

Hotspots within hotspots? Aggregations of pelagic fishes at southeastern corner of Wolf Island, Galapagos.

Hearn^{1,3}, A.R., J.T. Ketchum¹, A.P. Klimley^{1*}, and E. Espinoza²

¹Dept. of Wildlife, Fish, & Cons. Biology, University of California, Davis, One Shields Ave., Davis, CA 95616

²Galapagos National Park, Puerto Ayora, Galapagos, Ecuador

³Charles Darwin Foundation, Puerto Ayora, Galapagos, Ecuador

Are pelagic species such as sharks, tuna, and billfish distributed homogeneously or heterogeneously in the oceans? Large assemblages of these species have been observed at seamounts and offshore islands in the Eastern Tropical Pacific, which are considered hotspots of pelagic biodiversity. Is the species distribution uniform these hotspots or do species aggregate at a finer spatial scale at these sites? We employ three techniques to demonstrate that the aggregations of scalloped hammerhead sharks, *Sphyrna lewini*, and other pelagic species are confined to the southeastern corner of Wolf Island in the Galapagos Marine Reserve. Coded ultrasonic beacons were placed on individuals at this site and at another aggregation site at Darwin Island, separated from Wolf by 40 km and they were detected by monitors moored at the southeastern corner of Wolf Island and not by monitors deployed at other sites surrounding the island. Hammerhead and Galapagos sharks, carrying depth-sensing transmitters, were tracked for two-day periods in a vessel and shown to reside a disproportionately large fraction of their time at the southeastern corner despite some being tagged elsewhere on the island. Visual censuses were carried out seasonally at the eight monitor sites at Wolf Island, recording the abundance of three species of tunas, four species of jacks, and many other species. The highest diversity and abundance of these species occurred in the southeastern corner of the island. Future oceanographic studies will be carried out to determine whether some aggregating species provide “a wall of mouths” to consume plankton caught in an entrainment zone up-current of the island and other species use this volcanic site with lava flows leading from it, each with a unique magnetic signature, to guide them as they migrate nightly to their offshore feeding grounds in the open ocean.

*Presenter of talk