



**MARINE INSTITUTE**  
MAUI OCEAN CENTER

# Annual Impact Report 2024



**MOC Marine Institute**  
192 Mā‘alaea Road  
Wailuku, Hawai‘i 96793  
[www.mocmarineinstitute.org](http://www.mocmarineinstitute.org)





Photo: Don McLeish



**MARINE INSTITUTE**  
MAUI OCEAN CENTER

## TABLE OF CONTENTS

5	MISSION
6	MEET THE TEAM
8 - 10	SEA TURTLE 2024 OVERVIEW
11 - 12	SEA TURTLE STRANDINGS HISTORICAL
13 - 14	RESCUE & INTAKE
15 - 17	MEASUREMENTS
18 - 19	BLOOD TESTING
20	INTERACTIONS WITH FISHING GEAR
21	STRANDING MAPS
22 - 25	2024 SUMMARY OF REHAB
26	CORAL PROGRAM OVERVIEW
27-28	CORAL PROJECTS
29	EDUCATIONAL PROGRAMS
30	THREAT REDUCTION
31	PARTNERS



**For more information, please contact:**

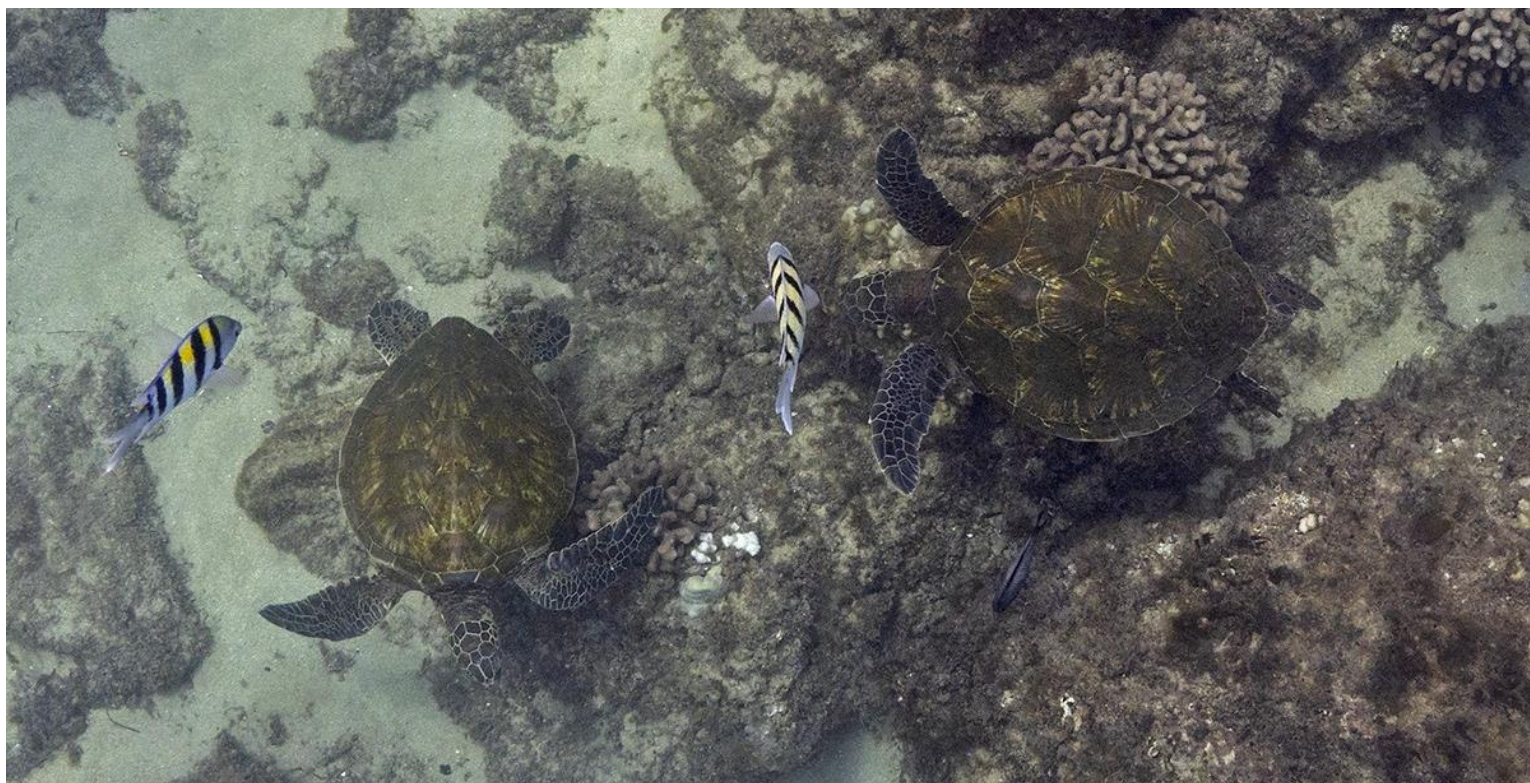
MOC Marine Institute  
192 Mā‘alaea Road  
Wailuku, Hawai‘i 96793

Dustin Paradis, Executive Director  
[dustin@mocmarineinstitute.org](mailto:dustin@mocmarineinstitute.org)

Tapani Vuori, President & Founder  
[tvuori@mocmarineinstitute.org](mailto:tvuori@mocmarineinstitute.org)

**For citation purposes, please use:**

*Paradis, D., Ryon, D., Mayen-St. Louis, Y. (2025). MOC Marine Institute, 2024 Annual Impact Report. Wailuku, HI: Marine Institute at Maui Ocean Center.*



**Figure 1.** Hawaiian green sea turtles swimming the reef. 2024 Maui, Hawaii. Photo: Don McLeish





MARINE INSTITUTE  
MAUI OCEAN CENTER



## Our Mission

---

To inspire lifelong environmental stewardship and ensure the survival of sea turtles and coral reefs in Hawai'i through science-based conservation efforts, education, and outreach.

Photo: Don McLeish

## Sea Turtle Conservation Team

### MOC Marine Institute Staff (as of December 31, 2024)



**Paul McCurdy**  
Veterinarian



**Dustin Paradis**  
Executive Director



**Darby Ryon**  
Volunteer Coordinator



**Ylenia St-Louis**  
Sea Turtle Technician



**Katie Ornelas**  
Sea Turtle Technician

### Volunteer Lead Responders

Alan Espiritu  
Bruce Weyermann  
Don McLeish  
Cheryl King

### Volunteers

Nic Abele, Helen Baillargeon, Shawn Caley, Ty Clark, Meryl Cohen, Rebekah Colletti, Grace Collins, Lydia Cox, Elizabeth Cummings, Crystal Darling Green, Mark Deakos, Derek DeCrausauz, Kristen DeCrausauz, Mikaela Dibble-Kahn, Jennifer Donaldson, Adrian Dougherty, Gabriela Echeverry, Cherri Gallison, Dave Gallison, Ashley Getz, Keala Giblin, Dana Grad, Theresa Greek, Katrina Guiry, Greg Helton, Krista Hinchman, Liselott Hitz, Peyton Hoge, Micaela Hogger, Louis Jarvis, Emerald Johnson, Brandon Kagrise, Carolyn Kaya, Karen Krenz, Regine Lang-Miles, Amanda Loyd, Caroline Long, Kate Lynch, Jeanette MacNaughton, John MacNaughton, Travis Matteson, Kristina McHugh, Lucia Mckinnon, Bob Melody, Doug Metzger, Jonelle Metzger, Mary Michels, Ryan Murdock, Jonathan Nellis, Rose Nellis, Kayla Nieves, Maria Norman, Jodi Orosz, Barbara Payne, Mackenzie Perillo, Jack Premzic, Abigail Pyne, Daniel Reyes, Katrina Rodenberger, Steve Roe, Samantha Seitz, Brie Singleton, Melanie Terrazas-Lopez, Eduarda Torres, Isabella Troxell, Derrick Valdez, Suparna Vashisht, Jillian Vince-Cruz, Mark Webb, Anita Wintner



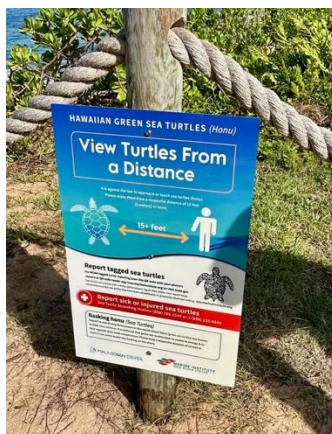
## Sea Turtle Conservation



## Coral Reef Conservation



## Conservation Through Education





## Partnership with NOAA Fisheries

Sea turtle stranding response activities operate under the authority of NOAA National Marine Fisheries Service (NMFS) Pacific Islands Regional Office (PIRO) and the Pacific Islands Fisheries Science Center (PIFSC). MOC Marine Institute is an authorized agent of NMFS for the purposes of responding to stranded sea turtles: 50 CFR 222.310; 50 CFR 223.206; 50 CFR 17.21; and 50 CFR 17.31.

## Sea Turtle Stranding Data

This report contains information on documented injured, sick, distressed, or expired sea turtles on the island of Maui, Hawai'i from 1 January to 31 December 2024. Some of the data presented throughout this report is preliminary and based on field assessment, not necropsy.

Scientific Name	Abbreviation	Common Name
<i>Chelonia mydas</i>	Cm	Green sea turtle
<i>Eretmochelys imbricata</i>	Ei	Hawksbill sea turtle

**Table 1.** Common name equivalents to scientific names and abbreviations given throughout this report.



**Figure 2.** Hawaiian Green Sea Turtle off the coast of Maui, Hawaii, 2024. Photo by Don McLeish.



## 2024 Overview



**237**

Documented  
stranded sea turtles



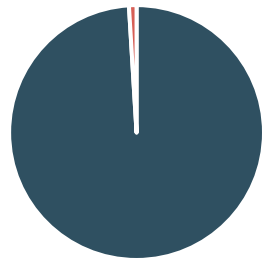
**78%**

Interactions with  
fishing gear



**32**

Long-term  
rehabilitation cases



**233**

Green sea turtles

**4**

Hawksbill sea turtles

**5**

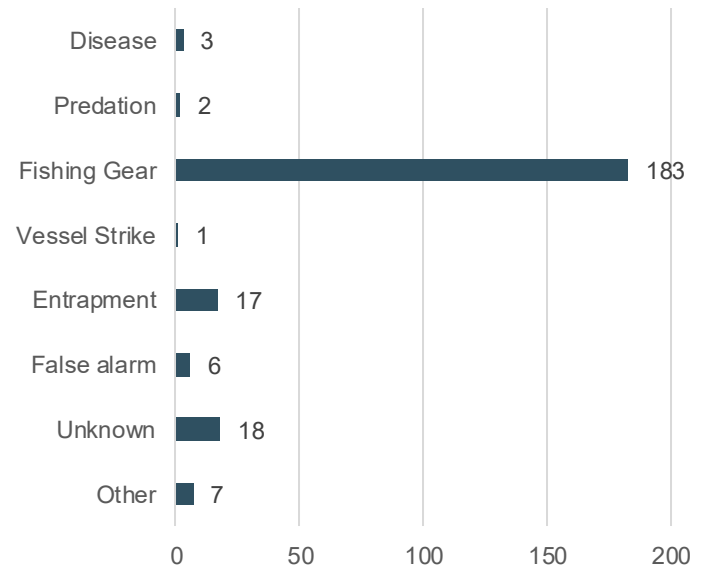
Staff members

**72**

Interns &  
Volunteers



## 2024 Cause of Stranding



**500+**

Students educated in 2024

**5,814**

Individual pieces of debris collected  
through Honu Hero Beach Cleanups

**18**

Fishing nets recovered from nearshore  
waters

**43**

Fishing line recycling bins located  
throughout the island of Maui

## 237 Documented Strandings in 2024

For the purposes of this report, we define a stranding as any marine turtle found on land or in the water that is deceased, injured, or exhibits any indication of ill health or abnormal behavior.

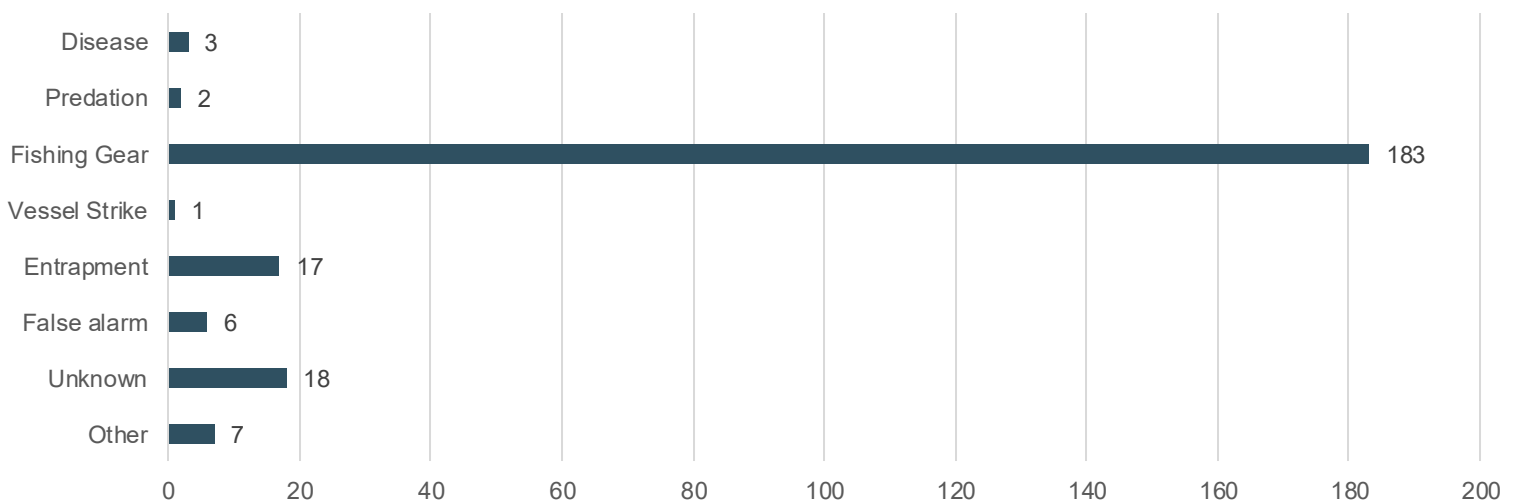
### 2024 Overview

Two-hundred and thirty-two(232) sea turtles were documented stranded on the island of Maui by MOC Marine Institute from 1 January – 31 December 2024. Two-hundred and fourteen(214) of the 232 were located alive.

Two-hundred and twenty-eight(228) of the documented strandings in 2024 were green sea turtles (*Chelonia mydas*) and four(4) were hawksbill sea turtles (*Eretmochelys imbricata*).

Stranding causes included disease (n=3), interactions with fishing gear (n=183), geographical entrapment (n=17), predation (n=2), vessel strike (n=1), other (n=7), and unknown causes (n=18).

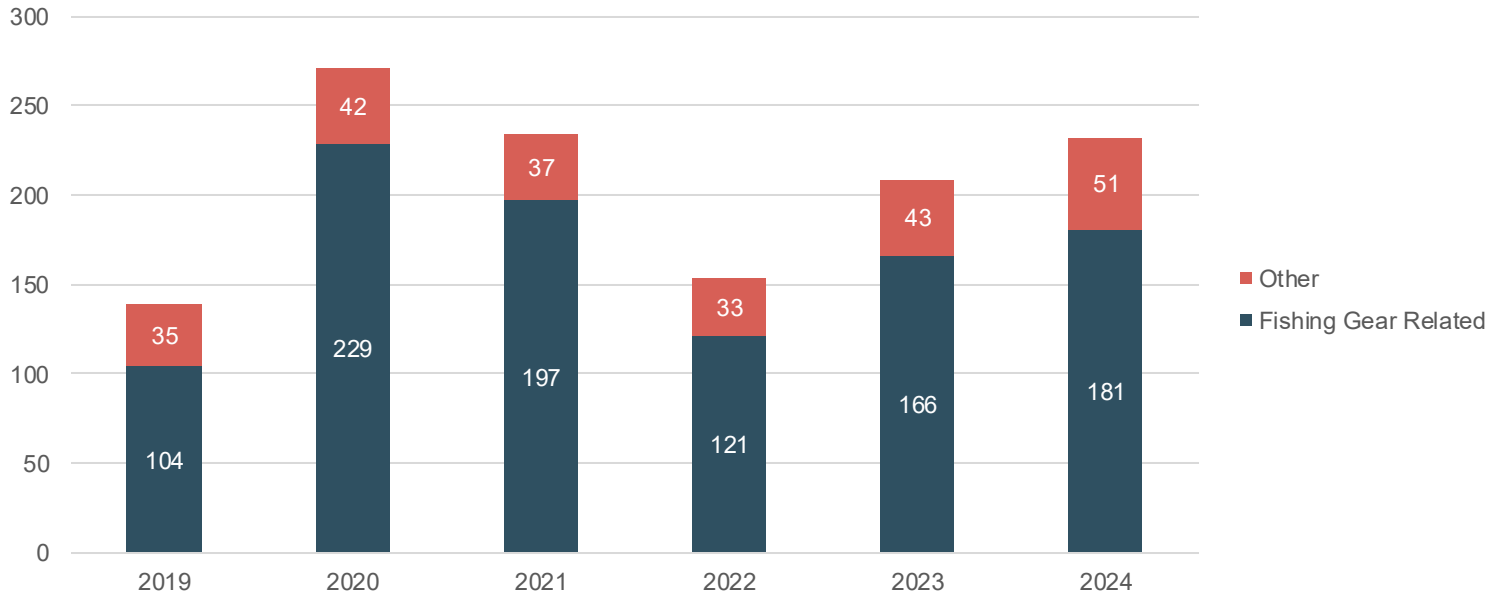
### 2024 Cause of Stranding



**Figure 3.** Sea turtle strandings by primary stranding cause in Maui, Hawai'i, 2024.

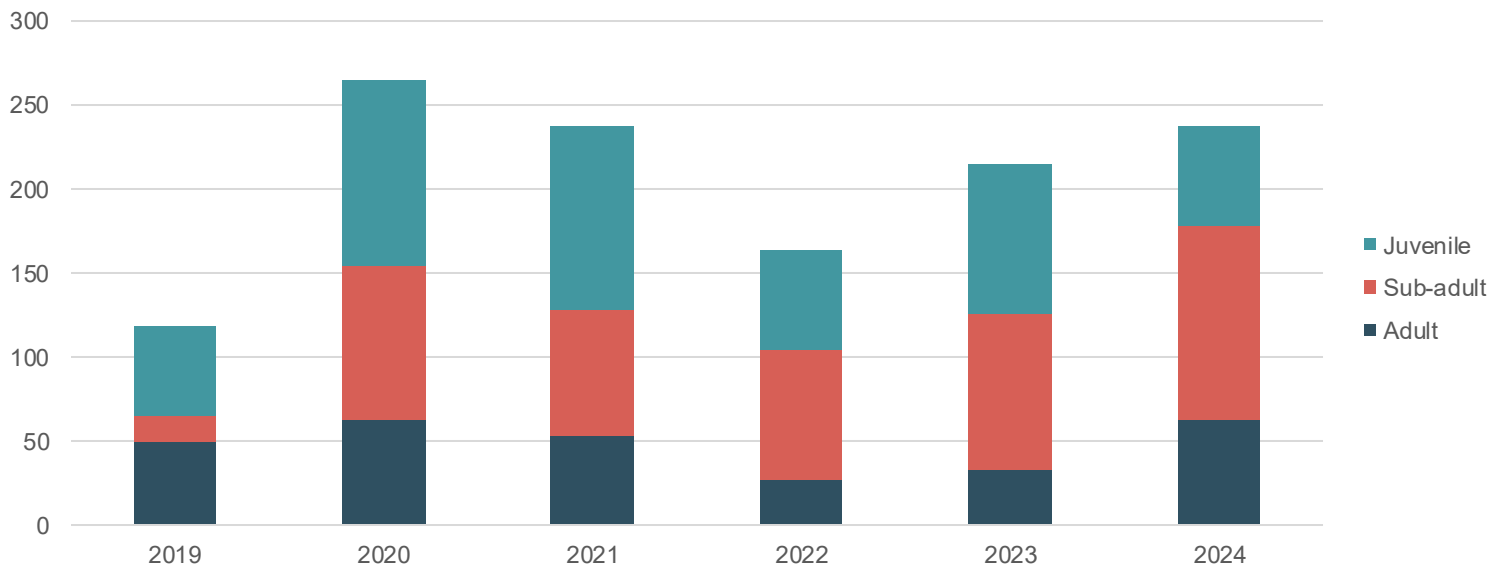


### Strandings by Year



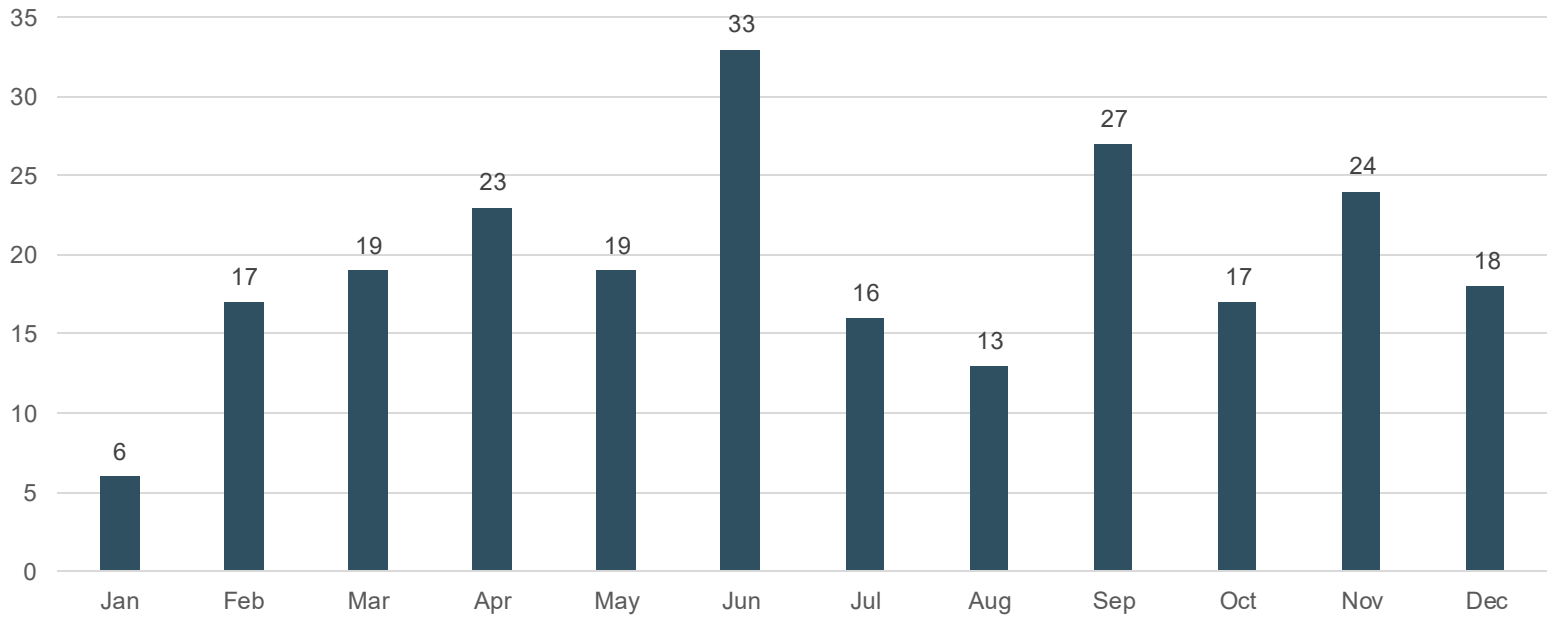
**Figure 4.** Sea turtle strandings documented by MOC Marine Institute on the island of Maui, Hawai'i, 2019 – 2024.

### Size Class Distribution



**Figure 5.** Size class distribution of stranded sea turtles 2019 – 2024.

## Strandings By Month



**Figure 6.** Documented sea turtle strandings by month, 2024, Maui, Hawai'i.



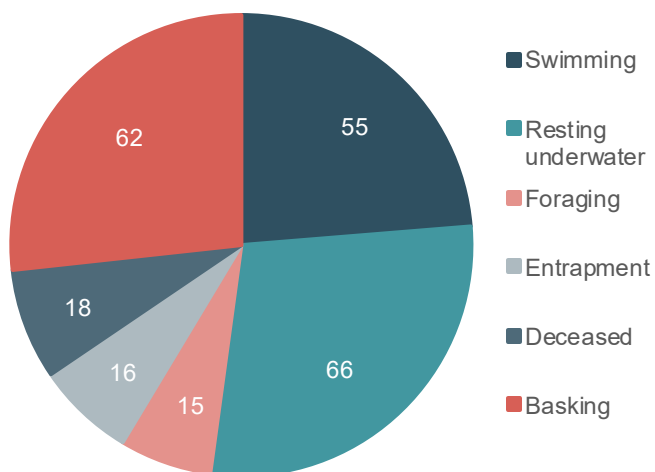
**Figure 7.** Sea Turtle with fishing line entanglement and ingestion, Maui, 2024.



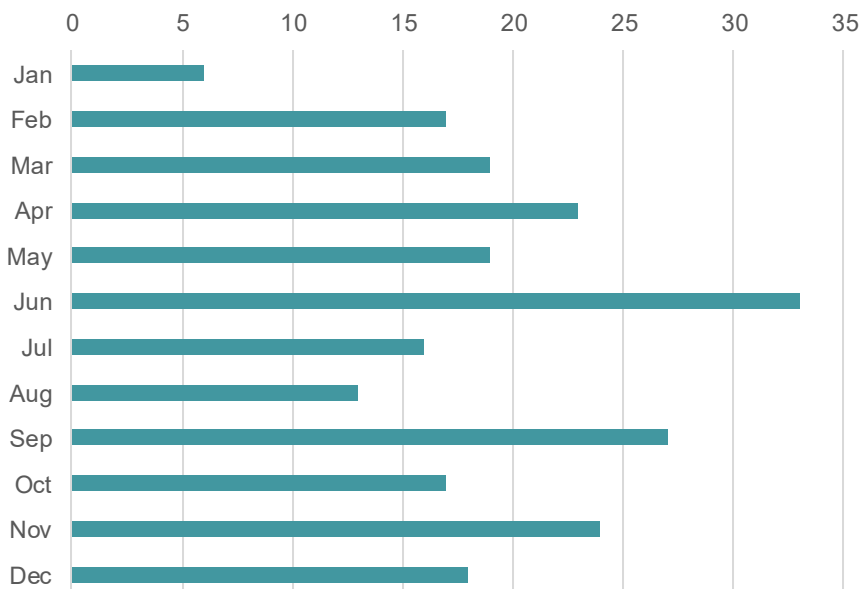


**Figure 8.** MOCMI field responders with a stranded turtle, Maui, 2024.

## Behavior at Time of Capture



## Strandings By Month



## Sea Turtle Assessment & Intake Procedure

MOC Marine Institute staff collects the below data points on all stranded sea turtles that are transported to MOCMI's Honu Rescue lab for assessment:

- Photo-documentation of the sea turtle, its injuries, and any other abnormalities
- Weight (kg)
- Measurements (curved and straight)
  - CCL and CCW (curved carapace length and width) are measured using a soft measuring tape
  - SCL and SCW (straight carapace length and width) are measured using calipers
- Visual assessment
  - All abnormalities and injuries are documented
- Blood Test (Hematocrit and Total Protein)
- If a sea turtle patient is admitted into the rehabilitation facility, a full blood chemistry is ran and additional tests are completed as needed
- Check for previously inserted passive integrated transponder (PIT) tags in rear flippers by using a PIT tag scanner
  - If no tags are detected, PIT tags are inserted safely into each hind flipper



**Figure 9.** Basking Sea Turtle on Maui's South shore, 2024.



## Curved Carapace Length (CCL)

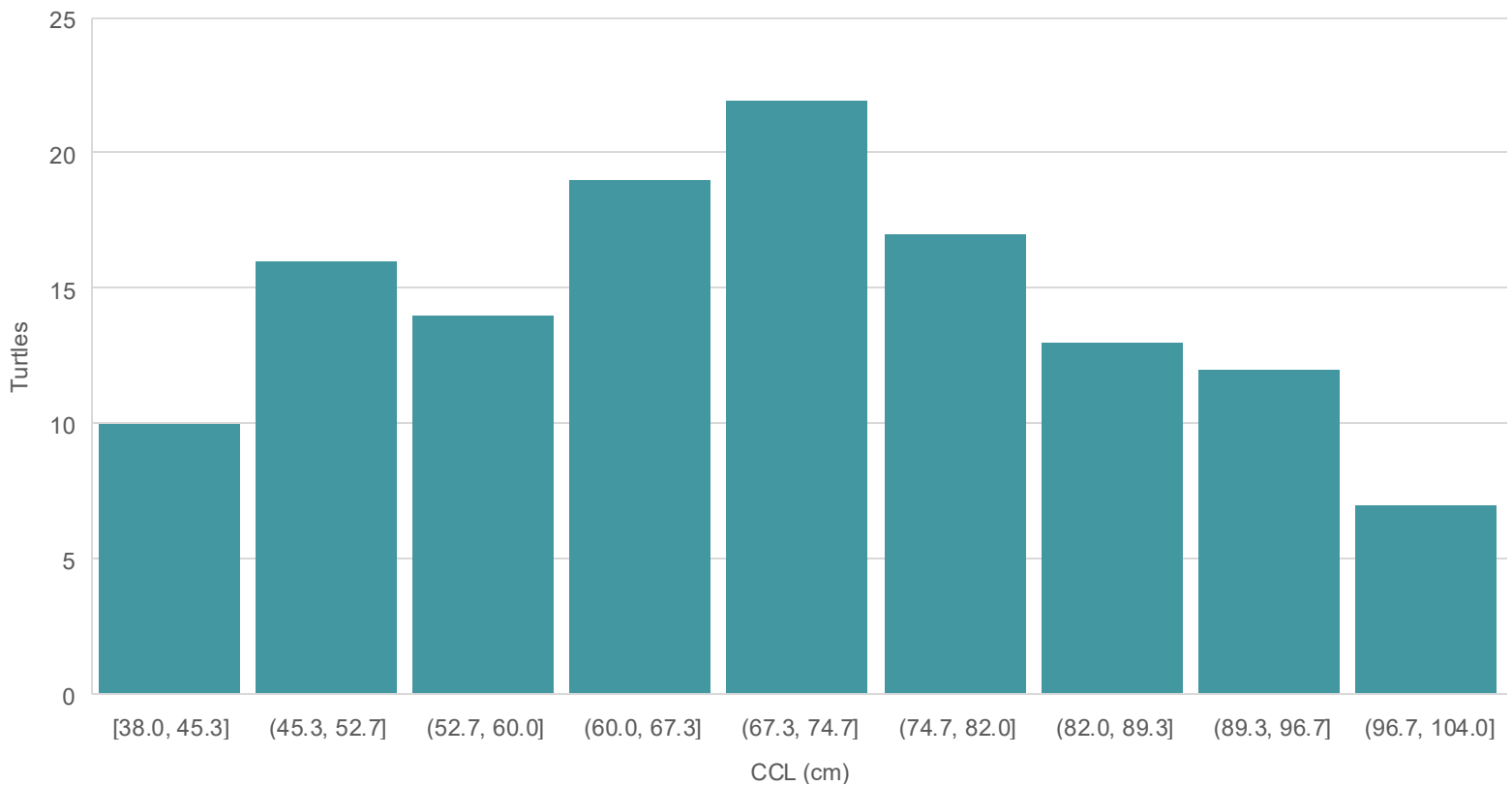
Using a soft tape measure, the Curved Carapace Length (CCL) is measured from the nuchal notch to the posterior tip of the carapace (top shell). Measurements of the curved carapace width (CCW) are also collected.

MOCMI collected CCL measurements from 179 stranded green sea turtles in 2024. The mean CCL was 50.7 cm (range 38.0 to 104.0 cm).



**Figure 10.** Measuring the CCW of a patient.

## CCL of Stranded Turtles, Maui 2024 (n=179)



**Figure 11.** MOCMI collected Curved Carapace Length (CCL) measurements from 179 stranded green sea turtles in 2024. The mean CCL was 50.7 cm (range 38.0 to 104.0 cm)

## Straight Carapace Length

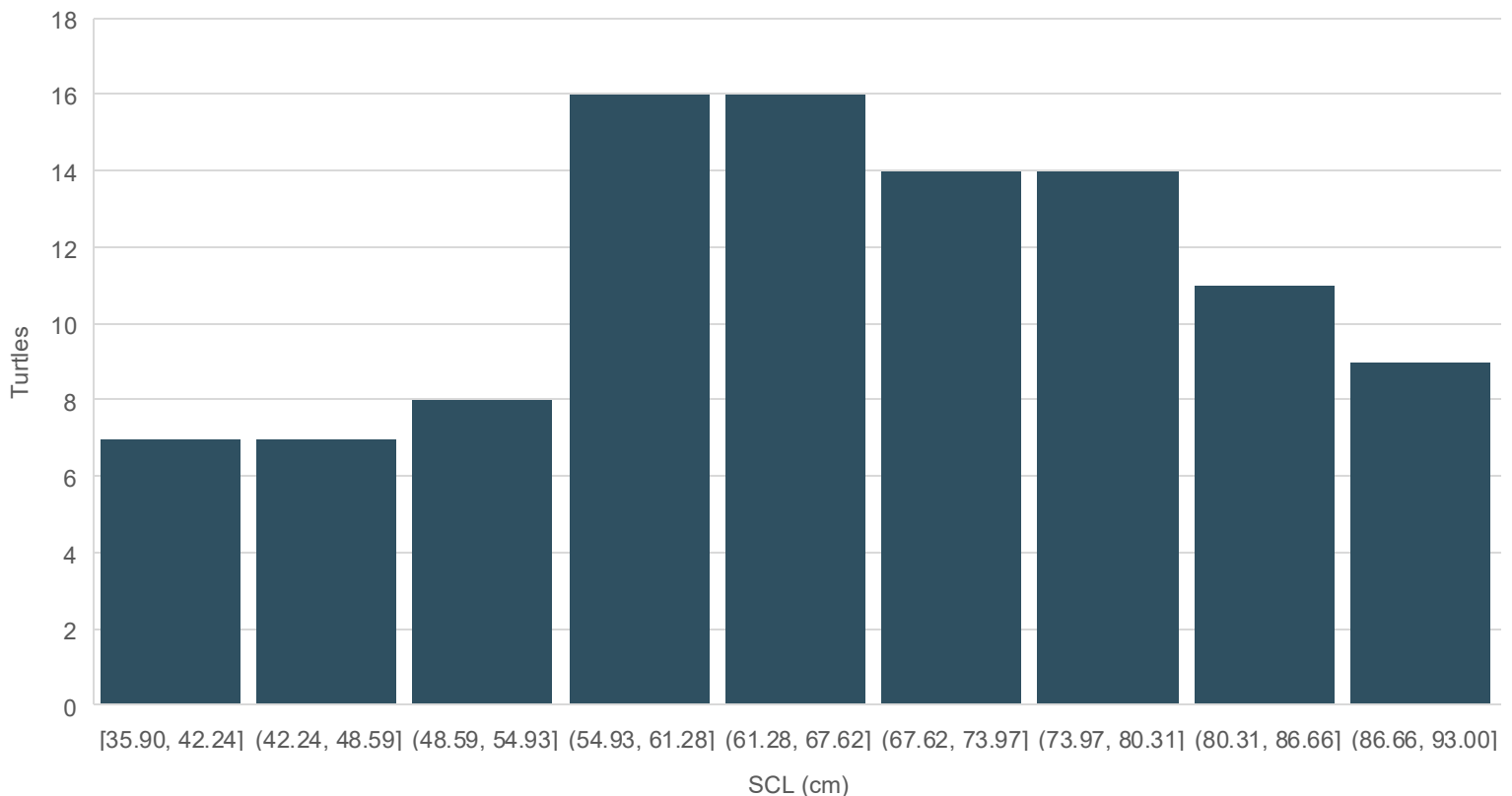
Using calipers, the Straight Carapace Length (SCL) is measured from the nuchal notch to the posterior tip of the carapace (top shell).

MOCMI collected SCL measurements from 125 stranded green sea turtles in 2024. The mean SCL was 54.2 cm (range 35.9 to 93.0 cm).



**Figure 12.** Measuring the SCL of a patient.

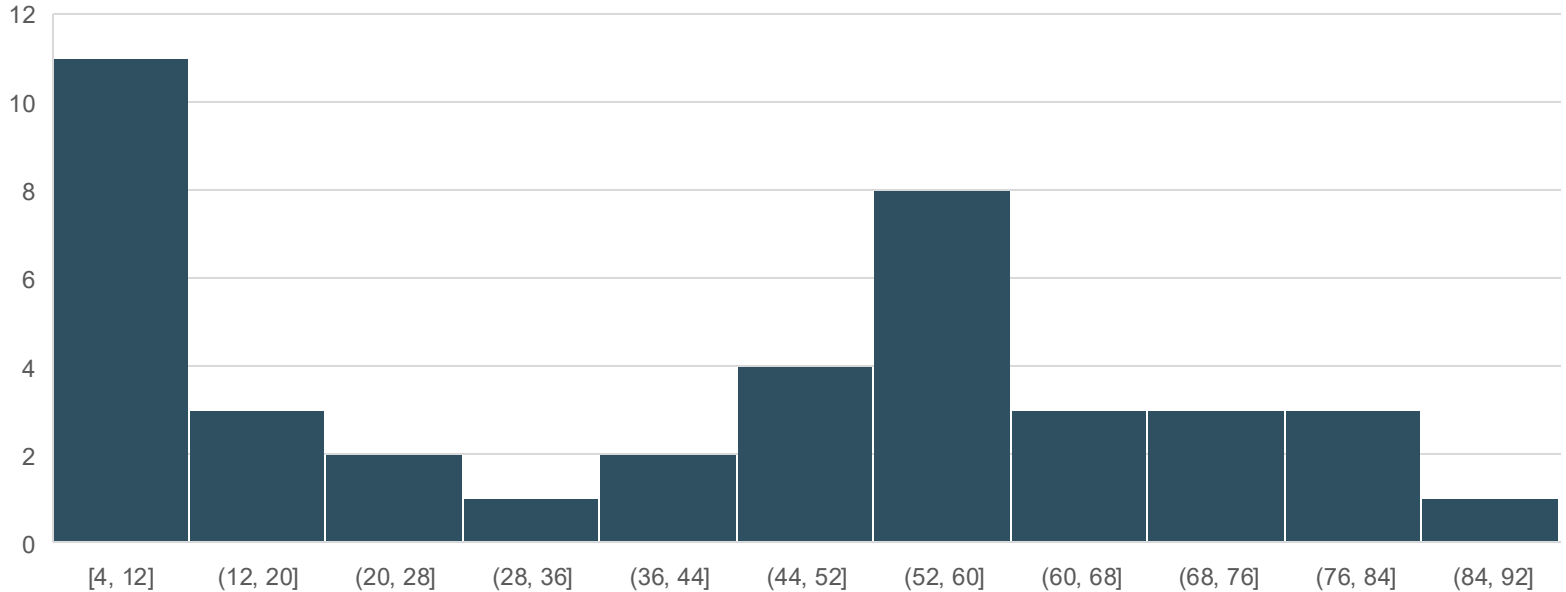
## SCL of Stranded Sea Turtles, Maui 2024 (n=125)



**Figure 13.** Straight Carapace Length (SCL) measurements from 125 stranded green sea turtles in 2024. The mean SCL was 54.2 (range 35.9 to 93.0).

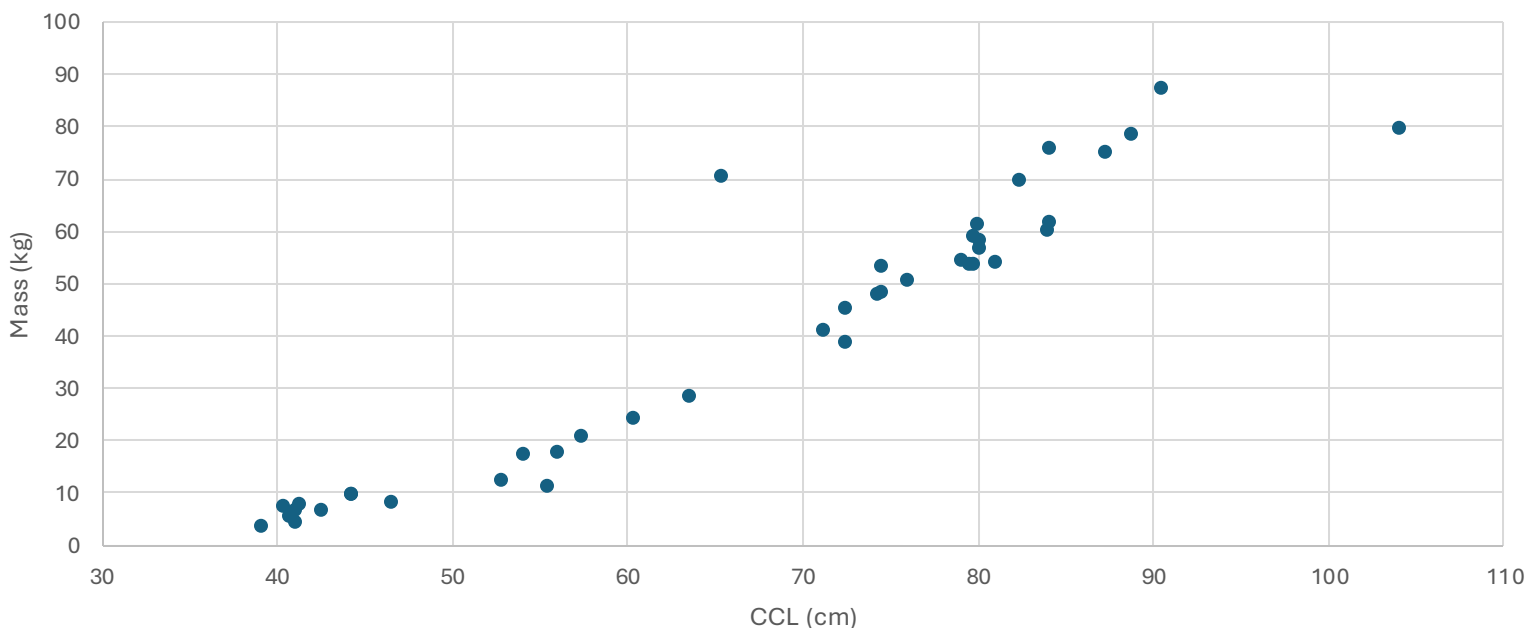


Mass of Stranded Sea Turtles, Maui 2024 (n=41)



**Figure 14.** Weight of 41 stranded green sea turtles in 2024. The mean was 40.0 kg (range 3.7 to 87.3 kg).

Mass (kg) vs CCL (cm) of Stranded Sea Turtles, Maui 2024 (n=41)



**Figure 15.** Of the 41 green turtles weighed in 2024, for every increase in 10 cm in CCL, the turtle's weight increased by 14.1 kg.

MOCMI staff collects a blood sample from all sea turtles examined; routine testing includes hematocrit and total protein. If a sea turtle patient is admitted into MOCMI's rehabilitation facility, we perform blood chemistry tests and other labs as needed.

## Hematocrit

A hematocrit test measures the proportion of red blood cells in your blood. The hematocrit test is also known as a packed-cell volume (PCV) test. In 2024, MOCMI collected a blood sample and ran a PCV test on 25 sea turtle patients upon intake.

## Total Protein (TP)

A total protein test measures the sum of all types of proteins (albumin and globulin) in the blood. In 2024, MOCMI collect a blood sample and ran a total protein test on 25 sea turtle patients upon intake.

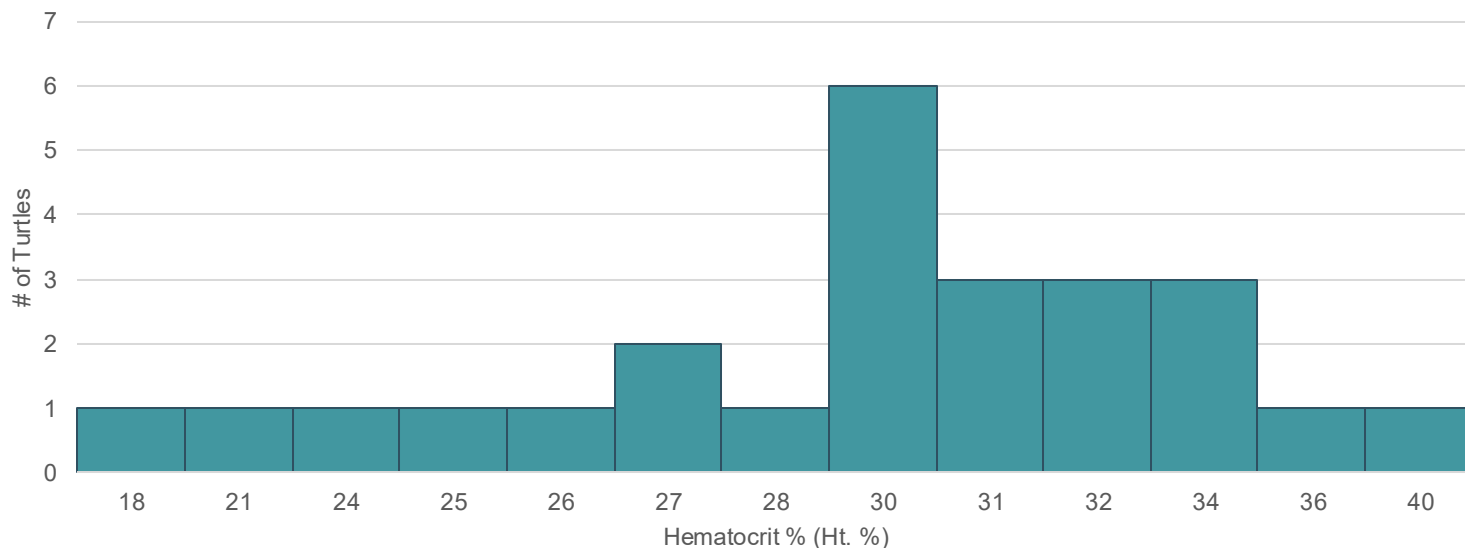


**Figure 16.** A green sea turtle patient awaits treatment, Maui, 2024.



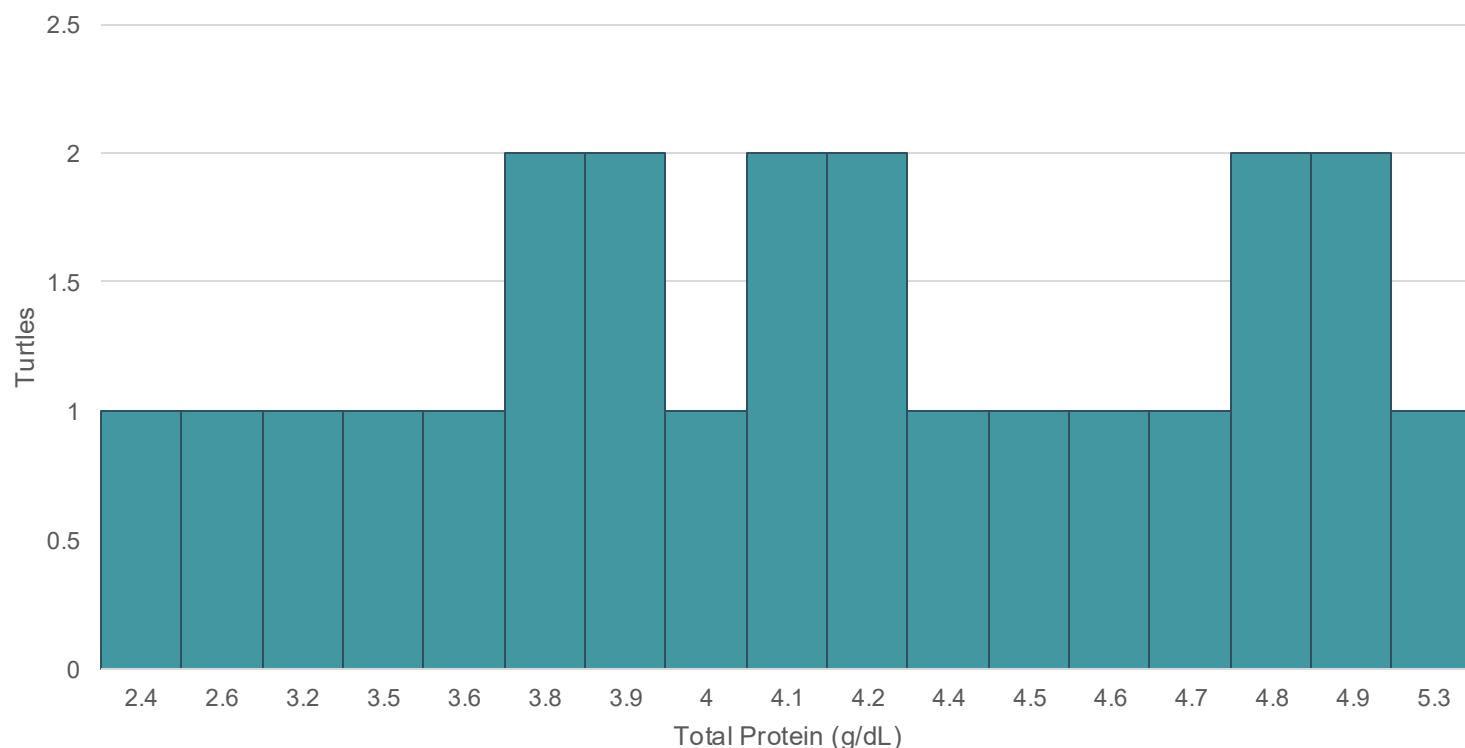


## PCV Levels of Stranded Sea Turtles, Maui 2024 (n=25)



**Figure 17.** Hematocrit (PCV) from 25 green sea turtle patients in 2024. The mean PCV is 29.72% (range 18 to 40%).

## TP Levels of Stranded Sea Turtles, Maui 2024 (n=23)

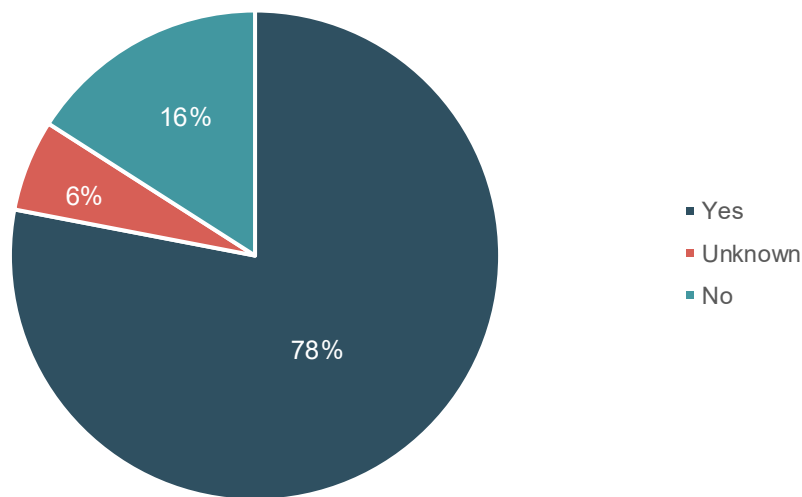


**Figure 18.** Total protein from 23 green sea turtle patients in 2024. The mean total protein is 4.10 (range 2.4 to 5.3 g/dL)

## 78% of strandings due to interactions with fishing gear

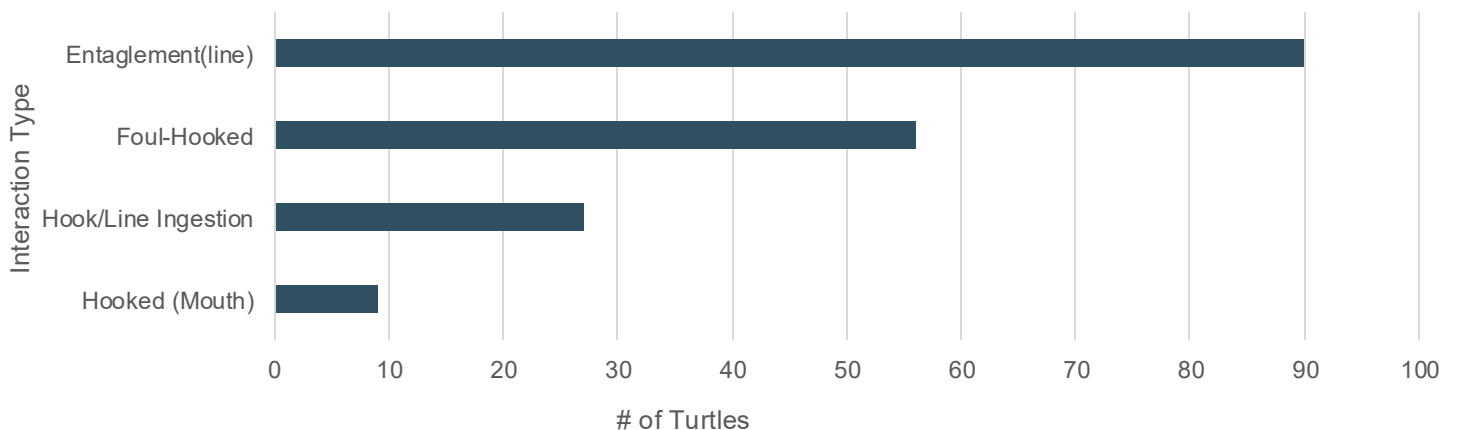
The entanglement of sea turtles in fishing gear is a global problem. In Hawai'i, nearshore recreational hook-and-line fisheries are considered the primary threat to threatened green sea turtles (*Chelonia mydas*) and endangered hawksbill sea turtles (*Eretmochelys imbricate*).

### Interactions with Fishing Gear



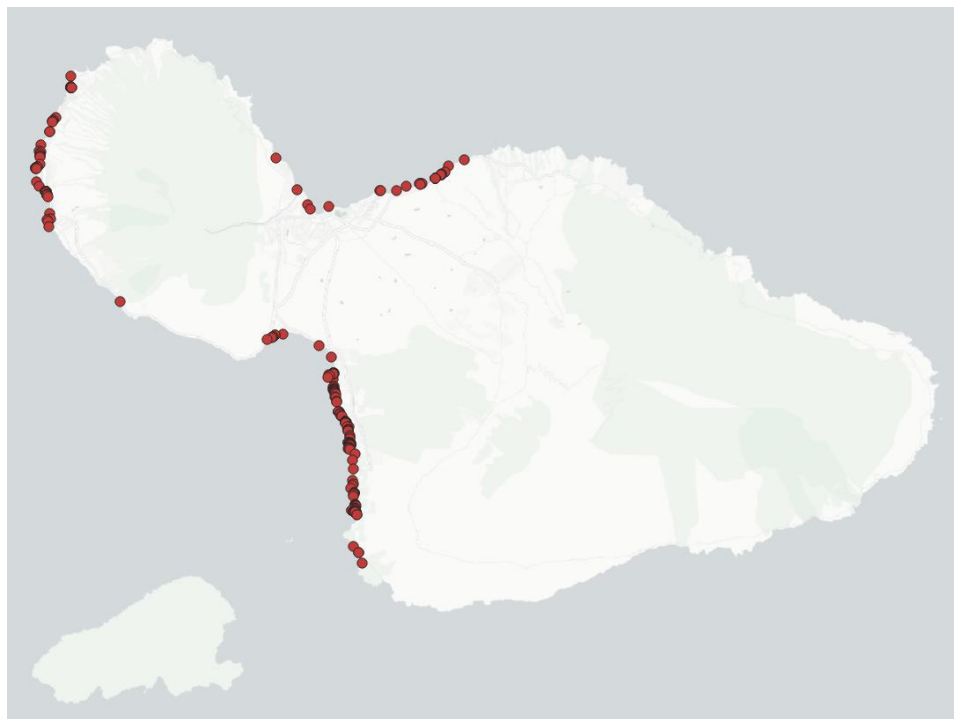
**Figure 19.** Percent of documented sea turtle strandings in 2024 on Maui due to interactions with fishing gear (nearshore hook and line fisheries).

### Sea Turtle Interactions with Fishing Gear, Maui 2024

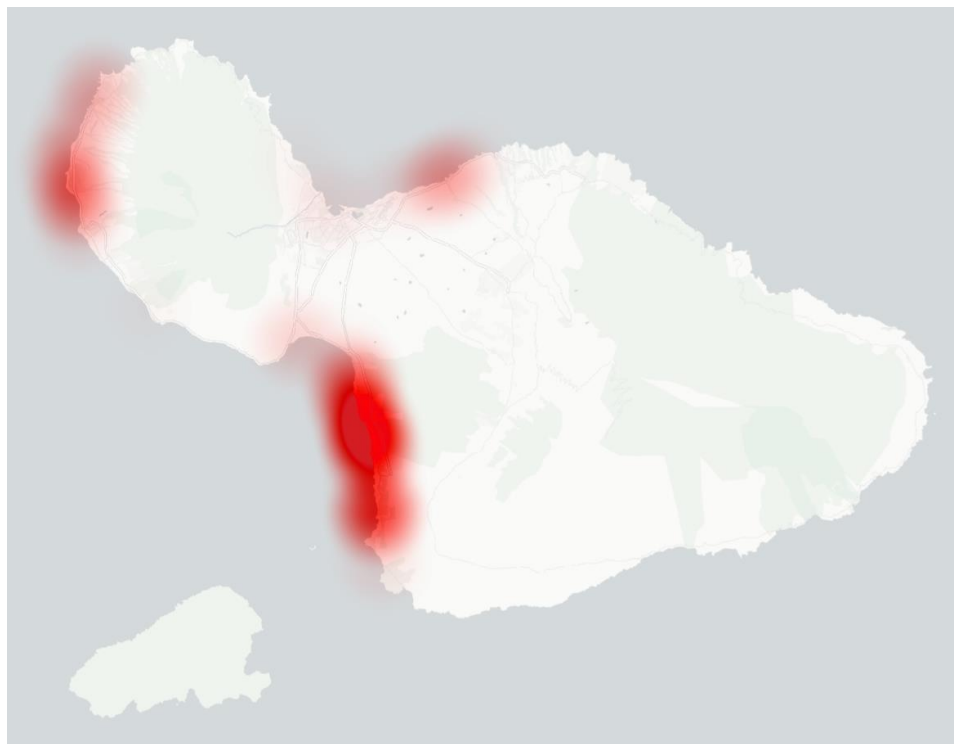


**Figure 20.** Sea turtle interactions with fishing gear by type of interaction, Maui, Hawaii, 2024.





**Figure 21.**  
Documented  
strandings due to  
interactions with  
fishing gear  
(nearshore coastal  
fisheries) on the  
island of Maui, 2024.



**Figure 22.** Hot spot  
analysis of sea turtle  
and fishing gear  
interactions on the  
island of Maui, 2024.

## Sea Turtle Rehabilitation Committee

MOC Marine Institute provides critical medical care and rehabilitates sick and injured sea turtles from all of the main Hawaiian Islands.

## Sea Turtle Rehabilitation Committee

Name	Affiliation	Name	Affiliation
Dr. Paul McCurdy	MOC Marine Institute	Dr. Michelle Barbieri	NOAA Fisheries
Dustin Paradis	MOC Marine Institute	Dr. Gregg Levine	NOAA Fisheries
Claudia Cedillo	NOAA Fisheries	Dr. Summer Martin	NOAA Fisheries



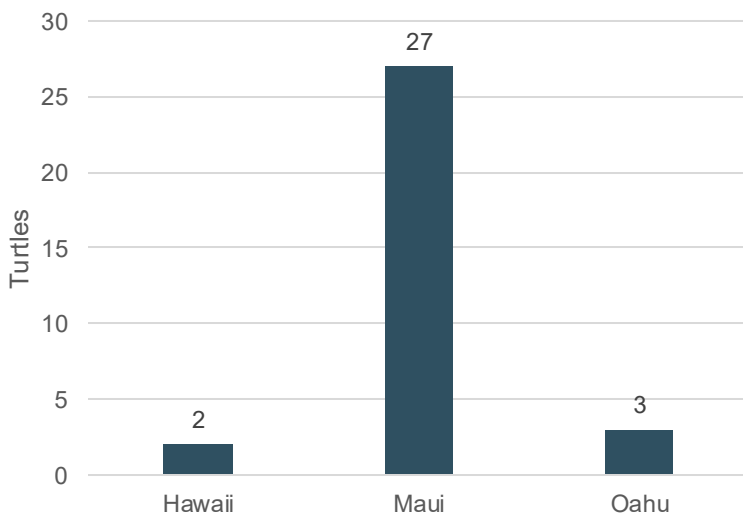
**Figure 23.** Green sea turtle on south shore reef, Maui, 2024. Photo: Don McLeish



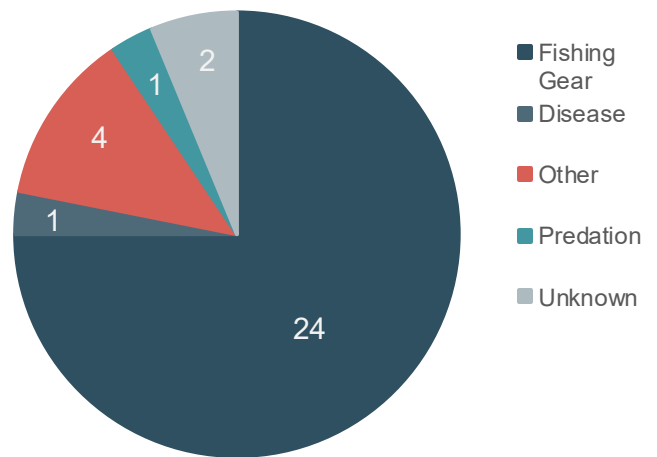
## 32 Long-Term Rehabilitation Cases in 2024

For the purposes of this report, long-term rehabilitation is defined as any sea turtle that received medical care at MOC Marine Institute's sea turtle hospital for more than 48 hours.

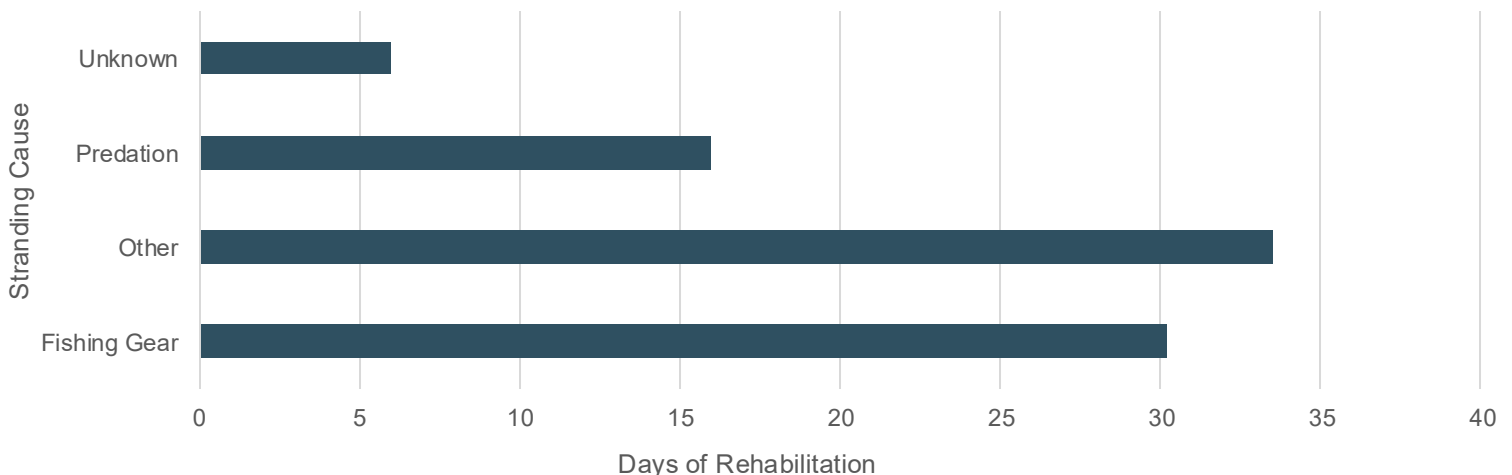
### Stranding Location of Rehabilitation Patients



### Long-Term Rehabilitation Stranding Cause



### Average Number of Days of Rehabilitation



**Figure 24.** Stranding location of MOCMI rehab patients, Stranding cause of long term rehabilitation patients, & Average number of days of rehabilitation by primary stranding cause, 2024.

## Integrated Multimodal Therapeutic Approach

Fishing line entanglement causes deep lacerations and strangulation of the affected flipper, leading to distal swelling, necrosis, bone fracture, and self-amputation. To avoid surgical amputation and preserve functionality, MOC Marine Institute and NOAA Fisheries developed an alternative therapeutic approach to treat flipper entanglement injuries.

The approach includes the integration of:

1. Topical Wound Therapy
2. Laser Therapy
3. Massage Therapy



MOC Marine Institute staff biologists insert PIT tags into sea turtle patient's hind flippers and etch an alphanumeric mototool tag onto the patient's carapace before release.

### **PIT Tags**

Passive Integrative Transporter (PIT) tags, similar to the microchips used in dogs or cats, are inserted under the skin of the turtle's hind flippers. PIT tags are about the size of a grain of rice and can be detected by a scanner. The main benefit of PIT tags is that they are nearly permanent; however, one must have the appropriate scanner to read them.

### **Alphanumeric Tags**

A Dremel is used to safely etch the shell with the initials of the island and the number of the stranding case (for example, MA for Maui and 05 for the fifth turtle stranding case). The groove is then filled with white paint that is harmless to the turtle but makes it easier for future observers to view the turtle's number without disturbing it. These numbers will typically last up to a year, depending on the turtle's growth rate.

### **Reporting**

Community members and visitors assist with data collection of sea turtle patients by reporting sightings of tagged turtles on Maui. Their sightings help us to see how the patient is doing post-release and gain an understanding of green turtle foraging habitats, migration, and distribution.



**Figure 25.** Sea turtle with Moto-tool identifier, Maui, 2024.

## 2024 Overview

**99** stranded turtles tagged with PIT tags

**77** mototool marks applied to stranded sea turtles

**51** recaptured (stranded) turtles with mototool marks

**1,451** marked turtles reported, 2019 - 2024



MOCMI operates the only land-based nursery dedicated to coral restoration in Maui Nui. It is here where we are working to streamline and scale our efforts in alignment with the most up to date scientific practices found by our regional and national colleagues. We use a holistic approach by utilizing aqua-cultured native Hawaii collector urchins and yellow tangs to aid in algae mitigation, inclusive community engagement through volunteer-ship to further aid in colony care, and meaningful partnership with research institutions to refine our techniques.

We work in close collaboration with the State of Hawaii Department of Land and Natural Resources (DLNR) Division of Aquatic Resources (DAR) and have served as an organization DLNR DAR can turn to in times of need with coral mitigation projects.

Our primary non-governmental partners, Maui Ocean Center & The Coral Resilience Lab, have greatly aided in the development of our infrastructure by providing expert guidance in coral husbandry and advanced techniques identifying thermally tolerant corals.



**Figure 26.** Coral colonies in MOCMI's land-based nursery



## Nakoa Yatch Grounding at Honolua Bay

In early 2023, the Nakoa, a 97ft luxury yacht, grounded in Honolua Bay, just outside the Honolua-Mokule‘ia Marine Life Conservation District causing significant damage to the benthic reef habitat.

MOCMI collected the corals of opportunity left behind after the vessel was salvaged, bringing them to our land based nursery for care and propagation. This effort resulted in over 250 coral fragments of four different species being produced for outplanting near the original site of damage in 2025.



## Restore with Resilience

MOCMI is partnered on the Statewide project Restore with Resilience, led by the Coral Resilience Lab. MOCMI is the place based partner for Maui and has served as the central hub for all activities on Maui. This project seeks to engage the community of Maui in coral restoration while selectively propagating corals that are identified as thermally tolerant. Over 400 coral fragments were outplanted at Olowalu in 2024. This project will continue into 2025 where we will duplicate the efforts.



## SuperReefs at Olowalu

Super Reefs is a collaborative project between The Nature Conservancy, Stanford University, and WoodsHole Oceanographic Institute and integrates cutting-edge science with community-led conservation to protect the Olowalu Reef System, known as Maui Nui’s “Mother Reef.” The project used hydrodynamic modeling and coral thermal tolerance testing to identify resilient corals and predict future temperature patterns, guiding climate-smart conservation and restoration efforts. During 2024, heat stress experiments were conducted on coral fragments from 288 colonies at eight sites in Olowalu-Pāpāla’au and Northwest Maui. These experiments aimed to assess how corals, naturally exposed to varying temperatures, respond to predicted climate change warming.

MOCMI served as the host for this project, offering our infrastructure and expert coral husbandry to ensure the corals remained vital during their stay. All “control” corals (non-thermally tested) were outplanted at Olowalu under MOCMI’s DLNR DAR Special Activities Permit. These corals will be monitored to gain insight into whether they behave the same as their parent colonies during a bleaching event.

## Sediment Threshold Study at Olowalu

Researchers from The University of Hawai’i at Manoa & Hilo, Hawai’i Institute of Marine Biology, U.S. Geological Survey, and The Nature Conservancy collaborated to conduct a study at Olowalu investigating coral tolerance to sediment. This project collected corals from a variety of species, housed them at MOCMI, and outplanted them across a sediment gradient. MOCMI staff and volunteers provided critical husbandry to the fragments while in our possession and assisted with outplanting efforts. This project will provide powerful insight for restoration practitioners on where coral restoration may be possible with respect to sediment concentration.



PC: Phillip Colla



MOCMI provides education to the community through various avenues including volunteership, high school and university level internships, attending educational outreach events, and hosting educational programming at our facility.

Through these avenues, we educate individuals on the life history of sea turtles, global and local threats to both turtles and coral reefs, connect the dots between land based stressors and marine consequences, ways to reduce your impact on the natural environment, our approach to reducing threats, and how to get involved with marine conservation and protected species management as a career path.

Participants are taught information in short lectures and then apply what they learned through hands-on activities both in the field and at our facility.



MOCMI works with partners and community members on Maui to mitigate threats to Hawai'i's marine life.



Fishing Net Collection Program  
MOC Marine Institute (MOCMI) is dedicated to reducing entanglement threats to all marine animals.

MOCMI also runs an island-wide hotline (1-800-4-Da-Nets) where visitors and residents can report derelict fishing nets for retrieval.



MOCMI's Honu Hero program aims to remove pollutants from both the land and ocean by organizing individual, group, and community cleanup efforts.

**5,814** items collected in 2024



MOCMI's Fishing Line Recycling Program (FLRP) allows beachgoers to recycle used and derelict fishing gear.

**43** recycling bins located on Maui





UNIVERSITY  
of HAWAII®  
**HILO**







**MARINE INSTITUTE**  
MAUI OCEAN CENTER

**MOCMI Sea Turtle Stranding Response Hotline (Maui)**  
**808-286-2549**

**NOAA Statewide Response Hotline (all marine animals)**  
**1-888-256-9840**

---