

NOAA Pacific Islands Fisheries Science Center

Mission Report

Mission Number: MR-17-13

Chief Scientist: Summer Martin (PIFSC MTBAP)

Operator-in-Charge: Jamie Bass (Guam Division of Aquatic & Wildlife Resources—DAWR)

Small Boat ID/Type: Guam DAWR 21-ft Boston Whaler Justice

Mission Title: Marine Turtle Surveys and Captures in Guam

Mission Area: Guam including nearshore waters of Naval Base Guam (Apra Harbor), Piti, Dadi Beach, and Orote Point

Mission Dates: May 13 – 24, 2017



1. Schedule

- 13 May Flew to Guam (lost 1 day from crossing the International Dateline):
Summer Martin (PIFSC), Camryn Allen (PIFSC), Irene Kelly (PIRO), Julia Smith
(NIST/HPU)
- 15 May Attended meeting and “Haggan (‘turtle’) Huddle” at Guam DAWR (Director of
Agriculture – Matt Sablan; DAWR Chief – Tino Aguon; DAWR Assistant Chief – Jay
Gutierrez; DAWR Fisheries lead – Tom Flores; DAWR Wildlife lead – Diane Vice;
DAWR biologists; NOAA Law Enforcement; US Navy; USFWS; US Air Force;
University of Guam Sea Grant); provided updates on research results, manuscripts in
progress, and active satellite tags; facilitated roundtable discussion/updates on all turtle
conservation and research activities on Guam
- 16-19 May In-water survey/capture inside Apra Harbor and outside from Dadi Beach to Piti; 0730
depart Seaplane boat ramp — 1700 returned to boat ramp; Captain Jamie Bass (DAWR)
- 20-21 May Community engagement, data review and processing, logistics
- 22-23 May In-water survey/capture inside Apra Harbor and outside from Dadi Beach to Piti; 0730
depart Seaplane boat ramp — 1700 returned to boat ramp; Captain Jamie Bass (DAWR)
- 23 May Debrief meeting with Jay Gutierrez (Assistant Chief, DAWR) and supplies meeting
with Shawn Wusstig (Sea Turtle Coordinator, DAWR Fisheries)
- 24 May Departed Guam on 24 May ChST, arrived in Honolulu 23 May PST

Cover Photo: Application of a satellite tag on a juvenile green turtle in Guam by partners from PIFSC, Guam DAWR, PIRO, and Saipan. From left: Summer Martin (PIFSC), Jay Gutierrez (Assistant Chief, Guam DAWR), Irene Kelly (PIRO), Jun Ducusin (Guam DAWR biologist), Jessy Hapdei (contract diver from Saipan), and Frank Manibusan (Guam DAWR biologist).

2. Mission Results

The Marine Turtle Biology and Assessment Program, 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. 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 three studies: 1) hormone analysis to determine population sex ratios, 2) metabolite analysis to determine nutritional/feeding state, and 3) toxicology and archival samples for the National Institute of Standards and Technology's Biological and Environmental Monitoring and Archival of Sea Turtle Tissues. The aforementioned activities were permitted under National Marine Fisheries Service ESA10a1A Take permit #17022, NMFS IACUC SWPI2013-05R, and Guam Department of Agriculture License #SC-MPA-17-010. Additionally, Guam DAWR biologists were once again provided with hands-on training. Local partners in Guam continue to be engaged in this collaborative research effort.

This mission included 6 days of in-water surveys and turtle captures in Guam. Activities were focused on the nearshore waters of Apra Harbor and the reefs just north and south of Apra Harbor. Good weather permitted survey effort on all planned in-water days, with successful operations in a previously unsampled area on the north side of Apra Harbor (Outer Glass Breakwater to Camel Rock, including Piti Bomb Holes). Small boat operations were conducted each day from Seaplane Ramp on the north side of Apra Harbor. Captured turtles were brought back to shore for processing and satellite tagging and released later at their capture sites. Several local partners outside the core research team joined at Seaplane Ramp each day to participate in research activities, engage with the research team, and/or benefit from training opportunities. Navy media personnel also joined the team on throughout the week to take photos and videos and conduct interviews for a local Navy environmental stewardship TV program called "Can you dig it?"

On Day 1 of in-water research, the team surveyed Orote Point on the south side of Apra Harbor and captured 4 juvenile green turtles. All turtles were equipped with Wildlife Computers SPLASH 297A satellite tags with Fastloc GPS capability and temperature and depth sensors.

Day-2 surveys were concentrated inside Apra Harbor on Western Shoals and the stretch of shore from the Japanese Fuel Pier near San Luis Beach down to Gab Gab Beach and Kilo Wharf on Naval Base Guam. The team captured 3 juvenile green turtles, 2 of which were equipped with SPLASH tags and 1 with a mini-SPOT 311A tag (Argos locations only; used on 35–45 cm turtles). One subadult hawksbill turtle with an active satellite tag was also recaptured for the purpose of monitoring growth rates, collecting a blood sample, and cleaning and repainting its SPLASH tag. Over the last year, the tail on this 71-cm turtle grew 6 cm to 28 cm, suggesting it is a maturing male. Hormone analysis from blood collected one year ago corroborates this observation, with high testosterone levels indicating it is male.

Day-3 surveys were conducted along Dadi Beach south of Apra Harbor. The team captured 10 green turtles and deployed 4 SPLASH tags and 1 mini-SPOT tag.

Day-4 surveys were conducted north of Apra Harbor along Outer Glass Breakwater and along the outer reef from Camel Rock to the Piti Bomb Holes area. There were few turtle observations except at southern end of the Piti Bomb Holes area, where the divers observed both hawksbill and green turtles.

One juvenile green turtle was captured in this location and equipped with a SPLASH tag; this was the first turtle ever captured north of Apra Harbor.

On Day 5, the team concentrated its survey effort in the Piti area (north of Apra Harbor) where the team had observed the most turtles on Day 4. This effort was productive, with 7 juvenile/subadult green turtles captured (2 over 50 cm and 5 over 60 cm) and equipped with SPLASH tags.

Day 6 surveys were conducted inside Apra Harbor along at Inner Glass Breakwater and outside again along Orote Point just south of the harbor. The team captured 1 small (46 cm) hawksbill turtle at Inner Glass Breakwater and deployed a mini-SPOT tag on it. Along Orote Point, 2 additional hawksbill turtles were captured and both equipped with SPLASH tags. One of them (56 cm) was a recapture carrying an inactive SPLASH tag; the team retrieved the old tag and will download the fine-scale habitat use data for further analysis.

Over the 6 in-water days, the team observed a total of 77 turtles, 29 of which were captured, and 23 of which were outfitted with satellite transmitters (Table 1 provides details on effort, observations, captures, and satellite tag deployments).

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 were observed during these surveys.

	Guam	Observations				Captures		Satellite Tags	
Date	Location	<i>Cm</i>	<i>Ei</i>	<i>Unk.</i>	<i>Cetac.</i>	<i>Cm</i>	<i>Ei</i>	<i>Cm</i>	<i>Ei</i>
5/16	Orote	13	0	0	0	4	0	4	0
5/17	Apra	12	1	1	0	3	1	3	0
5/18	Dadi	11	0	0	0	10	0	5	0
5/19	Piti	5	2	0	0	1	0	1	0
5/22	Piti	19	0	0	0	7	0	7	0
5/23	Apra/Orote	5	4	4	0	0	3	0	3
Totals		65	7	5	0	25	4	20	3
TURTLES		77 observations				29 captures		23 sat. tags	



Photo: Field team working together to deploy satellite tags on marine turtles in Guam. From left: Jun Ducusin (DAWR), Camryn Allen (PIFSC MTBAP), Shawn Wusstig (DAWR), CJ Cayanan (DAWR), Eric Cruz (PIFSC SciOps), Jane Boyer (PIFSC SciOps), Vince Pangelinan (PIFSC SciOps), community member, Jessy Hapdei (CNMI DLNR / contract diver).

3. Field Party

Name	Role	Organization
Summer Martin	Chief Scientist	NOAA PIFSC
Camryn Allen	Researcher	NOAA PIFSC
Irene Kelly	Sea Turtle Recovery Coordinator	NOAA PIRO
Julia Smith	Biological Technician	NIST/HPU

Local participants during the surveys included: Jay Gutierrez (Guam DAWR Assistant Chief), Shawn Wusstig (Guam DAWR sea turtle lead), Jamie Bass (Guam DAWR boat captain/biologist), Jun Ducusin, Frank Manibusan, and CJ Cayanan (Guam DAWR biologists), Tammy Summers (Naval Base Guam biologist), Jessy Hapdei (CNMI DLNR diver/biologist). Other representatives from local and federal agencies also participated in the field effort.

4. Approvals

Submitted by: Summer L. Martin 5/31/2017
Summer L. Martin Date
Chief Scientist
Pacific Islands Fisheries Science Center

Approved by: Michael P. Seki 7/23/17
Michael P. Seki, Ph.D. Date
Science Director
Pacific Islands Fisheries Science Center