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Marine Turtle Strandings in the Hawaiian Islands January – December 2013^a

**Protected Species Division
Turtle Research Program
NOAA Pacific Islands Fisheries Science Center**

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The Turtle Research Program (TRP) documented 247 green turtle (*Chelonia mydas*), 4 hawksbill (*Eretmochelys imbricata*), and 2 olive ridley (*Lepidochelys olivacea*) strandings in the main Hawaiian Islands and Northwestern Hawaiian Islands from January 1 to December 31, 2013. Of the 247 green turtle strandings, 99 (40%) stranded alive and 148 (60%) stranded dead. Of the 99 live stranded green turtles, 48 (49%) were successfully treated and released, 19 (19%) returned to the water prior to TRP arrival, 31 (31%) died, and 1(1%) was of unknown dead or alive status. Three juvenile green turtles (2 on March 16, 2013, and 1 on March 23, 2013) were found trapped in a pool behind a seawall on Tern Island at French Frigate Shoals, all of which were rescued and released by USFWS personnel. On April 3, 2013, the U.S. Navy rescued a green turtle trapped in a dry dock in Pearl Harbor and transported it to the ocean for release. Figure 1 shows the trend of total green turtle strandings in the Hawaiian Islands by year since 1982, and Figure 2 shows a breakdown of green turtle strandings by month in 2013. Since the late 1990s there has been a leveling off in the annual number of green turtle strandings. 2013 was the second lowest year on record since 1996.

Of the 4 hawksbill strandings, 3 (75%) stranded dead and 1 (25%) stranded alive. On April 11, 2013, a hawksbill was found dead at Lahaina (Baby Beach), Maui with monofilament line and a metal leader in its mouth. The cause of stranding was determined to be drowning. Two other hawksbills still have pending stranding causes dependent on histological results by Dr. Thierry Work, USGS; one was found dead on July 24, 2013 at Laie Beach Park, Oahu, and the other was found dead underwater tangled in fishing line on October 21, 2013 at Milolii, Hawaii. The live hawksbill was found tangled in fishing net near Molokini, Maui on April 20, 2013. A local dive company cut the net and released the turtle. A video of the rescue can be seen at

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www.youtube.com/watch?v=yrZw8ksIN7M&fb. Figure 3 shows a breakdown of hawksbill strandings by month in 2013.

The 2 olive ridleys both stranded alive. On February 8, 2013, one was found on the rocks at KMCAS (Ft. Hase Beach), Oahu, missing both front flippers, but with healed amputations. The turtle was euthanized by contract veterinarian Dr. Robert Morris due to a poor prognosis. The other olive ridley stranded on February 14, 2013 at the Malaekahana State Recreation Area, Oahu. A good samaritan member of the public removed cargo net/fishing line entangling the turtle's flipper, and TRP brought the turtle to Dr. Robert Morris who surgically amputated the injured flipper. Following rehabilitation, the turtle was released offshore on March 7, 2013.

Three cases of human take were recorded in 2013, all involving green turtles. On February 19, 2013 a separated plastron and carapace with clean cuts around the edges were found at Olowalu, Maui. On April 28, 2013 another carapace was found floating offshore with clean, even cuts around its edge. Lastly, on October 10, 2013 a live turtle was spotted swimming offshore of Kaanapali (Hyatt), Maui with a spear in its flipper. Lifeguards brought the turtle to shore, removed the spear, and released the turtle.

A cause of stranding is assigned by TRP to all reports of stranded turtles (Figure 4). Some cases have multiple causes of stranding (e.g., boat impact and shark attack) and we use the best scientific judgment to determine which event was likely the primary cause of stranding. For the purpose of this report, we used the causes of stranding identified in Chaloupka et al. (2008), with the addition of human take, to summarize all stranding events from January through December 2013. This enables comparison to historical records (Figure 5) and consistency through time. The eight categories are: fibropapillomatosis (FP); hook and line; net and gillnet entanglement; boat impact; shark attack; human take; miscellaneous; and unknown.

Cases categorized as fibropapillomatosis (Table 1) include all stranded turtles with moderate or severe FP, defined as turtles with tumor severity scores of 2 and 3. It should be noted that the seven other categories may also include turtles with less severe cases of FP, but since FP was not the primary reason the turtle stranded, another more applicable cause of stranding was assigned.

Hook and line cases (Table 2) include all turtles that strand as a result of interactions with fish hooks and fishing line. These include turtles that were hooked externally, ingested hooks, entangled in fishing line, or exhibited intestinal intussusceptions due to line ingestion.

Net and gillnet entanglement cases (Table 3) include unidentified nearshore and pelagic nets, including cargo nets, trawl nets, lobster nets, and monofilament gillnets.

Boat impact cases (Table 4) include traumatic injury judged to be caused by a boat, usually involving propeller strike. If the injury cannot clearly be determined to be caused by a boat, it is simply listed as trauma.

Shark attack cases (Table 5) are identified by missing or lacerated appendages and large crescent shaped bites out of the carapace and plastron. It is often difficult to determine if the shark attack occurred before or after death. However, because we conduct a thorough necropsy to rule out other potential causes of stranding, we are reasonably confident that cases identified as shark attack are those that resulted from a predation event as opposed to a scavenging event.

Human take cases (Table 6) include all strandings that result from direct human take including turtles that were speared, knifed, or shot with a firearm. State and Federal enforcement agencies are notified for all human take cases.

Miscellaneous cases (Table 7) include but are not limited to turtles with various pathologies, excessive buoyancy, or other sorts of trauma, and turtles stuck in crevices or trapped in items that are not fishing net or line related.

Unknown cases (Table 8) include strandings where no obvious cause can be discerned.

Sixteen turtles still pending a necropsy report (Table 9), all from 2013, have not yet been assigned a cause of stranding, but will be retrospectively documented in the 2014 annual stranding report.

Turtles from 2011 and 2012 that were previously pending a necropsy report to determine cause of stranding have now been assigned a stranding cause and are reported in Table 10.

The 253 total strandings as detailed by cause in Tables 1–9 from January through December 2013 were: 44 fibropapillomatosis (18%), 51 hook and line (20%), 6 net and gillnet entanglement (2%), 18 boat impact (7%), 7 shark attack (3%), 3 human take (1%), 33 miscellaneous (13%), 75 unknown (30%), and 16 turtles pending necropsy reports (6%).

Acknowledgments

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References

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2008. Cause-specific temporal and spatial trends in green sea turtle strandings in the Hawaiian Archipelago (1982-2003). *Marine Biology* 154(5): 887-898.

Table 1. Marine turtle strandings in the Hawaiian Islands involving fibropapillomatosis (N=44), January – December 2013.

DATE	ISLAND	LOCATION	SPECIES	SEX	SCL (cm)	TUMORS	CAUSE OF STRANDING	NECROPSY	END STATUS
12-Jan-13	OAHU	Waialua	CM	F	58.3	Y	FP	Y	Dead
13-Jan-13	HAWA	Ka'u (Whittington Bch. Pk.)	CM	U	67.2	Y	FP	N	Dead
21-Feb-13	MAUI	Maalaea	CM	M	-	Y	FP	N	Alive
8-Mar-13	HAWA	Hilo (Richardson Beach Park)	CM	U	-	Y	FP	N	Alive
19-Mar-13	OAHU	Haleiwa Alii Beach Park	CM	U	62.3	Y	FP	N	Alive
29-Mar-13	OAHU	Haleiwa (Haleiwa Surf Condos)	CM	F	58.2	Y	FP	Y	Dead
5-Apr-13	HAWA	Hilo (Richardson Ocean Center)	CM	F	39.5	Y	FP	Y	Dead
8-Apr-13	HAWA	Honolii	CM	F	63.4	Y	FP	Y	Dead
23-Apr-13	MAUI	Kihei (HIHWNMS)	CM	F	92.6	Y	FP/Shark attack	Y	Dead
23-Apr-13	MAUI	Kihei (Menehune Condos)	CM	M	85.7	Y	FP/Shark attack	Y	Dead
1-May-13	OAHU	Reef Runway	CM	F	58.1	Y	FP	Y	Dead
3-May-13	OAHU	Kahana Bay Beach Park	CM	U	-	Y	FP	N	Alive
18-May-13	OAHU	Malaekahana State Rec Area	CM	F	44.9	Y	FP	Y	Dead
26-May-13	OAHU	Kaneohe Bay (Kualoa Regional Park)	CM	F	48.7	Y	FP	Y	Dead
26-May-13	OAHU	Haleiwa Alii Beach Park	CM	M	62.6	Y	FP	Y	Dead
29-May-13	OAHU	Kaneohe Bay (Kualoa Regional Park)	CM	M	55.8	Y	FP	Y	Dead
3-Jun-13	OAHU	Kahana Bay	CM	U	66.4	Y	FP	N	Alive
15-Jun-13	MAUI	Kahana	CM	F	76.5	Y	FP	Y	Dead
29-Jun-13	OAHU	Kaneohe Bay (Kualoa Regional Park)	CM	U	86.0	Y	FP	N	Dead
30-Jun-13	MAUI	Kihei (Koieie Fishpond)	CM	U	-	Y	FP	N	Alive
2-Jul-13	MAUI	Kihei (Charley Young Beach)	CM	U	-	Y	FP	N	Dead
8-Jul-13	OAHU	Ala Wai Yacht Harbor	CM	F	78.8	Y	FP	Y	Dead
8-Jul-13	OAHU	Waikiki (Sheraton Waikiki)	CM	F	63.5	Y	FP	Y	Dead
9-Jul-13	OAHU	Kahana Bay Beach Park	CM	U	-	Y	FP	N	Alive

Table 1 Cont. Marine turtle strandings in the Hawaiian Islands involving fibropapillomatosis (N=44), January – December 2013.

DATE	ISLAND	LOCATION	SPECIES	SEX	SCL (cm)	TUMORS	CAUSE OF STRANDING	NECROPSY	END STATUS
11-Jul-13	OAHU	Kaneohe Bay (Kualoa Regional Park)	CM	F	84.4	Y	FP	Y	Dead
1-Aug-13	OAHU	Kahana Bay Beach Park	CM	U	71.1	Y	FP	N	Alive
5-Aug-13	OAHU	Mokuleia (Crozier Drive)	CM	U	-	Y	FP	N	Alive
17-Aug-13	MAUI	Kihei (Cove Park)	CM	M	43.5	Y	FP	Y	Dead
20-Aug-13	OAHU	Kaneohe Bay (Kahaluu)	CM	U	-	Y	FP	N	Alive
21-Aug-13	OAHU	Kaneohe Bay (Kahaluu)	CM	F	74.1	Y	FP	Y	Dead
28-Aug-13	OAHU	Haleiwa (Surf N Sea)	CM	M	60.6	Y	FP	Y	Dead
5-Sep-13	MAUI	Hookipa Beach Park	CM	M	70.3	Y	FP	Y	Dead
15-Sep-13	OAHU	Turtle Bay Resort	CM	U	-	Y	FP	N	Alive
19-Sep-13	OAHU	Honolulu International Airport (Reef Runway)	CM	U	-	Y	FP	N	Alive
22-Oct-13	OAHU	Mokuleia (Crozier Drive)	CM	U	48.2	Y	FP	N	Alive
8-Nov-13	OAHU	Kailua (Kawainui Canal)	CM	U	-	Y	FP	N	Alive
18-Nov-13	OAHU	Haleiwa Beach Park	CM	U	-	Y	FP	N	Alive
28-Nov-13	OAHU	Kaneohe Bay (Lihikai Drive)	CM	U	-	Y	FP	N	Alive
28-Nov-13	OAHU	Maunalua Bay (China Walls)	CM	U	-	Y	FP	N	Alive
6-Dec-13	MAUI	Kihei (Kamaole Beach Park III)	CM	U	-	Y	FP	N	Dead
22-Dec-13	OAHU	Waianae (Boat Harbor)	CM	U	-	Y	FP	N	Alive
24-Dec-13	OAHU	Kahuku Golf Course	CM	U	-	Y	FP	N	Alive
27-Dec-13	OAHU	Kualoa (Secret Island)	CM	U	-	Y	FP	N	Alive
28-Dec-13	OAHU	Maunalua Bay (Portlock)	CM	U	-	Y	FP	N	Alive

Table 2. Marine turtle strandings in the Hawaiian Islands involving hook and line (N=51), January – December 2013.

DATE	ISLAND	LOCATION	SPECIES	SEX	SCL (cm)	TUMORS	CAUSE OF STRANDING	NECROPSY	END STATUS
6-Jan-13	OAHU	Laniakea	CM	U	-	U	Fish hook	N	Alive
7-Jan-13	MAUI	Ahihikinau	CM	U	64.4	Y	Fish hook	N	Alive
7-Jan-13	OAHU	Haleiwa Boat Harbor	CM	M	66.0	N	Intestinal intussusception	Y	Dead
19-Jan-13	OAHU	Keaau Beach Park	CM	F	36.5	N	Line entanglement	Y	Dead
5-Feb-13	OAHU	Kahana Bay Beach Park	CM	F	37.7	N	Line entanglement	Y	Dead
6-Feb-13	OAHU	Turtle Bay	CM	F	36.8	N	Line entanglement	Y	Dead
9-Feb-13	KAUA	Ahukini Pier (Hanamaulu Bay)	CM	F	69.8	N	Line ingestion	Y	Dead
16-Feb-13	OAHU	Lanikai Beach Park	CM	U	-	N	Fish hook	N	Alive
16-Feb-13	OAHU	Kailua Bay (Oneawa Beach)	CM	M	68.1	N	Line entanglement	Y	Dead
13-Mar-13	OAHU	Makai Pier	CM	M	42.1	N	Line entanglement	Y	Dead
14-Mar-13	OAHU	Maunalua Bay (China Walls)	CM	M	40.2	N	Debris ingestion/Line entanglement	Y	Dead
14-Mar-13	MAUI	Wailea (Makena Surf Resort)	CM	U	70.0	U	Fish hook	N	Alive
18-Mar-13	OAHU	Kawainui Canal	CM	U	-	U	Line entanglement	N	Alive
1-Apr-13	OAHU	Haleiwa (Anahulu River)	CM	F	68.3	N	Line ingestion	Y	Dead
2-Apr-13	OAHU	Maili Beach Park	CM	F	44.4	N	Line entanglement	Y	Dead
5-Apr-13	OAHU	Waianae (Pokai Bay)	CM	U	-	U	Line entanglement	N	Dead
21-Apr-13	OAHU	Kailua Bay	CM	U	-	U	Fish hook	N	Alive
29-Apr-13	OAHU	Hanauma Bay	CM	U	48.0	N	Fish hook	N	Alive
4-May-13	OAHU	Kailua Bay	CM	U	-	U	Line entanglement	N	Alive
29-May-13	MAUI	Makena (Big Beach)	CM	U	-	Y	Line entanglement/Fish hook	N	Alive
31-May-13	KAUA	Anini	CM	U	-	N	Fish hook	N	Alive
31-May-13	OAHU	Kawainui Canal	CM	F	60.6	N	Line entanglement	Y	Dead
1-Jun-13	OAHU	Nanakuli Beach Park	CM	M	51.7	N	Line entanglement	Y	Dead
1-Jun-13	OAHU	Laie Beach Park	CM	M	-	N	Line entanglement	Y	Dead
5-Jun-13	OAHU	Haleiwa Boat Harbor	CM	F	64.7	N	Line ingestion	Y	Dead

Table 2 Cont. Marine turtle strandings in the Hawaiian Islands involving hook and line (N=51), January – December 2013.

DATE	ISLAND	LOCATION	SPECIES	SEX	SCL (cm)	TUMORS	CAUSE OF STRANDING	NECROPSY	END STATUS
15-Jun-13	OAHU	Kahana Bay Beach Park	CM	U	-	U	Line entanglement	N	Dead
17-Jun-13	MAUI	Kihei (Koieie Fishpond)	CM	U	-	U	Line entanglement	N	Alive
20-Jun-13	OAHU	Aina Haina	CM	U	52.4	N	Line entanglement	N	Alive
25-Jun-13	OAHU	Kailua Bay (Kalama Beach)	CM	U	48.3	N	Line Entanglement	N	Dead
2-Jul-13	MAUI	Kihei (Halama Street)	CM	U	-	Y	Line entanglement	N	Alive
8-Jul-13	OAHU	Maili Beach Park	CM	U	75.4	N	Line entanglement	N	Dead
24-Jul-13	OAHU	Ala Moana Beach Park	CM	M	37.9	N	Line entanglement	Y	Dead
24-Jul-13	OAHU	Ala Moana Beach Park	CM	F	41.4	N	Line entanglement	Y	Dead
27-Jul-13	OAHU	Punaluu	CM	F	44.6	N	Line entanglement	Y	Dead
28-Jul-13	OAHU	Haleiwa (Laniakea)	CM	U	40.3	N	Line entanglement	N	Alive
6-Aug-13	OAHU	Kawela Bay	CM	U	-	U	Line entanglement	N	Alive
10-Aug-13	OAHU	Haleiwa Harbor	CM	U	-	U	Line entanglement	N	Dead
11-Aug-13	OAHU	Kaena Point	CM	F	36.6	N	Line entanglement	Y	Dead
21-Aug-13	OAHU	Haleiwa Alii Beach Park	CM	U	-	Y	Line entanglement	N	Alive
5-Sep-13	OAHU	Waianae (Pokai Bay)	CM	U	-	N	Line entanglement	N	Alive
5-Oct-13	HAWA	Kiholo	CM	U	-	U	Fish hook/Line entanglement	N	Alive
14-Oct-13	MAUI	Makena (Five Caves/Graves)	CM	U	-	U	Line entanglement	N	Alive
24-Oct-13	OAHU	Haleiwa Beach Park	CM	U	-	Y	Fish hook	N	Alive
4-Nov-13	HAWA	Hilo Bay (Waiakea Pond)	CM	U	-	U	Line entanglement	N	Unknown
12-Nov-13	OAHU	Mokuleia (Dillingham Airfield)	CM	U	-	N	Line entanglement	N	Dead
23-Nov-13	OAHU	Unknown	CM	U	-	U	Line entanglement	N	Alive
25-Nov-13	OAHU	Lanai Lookout	CM	U	-	N	Line entanglement/Fish hook	N	Alive
30-Nov-13	OAHU	Camp Mokuleia	CM	U	-	U	Line entanglement/Fish hook	N	Alive
5-Dec-13	HAWA	Puako (138 Puako Beach Road)	CM	U	56.4	N	Line entanglement	N	Alive
10-Dec-13	OAHU	Haleiwa Alii Beach Park	CM	F	61.8	Y	Line entanglement/Line ingestion	Y	Dead

Table 2 Cont. Marine turtle strandings in the Hawaiian Islands involving hook and line (**N=51**), January – December 2013.

DATE	ISLAND	LOCATION	SPECIES	SEX	SCL (cm)	TUMORS	CAUSE OF STRANDING	NECROPSY	END STATUS
28-Dec-13	OAHU	Kaneohe Bay (Ipuka Place)	CM	U	-	U	Line entanglement/Fish Hook	N	Dead

Table 3. Marine turtle strandings in the Hawaiian Islands involving net and gillnet entanglement (**N=6**), January – December 2013.

DATE	ISLAND	LOCATION	SPECIES	SEX	SCL (cm)	TUMORS	CAUSE OF STRANDING	NECROPSY	END STATUS
14-Feb-13	OAHU	Malaekahana State Rec. Area	LO	F	61.5	N	Net/line entanglement	N	Alive
7-Mar-13	OAHU	Haleiwa (Surf N Sea)	CM	U	64.0	Y	Net entanglement	N	Alive
16-Apr-13	OAHU	Lualualei Beach Park	CM	U	-	U	Net entanglement	N	Dead
20-Apr-13	MAUI	Molokini	EI	U	-	N	Net entanglement	N	Alive
24-Apr-13	EAST	East Island	CM	M	-	U	Net entanglement	N	Alive
13-Dec-13	OAHU	Kahana Bay Beach Park	CM	U	-	Y	Net entanglement	N	Alive

Table 4. Marine turtle strandings in the Hawaiian Islands involving boat impact (**N=18**), January – December 2013.

DATE	ISLAND	LOCATION	SPECIES	SEX	SCL (cm)	TUMORS	CAUSE OF STRANDING	NECROPSY	END STATUS
4-Jan-13	HAWA	Keauhou Bay	CM	F	45.8	N	Boat impact	Y	Dead
20-Jan-13	OAHU	Haleiwa Alii Beach Park	CM	F	70.7	N	Boat impact	Y	Dead
6-Feb-13	OAHU	Waikiki (Hilton Hawaiian Village)	CM	F	91.5	N	Boat impact	Y	Dead
23-Apr-13	OAHU	Pearl Harbor (West Loch)	CM	U	-	U	Boat impact	N	Dead
26-Apr-13	KAUA	Polihale State Park	CM	F	-	N	Boat impact	N	Dead
28-Apr-13	OAHU	Kaneohe Bay (Lilipuna Rd.)	CM	U	-	U	Boat impact	N	Dead

Table 4 Cont. Marine turtle strandings in the Hawaiian Islands involving boat impact (N=18), January – December 2013.

DATE	ISLAND	LOCATION	SPECIES	SEX	SCL (cm)	TUMORS	CAUSE OF STRANDING	NECROPSY	END STATUS
5-May-13	OAHU	Pearl Harbor (Ford Island)	CM	F	75.5	N	Boat impact	N	Dead
2-Jul-13	OAHU	Kaneohe Bay (Coconut Island)	CM	U	-	U	Boat impact	N	Dead
13-Jul-13	OAHU	Kaneohe Bay (Kahaluu)	CM	F	70.2	Y	Boat impact	Y	Dead
14-Jul-13	OAHU	Haleiwa (Laniakea)	CM	M	81.3	N	Boat impact	N	Alive
20-Jul-13	OAHU	Kaneohe Bay (Heeia Kea Boat Harbor)	CM	U	-	N	Boat impact	N	Dead
21-Jul-13	HAWA	Honokohau Harbor	CM	M	56.9	N	Boat impact	Y	Dead
29-Jul-13	OAHU	Ala Wai Yacht Harbor	CM	M	-	Y	Boat impact	Y	Dead
11-Aug-13	OAHU	Pearl Harbor (West Loch)	CM	U	-	U	Boat impact	N	Alive
14-Aug-13	OAHU	Pearl Harbor (West Loch)	CM	M	-	N	Boat impact	N	Dead
4-Sep-13	OAHU	Campbell Industrial Park	CM	U	-	N	Boat impact	Y	Dead
17-Oct-13	OAHU	Makaha Beach Park	CM	U	-	N	Boat impact	N	Dead
7-Nov-13	OAHU	Pearl Harbor	CM	M	83.9	N	Boat impact	Y	Dead

Table 5. Marine turtle strandings in the Hawaiian Islands involving shark attack (N=7), January – December 2013.

DATE	ISLAND	LOCATION	SPECIES	SEX	SCL (cm)	TUMORS	CAUSE OF STRANDING	NECROPSY	END STATUS
19-Feb-13	LANA	Halepalaoa	CM	U	-	U	Shark attack	N	Dead
21-Mar-13	MAUI	Waipuiani Beach Park	CM	M	87.1	Y	Shark attack	Y	Dead
22-Mar-13	OAHU	Iroquois Point	CM	M	39.3	N	Shark attack	Y	Dead
5-Aug-13	MAUI	Olowalu Point	CM	U	-	N	Shark attack	N	Dead
28-Sep-13	OAHU	Kaneohe Bay (Kahaluu)	CM	U	70.3	Y	Shark attack	Y	Dead
1-Nov-13	OAHU	Punaluu	CM	U	84.6	U	Shark attack	N	Dead
20-Nov-13	OAHU	Punaluu Beach Park	CM	U	-	N	Shark attack	N	Dead

Table 6. Marine turtle strandings in the Hawaiian Islands involving human take (N=3), January – December 2013.

DATE	ISLAND	LOCATION	SPECIES	SEX	SCL (cm)	TUMORS	CAUSE OF STRANDING	NECROPSY	END STATUS
19-Feb-13	MAUI	Olowalu	CM	U	46.4	N	Human Take	Y	Dead
28-Apr-13	HAWA	Hilo (Richardson Ocean Center)	CM	M	63.8	N	Human Take	Y	Dead
10-Oct-13	MAUI	Kaanapali (Hyatt)	CM	U	-	U	Spear	N	Alive

Table 7. Marine turtle strandings in the Hawaiian Islands involving miscellaneous causes (N=33), January – December 2013.

DATE	ISLAND	LOCATION	SPECIES	SEX	SCL (cm)	TUMORS	CAUSE OF STRANDING	NECROPSY	END STATUS
3-Jan-13	OAHU	Hanauma Bay	CM	F	51.4	N	Emaciation	Y	Dead
8-Feb-13	OAHU	KMCAS (Ft. Hase Beach)	LO	F	57.8	N	Disoriented stuck on land	Y	Dead
16-Mar-13	TERN	Tern Island	CM	U	-	U	Trapped	N	Alive
16-Mar-13	TERN	Tern Island	CM	U	-	U	Trapped	N	Alive
23-Mar-13	TERN	Tern Island	CM	U	-	U	Trapped	N	Alive
31-Mar-13	HAWA	Kailua-Kona (Old Airport Beach)	CM	F	46.9	N	Trauma	Y	Dead
3-Apr-13	OAHU	Pearl Harbor	CM	U	-	N	Trapped	N	Alive
6-Apr-13	OAHU	Waikiki (Outrigger Canoe Club Beach)	CM	F	79.0	N	Suspect drowning	Y	Dead
7-Apr-13	OAHU	Waianae Boat Harbor	CM	F	72.9	N	Trauma	Y	Dead
11-Apr-13	MAUI	Lahaina (Baby Beach)	EI	F	54.5	N	Suspect drowning	Y	Dead
11-Apr-13	OAHU	Waianae Boat Harbor	CM	M	-	N	Trauma/Shark Attack	Y	Dead
16-Apr-13	MAUI	Kahana (Kahana Beach Resort)	CM	F	80.9	Y	Suspect drowning	Y	Dead
28-Apr-13	OAHU	Kawainui Canal	CM	M	45.1	N	Crab trap	Y	Dead
10-May-13	HAWA	Punaluu (Ninole Cove)	CM	U	71.0	N	Trapped in pond	N	Alive
20-May-13	OAHU	Barbers Point (White Plains Beach)	CM	M	37.2	N	Tissue necrosis	Y	Dead
20-Jun-13	HAWA	Wailoa River	CM	U	-	Y	Rope entanglement	N	Alive

Table 7 Cont. Marine turtle strandings in the Hawaiian Islands involving miscellaneous causes (**N=33**), January – December 2013.

DATE	ISLAND	LOCATION	SPECIES	SEX	SCL (cm)	TUMORS	CAUSE OF STRANDING	NECROPSY	END STATUS
29-Jun-13	MAUI	Kihei (Koieie Fishpond)	CM	U	-	Y	Trauma	N	Dead
7-Jul-13	OAHU	Haleiwa (Papailoa Road)	CM	U	-	U	Stuck in crevice	N	Alive
7-Jul-13	MAUI	Makena (Secret Beach)	CM	U	-	N	Trapped in pond	N	Alive
12-Jul-13	OAHU	Kailua Beach Park	CM	U	59.1	N	Trauma	N	Dead
26-Jul-13	MAUI	Napili	CM	F	-	N	Flooded ashore	N	Alive
26-Jul-13	MAUI	Napili	CM	M	-	N	Flooded ashore	N	Alive
17-Aug-13	OAHU	Sandy Beach Park	CM	U	-	N	Hatchling mortality	N	Dead
27-Aug-13	OAHU	Kewalo Basin	CM	M	46.5	N	Suspect drowning	Y	Dead
27-Sep-13	OAHU	Kailua Beach	CM	U	-	N	Trauma	N	Alive
17-Oct-13	MAUI	Kahului Harbor (Boat Ramp)	CM	U	-	N	Stuck in crevice	N	Alive
19-Oct-13	OAHU	Turtle Bay Resort	CM	M	46.4	N	Suspect drowning	Y	Dead
29-Oct-13	HAWA	Anaehoomalu Bay	CM	F	56.4	N	Trauma	Y	Dead
2-Nov-13	MAUI	Kanaha Beach Park (Kite Beach)	CM	F	84.8	Y	Trauma/FP	Y	Dead
13-Nov-13	HAWA	Punaluu Bay	CM	U	-	N	Stuck in crevice	N	Alive
18-Nov-13	OAHU	Haleiwa (Papailoa Road)	CM	U	-	N	Stuck in crevice	N	Alive
27-Nov-13	OAHU	Makapuu	CM	U	-	N	Hatchling mortality	N	Dead
Unknown	MAUI	Unknown	CM	U	77.7	N	Trauma	N	Dead

Table 8. Marine turtle strandings in the Hawaiian Islands involving unknown causes (**N=75**), January – December 2013.

DATE	ISLAND	LOCATION	SPECIES	SEX	SCL (cm)	TUMORS	CAUSE OF STRANDING	NECROPSY	END STATUS
6-Jan-13	OAHU	Kaneohe Bay	CM	F	51.1	Y	Unknown	Y	Dead
7-Jan-13	HAWA	Hilo (James Kealoha Beach Park)	CM	U	43.9	N	Unknown	Y	Dead

Table 8 Cont. Marine turtle strandings in the Hawaiian Islands involving unknown causes (N=75), January – December 2013.

DATE	ISLAND	LOCATION	SPECIES	SEX	SCL (cm)	TUMORS	CAUSE OF STRANDING	NECROPSY	END STATUS
14-Jan-13	HAWA	Hilo (Richardson Beach Park)	CM	U	-	Y	Unknown	N	Alive
26-Jan-13	OAHU	Kaneohe Bay (Kahaluu)	CM	U	86.5	U	Unknown	N	Dead
7-Feb-13	OAHU	Kaena Point (North Side)	CM	U	-	N	Unknown	N	Dead
10-Feb-13	OAHU	Turtle Bay	CM	U	-	U	Unknown	N	Dead
17-Feb-13	KAUA	Aliomanu	CM	F	41.2	N	Unknown	Y	Dead
18-Feb-13	OAHU	Kaaawa (Crouching Lion)	CM	U	-	U	Unknown	N	Dead
19-Feb-13	OAHU	Kaneohe Bay (Heeia Pond)	CM	U	-	U	Unknown	N	Dead
24-Feb-13	MAUI	Kahului Harbor	CM	U	-	U	Unknown	N	Dead
28-Feb-13	OAHU	Makaha Beach Park	CM	U	-	U	Unknown	N	Dead
5-Mar-13	OAHU	Kawela Bay	CM	U	-	N	Unknown	N	Dead
5-Mar-13	HAWA	Hilo (Nanihoa Hotel)	CM	F	-	Y	Unknown	Y	Dead
5-Mar-13	MAUI	Kahului Beach Road	CM	U	-	N	Unknown	N	Dead
14-Mar-13	HAWA	Onekahakaha Beach Park	CM	U	-	N	Unknown	N	Dead
17-Mar-13	OAHU	Haleiwa Boat Harbor	CM	U	-	U	Unknown	N	Dead
17-Mar-13	OAHU	Velzyland	CM	U	-	U	Unknown	N	Dead
30-Mar-13	OAHU	Kailua Beach	CM	F	59.3	N	Unknown	Y	Dead
9-Apr-13	OAHU	Kaneohe Bay (Reef 29)	CM	U	-	U	Unknown	N	Dead
10-Apr-13	OAHU	Kahaluu	CM	F	49.5	N	Unknown	Y	Dead
12-Apr-13	OAHU	Hauula (Kapalaoa Beach0	CM	U	-	U	Unknown	Y	Dead
14-Apr-13	MAUI	Kihei (Uluniu Road)	CM	-	87.1	-	Unknown	N	Dead
15-Apr-13	HAWA	Puuhonua O Honaunau	CM	U	48.2	N	Unknown	Y	Dead
16-Apr-13	OAHU	KMCBH (North Beach)	CM	M	38.5	N	Unknown	Y	Dead
23-Apr-13	MAUI	Kihei (Halama Street)	CM	U	-	U	Unknown	N	Dead
23-Apr-13	MAUI	Kihei (Koa Lagoon Condos)	CM	U	-	U	Unknown	N	Dead
6-May-13	OAHU	Pokai Bay	CM	U	43.3	N	Unknown	Y	Dead

Table 8 Cont. Marine turtle strandings in the Hawaiian Islands involving unknown causes (N=75), January – December 2013.

DATE	ISLAND	LOCATION	SPECIES	SEX	SCL (cm)	TUMORS	CAUSE OF STRANDING	NECROPSY	END STATUS
8-May-13	MAUI	Paia (Kauai)	CM	U	-	Y	Unknown	N	Dead
10-May-13	OAHU	Mali Beach Park	CM	F	44.9	N	Unknown	Y	Dead
15-May-13	OAHU	Mali (Maipalaoa Beach)	CM	U	42.0	N	Unknown	Y	Dead
19-May-13	OAHU	Kaneohe Bay (Yacht Club Place)	CM	U	-	U	Unknown	N	Dead
21-May-13	MAUI	La Perouse (Ahihikinaiu Preserve)	CM	U	-	U	Unknown	N	Dead
25-May-13	OAHU	Malaekahana Beach	CM	F	-	N	Unknown	Y	Dead
31-May-13	OAHU	Haleiwa Boat Harbor	CM	U	-	U	Unknown	N	Dead
31-May-13	OAHU	Kaneohe Bay (Sandbar)	CM	U	-	U	Unknown	N	Alive
31-May-13	HAWA	Puako (142 PBR)	CM	U	60.9	N	Unknown	Y	Dead
14-Jun-13	OAHU	Haleiwa (Surf N Sea)	CM	U	-	N	Unknown	N	Dead
22-Jun-13	MAUI	Kihei (Mana Kai Maui Hotel)	CM	U	-	U	Unknown	N	Dead
24-Jun-13	OAHU	Pearl Harbor (Southeast Loch)	CM	U	-	N	Unknown	N	Dead
30-Jun-13	OAHU	Kahaluu	CM	U	-	N	Unknown	N	Dead
30-Jun-13	OAHU	Kahaluu	CM	U	-	U	Unknown	N	Dead
3-Jul-13	OAHU	Campbell Industrial Park	CM	U	-	U	Unknown	N	Dead
4-Jul-13	OAHU	Kaneohe Bay (Kahaluu Fishpond)	CM	U	82.0	U	Unknown	N	Dead
6-Jul-13	OAHU	Kahe Point Beach Park	CM	U	53.4	N	Unknown	N	Dead
8-Jul-13	MAUI	Makena Beach State Park (Oneloa/Big Beach)	CM	U	50.5	N	Unknown	N	Dead
17-Jul-13	OAHU	Kahuku	CM	U	-	U	Unknown	N	Dead
20-Jul-13	OAHU	Kailua Bay (Castles)	CM	U	-	U	Unknown	N	Dead
20-Jul-13	OAHU	Mokuleia (Dillingham Airfield)	CM	U	55.5	N	Unknown	N	Dead
24-Jul-13	OAHU	Kaneohe Bay (Heeia State Park)	CM	U	-	U	Unknown	N	Dead
9-Aug-13	OAHU	Kaneohe Bay (Kahaluu)	CM	U	-	U	Unknown	N	Dead
10-Aug-13	OAHU	Laie (Hukilau Beach Park)	CM	U	-	U	Unknown	N	Dead

Table 8 Cont. Marine turtle strandings in the Hawaiian Islands involving unknown causes (N=75), January – December 2013.

DATE	ISLAND	LOCATION	SPECIES	SEX	SCL (cm)	TUMORS	CAUSE OF STRANDING	NECROPSY	END STATUS
12-Aug-13	OAHU	Laie (Hukilau Beach Park)	CM	U	67.4	Y	Unknown	Y	Dead
22-Aug-13	OAHU	Kaneohe Bay (Kahaluu)	CM	U	87.3	N	Unknown	Y	Dead
28-Aug-13	OAHU	Kaneohe Bay (Kahaluu)	CM	M	82.4	N	Unknown	N	Dead
31-Aug-13	OAHU	Barbers Point/Kalaeloa	CM	U	-	U	Unknown	N	Dead
1-Sep-13	HAWA	Punaluu Black Sand Beach Park	CM	U	45.1	N	Unknown	Y	Dead
4-Sep-13	HAWA	Hilo (Keaukaha Beach Park)	CM	M	-	U	Unknown	N	Dead
11-Sep-13	OAHU	Waianae (Boat Harbor)	CM	F	87.1	N	Unknown	Y	Dead
12-Sep-13	OAHU	Makapuu	CM	F	94.5	N	Unknown	N	Dead
18-Sep-13	OAHU	Kaneohe Bay (Waikane)	CM	U	73.2	N	Unknown	Y	Dead
3-Oct-13	MAUI	Kihei (Lipoa Street)	CM	U	-	U	Unknown	N	Dead
5-Oct-13	OAHU	Laie Point	CM	U	42.5	N	Unknown	N	Dead
6-Oct-13	OAHU	Laie Point	CM	U	-	U	Unknown	N	Dead
16-Oct-13	OAHU	Ewa Beach (Oneula Beach Park)	CM	U	-	U	Unknown	N	Dead
20-Oct-13	HAWA	Hilo (Lehia Park)	CM	U	43.0	N	Unknown	N	Dead
21-Oct-13	MAUI	Kihei (Lipoa Street)	CM	U	50.4	Y	Unknown	N	Dead
31-Oct-13	OAHU	Mokuleia (Camp Erdman)	CM	U	-	N	Unknown	N	Dead
4-Nov-13	OAHU	Kaneohe Bay (Kahaluu)	CM	U	76.9	Y	Unknown	N	Dead
9-Nov-13	HAWA	Kamehame	CM	U	-	N	Unknown	N	Dead
25-Nov-13	OAHU	Honolulu International Airport (Reef Runway)	CM	U	-	Y	Unknown	N	Dead
28-Nov-13	OAHU	Kaneohe Bay (Kahaluu)	CM	U	-	Y	Unknown	N	Dead
3-Dec-13	OAHU	Campbell Industrial Park	CM	U	-	U	Unknown	N	Dead
3-Dec-13	OAHU	Kualoa (Ranch)	CM	U	-	U	Unknown	N	Dead
3-Dec-13	OAHU	Kualoa (Secret Island)	CM	U	-	U	Unknown	N	Dead
Unknown	MAUI	Unknown	CM	U	-	N	Unknown	N	Dead

Table 9. Marine turtle strandings in the Hawaiian Islands pending necropsy reports (N=16), January – December 2013.

DATE	ISLAND	LOCATION	SPECIES	SEX	SCL (cm)	TUMORS	CAUSE OF STRANDING	NECROPSY	END STATUS
27-Feb-13	HAWA	Puuhonua O Honaunau	CM	F	50.5	N	Pending Necropsy Report	Y	Dead
6-Mar-13	HAWA	Puako (144 PBR)	CM	-	-	-	Pending Necropsy Report	N	Dead
12-Mar-13	HAWA	Fairmont Orchid Hotel	CM	M	54.7	N	Pending Necropsy Report	Y	Dead
5-May-13	HAWA	Puako (94 PBR)	CM	M	46.9	N	Pending Necropsy Report	Y	Dead
24-Jul-13	OAHU	Laie Beach Park	EI	-	42.1	N	Pending Necropsy Report	Y	Dead
8-Aug-13	HAWA	Kapoho Beach Lots	CM	-	39.9	-	Pending Necropsy Report	N	Dead
25-Aug-13	KAUA	Princeville (Pali Ke Kua Hotel)	CM	-	-	-	Pending Necropsy Report	N	Dead
7-Sep-13	OAHU	Nanakuli	CM	-	-	-	Pending Necropsy Report	N	Dead
16-Oct-13	OAHU	Pearl Harbor (Iroquois Point)	CM	-	-	Y	Pending Necropsy Report	N	Dead
21-Oct-13	HAWA	Milolii	EI	F	64.7	N	Pending Necropsy Report	Y	Dead
27-Oct-13	OAHU	Kailua Beach	CM	-	37.7	-	Pending Necropsy Report	N	Dead
8-Nov-13	OAHU	Kaneohe Bay (Chinaman's Hat)	CM	-	74.1	Y	Pending Necropsy Report	Y	Dead
23-Nov-13	OAHU	Kualoa (Secret Island)	CM	-	66.6	Y	Pending Necropsy Report	Y	Dead
25-Nov-13	OAHU	Kailua Bay (North Kalaheo Ave)	CM	-	-	-	Pending Necropsy Report	N	Dead
29-Nov-13	OAHU	Kaena Point	CM	-	-	-	Pending Necropsy Report	N	Dead
Unknown	MAUI	Unknown	CM	-	39.1	N	Pending Necropsy Report	N	Dead

Table 10. Marine turtle strandings in the Hawaiian Islands previously pending necropsy reports (N=19), for 2011 and 2012 that were assigned cause of stranding during 2013.

DATE	ISLAND	LOCATION	SPECIES	SEX	SCL (cm)	TUMORS	CAUSE OF STRANDING	NECROPSY	END STATUS
29-Aug-11	HAWAII	Honokohau Harbor	CM	F	~61.9	N	Suspect Drowning	Y	Dead
5-Oct-11	HAWA	Pohoiki Beach	CM	U	~58.2	N	Boat Impact	Y	Dead

Table 10 Cont. Marine turtle strandings in the Hawaiian Islands previously pending necropsy reports (**N=19**), for 2011 and 2012 that were assigned cause of stranding during 2013.

DATE	ISLAND	LOCATION	SPECIES	SEX	SCL (cm)	TUMORS	CAUSE OF STRANDING	NECROPSY	END STATUS
22-Nov-11	OAHU	Kailua Bay (Castle Point)	EI	U	-	N	Hatchling Mortality	N	Dead
9-Dec-11	OAHU	Kailua Bay	LO	U	-	N	Hatchling Mortality	N	Dead
11-Dec-11	OAHU	Kailua (Kalama Beach Park)	LO	U	-	N	Hatchling Mortality	N	Dead
29-Dec-11	MAUI	Waiehu Beach	LO	F	43.6	N	Emaciation	Y	Dead
29-Jun-12	HAWA	Puako (60 PBR)	CM	U	-	N	Shark Attack	Y	Dead
14-Jul-12	OAHU	Kailua Bay (Castles)	CM	U	-	N	Emaciation	Y	Dead
22-Aug-12	HAWA	Puako	CM	M	55.4	N	Boat Impact	Y	Dead
2-Sep-12	OAHU	Bellows Beach Park	CM	U	-	N	Hatchling Mortality	N	Dead
5-Oct-12	HAWA	Waialea Bay	CM	F	60.2	N	Emaciation	Y	Dead
1-Nov-12	OAHU	Kailua Bay (N. Kalaheo Ave.)	EI	U	4.4	N	Hatchling Mortality	N	Dead
14-Nov-12	OAHU	Haleiwa Alii Beach Park	CM	M	45.8	Y	FP	Y	Dead
30-Nov-12	OAHU	Kahaluu	CM	M	55.3	Y	FP	Y	Dead
2-Dec-12	MAUI	Maliko Bay	CM	U	77.2	Y	FP	N	Dead
9-Dec-12	OAHU	Kaneohe Bay (KMCBH)	EI	U	-	N	Trauma	N	Dead
14-Dec-12	OAHU	Kaena Point (North Side)	CM	F	40.9	N	Line Ingestion	Y	Dead
24-Dec-12	OAHU	Kawainui Canal	CM	U	-	N	Unknown	Y	Dead
26-Dec-12	HAWA	Kapoho (Barsell Pond)	CM	F	46.5	Y	FP	Y	Dead

Figure 1. Green turtle strandings in the Hawaiian Islands from 1982 through 2013.

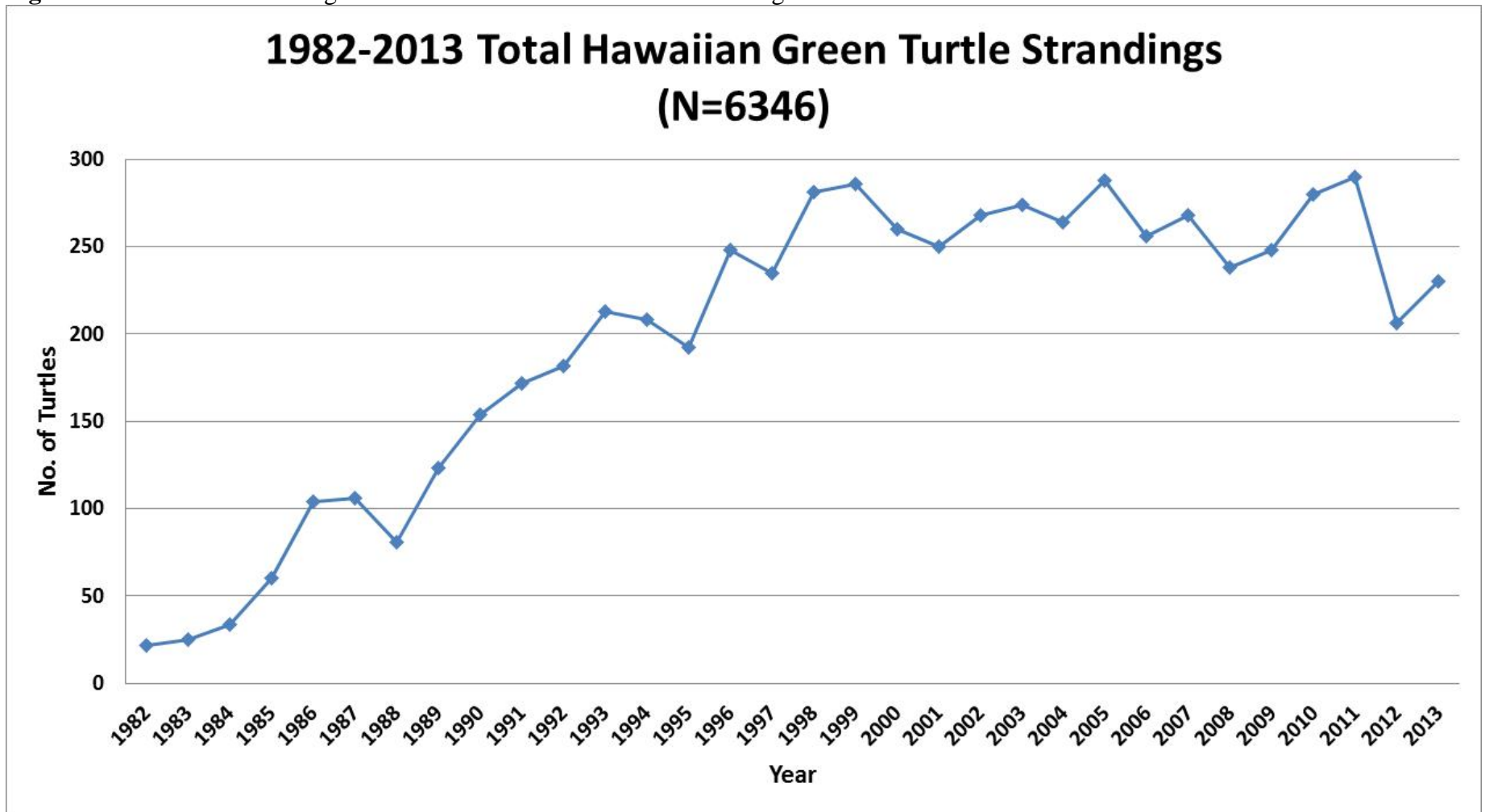


Figure 2. 2013 Hawaiian Islands green turtle strandings by month, January – December.

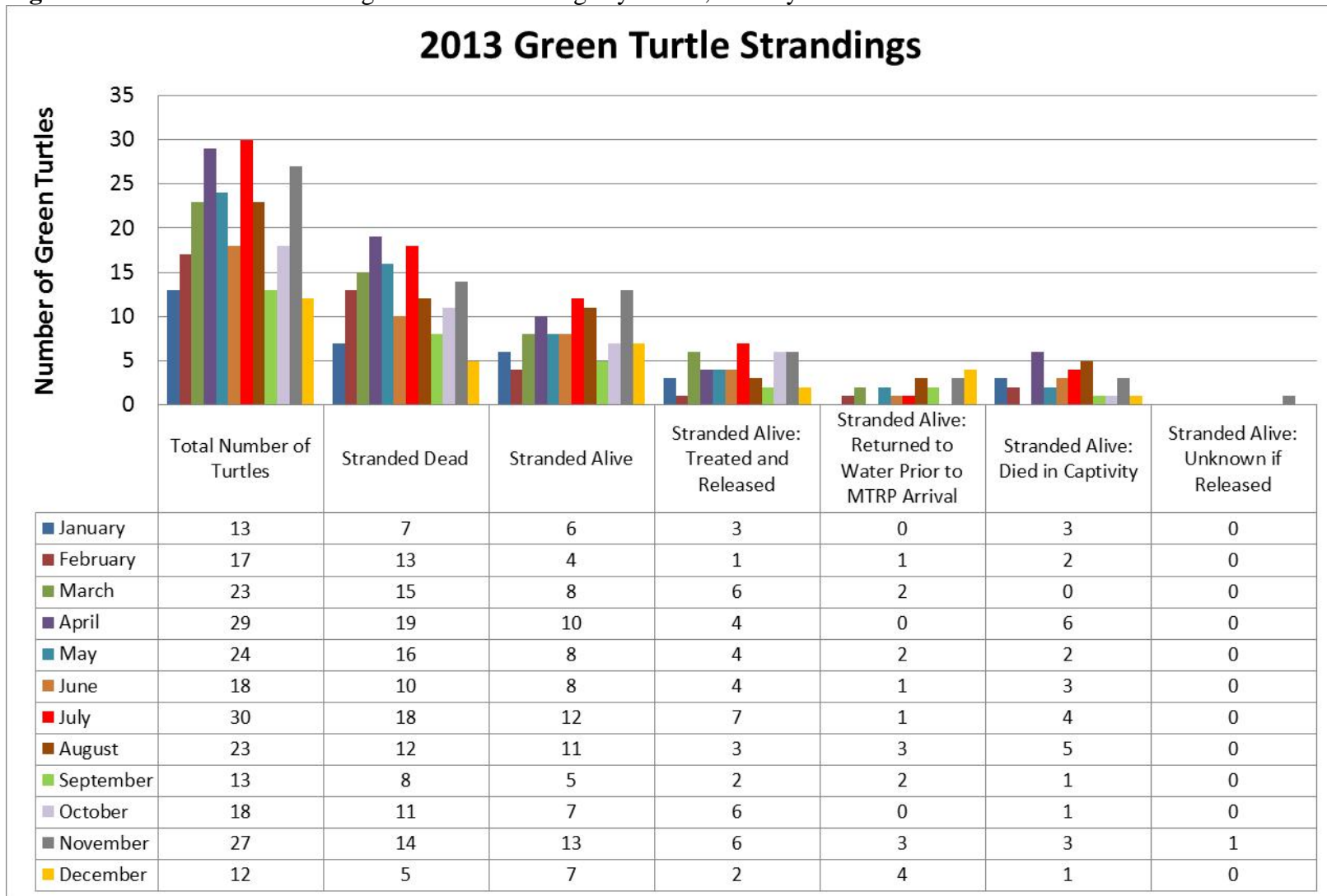


Figure 3. 2013 Hawaiian Islands hawksbill turtle strandings by month, January – December.

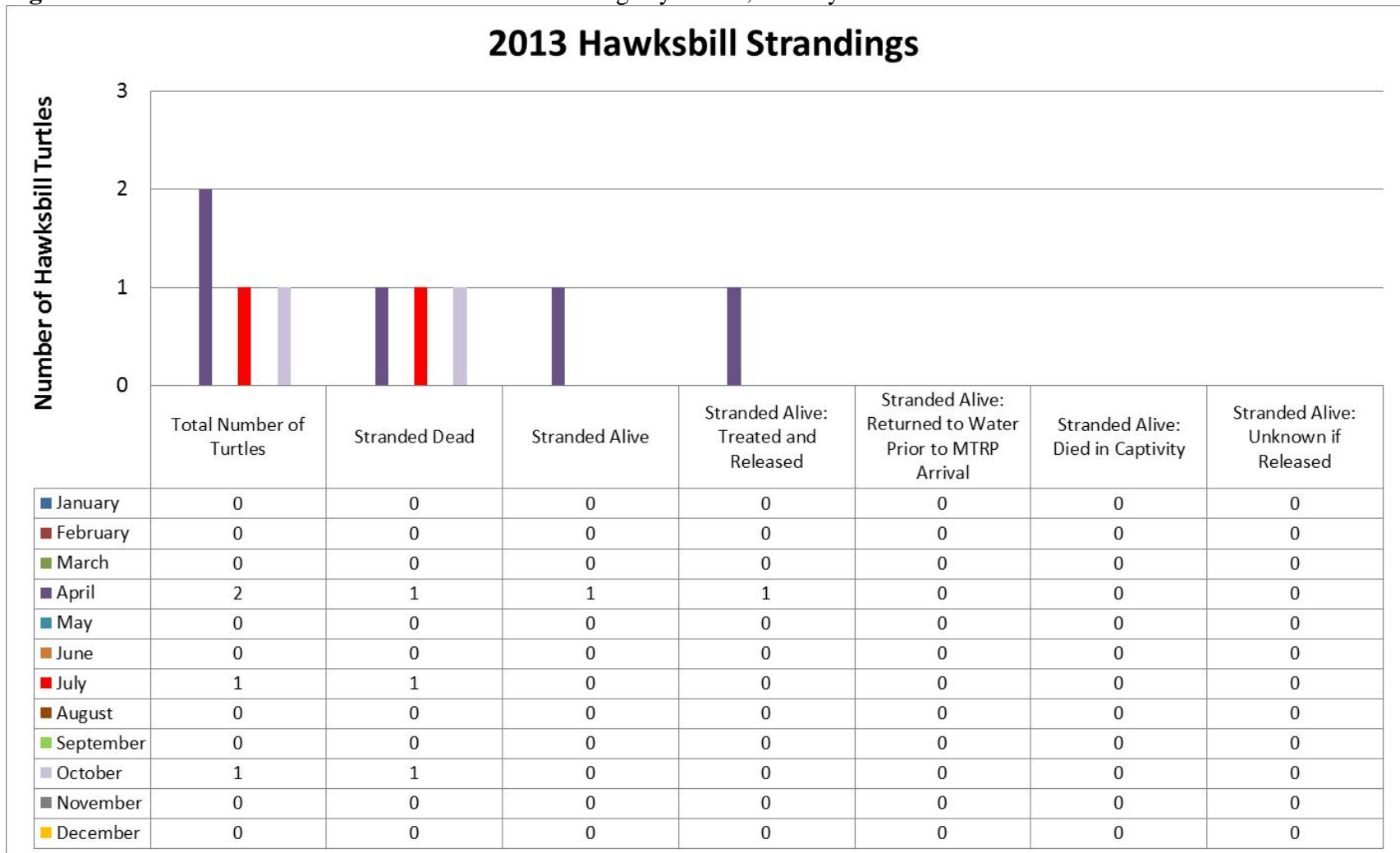


Figure 4. 2013 Green turtle stranding causes by month, January – December. Sixteen stranding reports with pending necropsy results are not included.

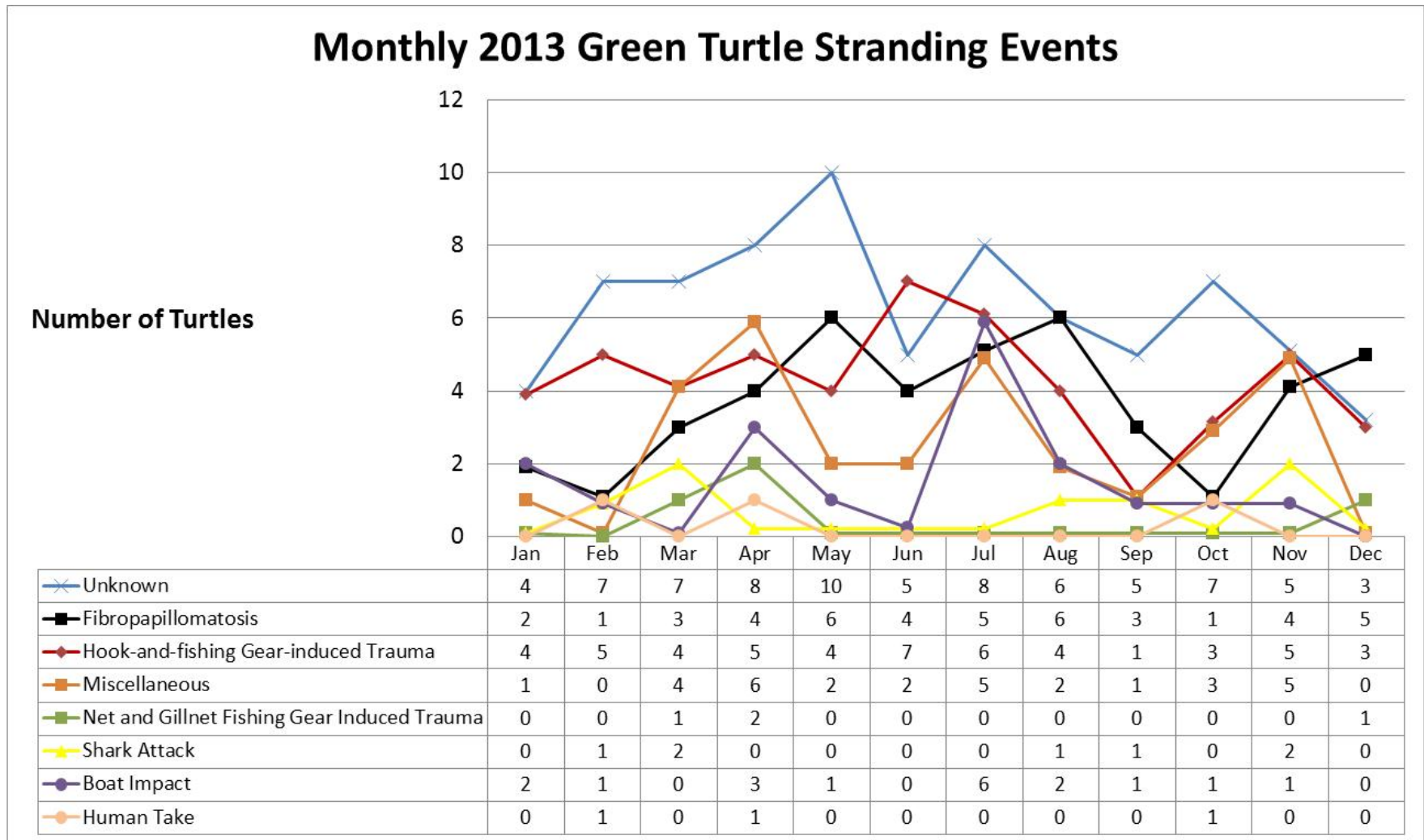


Figure 5. Green turtle strandings from Main and Northwestern Hawaiian Islands by cause from 1982 through 2013.

