



ALOHA FRIENDS AND SUPPORTERS! HERE IS OUR ANNUAL NEWSLETTER TO SHARE OUR WORK AND THANK THE MANY PEOPLE WHO HELPED MAKE IT ALL POSSIBLE. AS ALWAYS, FEEL FREE TO CONTACT US AT info@hmmc.org.

RESEARCH

HUMPBACK WHALES



HUMPBACK WHALE
OFF THE KOHALA
COAST

As in previous years, humpback whales were the focal species of our 2012 field season. In our continuing efforts to determine whether there is a link between the size of singers and characteristics of their song, locating singers was our primary objective. In 2012, we obtained fluke measurements from 11 singers and recorded 10 individuals, totaling almost 8 hours of humpback whale song. This work was made possible using equipment funded by grants we received in 2010/2011 from the Norcross Wildlife Foundation. Data analysis is ongoing and you'll be the first to know what we discover!



SPINNER
DOLPHIN
BREACHING
NEAR
KAWAIHAE

During 13 boat days, we covered 301.7 nautical miles and approached 78 pods, containing 367 whales, of which 141 were photographed, resulting in 112 best photo flukes. These images will be added to the HMMC fluke catalog and used to document and determine residence patterns, habitat usage, and behavioral roles of humpbacks.

SPINNER DOLPHINS



MELON-HEADED
WHALES OFF THE
KOHALA COAST

Spinner dolphins (*Stenella longirostris*) were sighted 3 times during the course of our boat work, with best group size estimates of 103, 95 and 67 dolphins

respectively - all in less than 70 m of water. Just under 600 photographs were taken during the 3 encounters. As with all of our spinner dolphin data, our 2012 sightings will be shared with the Pacific Islands Photo-Identification Network (PIPIN, www.pipin.org/community).

Collaboration between research groups is one of the fundamental philosophies of HMMC members.

MELON-HEADED WHALES

The HMMC has collected years of data on melon-headed whales and 2012 was no exception. On 2 March, we encountered the resident group of approximately 300 melon-headed whales (*Peponocephala electra*) 4 nm offshore of Kawaihae. 456 photographs were taken. HMMC shared photo-identification data from this sighting with Jessica Aschettino of Cascadia Research Collective. Jessica recently completed her Master's Degree studying melon-headed whales in Hawai'i, and she has added our images to the collaborative melon-headed whale catalog for Hawai'i Island.

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FALSE KILLER WHALES



FALSE KILLER WHALE, HIPc316, SEEN NORTH OF KAWAIHAE

A pod of 3-6 False Killer whales (*Pseudorca crassidens*) was seen on 20 March 2012. This is only the second time *Pseudorca* have been encountered during HMMC surveys; the previous sighting occurred on 16 March 2004. Hawaiian false killer whales are currently in the process of being listed under the Endangered Species Act, due to their low numbers and interactions with the long-line fishery. The 2004 sighting occurred 8 nm away from the 2012 sighting. Images from our 2012 encounter were shared with Dr. Robin Baird of Cascadia Research Collective, who identified one animal as HIPc316, first documented in 2008, and seen regularly since then.

False killer whales and melon-headed whales are two cetacean species commonly referred to as 'blackfish', though in reality both are relatively large members of the dolphin family. Other members of the 'blackfish' group include long and short-finned pilot whales. False killer whales are slightly bigger than melon-headed whales and are usually found more in widely scattered, smaller groups.

SHORE-BASED OBSERVATIONS

In 2012, HMMC staff conducted 20 scans from the Old Ruins shore station site, located near Mile Marker 7 on Akoni Pule Highway. The first

scan was on 3 February; the last on 5 March. During that period, we saw 259 whales in 156 pods with 16 pods containing a calf. Spinner dolphins were seen 6 times from the shore station. Compared to past years, 2012 appeared to be a 'slow' year for humpbacks in our study area. Researchers on Maui and Kaua'i reported large numbers of whales. HMMC staff are currently working on summarizing over 10 years of scan data to identify trends in the relative distribution and abundance of whales.

OTHER HIGHLIGHTS

During the course of our marine mammal research, we were joined by an unusual number of black-footed albatross, fairly close to shore. We saw between 3-6 birds that all seemed to be heading north. We shared this sighting information with the Hawai'i Birding Group who was very interested in this unusual sighting.



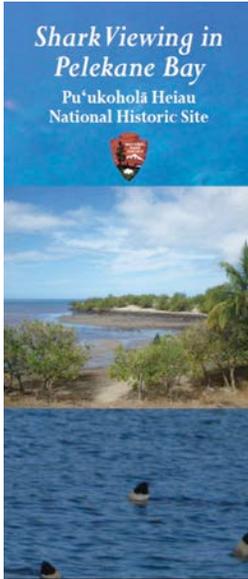
ONE OF SEVERAL BLACK-FOOTED ALBATROSS SEEN NEAR KAWAIHAE ON 5 MARCH 2012



SUZANNE YIN AND CHRIS GABRIELE DURING A 2012 SCAN

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BLACKTIP REEF SHARKS

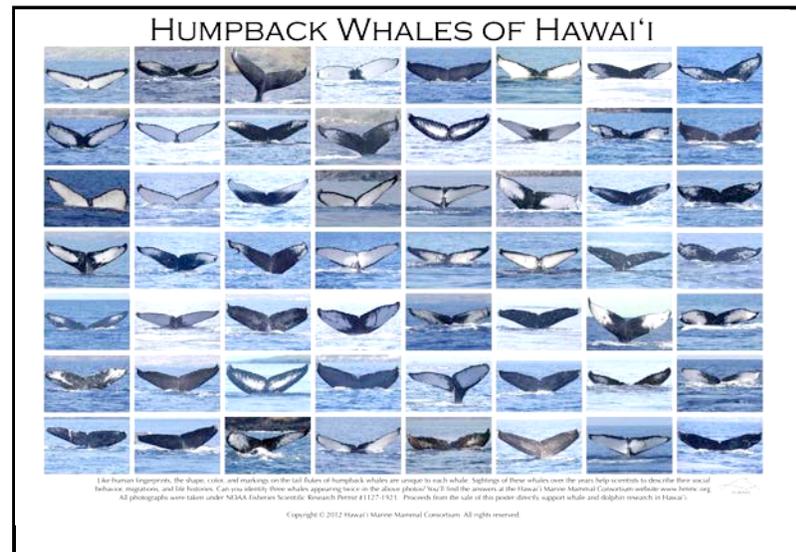


The HMMC, in collaboration with the National Park Service and with funding from the NPS Challenge Cost Share Program, designed and created an educational pamphlet on the black-tip reef sharks (BTRS) found in the Pu'ukohola Heiau National Historic Site. The free, glossy, full-color pamphlet can be picked up in the Visitor Center at the Park, or from the HMMC web site. The pamphlet was designed to inform the public about the presence of sharks in Pelekane Bay, provide a few fast facts about their biology and significance in Hawaiian culture, as well as display a few images of the dorsal fins from identified sharks that frequent the bay.

HMMC staff have continued to scan for sharks in Pelekane Bay on a weekly basis since 2007. During the past year, BTRS numbers have continued to be highest from February-April, with smaller peaks in July and October. Many weeks, no sharks are seen at all. Between November 2011 and January 2012, a different species of larger gray shark was seen frequenting Pelekane Bay. Precise species identification has proven to be difficult with the images and video taken, but best guesses for at least one of the species of shark seen are Galapagos, sandbar or blacktip sharks.

WHALE POSTER

This year, as part of HMMC's education and fundraising efforts, we used 52 whale flukes to form a glossy color humpback whale art poster. This eye-catching poster is sure to exercise your brain and entertain your friends. Three whales are repeated within the poster, so buy one and test your photo-identification matching skills. During the whale season (January-March), these posters are available at local businesses (The Gallery at Bamboo Restaurant, Hawaii Ocean Sports, Kohala Divers, the Gateway Store at NELHA, Island Naturals health food stores), but they are available year round for \$20.00 (plus shipping and handling), through our [HMMC website](http://www.hmmc.org) where you can view and order the posters as well as find the answers to which of the flukes are matching. All profits go directly to whale research, conservation and education efforts, so please support us by enjoying one of our posters in your home - they make great gifts too!



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EDUCATION

In 2012 the HMMC took advantage of numerous opportunities to share our work with the [community](#), in the form of presentations to Parker School, a Sea Grant Reef Talk in Waimea and, for the seventh year in a row, Adam Frankel taught Cornell University undergraduates in the interdisciplinary Ocean and Earth Sciences Program a week's worth of classes on humpback biology and acoustics.

Two of the Cornell students (Alex Simpson and Jillian Lyles) chose to intern for HMMC as their independent study project for the class, as they describe below:



ALEX SIMPSON (RIGHT) WITH CHRIS GABRIELE (LEFT) AT SHORE STATION.

Alex Simpson: *As a student from Cornell University studying abroad in Hawai'i, I feel lucky to have taken on a project analyzing Humpback acoustic data from 2009-2011 for distinct song themes. A theme is the longest component of a humpback song, and is made up of repeated phrases, which are groupings of two to four distinct units.*

At the beginning of each breeding season, a humpback population will sing the same song as the end of the previous breeding season, remembered throughout the relatively silent summer feeding months in Alaska. Throughout the breeding season, the song will morph and new themes may be lost or introduced. By identifying themes each year, naming them alphabetically, and noting how each whale transitions among them we are able to determine how song structure differs year-to-year, and potentially population-to-population. So far, we have identified at least 6 distinct themes sung in 2009, with several of these themes repeated in 2010. Preliminary results indicate that there may be statistically significant patterns in the transitions among the identified themes.

I have truly enjoyed interning with the HMMC. I have learned an unbelievable amount about real world and hands on oceanographic studies, and formed a relationship with the organization that I will remember for a lifetime. Most of all, I feel glad to have contributed to the HMMC's goal in providing an educational outlet to the community – my way of giving back to the island for the amazing education it has given me.



CORNELL STUDENTS AT THE SHORE STATION (ABOVE) AND ON A COMMERCIAL WHALE WATCH (BELOW).



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Jillian Lyles: *For my specific internship, I am helping analyze the 2,000 plus photos taken of whale flukes between 2003-2012 by HMMC. A whale fluke is equivalent to a human fingerprint; every whale has their own unique shape and distinct pattern on the underside of their tail. My job is to match whales within and between-year photographed in Hawaiian waters. The purpose of this project is to get a better understanding of long-term re-sighting rates, as well as increase the whale identification database. Research like this is important for a lot of reasons. The first is that research can help with species conservation. The humpback whale population once dropped to 1,500 whales due to commercial whaling. Having almost gone extinct, these animals have made an incredible rebound and are still raising their numbers. Without researching them, this turn-around may not have been possible. Much is left to learn about humpback whales, and the more we know, the better job we can do of saving them.*

Additionally, we have such a small knowledge base when it comes to marine life, and if we don't stop harming our oceans, we may never know. The rise in anthropogenic activities in the world oceans and the changes in global climate has altered the ocean ecosystems. I want to help conserve humpback whales, and all other marine life out there. But first, we must study the systems to have a better understanding of how they work.



JILLIAN LYLES (LEFT) MEASURES THE RANGE TO A WHALE WHILE ADAM FRANKEL (RIGHT) PHOTOGRAPHS ITS FLUKES.

RECENT PUBLICATIONS

HMMC data were used in a poster presentation at the 19th Biennial Conference on the Biology of Marine Mammals in Tampa, Florida held by the Society for Marine Mammalogy entitled, "Abundance and movements of spinner dolphins off the main Hawaiian Islands. The abstract from this poster can be found on the HMMC website

(<http://www.hmmc.org/PubNews/PubNews.html>).

Additionally, HMMC spinner dolphin data are being used in two separate analyses. A paper titled "Predictive modeling of spinner dolphin (*Stenella longirostris*) resting habitat in the main Hawaiian Islands" by lead author Dr. Lesley Thorne (SUNY-Stony Brook) has been published in the journal PLoSOne and describes a method using models for determination of spinner dolphin resting habitat. The second manuscript by lead author Marie Hill is in preparation and provides a population estimate for spinner dolphins in the Main Hawaiian Islands using images collected by PIPIN collaborators.

SUPPORTING HMMC

Direct donations to our non-profit can be made online through: www.onepercentfortheplanet.org or contact us at info@hmmc.org

Take your HI-5 containers to any of [Business Services Hawaii's](http://www.businessserviceshawaii.com) operated Redemption Centers (at community transfer stations) and tell them you want to donate to HMMC.



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ACKNOWLEDGMENTS

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THANKS SO MUCH TO OUR 2012 VOLUNTEERS

“MANY THANKS TO ALL OUR VOLUNTEERS FOR MAKING 2012 SUCH A SUCCESSFUL FIELD SEASON.”

