

Using Mototool Marks to Monitor Post-Release Behavior of Green Sea Turtles (*Honu - Chelonia mydas*) on Maui

McKenzie E. Mungai¹, Thomas J. Cutt¹, Chanel Y.K. Browne¹, Summer L. Martin², Irene K. Kelly³, George H. Balazs⁴

¹Maui Ocean Center Marine Institute, Wailuku, Hawai'i, USA

²National Oceanographic and Atmospheric Administration, Pacific Islands Fisheries Science Center, Marine Turtle Biology and Assessment Program, Honolulu, Hawai'i, USA

³National Oceanographic and Atmospheric Administration, Protected Species Division, Pacific Island Regional Office, Honolulu, Hawai'i, USA

⁴Golden Honu Services of Oceania, Honolulu, Hawai'i, U.S.A.

USFWS Permit #: TE-72088A_3
NOAA Permit #: 21260



Photo: Don McLeish

Mototool marks are a tagging method using an alphanumeric etching on the costal scutes of sea turtles. The marks can be used to monitor migratory patterns, distribution, and post-release behavior of sea turtle rehabilitation patients. The mark has proven to be a cost-effective and accessible method to involve the community in sea turtle conservation efforts in the Hawaiian Islands.

MOC Marine Institute Responds to Reports, Rescues, and Rehabilitates Sick and Injured Sea Turtles

Under a collaborative agreement with NOAA Fisheries, Maui Ocean Center Marine Institute (MOCMI) maintains a stranding response hotline and responds to reports, rescues, and rehabilitates sick and injured sea turtles on Maui. Upon release, each turtle receives Passive Integrated Transponder (PIT) tags in their hind flippers and an alphanumeric etching on the costal scutes.



Figure 1. MOCMI staff biologist etches a mototool mark on a sea turtle patient's carapace using a high-speed (20,000 rpm) dremel.



Figure 2. Using non-toxic paint, MOCMI staff biologist paints the grooves of the mototool etching.



Figure 3. Sea turtle patient M298 is released at Waikeolu Beach Park in Maui, Hawai'i.

Mototool Marked Turtles, 2019 – 2022

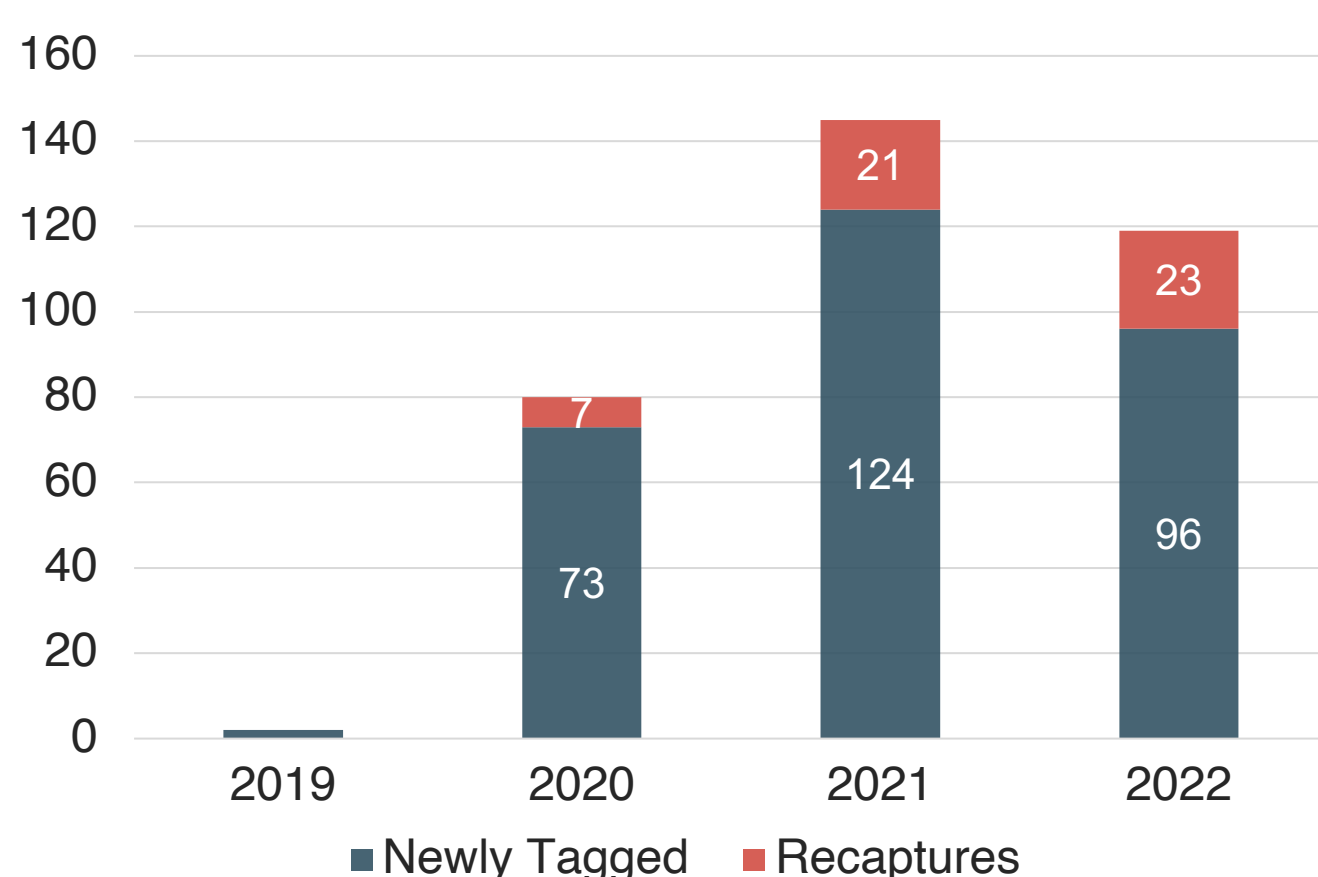
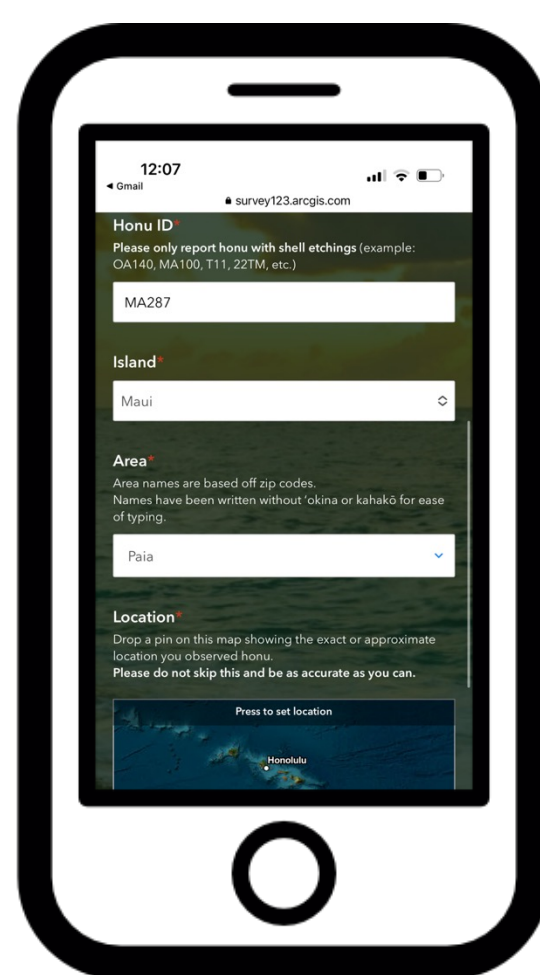


Figure 4. Between 2019 and 2022, MOCMI mototool marked 295 green sea turtle patients. 51 patients were recaptured (re-stranded).

Community Science Reporting Program



Through MOCMI's re-sighting program and NOAA's Honu Count Program, the community is encouraged to identify marked turtles and report their sightings through MOCMI's Tagged Turtle Reporting Form and NOAA's Honu Count Sighting Survey.

1,229 Marked Turtles Reported, 2019 - 2022

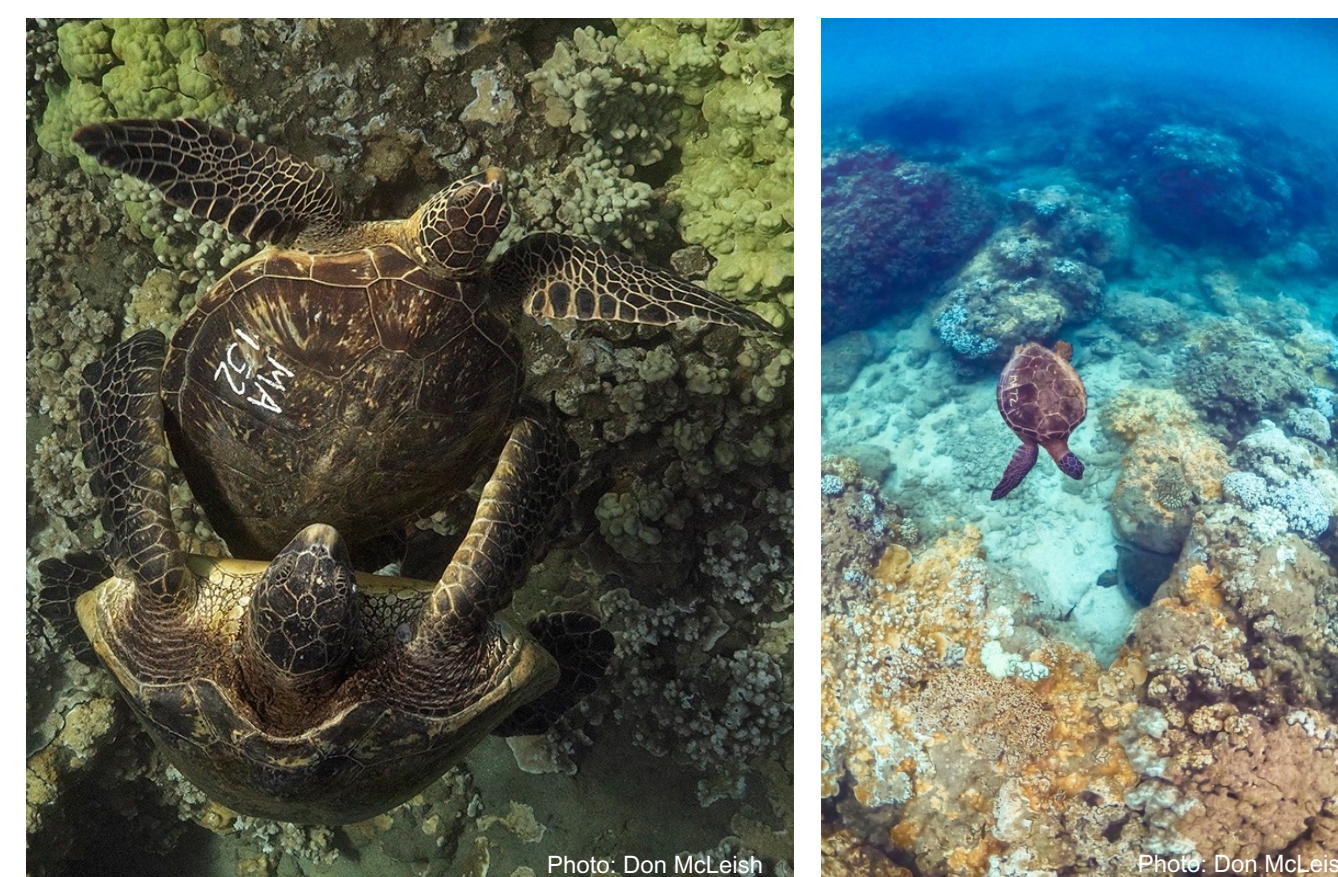


Figure 5. (left) MA152, observed mating in Lāhainā, Maui; (right) MA72, observed swimming in Lāhainā, Maui.

Case Study 1: Rehabilitation Patient MA100



Figure 6. Green sea turtle patient, MA100. February 6, 2023, Maui, Hawai'i.

Table 1. MA100 Stranding and Recapture History

Stranding Date	Stranding Cause	Location	CCL (cm)	Mass (Kg)
03/19/2021	Foul-Hooked	Kahekili Beach Park, Lāhainā	43.0	12.5
10/19/2021	Foul-Hooked	Black Rock, Lāhainā	51.3	15.6
12/19/2021	Foul-Hooked	Black Rock, Lāhainā	52.5	15.9
02/05/2023	Foul-Hooked	Black Rock, Lāhainā	59.0	24.8



Photo: MOC Marine Institute



Photo: MOC Marine Institute



Photo: MOC Marine Institute

Figure 7. (left) Green sea turtle patient, MA72, stranded due to braided fishing line entanglement, 11/05/2020; (middle) MA72 post-amputation surgery, 11/06/2020; (right) MA72 released after 26 days of rehabilitation.



79 Community Sighting Reports

- Basking: 7 reports
- Resting underwater: 10 reports
- Swimming: 59 reports
- Foraging: 3 reports

Figure 8. Reported sighting locations for MA100, Maui, HI.



65 Community Sighting Reports

- Basking: 7 reports
- Resting underwater: 4 reports
- Swimming: 46 reports
- Foraging: 8 reports

Figure 9. Reported sighting locations for MA72, Maui, HI.