

## MARINE RESEARCH AND MONITORING

### **Long-term research of large marine vertebrates at Turneffe Atoll, Belize**

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Oceanic Society (OS) aims to conserve marine wildlife and habitats. For more than two decades, OS has generated rigorous, site-based scientific research at Turneffe Atoll (TA) that has led to important findings on local and regional scales. Here, we summarize our long-term research projects in marine megafauna. The common goal of our work has been to investigate abundance, population trends and the potential influence of environmental and anthropogenic factors on population dynamics. Photo-identification and population demographic data of bottlenose dolphins (*Tursiops truncatus*) has been gathered intermittently since 1992, with short-term studies focusing on habitat use, site fidelity, and acoustic behavior. Antillean manatee (*Trichechus manatus*) observation data have been collected since 2001 by boat-based and aerial surveys and opportunistic encounters. In 1994, we initiated long-term monitoring of American crocodiles (*Crocodylus acutus*) using night spotlight surveys and nest counts. Finally, we conducted an in-water sea turtle census in 2013 using distance sampling methodology. To date, approximately 170 dolphins have been photo-identified, with 16 demonstrating site-fidelity for more than 22 years. A total of 116 manatee sightings have been recorded, with an estimated population of 15 individuals. Our data reveal that manatees and dolphins survive, mate and nurse regularly in TA. Forty-two crocodiles have been captured, tagged and released; while 19-50 ind/year have been spotted. Abundance observations suggest an overall reduction in the number of crocodiles but strong site fidelity of adult females. Our first baseline study of sea turtle distribution provided information about important conservation areas for sea turtles in the atoll. TA provides many suitable habitats for marine megafauna and was recently designated as a Marine Reserve. During the continuation of long-term monitoring programs, emphasis will be placed on human-induced factors that may impact the fitness of these species including runoff and pollution, boat noise, habitat loss and destruction, wildlife poaching, overfishing and bycatch.