

Marine Turtle Surveys and Captures in Guam, June 2019

Mission Report MR-19-09

June 1 – 12, 2019



Alexander R. Gaos, Ph.D.
Chief Scientist

T. Todd Jones, Ph.D.
Program Leader

Marine Turtle Biology and Assessment Program
Protected Species Division
NOAA Pacific Islands Fisheries Science Center

Mission Number: MR-19-09

Chief Scientist: Alexander Gaos (PIFSC-JIMAR MTBAP)

Operator-in-Charge: Jamie Bass (DAWR)
Todd Genereux (Gen-X Sports Charter)

Small Boat ID/Type: Justice 21-ft Boston Whaler (DAWR)
SeaArk 24-ft. aluminum hull boat (Gen-X Sports)

Mission Title: Marine turtle surveys and captures in the nearshore waters of Guam

Mission Area: Nearshore waters and reefs of Guam

Mission Dates: June 1 – 11, 2019

1. Schedule

1 June Flew to Guam (lost 1 day from crossing the International Dateline): Alexander Gaos, Camryn Allen, T. Todd Jones.

3 June Attended meeting at Guam Department of Agriculture, Division of Aquatic Wildlife Resources (DAWR) with Director (Tino Aguon), Assistant Director (Jay Gutierrez), DAWR staff, Navy, University of Guam Sea Grant, USFWS, NOAA (local representative), Jessy's Tagging Services to provide research updates and discuss survey logistics (Annex 1).

4-5 June In-water survey/capture occurred in Apra Harbor, Western Shoals, Spanish Steps and Orote Point; 0700 departed boat ramp. 1500 returned to boat ramp; Captain Jamie Bass.

6 June Field logistics; data/samples management; organization of tissue and blood samples, Satellite tag preparation.

7-9 June In-water survey/capture at Double Reef and Haputo. 0700 departed boat ramp. 1500 returned to boat ramp; Captains Todd Genereux and Brett Cornelius (Gen-X Sports).

10 June Field logistics breakdown/packing; data/samples management; organization of tissue and blood samples for transport back to Honolulu (PIFSC).

11 June Departed Guam on 11 June ChST. Arrived to HNL on 10 June HST.

Cover Photo: NOAA's Marianas collaborative marine turtle research partners after a day of field work at the Sea Plane boat ramp in Apra Harbor.

2. Mission Results

The Marine Turtle Biology and Assessment Program (MTBAP), together with local partners, conducted marine turtle surveys and in-water captures of green turtles (*Chelonia mydas*) and hawksbill turtles (*Eretmochelys imbricata*) in the nearshore waters of Guam and CNMI. Captured turtles were weighed, measured, biopsied, and tagged (i.e., flipper, PIT, satellite tracking) in an effort to expand our knowledge of the population demographics, population structure, and fine-scale habitat use of the turtles. Blood samples were also collected for two studies: 1) hormone analysis to determine population sex ratios, and 2) metabolite analysis to determine nutritional/feeding state. The aforementioned activities were permitted under National Marine Fisheries Service ESA10a1A Take permit #21260, NMFS IACUC SWPI2013-05R, and Guam Department of Agriculture License #SC-MPA-19-001. Local partners in Guam contributed to the hands-on field efforts. They continue to be engaged in this collaborative research effort. This mission included 5 days of in-water surveys and turtle captures in Guam. Weather conditions were good for all 5 days, with clear to partly cloudy skies and low wind speed (< 12 knots).

Day 1 (4 June): Survey effort was initiated within Apra Harbor, then progressed south outside of the harbor. The team departed from the Sea Plane boat ramp on the northern shore within Apra Harbor, where a local shore team was setup to process turtles. The shore team included a number of local partners, including several biologists from Guam DAWR, researchers from University of Guam Sea Grant, Navy biologists and more. A Department of Agriculture (DAR) enforcement boat operated by local conservation officers accompanied the research vessel to assist with research activities, primarily by providing transportation of turtles back to the shore team for processing. Surveys began around Western Shoals, before proceeding to Spanish Steps near the mouth of Apra Harbor, then extending to Orote Point to the south of the Harbor entrance. Observations included 15 green turtles and 2 hawksbill turtles. Four green turtles and 2 hawksbill turtles were captured and all 6 turtles were outfitted with Wildlife Computers (WC) satellite tags.



Figure 1. A: Researchers conducting snorkel surveys to observe and capture turtles off of Orote Point. B: DAR enforcement boat/crew assisting with sea turtle transport between the research vessel and shore-based processing team.

Day 2 (5 June): Surveys on day 2 progressed at the same sites and similar pace as the previous day, with efforts starting at Western Shoals, before proceeding to Spanish Steps and Orote Point. The boat-based team departed from the Sea Plane boat ramp and the shore team set up to receive turtles. Local conservation officers once again supported activities with a second vessel and brought the DAR's Director (Chelsa Muña-Brecht) to experience and partake in research activities (Figure 2B). Observations included 11 green turtles and 2 hawksbill turtles, 4 and 1 of which were captured, respectively. Three of the green turtles were outfitted with Wildlife Computers (WC) satellite tags. However, the hawksbill turtle, which had been previously captured and equipped with satellite tags on 2 separate occasions (in 2016 and 2017) and which still had its tag from 2017 (we removed for additional data retrieval), was not equipped with a new satellite tag. The 5 turtles were fully processed on shore prior to being released back at their capture sites.



Figure 2. A: The shore-based team processing sea turtles near the Sea Plane boat ramp. B: The Director of Guam's Department of Agriculture (Chelsa Muña-Brecht; far left) receiving an explanation of sea turtle research activities by contractor and sea turtle capture specialist Jessy Hapdei (far right).

Day 3 (7 June): Conditions were optimal for in-water operations at Double Reef, along the northwest coast of Guam. This area can often be difficult to survey due to prevailing ocean conditions and hence the limited number of surveys and captures from this area during previous expeditions. We worked with Gen-X Sports and took their 24-ft aluminum vessel out of the Hagatna boat basin, and transited to Double Reef. The first survey began at the northern end of the reef and ended at the southern end. However, it was followed by multiple surveys crisscrossing the reef. A total of 4 green, 2 hawksbill, and 2 undetermined turtles were observed. The two hawksbills were captured and equipped with satellite tags (Figure 3A). The team processed all turtles onboard the research vessel (Figure 3B) before releasing them in the vicinity of their original capture location.

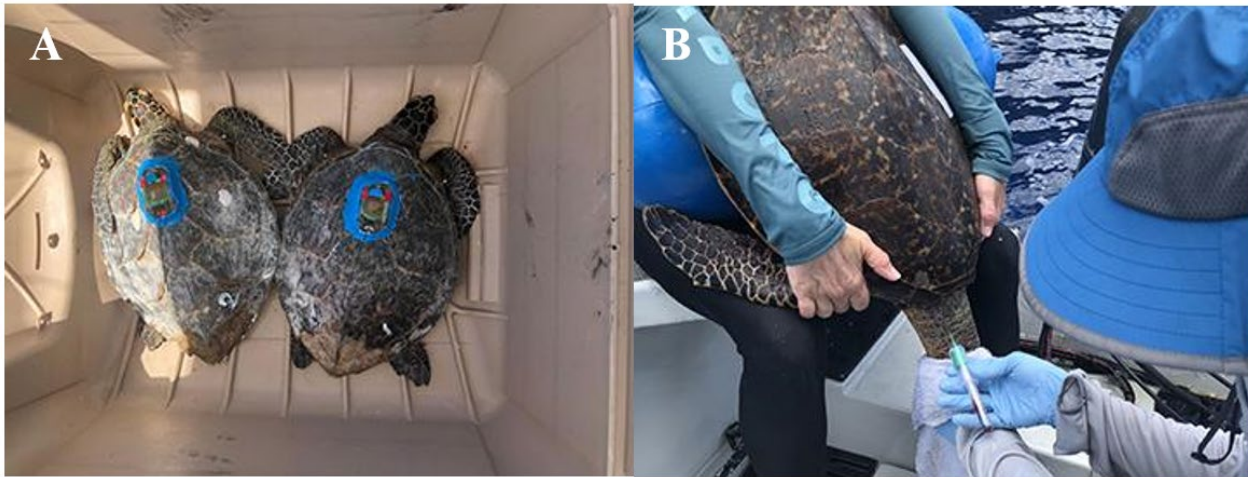


Figure 3 A: Two hawksbills captured and equipped with satellite tags at Double Reef, along the northwest coast of Guam. B: Dr. Camryn Allen drawing blood from a hawksbill turtle onboard the research vessel.

Day 4–5 (8–9 June): Conditions were again optimal for in-water operations along the northwest coast of Guam, so we focused in-water survey efforts at Double Reef and the adjacent Haputo site during both days (Figure 4A). Each day we first conducted surveys at Double Reef, followed by Haputo, then again at Double Reef. On 08 June we observed 6 green and 2 hawksbill turtles, while on 09 June we observed 6 green and 3 hawksbill turtles. We were only able to capture 1 turtle during both days, which was a green turtle that was captured on the first of the 2 days and that was equipped with a satellite tag and released (Figure 4B). Although the reef habitat along this part of the island is in excellent condition, the area is reportedly overfished and was fairly heavily trafficked (tourists, spear fishers, etc.) during our time in the area. We believe the relatively high fishing activity has conditioned turtles to be particularly wary of divers, thus making the turtles more difficult to capture.

During all 5 in-water survey days, the team observed a total of 55 turtles, 14 of which were captured, and 12 of which were outfitted with satellite transmitters (Table 1).

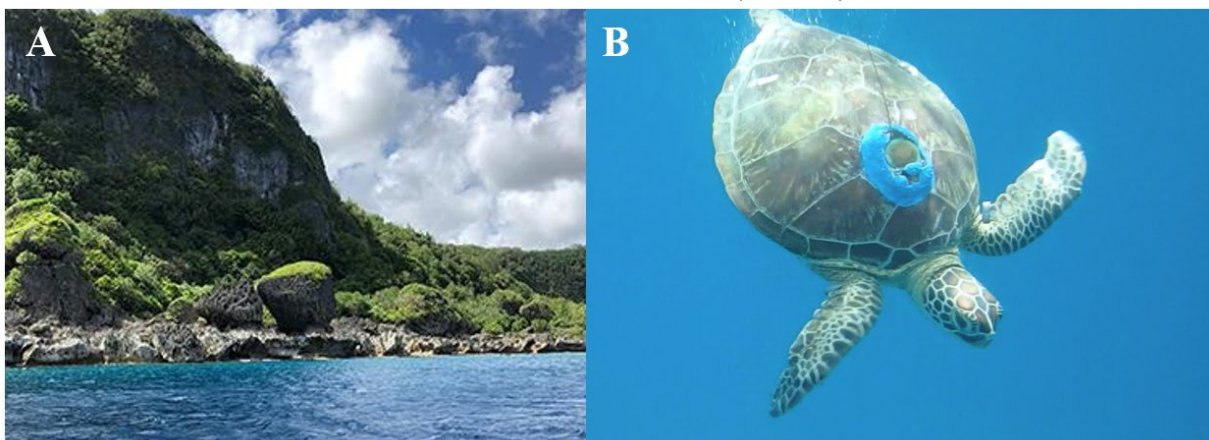


Figure 4. A: The coastline and habitat near Double Reef and Haputo along northwest Guam. B: A fully processed green turtle with a satellite tag released in the waters near Double Reef.

Table 1. Summary of in-water survey effort, observations, captures, and satellite tags deployed. Cm = green turtle (*Chelonia mydas*). Ei = hawksbill turtle (*Eretmochelys imbricata*). Unk. = unknown turtle species (either Cm or Ei). No cetaceans (Cet.) were observed during these surveys.

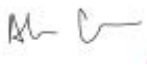
Date	Island	Location	Observations				Captures		Sat. Tags	
			Cm	Ei	Unk	Cet.	Cm	Ei	Cm	Ei
6/4	Guam	Apra Harbor/Orote Point	15	2	0	0	4	2	4	2
6/5	Guam	Apra Harbor/Orote Point	11	2	0	0	4	1	3	0
6/7	Guam	Double Reef	4	2	2	0	0	2	0	2
6/8	Guam	Double Reef/Haputo	6	2	0	0	1	0	1	0
6/9	Guam	Double Reef/Haputo	6	3	0	0	0	0	0	0
Totals			42	11	2	0	9	5	8	4
TURTLES			55 observations				14 captures		12 sat. tags	

3. Field Party

Name	Role	Organization
Alexander Gaos	Chief Scientist	NOAA PIFSC
Camryn Allen	Researcher	NOAA PIFSC
T. Todd Jones	Researcher, Program Lead	NOAA PIFSC

Some of the local participants during the surveys included Jamie Bass, Frank Manibusan, CJ Cayanan, and Carlos Quintanilla (DAWR), Tammy Summers (USFWS), Jessy Hapdei (Jessy's Tagging Services), Josefa Munoz (University of Guam Sea Grant), Jennifer Horeg (Navy), as well as several other representatives from local and Federal agencies.

4. Approvals

Submitted by:  Digitally signed by Alexander Gaos
Date: 2019.11.12 11:12:49 -10'00'

Alexander R. Gaos, Ph.D.
Chief Scientist
Pacific Islands Fisheries Science Center

Approved by: SEKI.MICHAEL.PAUL  Digitally signed by SEKI.MICHAEL.PAUL YUKIO.
Date: 2020.01.09 08:22:08 -10'00'

Michael P. Seki, Ph.D.
Science Director
Pacific Islands Fisheries Science Center