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Sea Turtle Conservation Program 2021 Impact Report



2021 Impact Report

Sea Turtle Conservation Program

Maui, Hawai'i

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Sea turtle patient, MA94 is released back to the ocean following rehabilitative care at MOC Marine Institute, Maui, Hawai'i. Photo: MOC Marine Institute.

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Our Mission

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



Sea Turtle Conservation Team

MOC Marine Institute Staff Members (January 2021)

Tommy Cutt, Executive Director

Chanel Browne, Sea Turtle Program Coordinator

Mikaela Dibble-Kahn, Sea Turtle Technician

Veterinarian

Dr. Paul McCurdy

2021 Sea Turtle Conservation Interns

Felicia Brown, Savannah Browne, Carson Compos, One Jae Lee, Hunter Morgan, Zane Murasko, Nanea Youn

2021 Keiki o ke Kai Participants

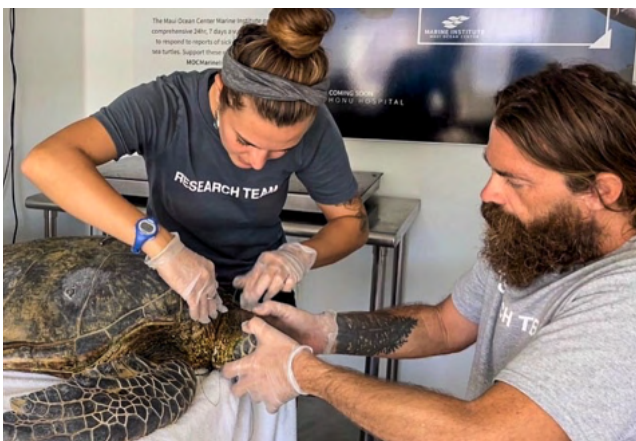
Harley Ann-Smith, Zachary Bulcao-Moore, Annalise Eller, Jessica Rosado

Lead Sea Turtle Volunteers

Alan Espiritu, Don McLeish, Bruce Weyermann

Sea Turtle Volunteers

Erin Adams, Elizabeth Biato, Tara Branham, Shawn Caley, Miranda Camp, Meryl Cohen, Derek DeCrausaz, Kristen DeCrausaz, Adrian Dougherty, Gabriela Echeverry, Greg Helton, Peyton Hoge, Cheryl King, Ryan Murdock, Maria Norman, Carol Riccio, Cristina Ramasco, Darby Ryan, Bonnie Slater, Marla Tomorrow, Anita Wintner



(Left) Team members, Mikaela and Tommy, remove fishing line from the neck of a juvenile green sea turtle (*Chelonia mydas*). (Right) Team member, Chanel, measures the curved carapace length of a juvenile green sea turtle (*Chelonia mydas*) patient. Photos: MOC Marine Institute. NOAA Permit: 21260

Sea Turtle Stranding Response & Rescue

Partnership with NOAA National Marine Fisheries Service

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, 2021. The data presented throughout this report is preliminary and based on field assessment, not necropsy.

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

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



(Left) Green sea turtle (*Chelonia mydas*) receiving treatment at MOC Marine Institute. (Right) Green sea turtle (*Chelonia mydas*) patient with large Ulua fishing hook pierced through eyelid. Photos: MOC Marine Institute. NOAA Permit: 21260

2021 Overview



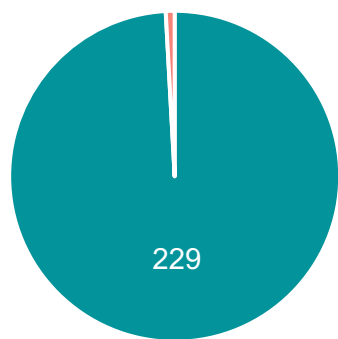
231 documented stranded sea turtles



87.4% fisheries interactions



47 long-term rehabilitation cases



229 green turtles

2 hawksbill sea turtles

4 staff members

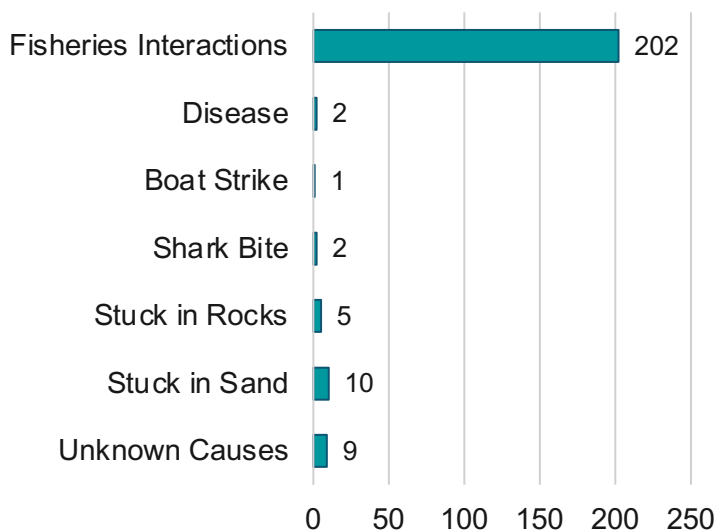
36 interns and volunteers



151 sea turtles tagged

800+ reports of tagged turtles

2021 Cause of Stranding



Treated sick and injured sea turtles from:

Maui
O'ahu
Hawai'i Island

Sea Turtle Stranding Response & Rescue: 2021 Results

What does “stranding” mean?

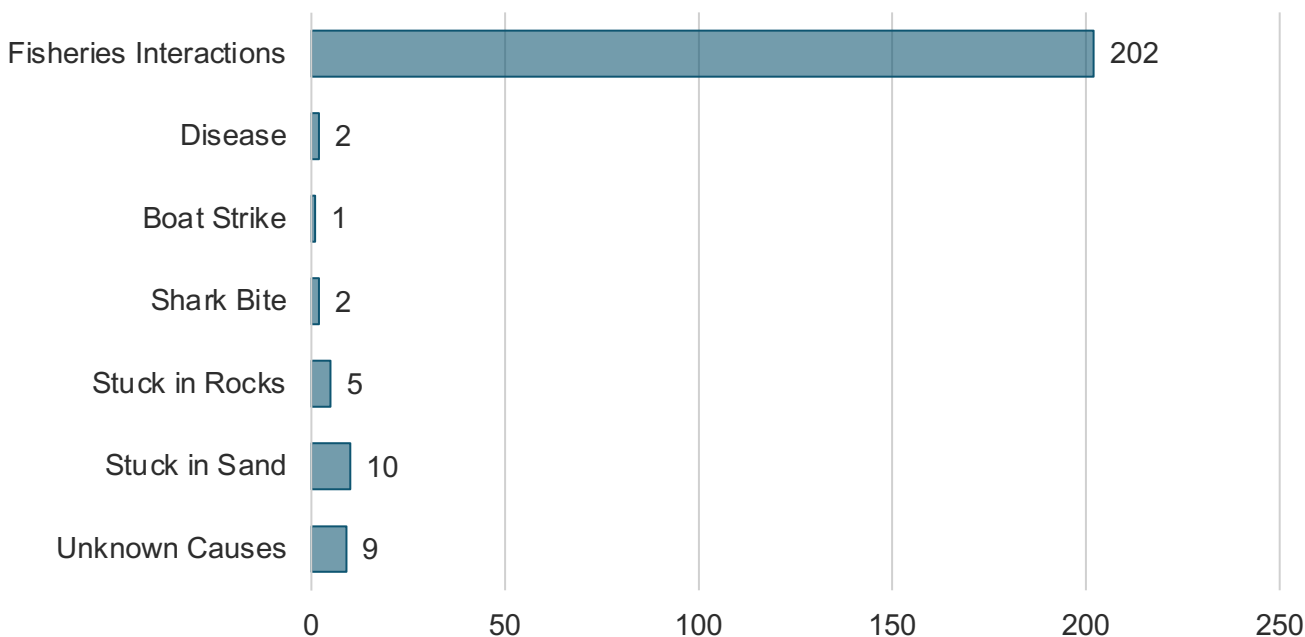
NOAA Fisheries defines stranding as a sea turtle that is either found dead or is alive but is unable to go about its normal behavior due to an injury, illness, or other problem. Stranded sea turtles may be found washed ashore or in the water.

2021 Overview

Two hundred thirty-one (231) sea turtles were documented stranded on the island of Maui by MOC Marine Institute's Sea Turtle Stranding Response Program from 1 January to 31 December 2021. **Two hundred three (203)** of the 231 were located alive.

Two hundred twenty-nine (229) of the turtles documented stranded in 2021 were green sea turtles (*Chelonia mydas*), and two were hawksbill sea turtles (*Eretmochelys imbricata*). Stranding causes included fisheries interactions (n=202), stuck in sand (n=10), stuck in rocks (n=5), shark bite (n=2), boat strike (n=1), disease (n=2), and unknown causes (n=9).

Sea Turtle Stranding Response: Cause of Stranding

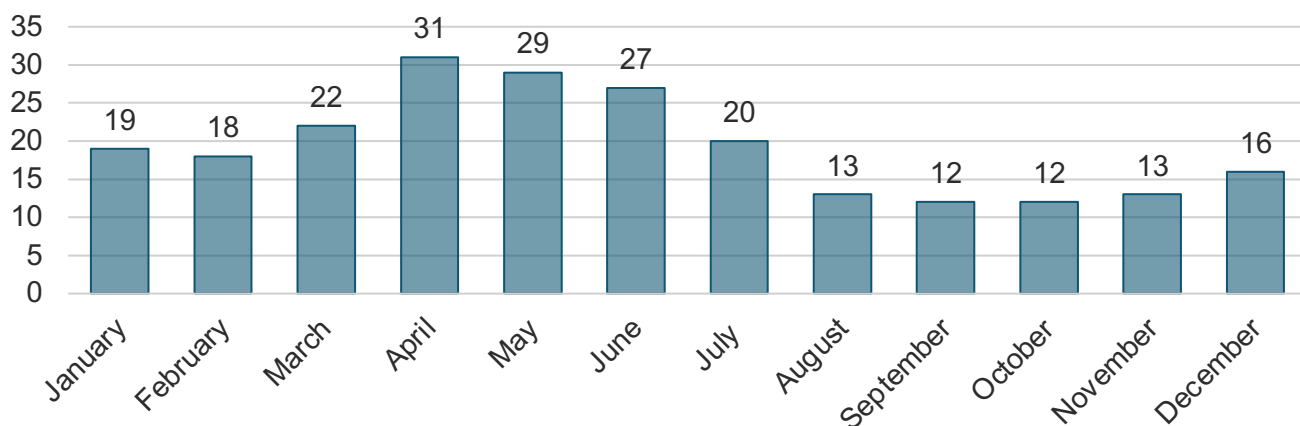


Strandings documented in 2021 on the island of Maui, Hawai'i by MOC Marine Institute.



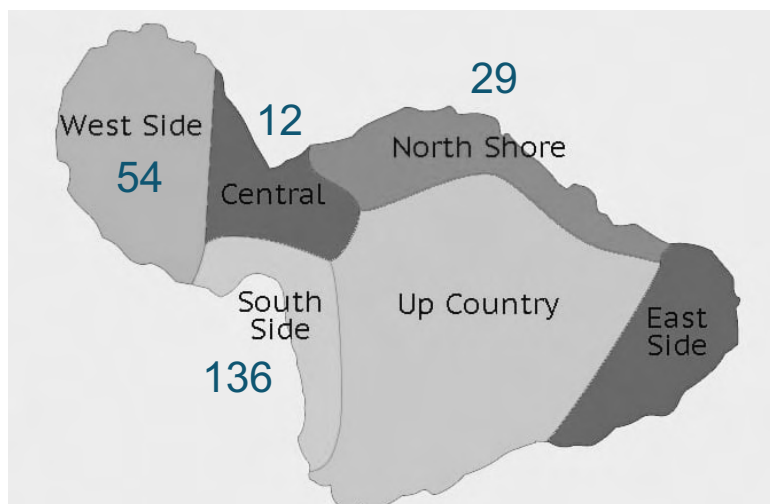
Sea Turtle Stranding Response: Strandings by Month

Among the 231 sea turtles that stranded in 2021, most were documented in April (n=31), followed by May (n=29), June (n=27), March (n=22), July (n=20), January (n=19), February (n=18), December (n=16), August (n=13), November (n=13), September (n=12), and October (n=12).



Documented sea turtle strandings by month, 1 January – 31 December, 2021. Maui, HI.

Sea Turtle Stranding Response: Strandings by Region



The island of Maui is the second-largest of the Hawaiian Islands and has 190 miles of coastline that contains more than 100 beaches.

Among the 231 sea turtles stranded in 2021, most were documented on Maui's south side (n=136), followed by the west side (n=54), north shore (n=29), and central (n=12).

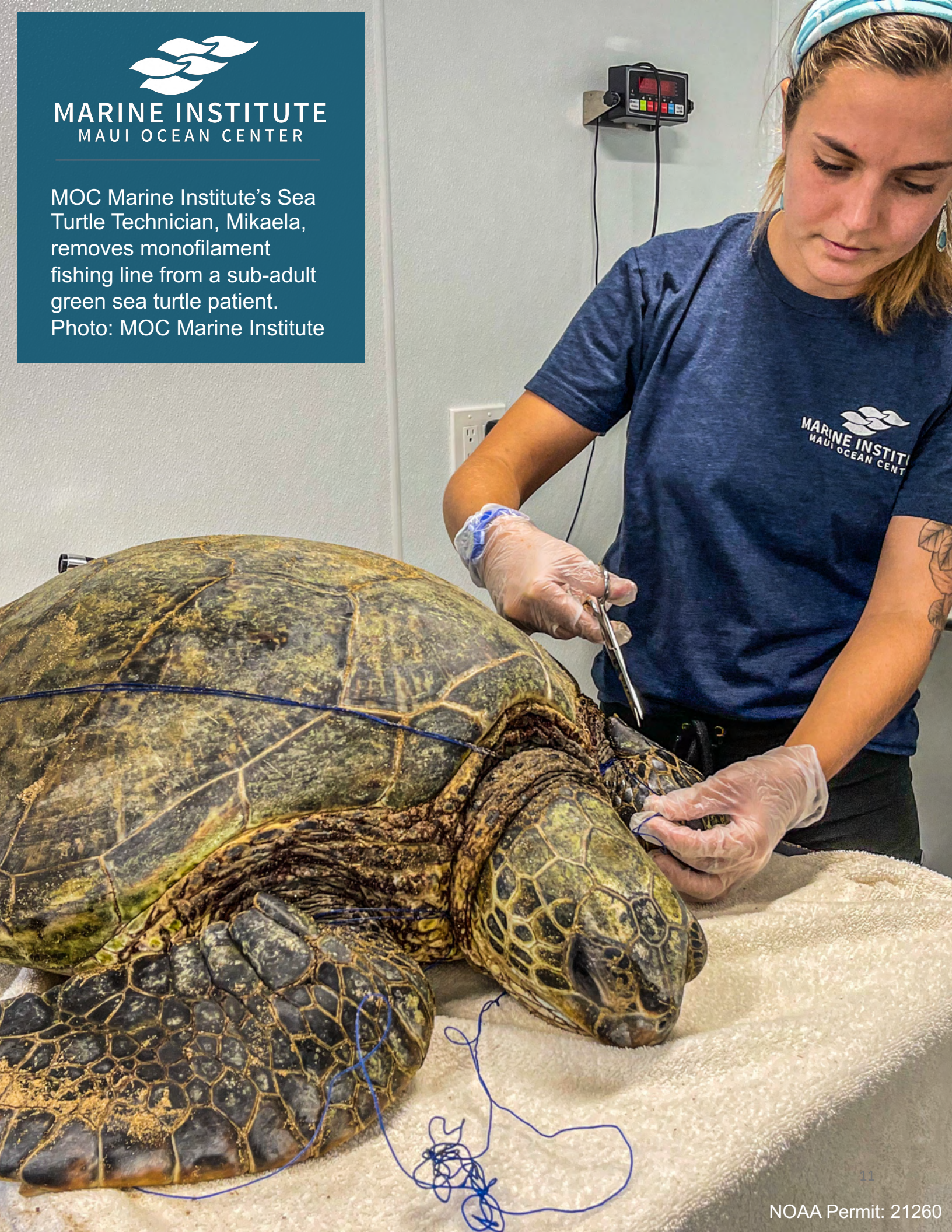
Documented sea turtle strandings by region, 1 January – 31 December, 2021. Maui, HI.



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MOC Marine Institute's Sea Turtle Technician, Mikaela, removes monofilament fishing line from a sub-adult green sea turtle patient. Photo: MOC Marine Institute



Sea Turtle Stranding Response: Strandings by Region and Age Class

Strandings by region and age class, South Maui.

Region	Stranding Cause	Juvenile	Sub-Adult	Adult	Unknown
South	Fisheries Interaction	57	41	26	1
	Disease	0	0	0	0
	Shark Bite	0	1	0	0
	Stuck in Rocks	1	3	0	0
	Stuck in Sand	0	1	3	0
	Boat Strike	0	1	0	0
	Unknown Causes	1	0	0	0

Strandings by region and age class, West Maui.

Region	Stranding Cause	Juvenile	Sub-Adult	Adult	Unknown
West	Fisheries Interaction	14	29	6	2
	Disease	0	0	0	0
	Shark Bite	0	0	0	0
	Stuck in Rocks	0	0	0	0
	Stuck in Sand	0	0	0	0
	Boat Strike	0	0	0	0
	Unknown Causes	2	0	0	1

Sea Turtle Stranding Response: Strandings by Region and Age Class

Sea turtle strandings by region and age class, North Maui.

Region	Stranding Cause	Juvenile	Sub-Adult	Adult	Unknown
North	Fisheries Interaction	5	4	10	0
	Disease	0	1	0	0
	Shark Bite	0	1	0	0
	Stuck in Rocks	0	0	0	0
	Stuck in Sand	1	1	3	0
	Boat Strike	0	0	0	0
	Unknown Causes	1	2	0	0

Sea turtle strandings by region and age class, Central Maui.

Region	Stranding Cause	Juvenile	Sub-Adult	Adult	Unknown
Central	Fisheries Interaction	5	3	0	0
	Disease	0	0	0	0
	Shark Bite	0	0	1	0
	Stuck in Rocks	0	0	1	0
	Stuck in Sand	0	0	0	0
	Boat Strike	0	0	0	0
	Unknown Causes	1	1	0	0



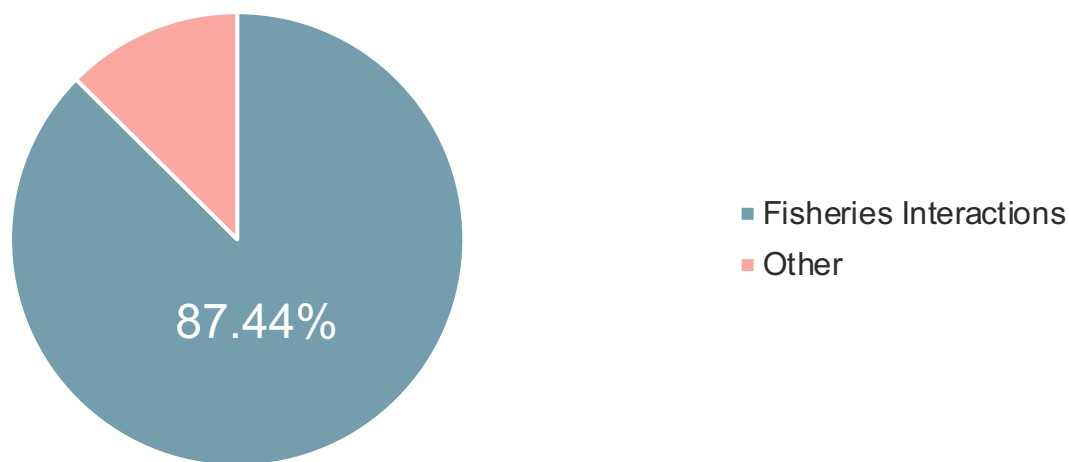
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291 lbs. heaviest patient treated in 2021

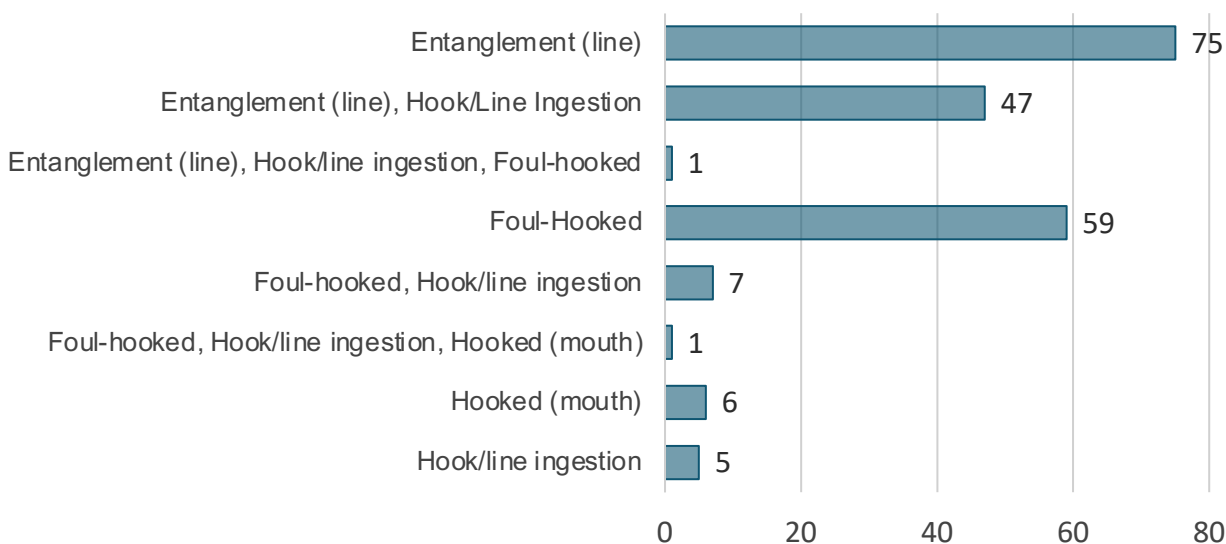
7.9 lbs. lightest patient treated in 2021

Sea Turtle Stranding Response: Fisheries Interactions

Interactions with nearshore coastal fisheries are the primary threat to sea turtles in the main Hawaiian Islands. Between 01 January and 31 December 2021, **87.44%** (n=202) of the documented sea turtle strandings on Maui were a result of interactions with fishing gear.



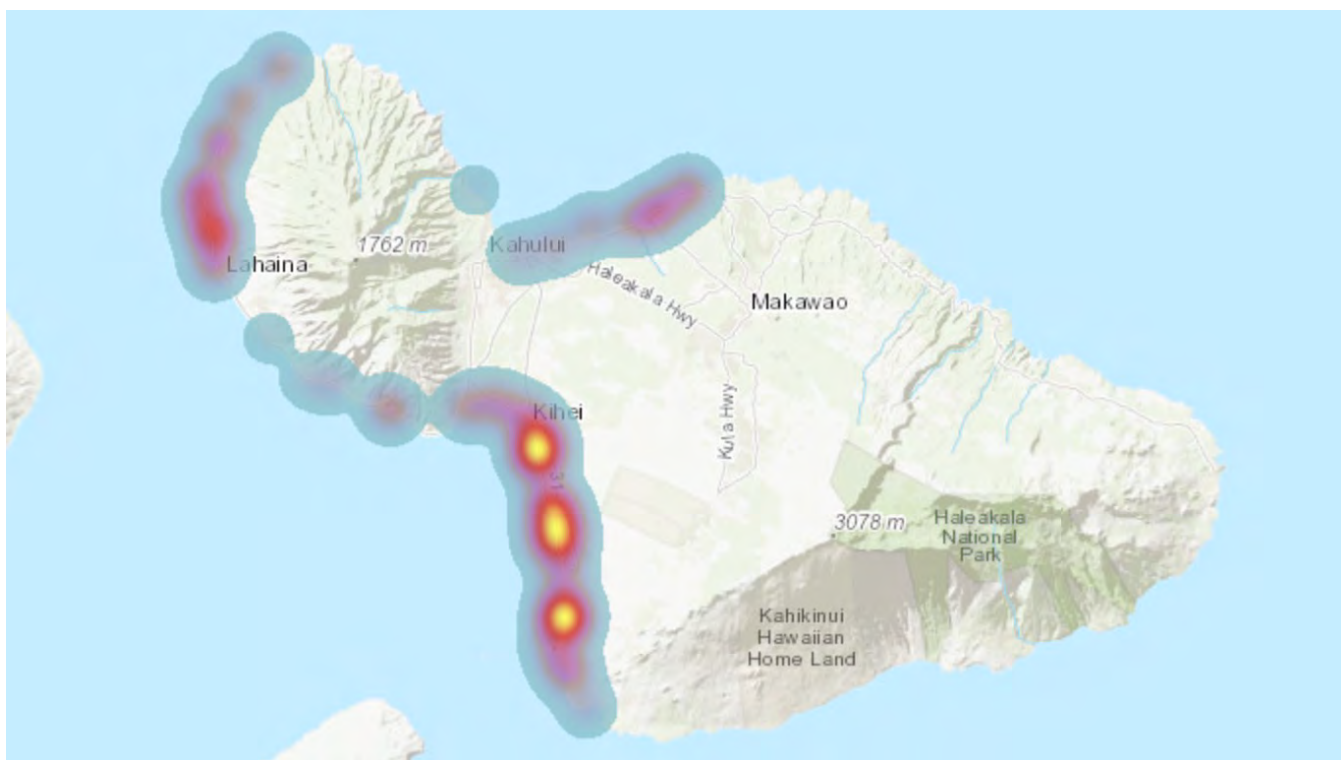
87.44% of documented sea turtle strandings in 2021 on Maui due to fisheries interactions.



Sea turtle fisheries interactions by type of interaction on Maui in 2021.



Documented strandings due to fisheries interactions on Maui in 2021.



Hot spot analysis of sea turtle and fisheries interactions on Maui in 2021.

The Maui Ocean Center Marine Institute operates a comprehensive 24hr, 7 days a week rescue program to respond to reports of sick or injured Hawaiian sea turtles. Support these efforts and learn more at MOCMarineInstitute.org



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MOC Marine Institute team members, Chanel and Mikaela, treat a juvenile green sea turtle patient (*Chelonia mydas*) with therapeutic laser. Photo: MOC Marine Institute

Sea Turtle Rehabilitation

MOC Marine Institute's sea turtle rehabilitation program aims to provide high-quality medical care to sick and injured sea turtles while working to return our patients to the ocean as quickly as possible. We work in close collaboration with our partners at NOAA Fisheries. Our teams meet weekly to discuss sea turtle patient progress, treatment plans, and criteria for release.

Sea Turtle Rehabilitation Committee

Dr. Paul McCurdy, MOC Marine Institute
Tommy Cutt, MOC Marine Institute
Chanel Browne, MOC Marine Institute
Dr. Michelle Barbieri, NOAA Fisheries
Dr. Gregg Levine, NOAA Fisheries

Dr. Ednee Yoshioka, NOAA Fisheries
Dr. Meghan Barrett, NOAA Fisheries
Dr. Summer Martin, NOAA Fisheries
Shandell Brunson, NOAA Fisheries
Claudia Cedillo, NOAA Fisheries



MOC Marine Institute Veterinarian, Dr. Paul McCurdy, examines a green sea turtle patient at MOC Marine Institute. Photo: MOC Marine Institute. NOAA Permit: 21260

Sea Turtle Rehabilitation

In 2021, **80.78%** of stranded sea turtles on Maui sustained injuries that required a minimal amount of treatment, and the patients were released back into the ocean within 24 hours of their rescue. **47** sea turtle patients required long-term rehabilitation in 2021, three from Oahu, five from Hawai'i Island, and 39 from Maui. Long term rehabilitation is defined as any turtle that required more than one week of care.

95.74% (n=45) of the long-term rehab cases in 2021 were due to **fisheries interactions** and two patients received treatment for **buoyancy disorders**.

2021 long-term rehabilitation cases by stranding location and stranding cause.

Stranding Cause	Maui	O'ahu	Hawai'i Island
Fisheries Interactions	39	3	3
Buoyancy Disorder	0	0	2



(Left) Green sea turtle patient feeds on cut squid while undergoing rehab at MOC Marine Institute. (Right) A juvenile green sea turtle patient is released back into the ocean by MOC Marine Institute. Photos: MOC Marine Institute. NOAA Permit: 21260

Monitoring and Citizen Science: Tagged Turtles

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 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 their 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.

2021 Overview

138 new tag numbers

800 + sighting reports

22 recapture events (turtle stranded more than once)

If a turtle strands more than once (recapture), we do not give them a new tag number, but rather refresh their existing tag and continue to track them through our citizen science program.

Of the 22 recapture events, MOC Marine Institute staff initially tagged ten of the turtles in 2020, eight of the turtles were captured twice in 2021, and two of the turtles were captured three times in 2021.

Monitoring and Citizen Science: Tagged Turtles



MA09

MA09 is an adult male green sea turtle (*Chelonia mydas*) initially observed on May 3, 2020, while basking at Makena Landing, with a large Ulua hook pierced through his right eyelid. MOC Marine Institute's response team transported the turtle back to our facility and carefully removed the hook. The turtle was then tagged and released. MA09 has been spotted over 20 times since release at different locations in the South Maui area and can frequently be found basking at Makena Landing. NOAA Permit: 21260



MA100

MA100 is a juvenile green sea turtle (*Chelonia mydas*). MA100 is our most frequently sighted sea turtle, spotted more than 85 times since its initial rescue. The turtle is most often observed at Ka'anapali Beach. MA100 turtle has been rescued on three separate occasions by MOC Marine Institute for fisheries interactions. First, in April 2021, the turtle had a hook in the mouth, and then again, in October 2021, with a hook in the left pectoral region. Our team rescued MA 100 again in December 2021 with monofilament fishing line entangling its left front flipper and entering its mouth. All three times, our team transferred the turtle back to our facility, where we removed the hooks or line, checked the patient's tags, and released it back into the ocean. NOAA Permit: 21260



Keiki o ke Kai

MOC Marine Institute's 'Keiki o ke Kai' program introduces high school juniors and seniors in Maui County to diverse marine science and ocean conservation topics. Focused on experiential learning, students work alongside MOC Marine Institute biologists and educators and participate in fieldwork, research projects, and restoration activities in hopes of inspiring higher-level education.

In 2021, we had two middle school students and three high school students that assisted with sea turtle husbandry, patient care, stranding response, and various conservation projects.





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In 2021, we educated students from both local schools and visiting groups throughout the year, including : Kula Elementary, Kamali'i Elementary, Maui High School, and Kihei Charter School.

Lessons focused on sea turtle biology and ecology, marine debris, and how we can all work together to help protect our island home.





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Honu Hero

In 2021, MOC Marine Institute launched a community beach cleanup program to reduce trash along the Maui shoreline.

MOC Marine Institute's Honu Hero Beach Cleanup Program allows residents and visitors to Maui to take a hands-on approach to protect our marine environments while enjoying time with their family and friends.

June 2021

program launch

40,000 +

pieces of debris collected

Top 5 Items Collected

1. Hard plastic pieces
2. Paper/cardboard
3. Cigarette butts
4. Glass pieces
5. Food wrappers

The top five items collected accounted for 67% of all trash.





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Fishing Net Collection Program

MOC Marine Institute is dedicated to reducing entanglement threats to all marine animals and has launched a ghost net removal program.

We respond to calls about ghost nets that ocean goers have brought to shore or found along the shoreline.

If you find an abandoned fishing net, please report it to our hotline at

1-800-4-Da-Nets





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Fishing Line Recycling Program

We have placed specialized fishing line recycling bins along with informational signage at more than 40 beaches and popular fishing locations around Maui, providing an accessible method for fishermen to discard their used line.





Partner Organizations



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Sea Turtle Stranding Hotline – Maui Direct
808-286-2549 (MOC Marine Institute)

NOAA Statewide Marine Animal Response Line
888-256-9840



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