



# Sea Turtle Research and Monitoring in Saipan, Commonwealth of the Northern Mariana Islands

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## Introduction

The Commonwealth of the Northern Mariana Islands (CNMI), Division of Fish & Wildlife (DFW) Sea Turtle Program currently covers the island of Saipan (Figure 1). The DFW has been monitoring sea turtle activity in the CNMI since 2004. The CNMI Sea Turtle Program monitors Saipan's turtle population in 4 different ways: nesting beach surveys, in-water capture, cliff-line surveys, and stranding/salvage/confiscations.



Figure 2. Jessy Hapdei measuring curved carapace length (CCL) on a nesting green turtle during a night survey.

## Nesting Beach Surveys

From 2006-2008, nesting beaches were monitored by the CNMI Division of Fish & Wildlife (DFW) Sea Turtle Program throughout the year. On Saipan, five beaches were monitored for turtle nesting activity and when turtle activity was reported by the public on a beach other than those five, that beach was then also monitored for the rest of the season. Beaches were patrolled on weekday mornings to count and identify turtle tracks and nest locations. Using these baseline data to determine where and when nesting occurs, beginning in 2009, beaches will be monitored 5 times a week from March 1 to October 31. Saipan currently hosts green turtle (*Chelonia mydas*) nesting activity, although it is believed Hawksbill turtles (*Eretmochelys imbricata*) also may have nested here in the past. When tracks are encountered on morning surveys, staff estimate when turtles will return. Night surveys are performed to apply flipper & pit tags, to take carapace measurements (Figure 2), and to photo document turtles. Clutches were inventoried at least 3 days after last observed hatching emergence. Hatched and unhatched eggs are counted (Figure 3), along with any live or dead hatchlings to calculate reproductive success.



Figure 3. DFW Sea Turtle Program staff members (from left: Chris Alepuyo, Jessy Hapdei, and Greg Camacho) perform a nest inventory.



Figure 4. DFW Sea Turtle Program staff member Jessy Hapdei surfaces from a free-dive with a hand-captured juvenile green turtle.

## In-water Capture/Foraging Ground Surveys

DFW Sea Turtle Program's in-water capture surveys occur in targeted foraging ground habitats along the fringing coral reef system of Saipan. These foraging grounds are host to juvenile and sub-adult green and hawksbill turtles. Immature turtles use these coastal fringing reef systems as shelter for resting and as feeding grounds. DFW Sea Turtle Program's in-water survey entails a free-diver trained in hand-capture techniques (Figure 4), an additional diver snorkeling in the water as a safety spotter, a boat driver, and data collector. When a turtle is captured by the free-diver, it is immediately loaded onto the boat, flipper and PIT (Passive Integrated Transponder) tags are applied if not already present, measurements are taken including: straight carapace length (SCL), straight carapace width (SCW), curved carapace length (CCL), curved carapace width (CCW) (Figure 7), head width, plastron length, weight, and photos are taken of the plastron, carapace, facial scales (head shots), and any physical abnormalities. This mark-recapture method is designed to monitor foraging juvenile and sub-adult populations for changes in growth, residency, survival rates, and recruitment into foraging habitat.

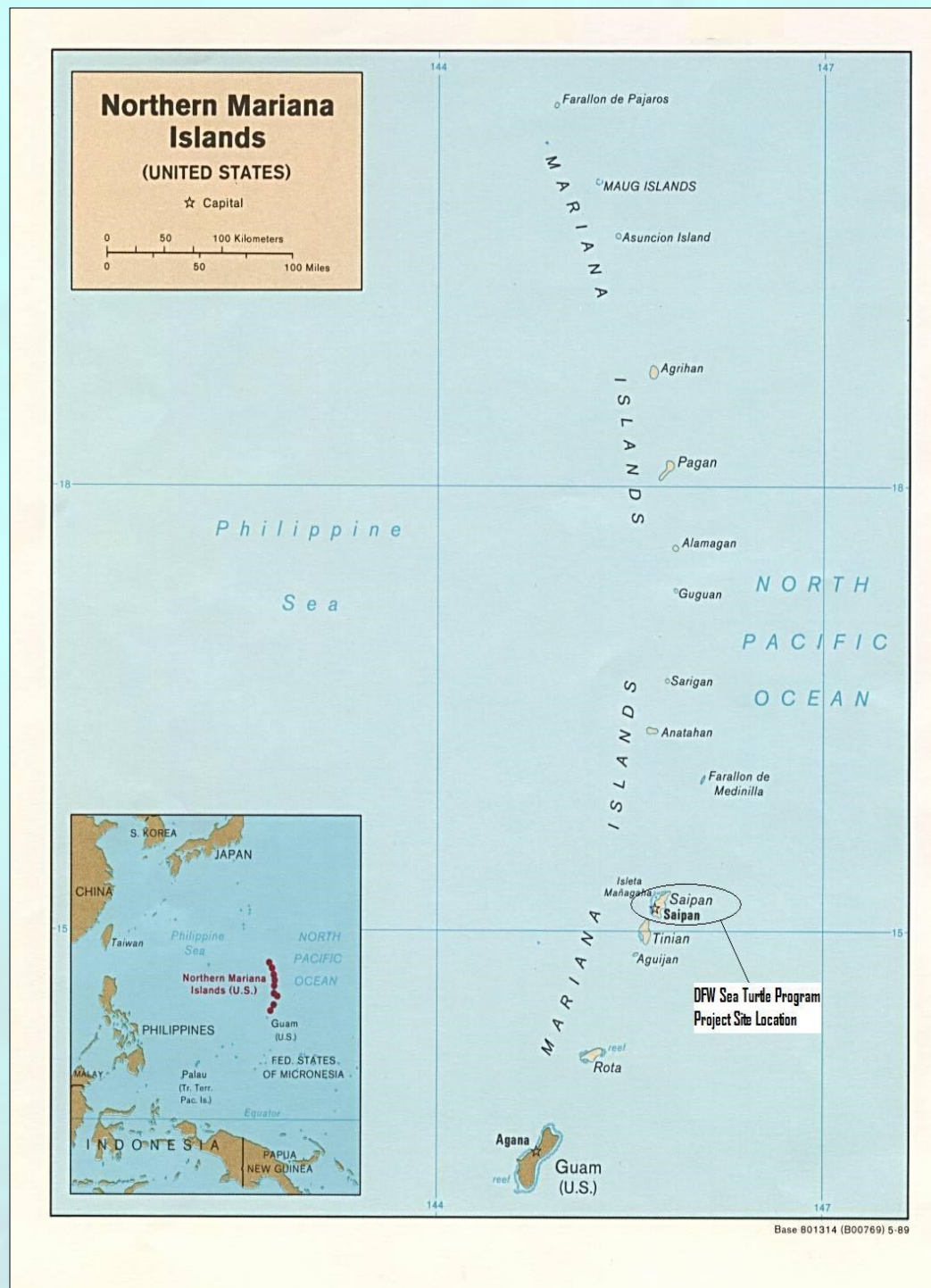


Figure 1. Map of Mariana Archipelago. Map credit: [http://www.gesource.ac.uk/worldwide/html/981\\_map.html](http://www.gesource.ac.uk/worldwide/html/981_map.html)

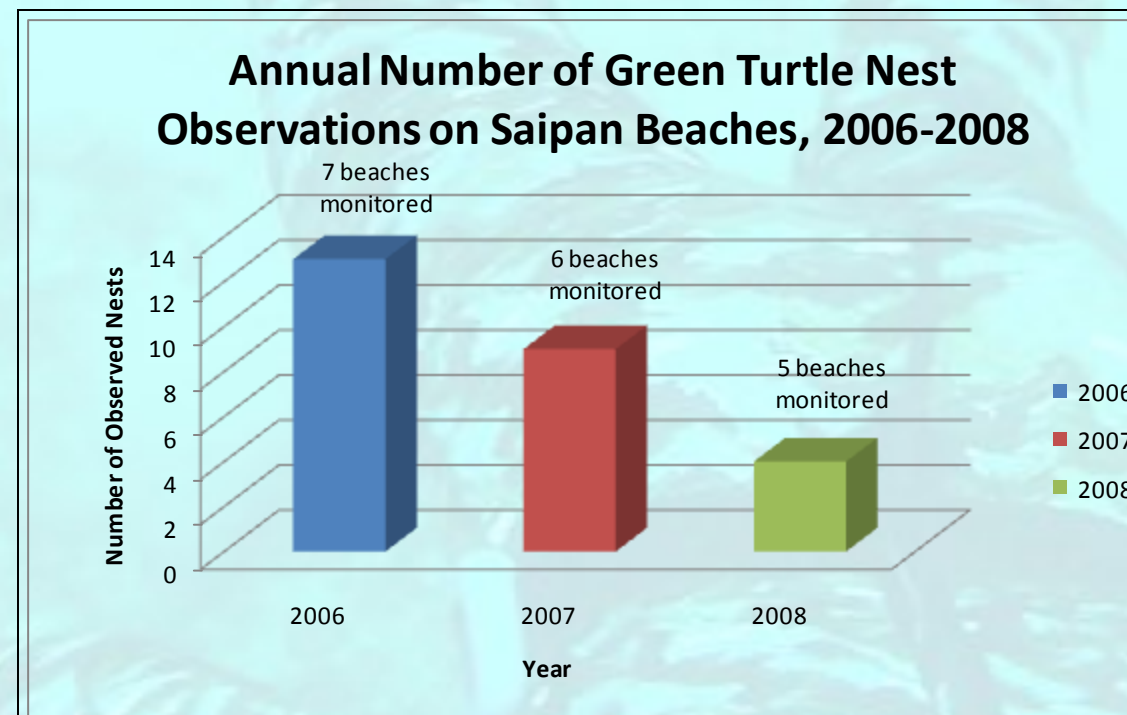


Figure 5. Number of green turtle nest observations on Saipan beaches, 2006-2008.

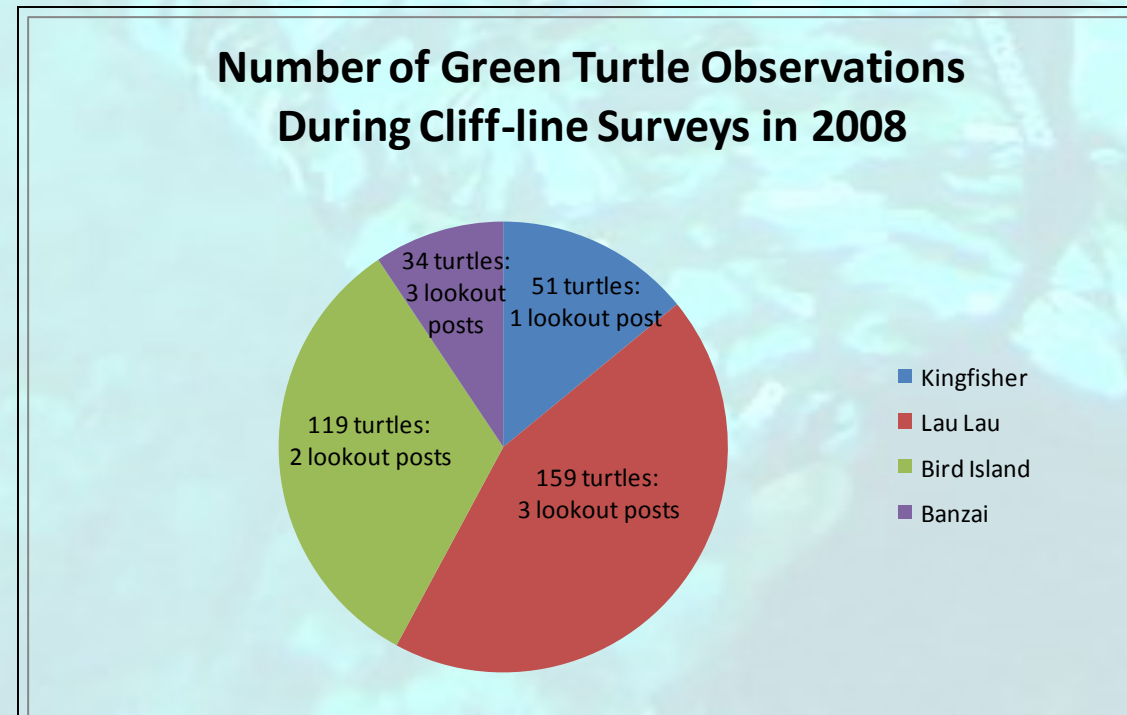


Figure 6. Displays the total number of green turtle observations during Cliff-line surveys in 2008 from 4 Saipan cliff site locations.



Figure 7. Greg Camacho and Joseph Ruak measure the curved carapace width of a juvenile hawksbill turtle.

## Cliff-line Surveys

Cliff-line surveys are performed at four locations: Lau Lau Bay Golf Resort, Kingfisher Golf Course, Banzai Cliff, and Bird Island Sanctuary. These site locations were chosen for accessibility, vantage point, and known turtle presence. Observers are positioned along cliff-lines and begin surveys simultaneously. Staff members document number turtle observations, turtle activity at time sighted (swimming, breathing, mating), amount of time turtle spends at surface, and its approximate location in relation to the cliff-side on a pre-drawn map of the study site (Figure 9).

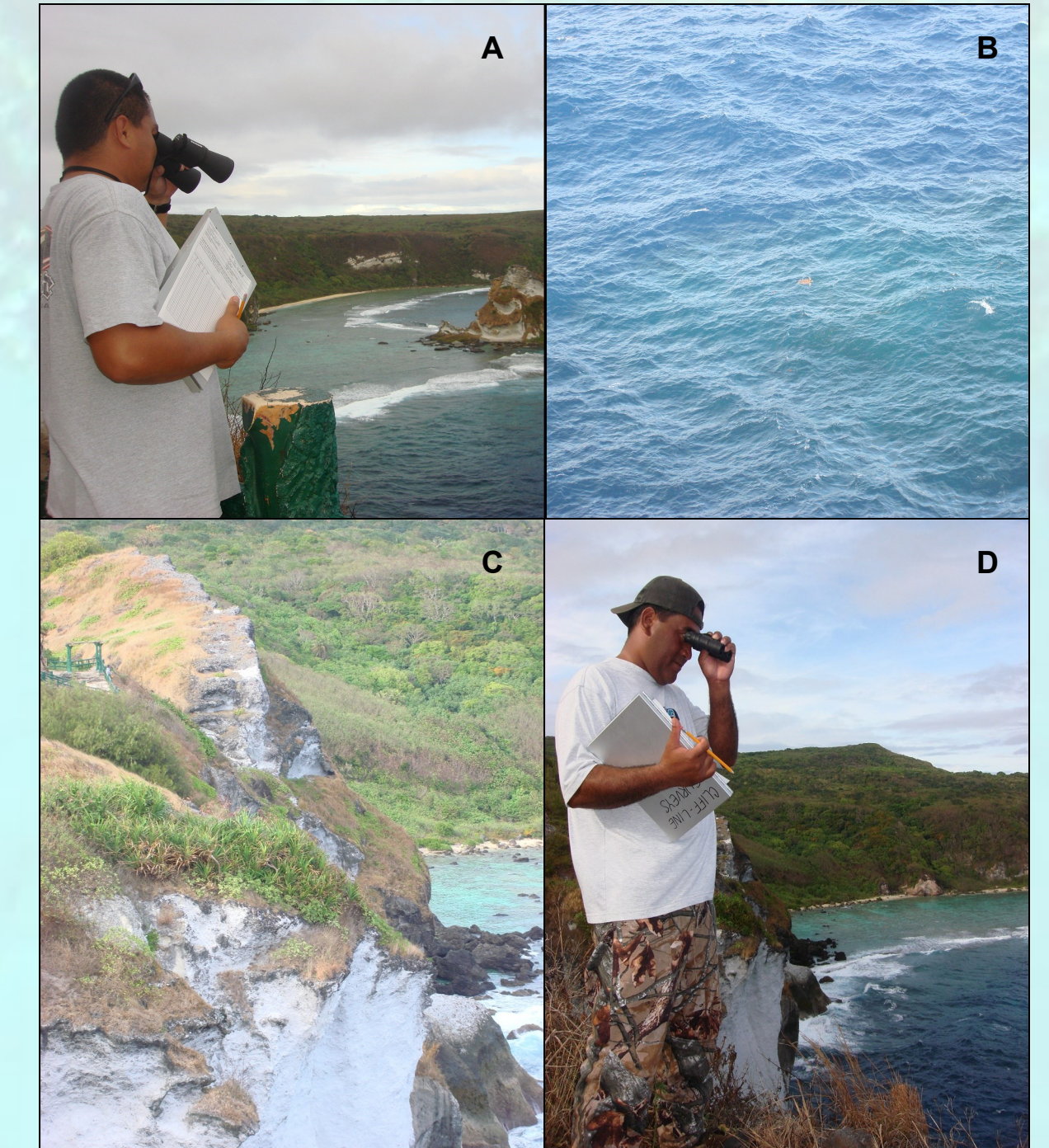


Figure 9. A. Greg Camacho performing cliff-line from the Bird Island site. B. Can you find the green turtle surfacing to breathe? C. Can you find the cliff-line surveyor? D. Jessy Hapdei performing cliff-line survey.

## Stranding/Salvage/Confiscations

The CNMI Sea Turtle Program recovers injured live or dead turtles. Staff necropsy turtles to collect tissue, bone, gut contents, and skin samples (Figure 10). These samples can yield important information about cause of death, genetic makeup, turtle age, and turtle diet composition. DFW Enforcement is responsible for enforcing the Endangered Species Act and protecting green and hawksbill turtles in Saipan from illegal activities such as poaching, consumption, and possession of turtle parts such as carapaces or jewelry (Figure 8).



Figure 8. DFW Enforcement staff members Ray Cabrera and Tony Mareham with confiscated turtle carapaces. Illegal take of turtles still occurs on Saipan.



Figure 10. Jessy Hapdei and DFW Wildlife Program staff member Marja Onni necropsy a salvaged green turtle.

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