



**MARINE INSTITUTE**  
MAUI OCEAN CENTER

**Sea Turtle Stranding Response & Rescue**  
2019 Summary of Results, Maui, Hawai'i

---

Tommy Cutt, Jennifer Martin



**MOC Marine Institute**  
192 Ma'alaea Rd.  
Wailuku, Hawai'i 96793  
[www.mocmarineinstitute.org](http://www.mocmarineinstitute.org)

## Contents

Background.....	3
Team.....	4
Partners & Collaborators.....	4
Sea Turtle Stranding Data.....	5
Map: Stranding Type by Location.....	8
Fishing Gear.....	11
Map: Heat Map of Fishery Interactions.....	12
Fishing Line Recycling Program.....	13
Map: Fishing Line Recycling Bin Locations.....	14
Map: Fishery Interactions & Fishing Line Recycling Bin Locations.....	15
Fishing Net Removal Team.....	16

## Background

Maui Ocean Center Marine Institute (MOCMI) is a 501(c)(3), nonprofit organization with a 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.

MOCMI coordinates the response and rescue of sick, injured, distressed, or expired sea turtles on the island of Maui, Hawai‘i in partnership and coordination with NOAA Fisheries (as per regulations: 50 CFR Part 222.301).

All MOC Marine Institute sea turtle stranding response and rescue activities are authorized under NOAA Fisheries Permit: 21260.

---



**Figure 1.** Juvenile green sea turtle that was rescued from an illegal gillnet in the nearshore waters of Kihei, Hawai‘i, April, 2019. Photo: MOC Marine Institute

### Sea Turtle Stranding Response & Rescue Team

MOCMI’s Sea Turtle Stranding Response and Rescue Team is comprised of staff, student employees, high school and college-level interns, and community volunteers. Below is a list of all who assisted with MOCMI’s sea turtle stranding response and rescue activities in 2019.

Harry Abrahamsen	Miranda Camp	Matt Gorman	Jim Luecke	Jessica Priest
Hannah Bernard	Sean Carlson	Marc Ghilarducci	Jennifer (Aleysa) Martin	Carol Riccio
Doug Boyd	Chelsea Co	Ku‘ulei Gunderson	Mackenzie Mason	Ron Riccio Jennifer
Monique Boyles	Tommy Cutt	Peyton Hoge	Don McLeish	Rogers Caroline
Sonoma Boynton	Arik Dadez	David Jouvenat	Tom Melcher	Sabharwal
Tara Branham	Nicole Davis	Meryl Kaufman	Jadda Miller	Domenick Symanski
Maia Brown	Mark Deakos	Leslie Hoeffken	Nadine Nagata	Bruce Weyermann
Shawn Caley	Danielle Enright	Cheryl King	Israel Padilla	Anita Wintner
Dansley Camp	Alan Espiritu	Twyla Kline	Dustin Paradis	
Dakota Camp	John Gorman	Colby Long	Robert Pasqua	

### Partners and Collaborators



## Sea Turtle Stranding Data

This report contains information on documented injured, sick, distressed, or expired sea turtles on the island of Maui from 1 January to 31 December 2019. The data source is Maui Ocean Center Marine Institute's database.

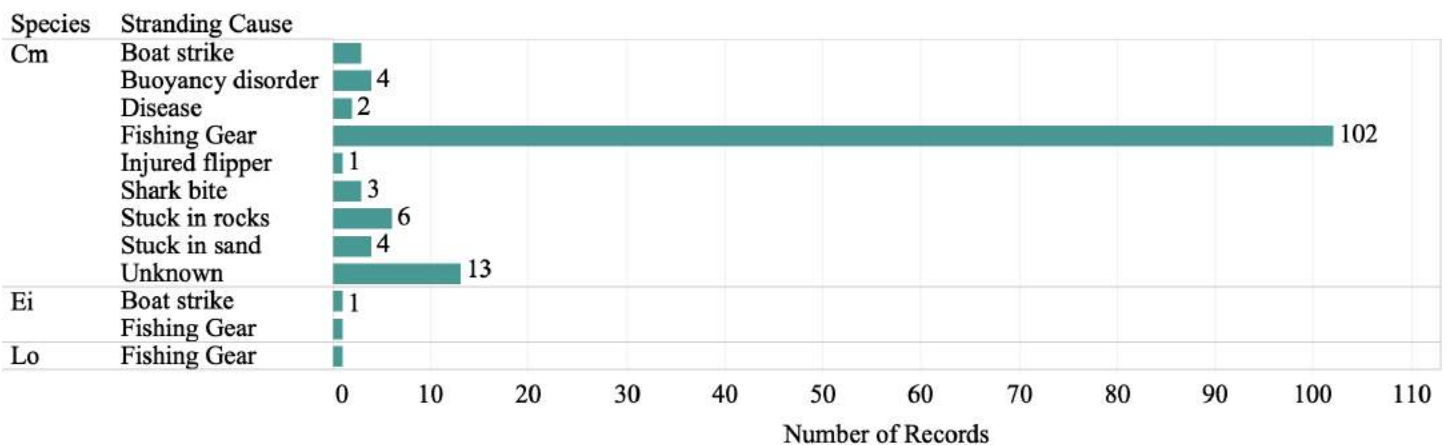
**Table 1.** Common name equivalents to scientific names and abbreviations given throughout this report.

Scientific Name	Abbreviation	Common Name
<i>Chelonia mydas</i>	Cm	Green sea turtle
<i>Eretmochelys imbricata</i>	Ei	Hawksbill sea turtle
<i>Lepidochelys olivacea</i>	Lo	Olive ridley sea turtle

## Sea Turtle Stranding Data: Results

One hundred forty-one (141) sea turtles were documented stranded on the island of Maui by Maui Ocean Center Marine Institute’s (MOCMI’s) Sea Turtle Stranding Response and Rescue Program from 1 January to 31 December 2019. 117 of the 141 were located alive.

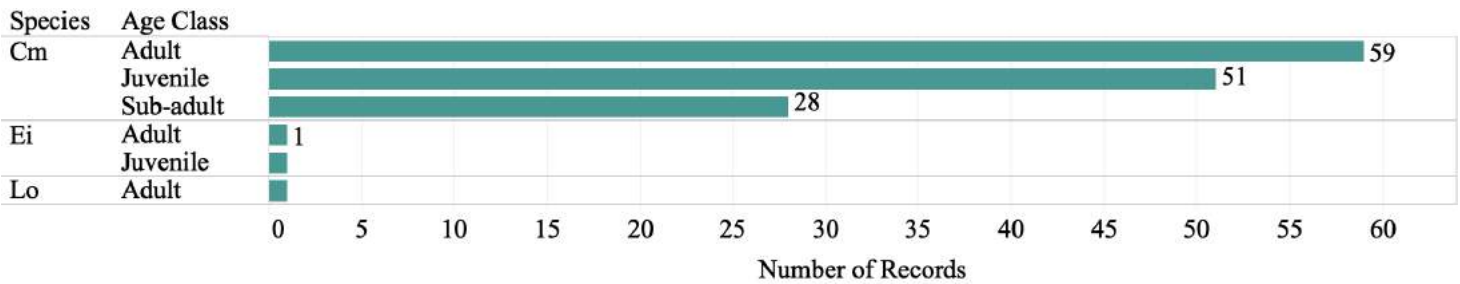
Among the 141 sea turtles that stranded in 2019, 138 were greens (*Chelonia mydas*), two were hawksbills (*Eretmochelys imbricata*) and one was an Olive ridley (*Lepidochelys olivacea*). Stranding causes included fishery interactions (n=104), lodged in shoreline rocks (n=6), stuck in the sand (n=4), boat strike injuries (n=4), buoyancy disorder (n=4), shark bite (n=3), disease (n=2), deformed flipper (n=1), and unknown causes (n=13).



**Figure 2.** Species of sea turtle and cause of stranding. 1 January – 31 December, Maui, Hawai‘i, 2019.

### Sea Turtle Stranding Data: Age Class of Stranded Sea Turtles

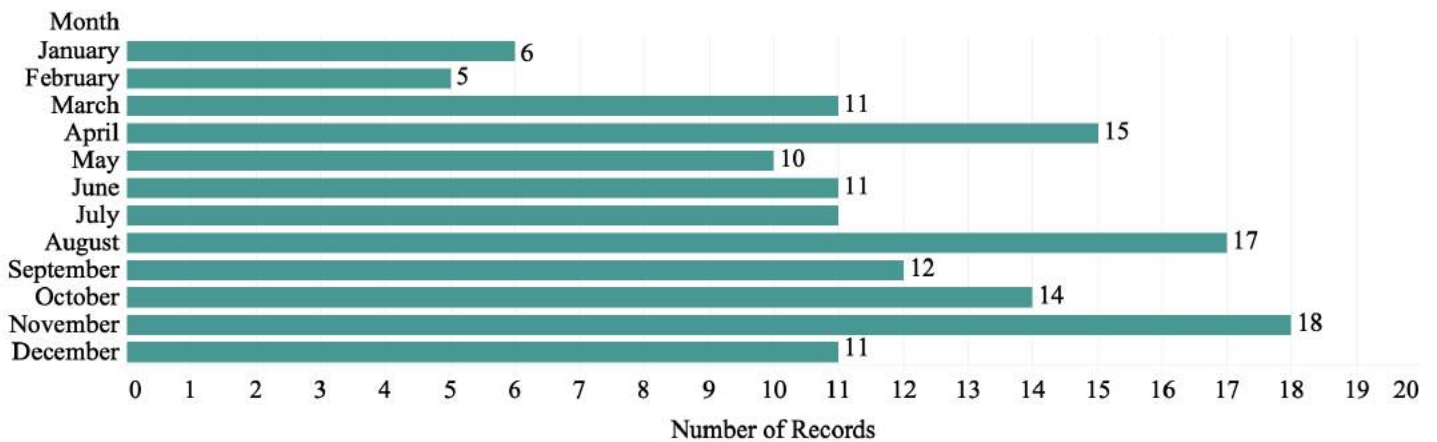
Of the 141 sea turtles that stranded in 2019, the majority were adult greens (n=59), followed by juvenile greens (n=51), sub-adult greens (n=28), adult hawksbill (n=1), juvenile hawksbill (n=1), and an adult Olive ridley (n=1).



**Figure 3.** Age class and species of stranded sea turtles. 1 January – 31 December, Maui, Hawai‘i, 2019.

### Sea Turtle Stranding Data: Strandings by Month

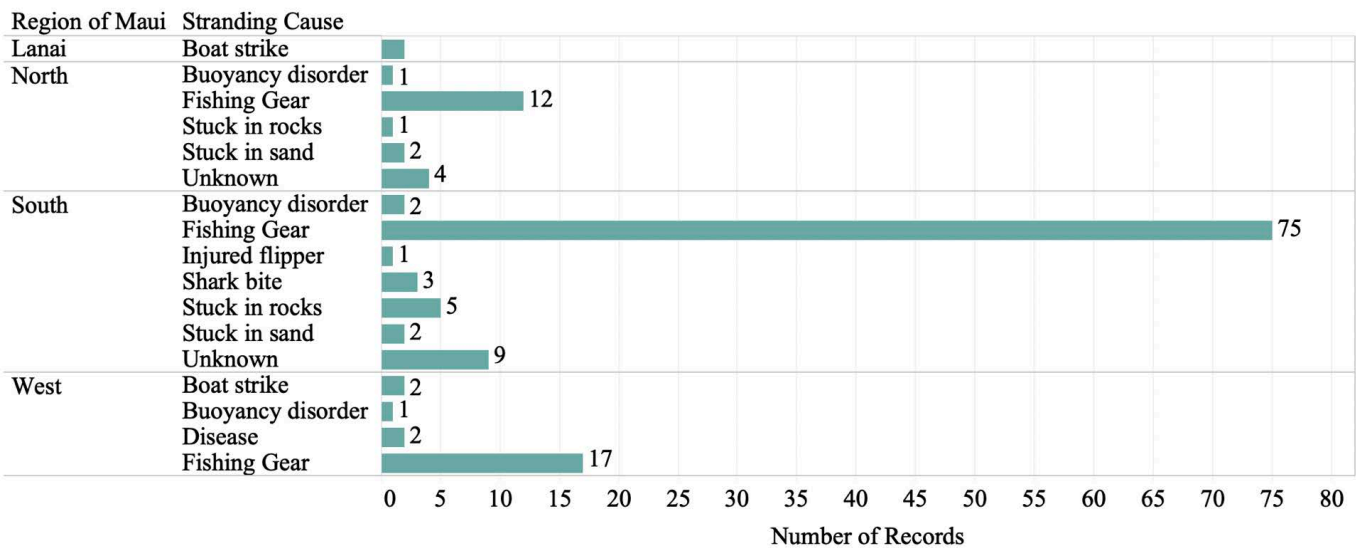
Among the 141 sea turtles that stranded in 2019, most were documented in November (n=18), followed by August (n=17), April (n=15), October (n=14), September (n=12), March (n=11). June (n=11), July (n=11), December (n=11), May (n=10), January (n=6), and February (n=5).



**Figure 4.** Sea turtle strandings by month. 1 January – 31 December, Maui, Hawai‘i, 2019.

**Sea Turtle Stranding Data: Location**

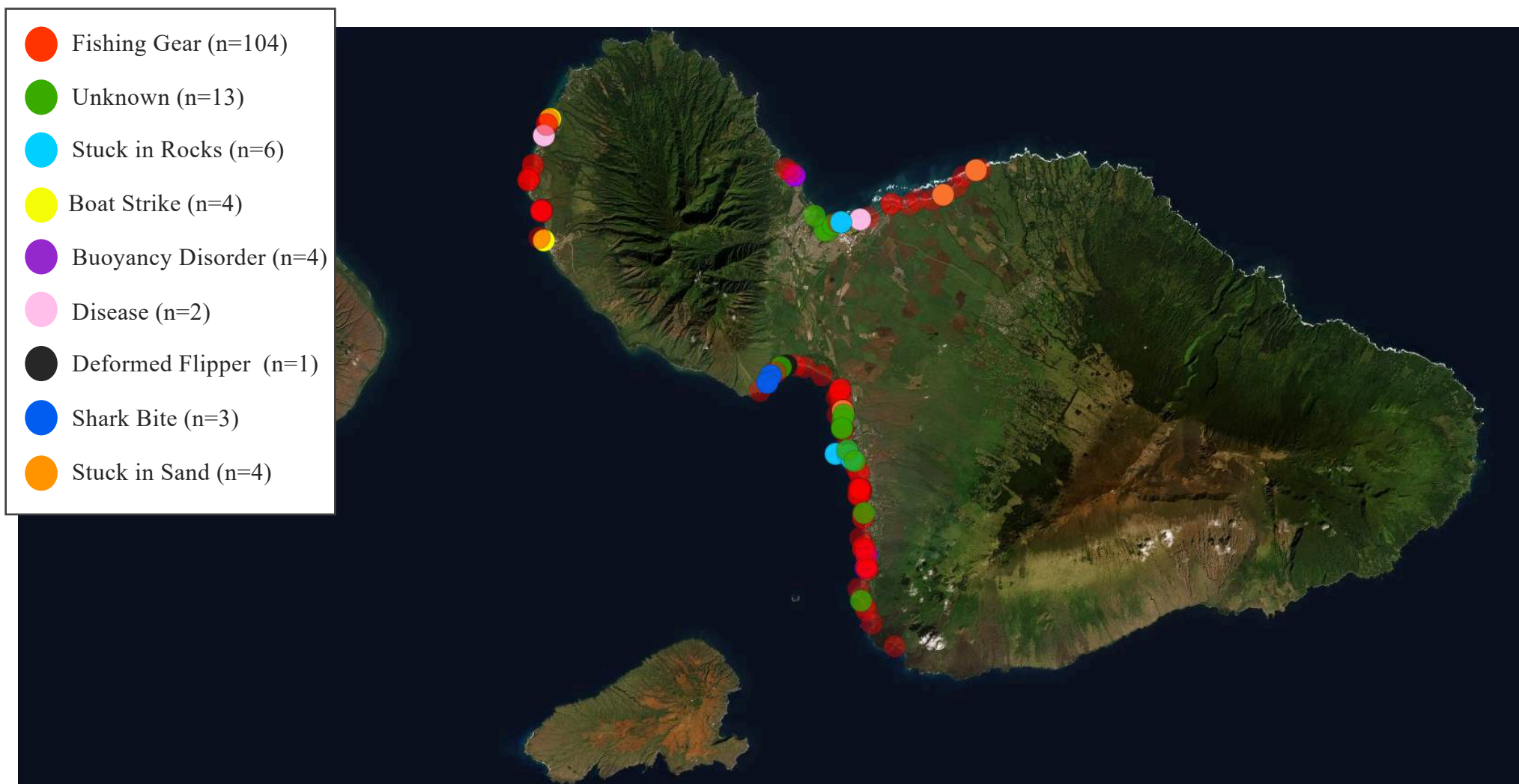
The island of Maui is the second-largest of the Hawaiian Islands and the largest of Maui County’s four islands, which also include Moloka‘i, Lāna‘i, and Kaho‘olawe. Maui is composed of two major volcanic areas, the West Maui Mountains and Haleakalā, that are separated by a low-lying isthmus. Maui has 190 miles of coastline that contains more than 100 beaches. For the purpose of this report, the coast is divided into three sections: the North Shore, from Waihe‘e to Ho‘okipa; the West Maui coast, Ukumehame to Kapalua; and the South Maui coast, La Perouse Bay to McGregor Point. This report does not include the long, east Maui coast.



**Figure 5.** Sea turtle stranding cause by region. 1 January – 31 December, Maui, Hawai‘i, 2019.



**Figure 6.** Juvenile green turtle that was rescued in 2019 with a fishing hook embedded below its left front flipper. Photo: Don McLeish

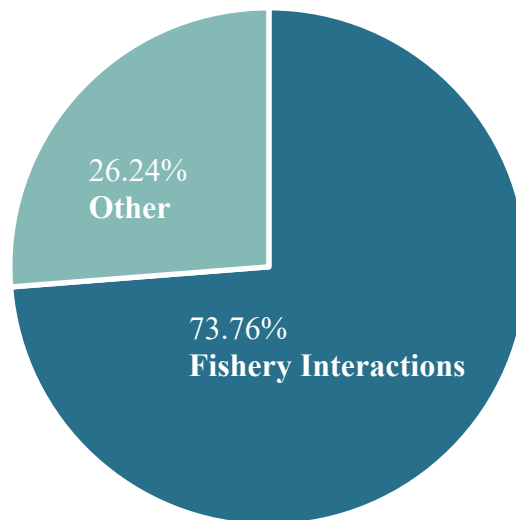


**Figure 7.** Stranding type by location. 1 January – 31 December, Maui, Hawai‘i, 2019.



### Sea Turtle Stranding Data: Fishery Interactions

Nearshore recreational fishery interactions are the leading threat to sea turtles in the main Hawaiian Islands. Nearshore hook-and-line fisheries are comprised of numerous gear types that target a range of species, and accidental interaction with sea turtles is very common. Data shows that between 01 January and 31 December 2019, 73.76% of the documented sea turtle strandings in Maui were a result of fishery interactions. Recreational fishing gear commonly found includes monofilament line, braided line, hooks, and gill nets. Fishing line and nets can tighten around the turtle’s extremities and cause deep cuts that may lead to infections, limited movement, or complete loss of the limb. Limited use of appendages can impair a turtle's natural foraging, breathing, and swimming behavior.



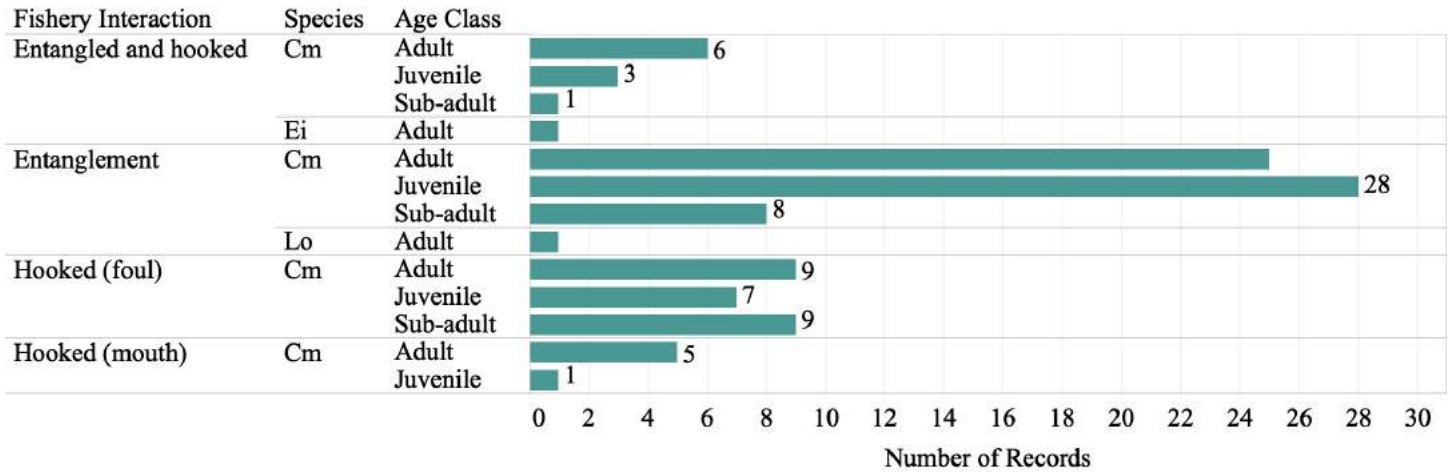
**Figure 8.** 73.76% of all strandings were due to fishery interactions. 1 January – 31 December, Maui, HI, 2019.



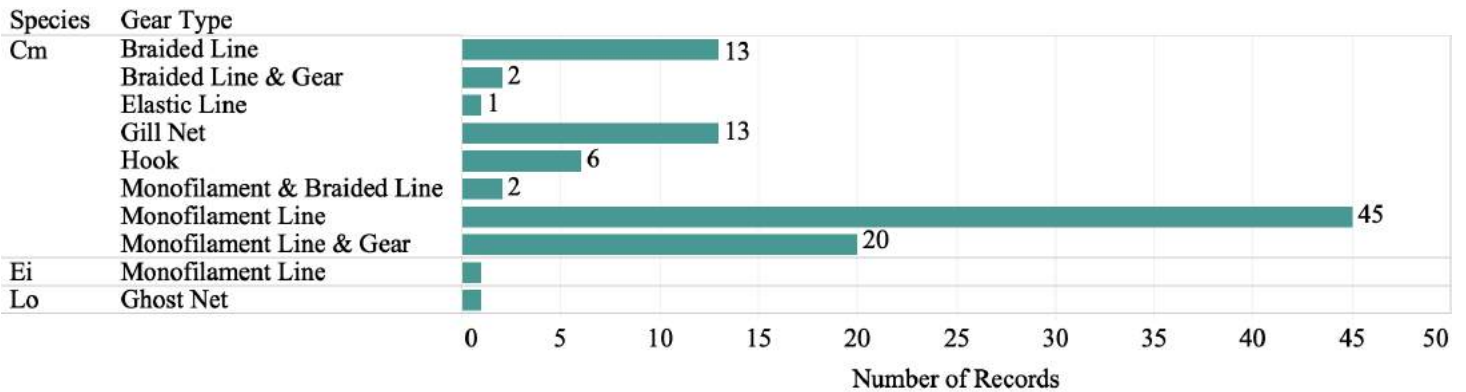
**Figure 9.** Adult green sea turtle rescued in 2019 with monofilament fishing line entangled around its neck and both front flippers. Photo: MOC Marine Institute

**Sea Turtle Stranding Data: Fishery Interactions**

Among the documented fishery interactions in 2019, the majority were due to entanglement (n=62), followed by turtles that were foul hooked (n=25), those that were both entangled and hooked (n=11), and finally those hooked in the mouth (n=6).



**Figure 10.** Fishery interactions by species and age class. 1 January – 31 December, Maui, HI, 2019.



**Figure 11.** Fishery Interactions by species and gear type. 1 January – 31 December, Maui, HI, 2019.

---

## Fishery Interactions: Types of Gear

### Monofilament Fishing Line

Monofilament line is the most commonly used fishing line; it is a single-strand, high density nylon. Monofilament lines are made from a mixture of polymers to form strands of line. The size of the hole controls the diameter, strength, and pound test of the line. Monofilament is the only fishing line that is recyclable.

### Braided Fishing Line

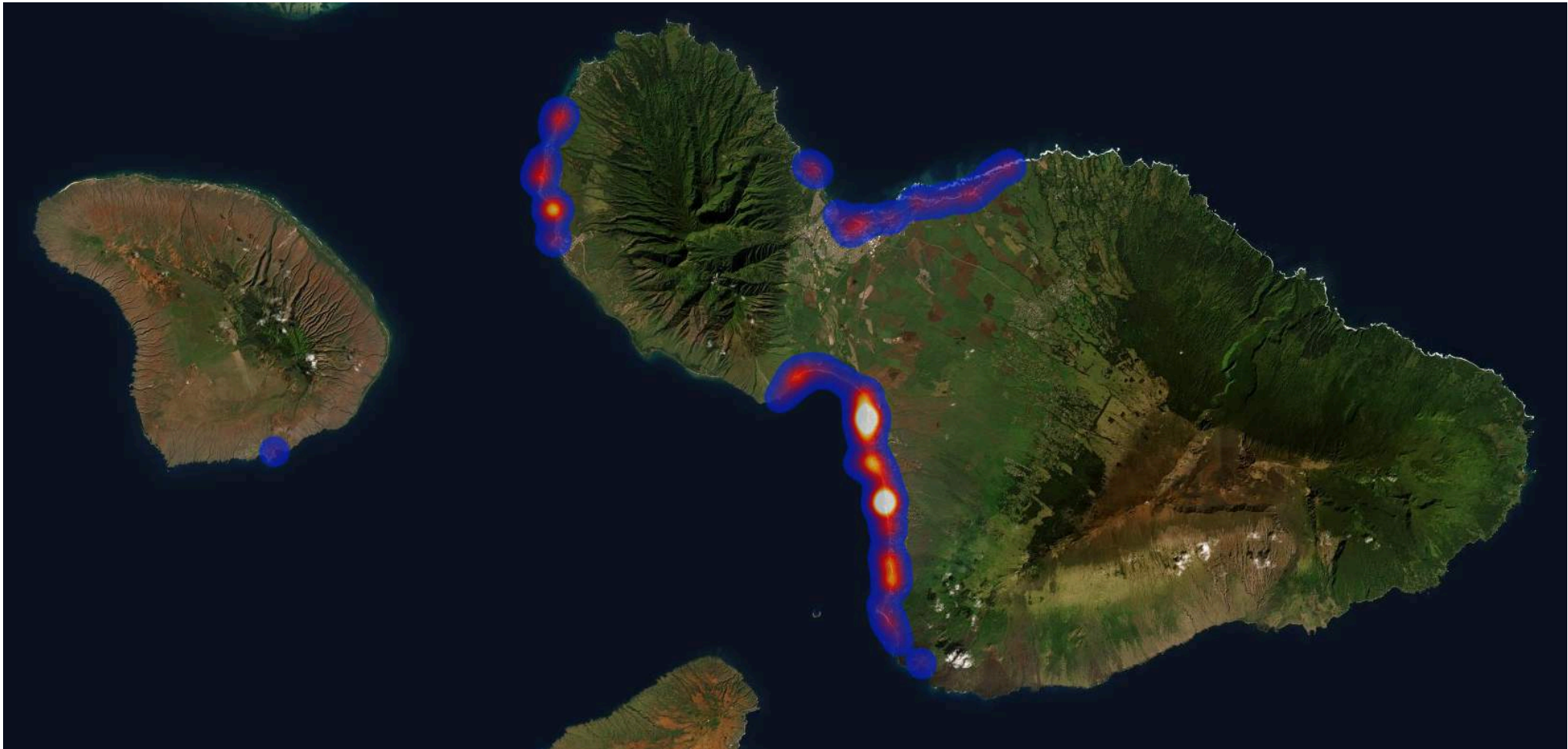
Braided fishing line is made by braiding or weaving synthetic fibers such as Kevlar, Spectra, and Dyneema. These fibers are used in braided fishing line to create a line that was both thin and extremely strong. Anglers will utilize them when trolling and jigging for fish, as well as putting braided line on a reel and then tying it to monofilament to allow a smaller-type reel to hold more line. Braided line or line that contains wire cannot be recycled.

### Gill Net

A gill net is a wall of fishing netting that hangs in the water column, typically made of monofilament or multifilament nylon. The netting is designed to allow fish to get only their head through but not their body. The fish’s gills then get caught in the mesh as the fish tries to back out of the net. As the fish struggles to free itself, it become more entangled. It is unlawful to use lay nets within 3 miles of the shoreline around the entire island of Maui.



**Figure 12.** Two juvenile green sea turtles rescued from a gill net off Waiehu Beach, Maui. November 2019. Photo: MOC Marine Institute



**Figure 13.** Strandings caused by fishery interactions. 1 January – 31 December, Maui, Hawai‘i, 2019.

### Solutions: Fishing Line Recycling Program

Maui Ocean Center Marine Institute (MOCMI) seeks to prevent pollution and decrease harmful interactions between sea turtles and discarded fishing line through the establishment of the Fishing Line Recycling Program (FLRP).

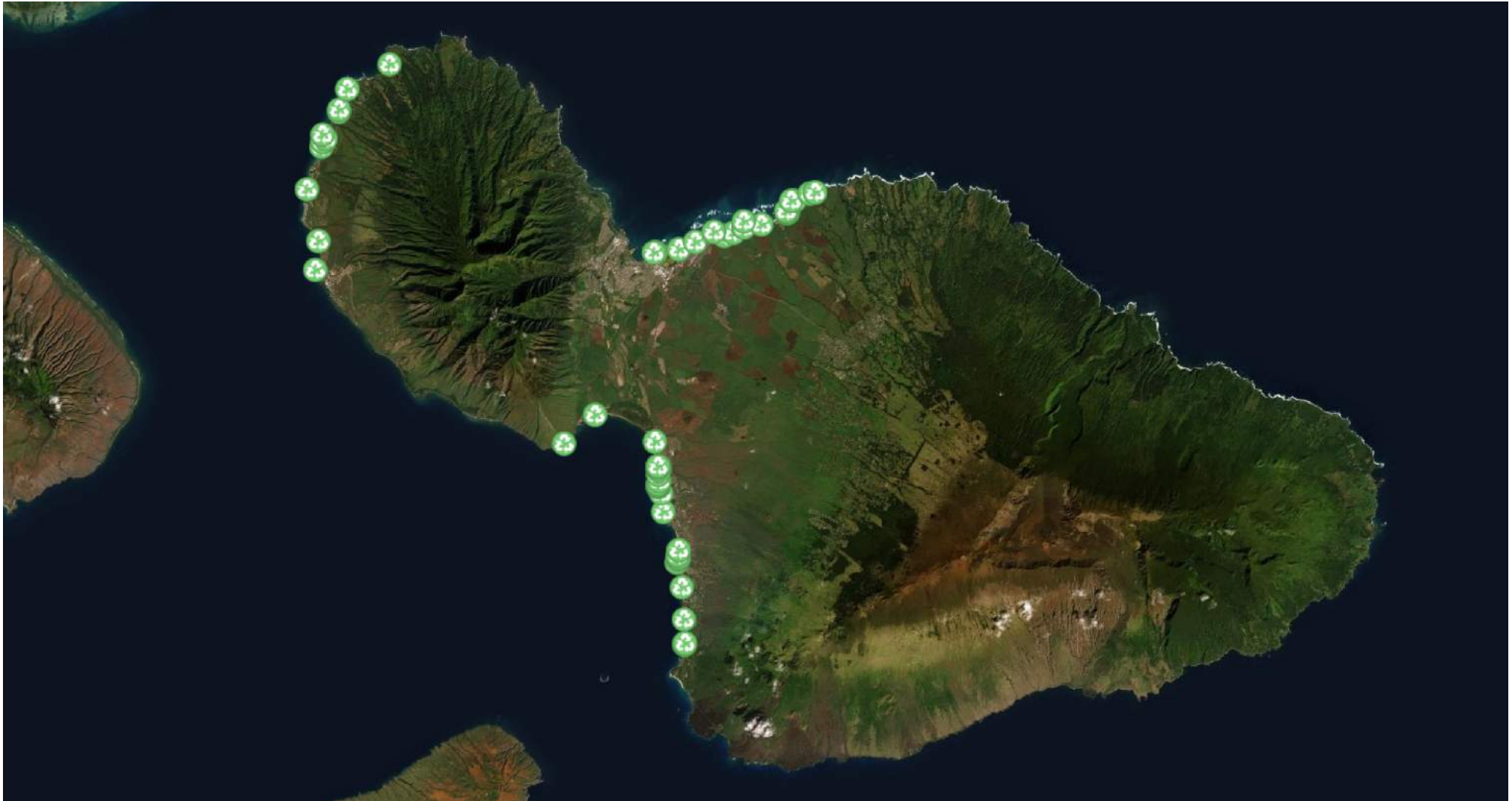
The FLRP provides an easily accessible method for fishers to take a hands-on, proactive approach to prevent pollution and reduce entanglement hazards by properly discarding their line. Fishing line recycling bins and educational signage are installed at twenty-six high-traffic fishing locations along Maui’s shoreline, harbors, and boat ramps, and at four sites in Hilo, Hawai‘i Island.

Fishing line is routinely collected from the recycling bins, sorted of hooks and weights, measured, and recorded in MOCMI’s database. The line is then shipped to the Berkley Conservation Institute where it is melted down and made into fish habitat structures and other repurposed equipment.

In 2019, 9,264.64 meters of fishing line was collected in MOCMI's fishing line recycling bins on Maui.



**Figure 14.** (Left) Fishing line recycling bin installed at Kanaha Beach Park, Maui, HI. (Right) MOCMI team member empties a fishing line recycling bin at McGregor Point on Maui, HI.



**Figure 15.** Fishing Line Recycling Bin locations.



**Figure 16.** Fishery Interactions and Fishing Line Recycling Bin locations.

---

### Solutions: Fishing Net Removal Team

Fishing nets or lines left abandoned in the ocean can pose a significant threat to sea turtles and other marine life. A ghost net is a fishing net that has been discarded or lost in the sea by fishers and continues to trap everything in their path. Ghost nets do not only catch fish; they also often entangle and harm coral reefs, sea turtles, sharks, birds, dolphins, monk seals, and more.

Ghost nets entangle marine animals, causing injuries and restricting them from moving freely. They also can prevent sea turtles, birds, and marine mammals from rising to the surface for air. To reduce the threat of ghost nets to Maui’s nearshore environment, MOCMI has launched a net removal team. The team responds to calls about abandoned nets along the shoreline or in nearshore waters and regularly surveys areas where nets are commonly found.

In 2019, MOCMI's Fishing Net Removal Team recovered eight derelict fishing nets from the nearshore waters of Maui, including six illegal gill nets.

---



**Figure 17.** Large fishing net removed from Launiopoko Beach Park in August 2019 by MOCMI. Photo: MOC Marine Institute





# MARINE INSTITUTE

## MAUI OCEAN CENTER

*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.*

Learn more: [MOCMarineInstitute.org](https://MOCMarineInstitute.org)



**MOC Marine Institute**  
192 Ma'alaea Road  
Wailuku, Hawai'i 96793