

**2012-2013 Hawai'i Large Whale Entanglements
and Response Efforts
around the Main Hawaiian Islands**

Season-end Report



NOAA MMHSRP (permit# 932-1905)

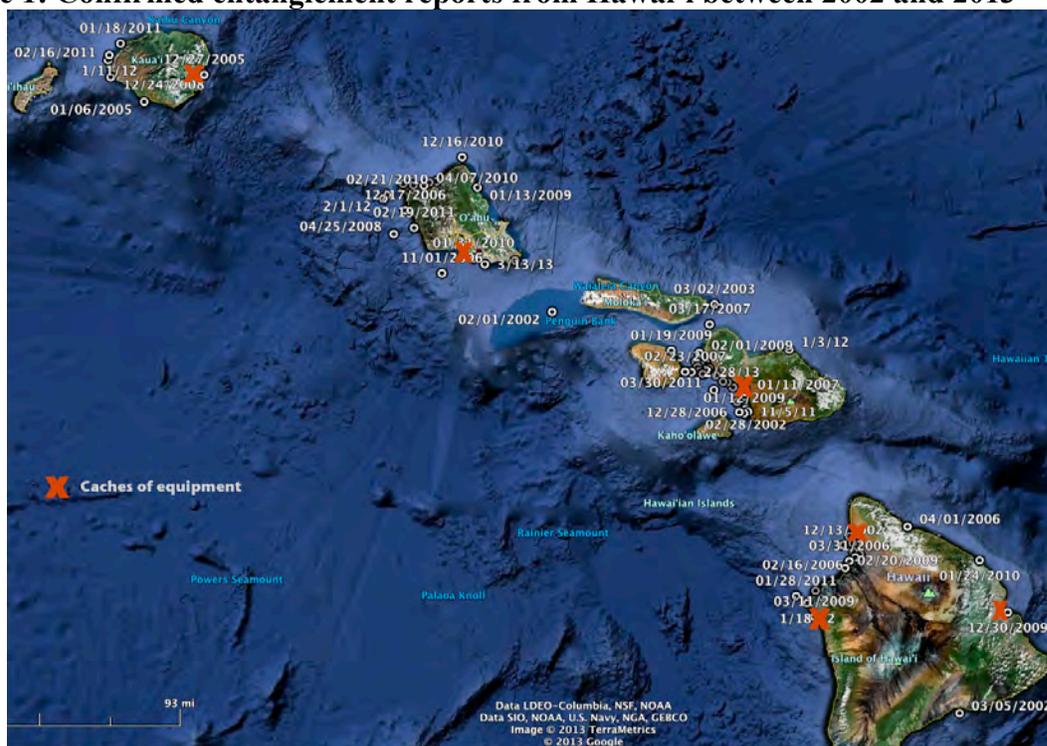
**Compiled by:
Ed Lyman
Hawaiian Islands Humpback Whale National Marine Sanctuary
May 22, 2013**

Background:

The Hawaiian Islands Humpback Whale National Marine Sanctuary (Sanctuary) receives, and when appropriate, responds to, reports of humpback whales, and other marine animals in distress. The Sanctuary works closely with NOAA's National Marine Fisheries Services' (NOAA Fisheries) Office of Protected Resources (OPR), Pacific Islands Regional Office (PIRO), Pacific Islands Fisheries Science Center (PIFSC), and Office of Law Enforcement (OLE); Hawaii's Department of Land and Natural Resources (DLNR); and the United States Coast Guard (USCG). The Sanctuary coordinates response efforts involving entangled large whales around the main Hawaiian Islands, under the Hawaiian Islands Large Whale Entanglement Response Network (Network), which is a collaborative effort between the state and federal agencies already mentioned, local whale researchers, the tour industry, fishers, and many private citizens. The primary objectives of the Network are to provide safe and authorized response to entangled large whales; free some from life threatening entanglements; and to gather valuable information that may mitigate entanglement threat and other threats, like ship strikes, in the future. All Network efforts involving close approach to large whales are authorized, and permitted, under NOAA Fisheries' Marine Mammal Health and Stranding Response Program (MMHSRP; permit # 932-1905).

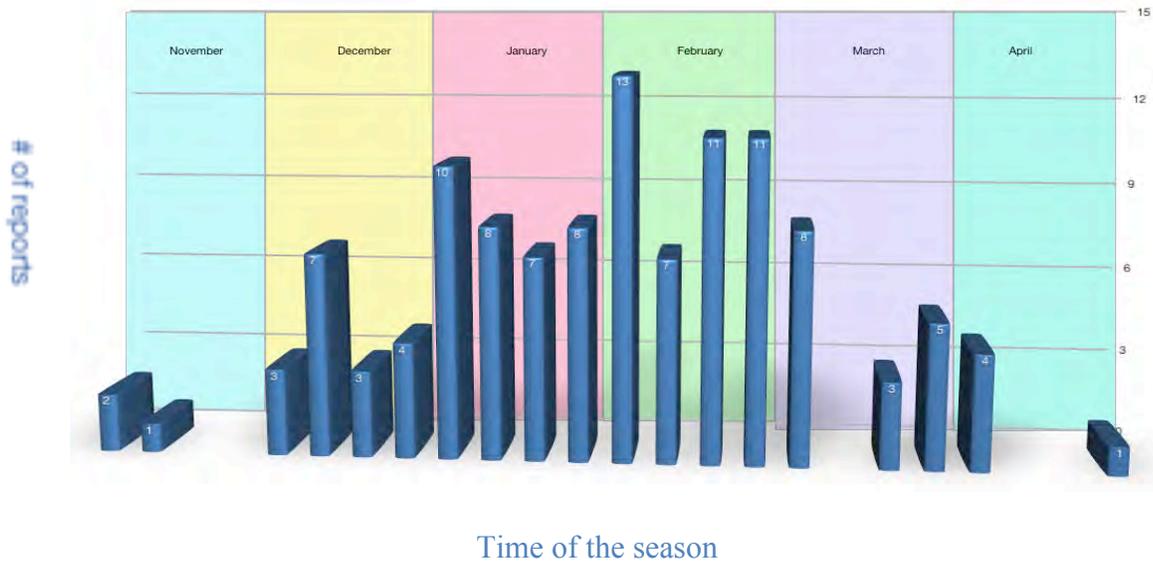
The Hawaiian Islands Large Whale Entanglement Response Network, now in its 11th season, comprises over 250 members who have received various levels of training in order to support large whale response efforts statewide. More than 340 hours of training have been conducted since 2002. Caches of specially designed equipment have been established on the islands of Hawai'i, Maui, Oahu, and Kauai to support entanglement response efforts (see Figure 1).

Figure 1: Confirmed entanglement reports from Hawai'i between 2002 and 2013



Since 2002, the Sanctuary has received more than 230 reports of whales entangled in gear. The earliest confirmed report of a humpback whale entangled based on the breeding/ calving season was Nov 1 (2007), while the latest was April 25 (2008). Confirmed reports generally start in December, increase in frequency through February, and then decline into April (see Figure 2). The number of reports has generally increased each season (see Figure 3). Overall, 118 reports were confirmed as truly involving entangled large whales, representing as many as 75 different individuals (see Figure 4). All but three of these reports – a sei and two sperm whales, were Humpback whales.

Figure 2: Entanglement reports throughout the season (2002 – 2013).



The Network does not, or cannot, respond to every report of an entangled whale. Past responses and thorough vetting of initial entanglement reports has shown that approximately half (48%) of reports here in Hawai’i have been misreported or cannot be confirmed (Lyman *et al*, 2007). This last season the percentage of unconfirmed reports (i.e. unable to confirm or confirmed as not representing an entangled whale) increased to 68.4% (N=19). Examples of misreports include: white-flipped humpback whales interpreted as carrying gear; animals in the proximity of gear, but not entangled; reflections off the wet backs of animals interpreted as buoys; calves being interpreted as gear; and surface behaviors, like breaching, being interpreted as animals trying to throw an entanglement. Figure 3 shows the total number of reports received each season broken down by confirmed and unconfirmed.

Since 2002, the Network has mounted over 129 on-water or in-air responses. In those cases when an on-water response should and could be mounted, the network has a 35% success rate freeing entangled large whales of all or significant amounts of gear. Many reports come in too late in the day; represent animals too far offshore, or in conditions that are not conducive (e.g. rough sea state) for mounting rescue efforts. However, the biggest contributor to an unsuccessful response is simply not re-locating the animal. If there is no standby vessel, then an entangled whale ends up being a rather large needle in an even larger haystack.

Figure 3: Large whale entanglement reports in Hawai'i between 2002 and 2013 seasons.

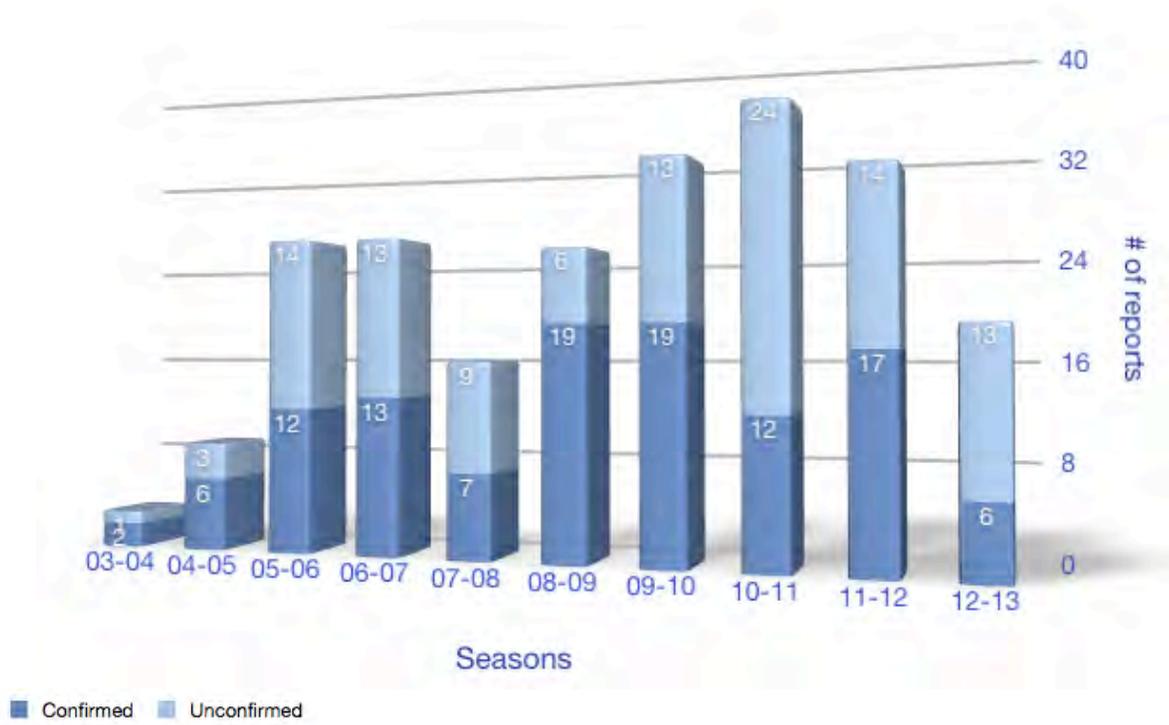


Figure 4: Number of confirmed animals reported entangled in Hawai'i between 2002 and 2013 seasons.

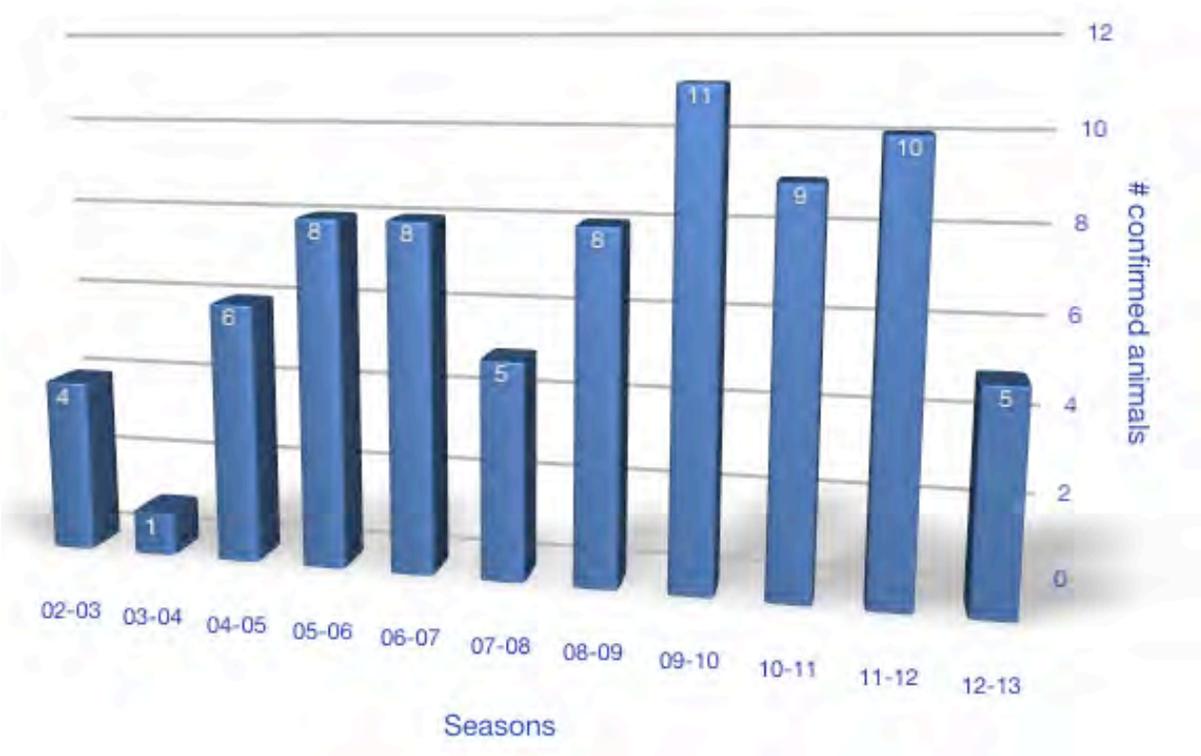
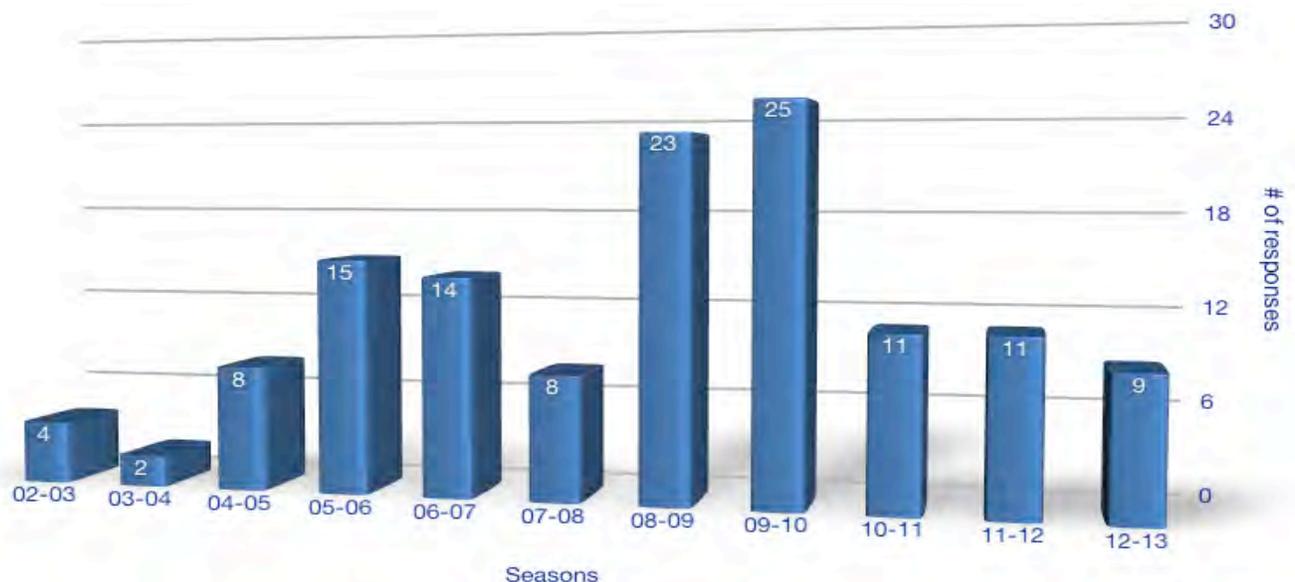
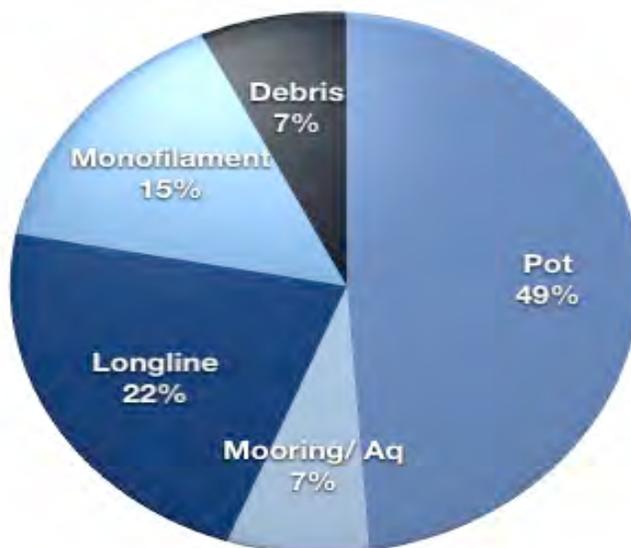


Figure 5: Number of responses to entangled whales in Hawai'i between 2002 and 2013 seasons.



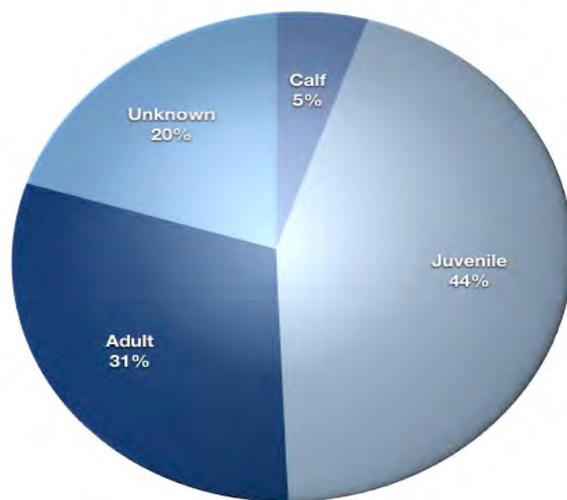
Since 2002, the Network has removed or recovered over 7,000 feet of entangling gear¹ from 17 whales (16 humpbacks and 1 sei whale) around the main Hawaiian Islands. Animals have been confirmed entangled in local fishing gear (traps and monofilament), mooring gear, marine debris, and active fished gear set as far away as Alaska. To date, 10 humpbacks reported entangled in Hawai'i have been confirmed to have gear from Alaska. Seven (7) of the reports of Alaska gear were commercial trap gear. The greatest known straight-line distance (accounting for obstacles) a whale has carried gear is over 2,450 nm (between Wrangell, Alaska and the island of Maui). Over the last several years the number of entanglements reported in local pot gear has increased. To date, at least 10 animals have been reported entangled in trap gear set around the main Hawaiian Islands.

Figure 6: Percentage of gear types removed from, or documented on entangled humpback whales off Hawai'i between 2003 and 2013.



Since 2002 the largest percentage of animals confirmed entangled have been juveniles (n=33). Many of these reports were received early in the season. Reports of juveniles are based on size, and thus may represent a degree of error (e.g. a small adult male may be reported as a juvenile). Adults were the next most frequent age class at 31% (n=22). Only 4 calves have been confirmed entangled in Hawai'i since 2001 (see Figure 7). However, 2 different calves were reported entangled this past season.

Figure 7: Age class² reported entangled in Hawai'i between 2002 and 2013.



2012-2013 season:

The 2012-2013 humpback whale season (November 1, 2012 – May 15, 2013) had the fourth lowest number of large whale entanglement reports of any season since 2002. Only 19 reports were received. Six (6) reports were confirmed, which amounted to 5 different animals.

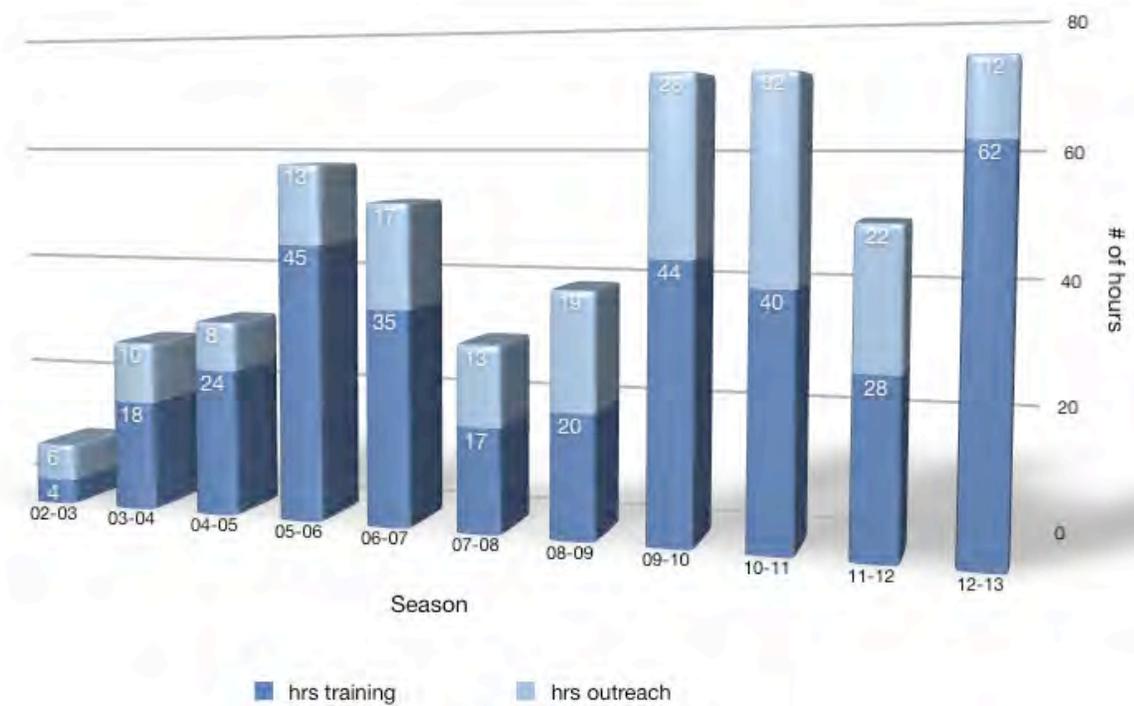
Figure 8: Location of confirmed entanglement reports during 2012- 2013 season



The network mounted 7 on-water, and 2 aerial response efforts to 5 different entangled whales. Three (3) animals were never re-located during response efforts. One (1) disentanglement effort to free an entangled humpback whale calf off Maui was unsuccessful. One animal over a two-day effort was freed of all entangling gear. Maui Nui (waters leeward of the island of Maui) had the most confirmed cases of entangled large whales this season with 3 cases. There were also 2 confirmed cases off Oahu (see Figure 8).

Of the gear removed or documented on the animals this season, 2 were local crab pot (trap) gear and 3 were not identified. Two (2) of the entangled humpback whales were calves, 2 adults, and 1 juvenile.

Figure 9: Amount of outreach and training targeted towards entanglement threat and response (2002 – 2013) in Hawai’i.



The season was unique in several ways:

1. Just the opposite of last season; the beginning of the season had few confirmed reports, with the first confirmed report not received until February 28.
2. The number of reports and number of entangled animals were lower than recent seasons. The number of reports received was generally half and the number of confirmed reports was about one-third of what has been received during the past several seasons. The 5 confirmed entanglement cases represent the lowest number (received) since the 2007-2008 season.
3. In addition to the lower number of reports and confirmed cases, only two animals were re-located during response efforts. Both cases ended up being extremely difficult disentanglement efforts. The first - a calf, had just a single wrap of line wrapped tightly around

its body forward of its pectoral flippers, with nothing trailing to provide access. The second - a juvenile, was entangled around its tailstock and fluke blades, with gear trailing. However, the animal was not cooperative in that it didn't slow down and the entanglement was starting to cut into the leading edge of the fluke blades.

4. A response was mounted for every confirmed case received and two cases resulted in multiple responses.

Summary of 2012-2013 season disentanglement reports and efforts:

- Nineteen (19) reports of entangled whales were received this season (13 unconfirmed and 6 confirmed).
- As many as 5 humpback whales were confirmed entangled in gear, which represents the lowest number of animals reported within a season since the 2007-2008 season.
- Three (3) of the entangled whales were initially sighted within Sanctuary waters.
- Maui Nui waters had the most reports (2 off Oahu, 3 off Maui).
- Two (2) reports involved calves, 2 were adults, and 1 was a juvenile.
- There were 9 responses mounted, which was slightly lower than last season.
- Responses represented 6 on-water and 2 aerial efforts.
- USCG and USCG Auxiliary mounted aerial response effort.
- The United States Coast Guard mounted at least 3 responses towards entangled whales.
- DLNR were involved in 2 response efforts.
- Three (3) trained network members got hands-on experience in large whale entanglement response (e.g. disentanglement or tagging efforts).
- Research organizations, The Dolphin Institute (Dr. Adam Pack), Hawai'i Marine Education and Research (Mark Deakos), Keiki Koholā Project (Rachel Cartwright), and NOAA's Pacific Islands Fisheries Science Center (Chad Yoshinaga), assisted with response efforts.
 - Tour industry platforms from Ultimate Whale Watch, the Maui Nui, Great White, Crosswinds II, North Shore Sailing Charters, Man-o-War, and Trilogy Excursions assisted and were instrumental in providing sightings, documentation, and monitoring of entangled animals.
 - The charter fishing vessel, Lucky Strike II, assisted greatly in re-locating an entangled animal.
- Support was also provided by the United States Coast Guard (Oahu and Maui stations) and the USCG Auxiliary; Hawaii's Department of Conservation and Resource Enforcement (DOCARE) and Ocean Safety; Kahoolawe Island Reserve Commission (KIRC); and NOAA's National Marine Fisheries Services' Pacific Islands Regional Office (and Observer Program), Pacific Islands Fisheries Science Center, and NOAA Corps.

Case report of disentanglement efforts:

2/28/2013 Response to an entangled humpback whale calf off Maui:



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11:25 Rachel Cartwright of Keiki Koholā Research Project reports an entangled humpback whale calf 3 nm northeast of Lanai. Calf was in company of mother and two escorts. Cartwright's team stood by until the response team arrived and provided initial assessment.

11:56 Authorized and trained response team made up of Ed Lyman and Rachel Finn from the sanctuary, Joe Carrier of NOAA Corps, and researchers Dr. Adam Pack and Donna Rowe from the Dolphin Institute arrive aboard the sanctuary's response vessel Koholā at location of entangled animal. The response team assessed and documented the calf. The entanglement involved a light-colored line, approximately 1/2" in diameter, wrapped tightly around the body just forward of the pectoral flippers such that it "pinches" (but not yet cuts) into the flesh. Animals were mobile and evasive.

12:15 Response team was joined by vessel Lucky Strike II, which was carrying film crew from MacGillivray Freeman Films (filming a humpback whale film for IMAX). Lucky Strike II was able to provide support and document the animal and effort. High wind and seas complicated response effort.

12:45 Calf breached several times, however gear was not thrown. Response team was able to get documentation of entanglement configuration. No gear was seen trailing from animal. Decision was made to not launch inflatable due to lack of personnel to crew multiple platforms and potential threat to smaller vessel from response dynamics provided by mother/calf pair and the two escorts. Flying knife was readied on pole at bow.

13:35 Animals were lost in high sea state. Multiple groups of nearby whales were observed for possible re-sight.

13:50 Decision made to have Koholā and Lucky Strike II split up to explore nearby groups in an attempt to relocate the entangled animal.

14:30 *Lucky Strike II* relocates animals, which have now moved further into the windline. *Koholā* return to animals and decision was made to stand off animals in hopes that they move to a calmer location and become less evasive. Documentation continued by teams on both vessels. Flying knife remained ready for opportunistic attempt should animals surface near boat. Camera used on end of pole in attempt to get underwater footage of entanglement.

15:30 Animals have started to make their way to calmer water, however attempts to position near them have failed due to mother's minimal surface time and continued evasiveness. Calf has been consistently at surface for 4 breaths throughout entire response. Team continued to stand back and remain ready for opportunistic attempt.

15:45 One escort departs, leaving calf with mother and single escort.

16:12 Second escort departs, leaving just calf with mother. Animals were now in calmer water, allowing the team to try to position the vessel to increase likelihood of cutting tight wrap free.

17:13 Team continues use timing of animals' surfacing and direction of movement to position boat for attempt should animal surface nearby.

18:01 Decision made to halt response effort for the day due to decreasing daylight and long trip back to harbor. Both *Koholā* and *Lucky Strike II* depart animals to head in. Last sighting was 2.8nm WSW of Lahaina, Maui.

19:05 Response team returns to harbor.

22:30 On-water community notified and asked to keep look out for animal. If located they are asked to contact the NOAA Fisheries Hotline or Ed Lyman.

3/24/2013: Entangled calf, still with mother, is re-sighted by Ultimate Whale Watch vessel, *Wiki Wahine*. Response mounted by West Maui First Response Team (Lee James et al), but animal lost in windline. Images obtained by crew and naturalist of *Wiki Wahine* are not able to verify whether gear remains on the animal.

3/8/2013 Response to an entangled humpback whale juvenile off Maui:



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10:25 Tour vessel, *Man-o-War*, and USCG helicopter on patrol as part of Operation *Koholā Guardian* reported an entangled humpback whale just off Lahaina Shores (east end of Lahaina, Maui). Animal was in the company of

one other whale, and moving rapidly off to NNW. Entanglement described as multiple wraps around the tailstock and trailing line with red and yellow buoys attached. Based on initial report, entanglement determined to be possibly life-threatening and response initiated. The reporting vessel stood by and monitored the animal until response teams arrived on scene. Considering the speed of the animal and peak season (number of other whales in area), decision was made to have a rapid response team out of Mala Wharf and USCG- station Maui deploy surface assets to get to the animal as soon as possible and take over standby support. Both teams could initiate assessment and documentation, and were equipped and trained to attach a telemetry buoy.

A 10:45 Sanctuary response team departs Kihei office for vessel.

11:00 Lee James and Mark Deakos with West Maui Rapid Response Team departs Mala Wharf with vessel, Aloha Kai, provided by Ultimate Whale Watch. They arrive on scene shortly and relieve Man-o-War of monitoring the animal.

11:20 Authorized and trained response team made up of Ed Lyman, Matt Dixon, Ka'au Abraham, Rachel Finn of the sanctuary, Joe Carrier of NOAA Corps, Nicole Davis of NOAA Fisheries Pacific Islands Regional Office, and trained responder Kate Eifler depart Ma'alaea Harbor aboard the sanctuary's response vessel Koholā. Inflatable is prepared while vessel is underway.

12:25 Koholā arrives at location of entangled animal where Aloha Kai had been standing by the entangled animal, which is still with another animal. The entangled animal has a single wrap of likely 1/2" Blue Steel line around the tailstock and a single wrap of the same line around the left fluke blade. A yellow toggle buoy trails right at the trailing edge of the flukes and a round (9" diameter) orange (faded red) buoy trails about 5 feet behind the flukes. The entangling line trails about another 30 feet behind. Decision was made to have James, a certified coxswain for the Koholā, board the Koholā in preparation for Carrier and Lyman to be in the approach inflatable.

12:30 Helicopter carrying MacGillivray Freeman Film crew (filming a humpback whale film for IMAX) arrive and lent aerial support.

12:40 Teams began to assess animal and document entanglement. Entanglement assessment confirmed as life threatening.

12:51 Grapple thrown from the Koholā and a transmitter package is attached to the entangling gear. Transmitter buoy trails another 70 feet behind to a green, hard plastic buoy.

13:10 Inflatable (approach vessel) launched carrying Lyman and Carrier. James takes over at the helm of the support vessel, Koholā.

13:20 A second buoy – A3 polyball, attached to the established control line.

13:32 Second polyball added.

13:34 Third polyball added. All of the added gear comes off of the animal along with approximately 75ft of the entangling gear.

13:45 The companion animal has departed.

13:54 Telemetry buoy and polyball are re-attached.

14:30 The polyball is removed and a sea anchor attached.

14:44 The sea anchor is removed due to difficulties in handling the working line and a polyball re-attached.

15:01 Second polyball attached.

15:28 Entangled animal swims directly under support vessel, Aloha Kai, resulting in the added gear to catch on

the vessel's outboards. As a precautionary measure, all but one buoy of the added gear is removed from the animal in order to free the gear from the vessel.

15:35 Telemetry buoy re-attached for third time.

15:40 Additional polyballs – the keggings buoys, re-attached.

15:44 Established control line parts with all attached buoys.

16:00 Animal lost in competitive group and choppy seas.

16:28 IMAX helicopter re-located animal, which is now in company of another whale, several miles off to the NW in middle of Pailolo Channel.

16:44 Response team catches up and now on site again with animal.

16:50 The transmitter package is attached for the fourth time of the day.

17:08 Two polyballs and a sea anchor are attached.

17:15 All added gear comes off animal yet again.

17:32 The transmitter package is attached for the fifth time.

17:57 Approach team of Lyman and Carrier make one more attempt to pull up within range of a cut. While close, attempt is unsuccessful.

18:19 Teams cease disentanglement effort due to diminishing daylight and depart for harbors. Animal left at position 21° 04.964'N / 156° 43.909' W

20:41 Koholā arrives back at Ma'alaea Harbor.

22:30 Argos telemetry shows whale in the middle of Pailolo Channel, heading westward. Weather forecast for next two days not optimal for response and plan is to stand-down until conditions are appropriate.

3/9/2013

04:17 Satellite fixes show the animal off the north shore of Lanai, perhaps taking advantage of a lee from gusty south winds.

14:00 Animal is off of the east shore of Lanai and is moving approximately 2.5kts. Tour vessel, Cross Winds II, sights animal as it heads around Lanai's eastern shore.

3/10/2013

04:17 Animal is off Keawakapu, Maui. Winds light right, but forecasted to be 15 kts again from the south, which will make response difficult. Weather Monday, 3/11/2013, is still looking favorable with light NE winds.

3/11/2013

07:30 Justin Viezbicke, another Level 4-trained responder with the sanctuary, arrives on Maui to assist with response effort. Decision was made to fly Justin over given the difficult nature of the response effort on 3/8/13.

08:10 Authorized and trained response team made up of Ed Lyman, Justin Viezbicke, and Rachel Finn of

sanctuary, Joe Carrier of NOAA Corps, Grant Thompson of Kaho'olawe Island Reserve Commission, Nicole Davis of NOAA Fisheries Pacific Islands Regional Office, Lee James with West Maui Rapid Response Team, and trained responders Cheryl King and Jason Moore depart Ma'alaea Harbor on vessel Koholā. Inflatable is carried on aft deck.

08:40 Koholā is in the vicinity of last known satellite fix for animal provided by telemetry. Finn uses VHF telemetry to locate animal's exact position.

10:20 Animal is located with telemetry package attached. Location: 20° 37.731'N / 156° 45.214' W

10:32 Inflatable launched. Decision is made to have Lyman and Viezbicke in the response vessel initially due to their advanced training levels and extensive experience.

10:45 First polyball is attached.



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10:48 Decision made to have third person aboard inflatable to assist team in pulling up closer to animal and in positioning vessel for cuts. Thompson, who had been through additional training, elects to stay onboard Koholā to handle cutting grapple should it be needed, and be a gear person. James is selected as third person in inflatable. Davis provided long-lens images and Finn wide-angle and notes. King provided HD video. Moore is in charge of documentation. Carrier is captain of Koholā.

10:54 Second polyball is attached.

11:15 A clean working line is established beyond grapples.

11:30 First cut is made to the line around the flukes using a fixed knife on 19 feet of pole. Cut is documented using helmetcams and polecam.

11:35 Animal is still able to dive and takes all gear under.

12:02 Two more cuts are made to the lines on the flukes and the animal is freed of over 125 ft of gear. A small piece of line is left in a wound, which will likely be expelled over time. All gear was recovered. Attempt to get post imagery and/ or tissue samples not successful. Animal was last seen at: 20° 41.507'N / 156° 44.069' W.



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12:10 Inflatable brought onboard Koholā.

12:37 Team departs for harbor.

13:42 Koholā arrives back at Ma'alaea Harbor.

Other tour companies (e.g. Maui Nui, Cross Winds II, Wiki Wahine, and Trilogy Excursions) and charter vessels (e.g. Lucky Strike II) called in reports or helped monitor the animal.

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Acknowledgements:

Finally, much credit goes to the on-water community of tour boat operators, fishermen (fishers), biologists, and others that report, assess, help document, and many times stand by the animals until additional help can arrive. Ed Lyman of the Hawaiian Islands Humpback Whale National Marine Sanctuary, and David Schofield of NOAA Fisheries Pacific Islands Regional Office coordinate the large whale entanglement response effort. However, it is the efforts of the on-water community that make the difference on whether an entangled whale is ultimately saved, and valuable information collected to reduce the entanglement threat to these magnificent animals in the future.

Acknowledgements also go to the efforts of the Network's State and Federal partners, including the Hawaiian Islands Humpback Whale National Marine Sanctuary, U.S. Coast Guard, Hawaii's Department of Land and Natural Resources, NOAA's Pacific Islands Fisheries Science Center, NOAA Corps, and NOAA Fisheries' Pacific Islands Regional Office and Office of Protected Resources.

Credit also goes to MacGillivray Freeman Films, whose surface and aerial assets on several occasions helped re-sight entangled animals that the response team was working on. In the case of the entangled juvenile humpback off Maui, this was the difference between an animal being freed and one remaining entangled.

While there are many individuals to acknowledge, three warrant mentioning here. Lee James of Ultimate Whale Watch for his extra effort towards establishing an authorized rapid response capability off Lahaina, Maui, Grant Thompson of the Ko'oholawe Island Reserve Commission, for his tireless work whether toward response or preparedness, and Rachel Finn, who volunteered her expertise to keep everything afloat.

Lastly, special thanks goes to those who each and every year attend trainings, otherwise prepare themselves, and remain on-call, even when they may not be called or not have the opportunity to respond directly. Large whale entanglement response is not only dependent on receiving reports, but being able to mount a response that demand risk assessment and strict protocols. Trained and appropriately prepared network members are extremely valuable toward meeting protocols and fulfilling roles that make response efforts possible. Their efforts, and especially those of volunteers, are greatly appreciated.

MAHALO

¹ Represents line greater than or equal to 3/8" diameter

² Age class determination based on size, rather than known age of animal.