

Katy Payne and the Sounds of Humpback Whales

Let me start off by saying that I'm a semi-nerd. My background isn't in science, but I find scientific discoveries fascinating, whether they're in space or in the ocean depths. My nerdy tastes in media are pretty mainstream—Star Wars, Harry Potter, etc. I grew up on Star Trek reruns and enjoy them to this day, but I never made the jump to later Star Trek forays in television or film. With one exception, *Star Trek, The Voyage Home*.

This 1985 movie was also dedicated to the Challenger astronauts, which is another reason it's special to me. In case you're unfamiliar with the plot, it's the 23rd century and an alien probe is about to destroy Earth. The only life form that can communicate with the probe has been extinct since the 20th century. So, the crew of the *USS Enterprise* must travel back in time to retrieve 20th century humpback whales. So, yes, I have a thing for humpback whales, and that's what brings me to Katy Payne.

Katy earned dual bachelor's degrees in 1959, in music and biology. In the 1960s, scientists began recording whale sounds beneath the ocean surface. Katy was the first to recognize that the sounds made by humpback whales weren't random, but actually complex songs. She identified six to eight themes with repeating melodic phrases. After listening for months and years, Katy realized that the songs, which can be heard for long distances, actually evolved over time. Through her work in bioacoustics, Katy helped the world realize that humpback whales were communicating. And maybe that helped when it came time to save the humpback whales.



When Katy started her research into the songs of humpback whales, they were endangered, almost

extinct from commercial whaling in the 19th and 20th centuries. When the Endangered Species Conservation Act, Marine Mammal Protection Act, and Endangered Species Act were all passed in the 1970s, humpback whales had dropped to a low of approximately 10,000 throughout the world. With conservation efforts, numbers are now up to 80,000. Within the past few years, humpback whales have been removed from most endangered lists, although the International Whaling Commission still bars hunting them.

In 1984, Katy changed her focus to massive land mammals. Specifically, elephants. She discovered that elephants make powerful, low-frequency calls that can travel long distances. Her work on the acoustic communication of elephants has resulted in two books and even more, aided elephant conservation programs. Her recordings of elephants were selected as one of 50 recordings in 2004 by the Library of Congress to be added to the National Recording Registry.

The why and what of the songs of the humpback whales continue to be studied. Scientists now believe that males are doing the singing during mating season. Click on the whale on the right to hear a whale song from the Ocean Mammal Institute.

Thank you, Katy Payne for providing us with a great example of STEAM (Science, Technology, Engineering, Arts, and Math).

