www.hmmc.org Spring 2015

Hawai'i Marine Mammal Consortium

Field Report

MARINE MAMMAL RESEARCH, EDUCATION AND CONSERVATION

Do you like puzzles?

Researchers use nicks, notches, and fin shape to identify individual dolphins. See if you can find the match in our melon headed whale collage!

Check out page 4!

The HMMC: Chris Gabriele, Suzanne Yin, Adam Frankel and Susan Rickards (left to right)

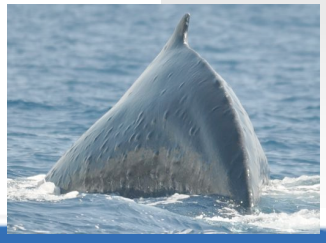
RESEARCH

HMMC on the water!

2015 marked another successful field season for the HMMC! Though we had periods of high winds and unseasonably wet weather, we also had periods of good conditions throughout February and March. The HMMC team was out on the water for 17 days. We approached 223 whales in 88 pods. For comparison, in 2014, we were out on the water 15 times, with 267 whales in 128 pods, which resulted in 84 fluke IDs. We also made 6 recordings of humpback song.

This season marked the third year of the HMMC's collaboration with Dr. Colleen Bryan of the National Institute of Standards and Technology (NIST), looking at the cause of the bumps found on humpbacks. We obtained samples from 9 bumpy whales and 5 non-bumpy whales. As we have found in other years, it's evident that the majority of humpbacks that we have encountered have some bumps. HMMC researchers have been consulting with colleagues throughout the world on the possible epidemiology of these bumps. Laboratory analysis is ongoing, and we hope to have findings of heavy metal analysis soon.

Two whale flukes photographed in 2015



Bumps on humpback whales. HMMC researchers are trying to find out what is causing these bumps.

A fundamental tenet of this consortium is that it is larger than any of its individual members, that it will outlive all of us and that it is founded on a vision of collaboration and excellence. (From HMMC Mission Statement)

2015 shore station scans

Continuing with our long-term study on seasonal trends in distribution and abundance of humpback whales in Kawaihae Bay, we conducted 19 scans from "Old Ruins", the shore station site we have used since the 1980's, located just past mile marker 7. One of the aspects of our study is to look at how the usage of the bay has changed over the years. Our scans conducted four times a week during one of four time blocks, are just a brief 'snapshot' of what is going on in the Bay, but allow us to compare trends from year to year. In 2015, we saw 278 humpback whale pods, consisting of 463 whales, 29 of those were calves. We probably undercount the number of calves, because they are difficult to see at a distance. We also saw spinner dolphins 7 times from shore, though only 4 sightings were during the scans (the other times, they were not spotted by the behavioral observer but seen by other observers on the hill). Additionally, we observed 182 vessels and 23 aircraft.

For comparison, in 2014, we conducted 20 scans, with 315 pods, consisting of 547 whales, of which 31 were calves. We saw 165 vessels and 12 aircraft. We saw spinner dolphins from shore 4 times, 2 of which were seen during the scans.

Adam Frankel and Chris Gabriele working hard in the tropical sun

In the above photo, Adam is the behavioral observer, while Chris is the theodolite operator. Adam is using compass bearing reticle binoculars, which allow us to determine a relatively good position of whale and vessel position. Chris is using a theodolite, a surveyor's instrument that allows us to get very precise locations of a whale. The positions feed directly into a laptop computer, where these 'fixes' will be converted to latitude/longitude.

Check it out at smile.amazon.com

HMMC has joined AmazonSmile!

The HMMC has joined Amazon Smile, a program where Amazon donates 0.5% of the purchase price of eligible goods on Amazon to the non-profit of your choosing. To help, go to smile.amazon.com and select the Hawai'i Marine Mammal Consortium as your non-profit. Whenever you shop again, just go back to smile.amazon.com and check to make sure the HMMC name is still shown in the top left corner. Then shop away! You don't have to do anything else and there is no charge to you or to us!

Other HMMC projects!

BLACK-TIPPED REEF SHARKS

Some of the sharks seen in 2015.

HMMC continued with our shore-based photo-identification project on black-tipped reef sharks in Pelekane Bay. We had some really amazing days of calm water and one of the biggest shark days ever—seeing 20+ sharks! What an amazing day! Because these sharks are relatively small in size (about 4-5 feet long) and swim with their fins just a foot or so out of the water, we really need good conditions (flat calm water conditions are best!) in order to see them. We currently have 27 identified sharks in our catalog, with shark 005 seen over 30 times during the course of our eight year study.

Shark fin matcher extraordinaire, Kim New, with friends (identified sharks in the catalog)

Shoreside display on black-tipped reef sharks created by the HMMC at Pu`ukoholā Heiau National Historic Site

MELON-HEADED WHALES

Collaborating with Dr. Robin Baird, of Cascadia Research Collective, we searched three times offshore for blackfish (a collective term used for several species of larger dolphin that include melon-headed whales, false and pygmy killer whales). Success came on our third try, as we found a group of melon headed whales (*Peponocephala electra*) with at least 2 humpback whales. The peps, as we affectionately call them, from a shortened form of their genus name, were spread out in a wide line, generally slowly traveling north. Individual identification of these animals, like with many odontocetes, is based on the nicks, notches, and shape of the dorsal fin, and we took almost 600 photos of the animals. Robin was particularly interested in locating the peps as they hadn't been seen in all of 2014, and in such a long period of time, animals may pick up many more nicks and notches. This can make it difficult to match animals to the catalog if the fin appearance has changed a great deal, and so you might not be able to recognize a known individual.

(continued next page)

During the encounter, we also made an acoustic recording of the dolphins, which will add to our collection of acoustic signals from this species.

Many of the melon headed whales that were photographed had very marked fins. These nicks and notches can come from interactions with other animals or from entanglements in rope or contact with boat propellers. Can you find the animal that is pictured twice? (Answer appears on last page).

SPINNER DOLPHINS

Spinner dolphins seen on March 14, 2015. We only saw spinner dolphins once this season from the water, but took 100's of images. All photographs have been shared with the Pacific Islands Photo-Identification Network (PIPIN). Notice the long, narrow rostrum that is a characteristic of this species and the marked dorsal fin that can be used to identify individuals.

Look! The HMMC marketplace is open!

HMMC posters and note cards only $10!

HMMC's humpback "Whale Tale" note card tells the stories of nine distinct individuals that are recognized by their unique tail fluke markings. The cards are blank on the inside. The HMMC fluke poster with 56 different images of 53 different whales. Find the three matching whales!

ORDER ONLINE TODAY! All proceeds go to support the HMMC!

Education

2015 marked our tenth annual March with Cornell University's interdisciplinary Ocean Resources and Ecosystems Program. HMMC board members taught undergraduates from several universities techniques in shore station scan collection, humpback whale behavior, scan sampling and use of field equipment. We also went to the Mauna Loa Observatory (MLO) where continuous measurements of carbon dioxide have been made since 1956.

Yin at the MLO

Students taking notes during shore station scan in March.

Acknowledgments!

Thanks to Colleen Bryan (NIST) for their collaboration and financial support to answer our mutual questions about humpback whale health. Thanks to Debbie Steele and Scott Baker for their continued interest and laboratory support to reveal the sexes of our study animals. We gratefully acknowledge Chuck Greene (Cornell University) for providing us the opportunity to work with such inspiring students each year and for financial support. Thank you to Erin Oleson (NOAA Pacific Islands Fisheries Science Center) and Robin Baird (Cascadia Research Collective) for allowing us to work under your research permits. Mahalo to Whale Trust for the opportunity to speak with their inspiring audience at Whale Tales and for choosing HMMC as a beneficiary in 2015. Many thanks to Ed Lyman (NOAA Hawaiian Islands Humpback Whale National Marine Sanctuary) for his dedication to large whale disentanglement. For the continued excellent performance of our trusty skiff, *Malolo*, we thank Joe Mobley of University of Hawai'i, Honda Motor Corporation of America and Kona Coast Marine. We also thank Gabriela Serra-Valente and Annette Henry (NOAA Southwest Fisheries Science Center) for biopsy equipment loans that make the sampling possible. Sincere thanks to all our field volunteers (see next page). Mahalo nui loa to Marilyn Wright for her aloha and financial support. We thank Tara and Amelia Stotland, Dan Hoffhines and Mike Morton for their generous donations. All cetacean photos shown here were taken under the authority of scientific research permits issued by the National Marine Fisheries Service.

Whales Tales

Chris was invited to give a talk at Whale Tales, an annual research and education extravaganza (and fund raiser) on Maui, coordinated by Whale Trust (http://www.whaletrust.org) HMMC was chosen as a 2015 beneficiary from the event, for their proposal to publish their work on humpback whale distribution and abundance from their many years of shore based scans. Stay tuned for those results in 2016.

Power of Poop

Whales as Ecosystem Engineers

HMMC is pleased to be starting a new collaboration with Dr. Joe Roman of Harvard University, who is interested in how whales move nutrients within ocean ecosystems. In his previous work, he and his collaborators showed that, by feeding at depth and defecating at the surface, whales keep nutrients accessible near the surface; nutrients that might otherwise fall to the bottom of the sea and be there forever. (Krulwich the-power-of-poop-a-whale-story). This pilot study will investigate whether nutrients from Alaska, where many of Hawai'i's humpbacks feed in the summer can be detected in our waters. By collecting ocean water samples near whales, we hope to detect traces of Alaskan nutrients in areas where whales may have defecated or urinated. Pretty unsavory stuff, but interesting too!

Red phalarope seen on March 23, 2015 about two miles off Kawaihae Harbor. HMMC shares seabird sightings with Peter Pyle for inclusion into the monograph site for the Bishop Museum. Image by Chris Gabriele.

Marine debris-a worrisome problem

Marine debris is a huge problem. A recent study found that over 8 million tons of plastic trash goes into the ocean each year. Marine animals such as whales, dolphins and turtles can become entangled in line or netting. Animals can swallow plastic bags, mistaking them for food. When we are out on the water, HMMC staff do their best to retrieve any garbage that we find. This year, we collected quite a varied assortment of trash (see collage to right). Please help do your part. Please bring back trash to harbor.

Help keep the waters off Hawai'i Island clean!

Some of the marine debris retrieved from the ocean by the HMMC in 2015. Items included a squid light, burlap sack, numerous plastic bags and bottles, basketball, buoys, possible West Coast crab pot buoy, boogie boards and 100's of yards of line. Longtime HMMC friend Margaret Barker snags a plastic bottle.

Answer to melon-headed whale collage match: top row middle matches bottom right. See the straight scar on the dorsal fin and the big notch at the top of the fin?

Thanks to all of our loyal field staff! (As we didn't have a newsletter last year, let us thank our 2014 volunteers now as well!).