these turtles reached 45°N latitude, where they encountered strong eastward flow within the North Pacific Current (NPC), thermally suitable conditions, and enhanced productivity. These conditions created a transient, high-latitude migratory corridor into the northern CCS. While three of these turtles benefited from reaching enhanced forage habitat in the California Current System, one likely suffered cold-stunning upon entry into suboptimal waters. The other 24 turtles remained south of the NPC, in the subtropical gyre. Our study represents the first confirmed use of a new, northern CCS migratory corridor by juvenile North Pacific loggerhead sea turtles. These findings expand on the conceptual framework of the 'thermal corridor

hypothesis,' which suggests that sea turtles opportunistically exploit anomalously warm conditions to reach foraging habitats along the North American coast. They also emphasize the role of additional environmental drivers, such as advective current systems, in these movements. Under accelerated climate change, such transient pathways may become increasingly prevalent, with significant implications for conservation planning and fisheries management.

DIET COMPOSITION OF GREEN (*CHELONIA MYDAS*) AND HAWKSBILL (*ERETMOCHELYS IMBRICATA*) TURTLES AT KEY FORAGING LOCATIONS IN HAWAI'I*

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Sea turtles demonstrate trophic plasticity, with interspecific and population-level variation in diet observed even across small geographic scales. Additionally, differences in the nutritional composition and digestibility of algae and seagrasses are expected to influence turtles' life history characteristics and physiological processes. Consequently, characterizing site-specific dietary patterns provides valuable insight into sea turtle ecology and supports effective conservation and management efforts. Previous research demonstrated that green turtles (*Chelonia mydas*) in Kāne'ohe Bay, a key foraging site for Hawaiian green turtles, exhibited a progressive dietary shift toward non-native algal species. However, this population's diet has not been reassessed in nearly a decade. To address this, we analyzed the forestomach contents of 42 green turtles collected in Kāne'ohe Bay in 2018–2019 and compared our results to earlier findings. We identified all food items to the lowest possible taxonomic level, measured wet mass, and calculated the frequency of occurrence among turtles (F), average percent contribution by mass (W), and Index of Relative Importance (IRI). We also provide preliminary comparisons with stomach content analyses from Hawaiian hawksbill turtles (*Eretmochelys imbricata*), a uniquely isolated population. Our results indicate that the non-native red alga *Gracilaria salicornia* is now the most frequently consumed dietary item by green turtles in Kāne'ohe Bay (F = 88.1%, W = 63.2 ± 40.8%, IRI = 88.4%), followed by *Acanthophora spicifera* (F = 35.7%, W = 16.6 ± 32.7%, IRI = 8.3%). By contrast, in 2009, *Acanthophora spicifera* was reported as the dominant dietary item (F = 64%) by Russell and Balazs. Preliminary hawksbill data similarly indicate heavy reliance on algae, with an overall diet composed of approximately 81% algae by wet weight. Analysis of trace amounts of (<1%) food items included sponges that were successfully identified as Suberites sp., a potentially native sponge, through both DNA barcoding and morphological assessments. These results show that food items from gut contents yield high-quality DNA for sequencing. Ongoing analyses will identify hawksbill prey items to finer taxonomic levels while incorporating an additional 20–30 samples. These updated findings highlight the dynamic foraging behavior of sea turtles and their potential responses to changes in prey availability. The increased dominance of G. salicornia in green turtle diets may reflect shifts in algal abundance, differential nutritional value, or selective preference for this non-native species. By providing current, quantitative data on the feeding ecology of both Hawaiian turtles, our work enhances understanding of trophic interactions in local ecosystems and informs future conservation and management strategies for these species.

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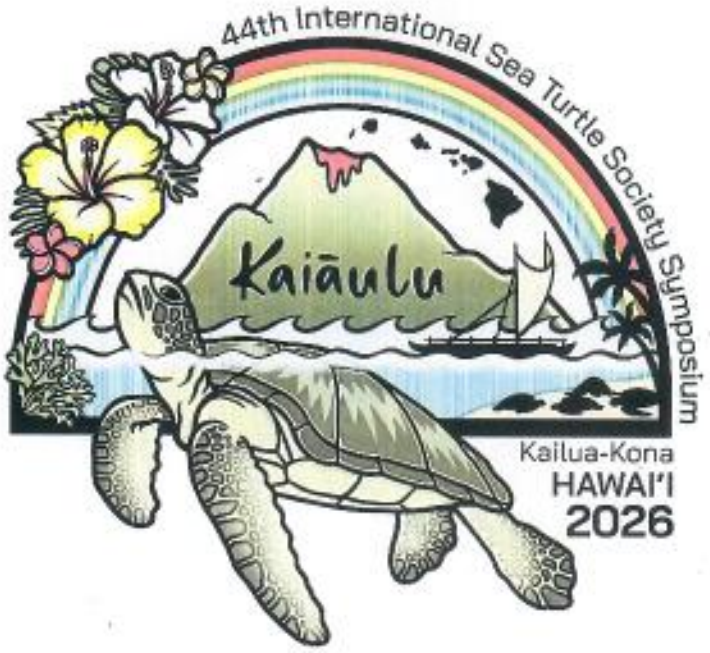

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