

HMMC NEWS



Our Mission

The mission of the Hawai'i Marine Mammal Consortium is to increase and promote knowledge and education about marine mammals and the marine environment to help island communities value, understand and protect Hawai'i's marine life.

Our Board

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Contact us at info@hmmc.org

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Whale Song Research

In February 2019, thanks to a small grant from the David R. Atkinson Center for a Sustainable Future, we had the pleasure of working with renowned animal communication researcher

Katy Payne and Senior Lecturer in Music Annie Lewandowski, both from Cornell University. The project commemorates the 50th anniversary of the 1970 release of Katy and Roger Payne's album "*Songs of the Humpback Whale*" which sold over a million copies and was pivotal in changing human attitudes about whales and whaling. Over the course of 10 days in February, we observed,

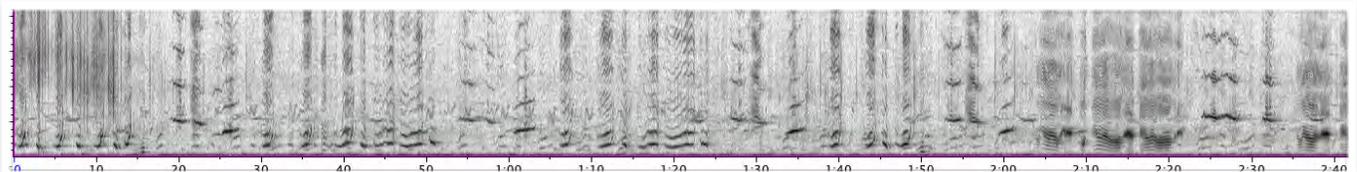


photographed, and made high quality recordings of 8 singing humpback whales.

Over the coming months, Katy will analyze differences in the songs to address her longstanding questions on the ever-changing song and the creative minds of humpback whales.

Annie will create a musical composition to be performed at Cornell in April 2020. See [Cornell Chronicle's article](#) on the project here.

A two-hour sound spectrogram of song is shown below. To listen, [click here](#).



Support HMMC

Like other non-profits around the world, HMMC relies on grants and donations to survive. Here are a few ways you can help us keep doing our important work.

1. Forward this newsletter to others who are interested in Hawai'i's marine environment.
2. Make a donation at <https://www.hmmc.org/Contribute.html>
3. Designate HMMC as a your charity beneficiary at smile.Amazon.com. You shop, they donate a portion to HMMC.
4. Buy HMMC logo-wear, posters or note cards from our online store. <https://www.hmmc.org/Store/StorePage.html>
5. Use our [Amazon Wish List](#) to donate something specific.

Camera Upgrade & Theodolite Repair Needed!

To keep our research and education programs in motion, there are several items we could use (see WishList above). At the top of the list is to fund repairs of our theodolite and to upgrade the camera and lens we use for whale photography to increase the quality and quantity of usable photos we can collect.

Please help us raise \$1,250 for a new Nikon 200-500mm f/5.6E ED Vibration Reduction Zoom Lens, and \$1,400 to replace the circuit board on our trusty Sokkia theodolite.



Every donation helps.



the sharp downward trend in 2016-2018 (see graph). Thankfully, in 2019 numbers of whales were higher than any year between 2016-2018, including 342 whales in 213 pods, and 10 calves. We also saw 225 vessels, 8 aircraft and 5 spinner dolphin pods.

Adam represented HMMC at a meeting hosted by NOAA in Honolulu in November 2018 where Hawai'i and

Alaska researchers compared their findings about whale number trends in recent years and identified research gaps to address in the future.

We are grateful to new volunteers Greg Neilson, Joy Phillips and Dennis Fukushima, as well as returning volunteers Kim New and Paul Berry for their essential help on computer and notes!

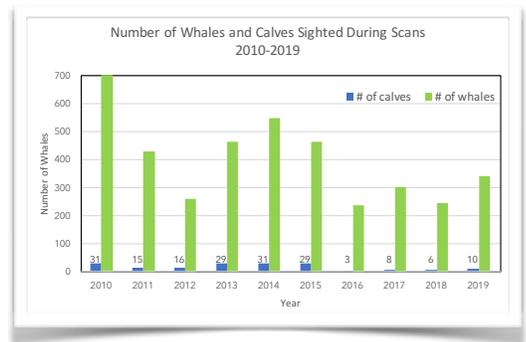


As mentioned previously, we were relieved to see some calves as we have seen so few in recent years. We also documented spinner dolphins four times, and a small group of bottlenose dolphins.

In 2019, we plan to join the North Pacific Humpback Whale Study Group collaboration led by Ph.D. student Ted Cheeseman to use automated fluke matching through HappyWhale.com to learn more about whale movements between tropical breeding grounds and their feeding grounds up north.

Counting From Shore

In our 17th consecutive year of shore-based whale scans, we conducted 20 timed scans to count whales between January 30th and March 4th. This time series has been very valuable in documenting



Just a Fluke

On the water this season, we focused on recording singing males (story on page 1), but in our travels we also encountered 56 groups that contained a total of 112 whales, and 10 cow/calf pairs.



Working with CORALS Students & Liquid Robotics

In late February, as part of a long term collaboration with professor Chuck Greene, we worked with six Cornell University students from the Cornell Ocean Research Apprenticeship for Lynch Scholars (CORALS) program. We taught them to locate whales from shore using reticle binoculars, so they could spend the next three days locating whales and recording their data with TapForms on a smartphone. These visual observations were intended to augment simultaneous acoustic recordings of singers made with two anchored SoundTrap hydrophones and one moving SoundTrap hydrophone attached to a Wave Glider (photo at left). The moving hydrophone was at different distances from shore (1-5 km) and different depths (10-125m). Later that week with recordings in hand, the students hit the lab with Adam, learning how to use the latest version of Cornell Bioacoustics Research Program's *Raven* software to acoustically localize whales.

This work was made possible with collaboration from Billy Middleton and the awesome engineers at Liquid Robotics in Kawaihae who deployed and retrieved the hydrophones and donated and ran the Wave Glider, Joleah Lamb who generously provided the Sound Traps, Dave Mellinger whose coding expertise allowed time-alignment of the records for localization, as well as Holger Klinck and Dean Hawthorne for advance copies of *Raven 2.0*. In science, as in life, it's good to have friends.

Marine Debris

Plastic in the oceans is a huge problem for marine life. That's why we try to pick up all the trash we see, large and small (photo at left). Here's our plea: Send a message to manufacturers by choosing to buy products with less or no plastic packaging. Take time to properly dispose of trash. Pick up that scrap of plastic you



see next to your car or on the beach. Retrieve that plastic bag stuck on a tree. You never know, you could be preventing that plastic from washing into the ocean and being eaten by a turtle, or picked up by a seabird to feed its chick.

In her own personal quest, Yin has picked up 2,024 pieces of garbage, including 1,029 straws, in 14 months. That's a lot of straws (photo at left)!

Thanks to Our Volunteers



Mahalos, Kudos & Accolades

All whale and dolphin photos shown here were taken under the authority of scientific research permits issued by the National Marine Fisheries Service. In addition to the folks mentioned above, HMMC is grateful to our many funders and supporters, as well as field volunteers and associates who make the fieldwork fun and productive! Mahalo nui loa to Robin Baird (Cascadia Research Collective) and Erin Oleson (NOAA Pacific Islands Fisheries Science Center) for allowing us to work under your scientific research permits. Thanks to Michael Force for identifying seabird from photos, no matter how distant or blurry. Special thanks to our Giving Tuesday donors, and Marilyn Wright, Kim New, Mike Morton, & Annette Henry, for repeat donations that help make our field season possible. Thanks to Joe Mobley at the University of Hawai'i, Honda Motor Corporation of America and Kaleo and Gary at Kona Coast Marine for help keeping us on the water. For towing us off the water when we needed it, mahalo nui loa to Joe Cootey of Kamuela Electric! Thanks to Jeb's Garage for emergency help with our boat trailer tires. Eternal gratitude to Paul Fischer and Greg Kaufmann for sharing your mooring space, making Kawaihae small boat harbor the great community it is.

Publications and Talks

Bryan, C.E., Gabriele, C.M., Yin, S. 2019. "The Case of the Bumpy Humpies": Exploring Potential Linkage with Nodular Dermatitis Using Benchmark Concentrations of Trace Elements in North Pacific Humpback Whale (*Megaptera novaeangliae*) Skin. Talk at 20th International Symposium on Pollutant Responses in Marine Organisms (PRIMO 20). Charleston, South Carolina, May 19-22, 2019.

Frankel, A. "The Effects of Sound on Marine Mammals". Kona Science Cafe, March 4, 2019.



Cates, K.A., Atkinson, S., Gabriele, C.M., Pack, A.A., Straley, J.M. and Yin, S., 2019. Testosterone Trends Within and Across Seasons in Male Humpback Whales (*Megaptera novaeangliae*) from Hawaii and Alaska. *General and comparative endocrinology* 279: 164-173. Read it here: <https://doi.org/10.1016/j.ygcn.2019.03.013>

