

Vibration and Whales Ellen Sullivan *for* Sound Healing Certification course  
Globe Sound Healing Institute

*"If you want to find the secrets of the universe, think in terms of energy, frequency and vibration" ~Nicola Tesla*

Vibrations are motions that repeat themselves. Vibration occurs when something that is still (at 'equilibrium point') is excited by something striking, disturbing, touching or moving it. Everything we do, see and hear involves vibration. Vibration creates waves – light waves, sound waves. These waves are the 'DNA' of creation – light, sound, frequency and vibration occur in and of these waves.

*"What we have called matter is energy, whose vibration has been so lowered as to be perceptible to the senses. There is no matter." –Albert Einstein*

Resonance is induced vibration in a given object. Vibrations "sound and resound" which creates resonance in a given object. From the Latin resonare, which means 'return to sound', resonance is the quality of vibration that helps shape and define it depending upon its natural frequency which occurs when the object is struck (<http://www.sound-physics.com/Sound/Resonance-NaturalFrequency/>).

In this paper I am focusing on the sounds of the North Atlantic Right Whale. I will describe Right Whale sounds in terms of vibration, frequency, resonance and harmonics. I will discuss how whale sounds are used in sound healing, and also how sound healing might be able to help heal whales that are in trouble.

My goal is to create healing meditation music using North Atlantic Right Whale sounds and vibrations, based upon the whales' natural frequencies and harmonic overtones as the basis for the music. I am developing mantra and meditation based on my intuitive connections to the whales, as well as upon my understanding of the healing power of whales for the Earth.

This approach to helping the N.A. Right Whales by creating music and mantra highlights their beauty, their songs/vocalizations as a way to bring awareness about

them to the general public. Enhancing nature sounds through the creation of music inspired by these sounds is a way to use the power of music to inspire change.

Mantra as a way to deepen meditation on the whales can also be an effective tool for change – on the individual level as well as globally. Using mantra and the healing power of prana sets intentionality to bring healing energy to the whales.

*“ Music is a moral law. It gives soul to the universe, wings to the mind, flight to the imagination, and charm and gaiety to life and to everything. ” —Plato*

## NORTH ATLANTIC RIGHT WHALES

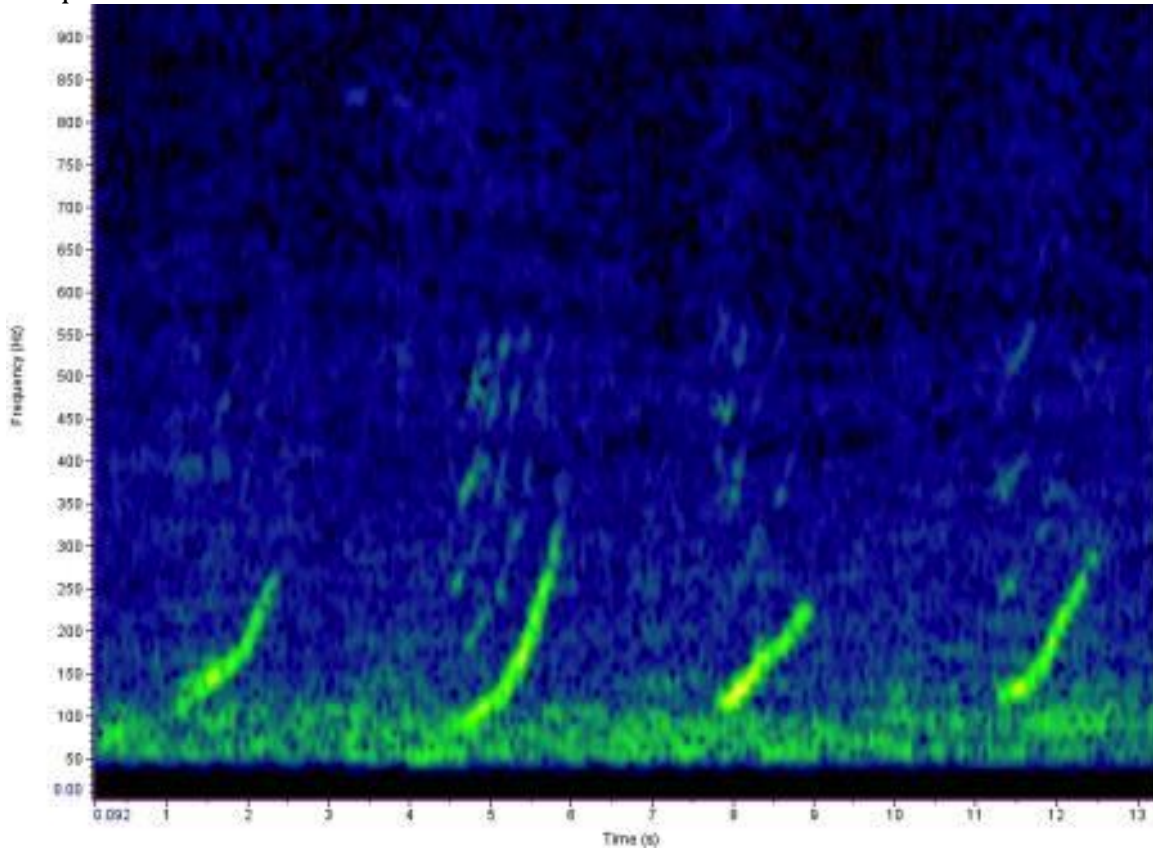
North Atlantic Right Whales are currently on the endangered species list. They have historically been over-fished. Currently they are stressed by conditions in their environment including entanglements with fishing and lobstering equipment. These stressors impact their ability to reproduce. Currently worldwide there are approximately 500 N.A. Right Whales in existence.

I live on the outer part of Cape Cod, MA where N.A. Right Whales arrive and feed each year during the Spring. They feed on krill and other tiny sea creatures that are abundant in the Spring. These giant creatures are readily visible from the shore, where they jump playfully and float peacefully on top of the water after they have fed. (Whalers in distant times dubbed these creatures Right Whales because they were the ‘right’ whales to pursue since they were so easily seen close to shore). At the Center for Coastal Studies in Provincetown, MA the Right Whales are being closely studied and efforts are being made to help protect and preserve them. There are recordings of the sounds of the whales at the Center that go back 25 years to present. The recordings are being made available to me to listen to; my goal is to analyze in terms of frequencies and harmonics with the ultimate goal of writing music to the sounds, as well as learning about their natural frequencies to see if there have been changes over time.

The following information is from the Center for Coastal Studies and internet research combined with sound healing principals as learned in our coursework. Whale frequencies are measured by various marine biologists and centers for scientific research using underwater measurement devices such as spectrographs. They are used to locate the whales as they detect their very distinctive sounds and to study their communications and acoustic behaviors.

Here I am using this research to understand and analyze the sounds from the perspective of how the sounds can be used to make music. I have meditated on the sounds to absorb and intuit their energy, spirit and meaning.

## Frequencies.



This depicts the frequencies of the 'upcalls' of the Right Whales. In this chart the calls range from 108 – 340 at their highest 'shriek' sounds. The inexactness of these pitches points to the nature of sounds in the natural world which are not tempered but are just tunings. Most scientists researching Right Whales place them in the low 5 hz to 440 hz range (<https://dosits.org/galleries/audio-gallery/marine-mammals/baleen-whales/north-atlantic-right-whale/>, <https://www.nefsc.noaa.gov/psb/acoustics/sounds.html>). The 'woops' range from 50 hz to 440 – although when placed in just tuning mode to account for natural frequencies, 54 – 432 hz. To my ear, when I test the notes with a tempered –tuned instrument (my cello) I find there is a difference in the note (A 440 is sharp and out of tune with their notes).

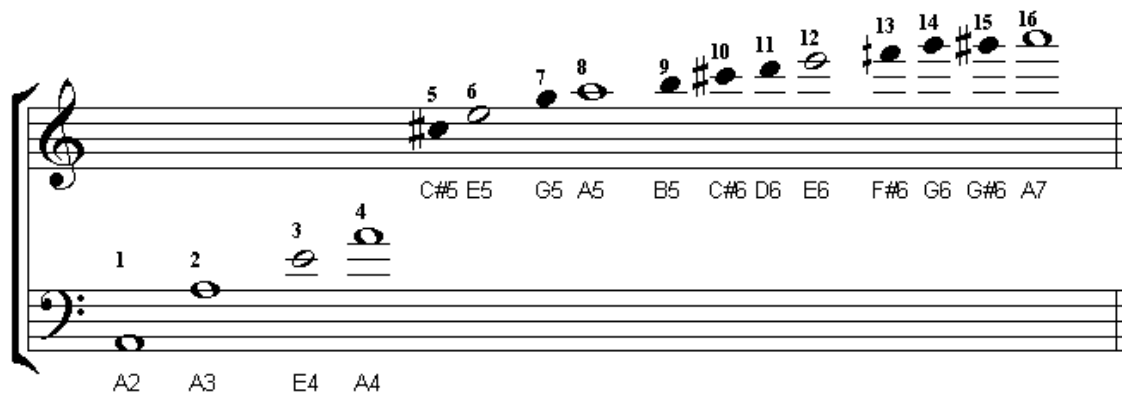
On the Archetypal Frequency range chart, 108 is in the Cell Rejuvenation and Mood Pacer area (111 Hz). 340 is in the archetypal range in between Crop Circle frequencies (297) and Solfeggio UT Liberating Guilt and Fear. They are very low and "muddy" sounds that tend to be annoying if boosted too high. They are not the melodies of the Humpbacks, but they do have a certain beauty which I will discuss below.

Resonance. Resonance of a given sound depends upon the type of field in which the resonance is occurring. In the case of the whales, resonance can be understood in terms of their bodies internally, as well as the external conditions in the ocean in which the sounds are emitted. As we learned in vocal studies, our voices initially resonate internally – our mouths, lips, teeth, throat, vocal cords, tongue and sinus cavities all contribute to resonance of our voices. In the Right Whale, these giant creatures resonate sound through their large heads (which comprise one quarter of their bodies). Right whales typically grow 45-52 feet in length and weigh up to 70 tons. Their body is very round; the width of the whale is generally more than half the length. Their jaws are curved and hold baleens (instead of teeth). Baleens are filter like structures that sweep tiny sea creatures they live on into their mouths. They block the mouth more than teeth since they are very large and cover the entire opening of the mouth. Right Whales also do not have lips, so therefore their sound is vibrating and resonating internally then pushed out through various obstacles. Sound travels more quickly through water than air (4 times the speed), and thus water influences the resonance as well once the sound is emitted.

Timbre. As mentioned above, the timbre of sounds produced by the Right Whales tends to be more rhythmic, pulsing, shrieking, with odd harmonic sounds, ranging from squeaky to rumbling. Though it can be irritating and/or less pleasant to hear in raw form, when analyzed harmonically and combined with smooth toned music they become more beautiful. The timbre is influenced by the specific elements within the whale's body and mouth (as described above). The structures of their heads and mouths may partly account for why their sounds are more groans, shrieks, belches and pulses, due to the timbre created by these internal structures. For comparison sake, Humpback whales have teeth and lips, no baleens blocking their mouths, their bodies are more sleek with less interfering in their vocalizations – and their songs are far more melodic in nature.

Harmonic Overtones. The overtones of the Right Whale sounds are analyzed here in terms of the notes A 108 hz to A 432, just tuning.

Harmonic overtone series of A (octavized up x2):



Harmonic Series of A2

A108 octavized x2 = 432, the heart meridian, Sound of Love, Sound of the Universe

How to use whale song and music for change and healing.

An example of the use of music and nature sounds as a tool for raising awareness and change is the music of the Paul Winter Consort. Winter first heard the songs of the Humpback whale at a lecture by marine biologist Dr. Roger Payne in the 1980s. Their collaboration produced the now famous Whale Lullaby, in which Winter plays a call and response type composition with a Humpback Whale. This music brought attention to the Humpbacks who were at that time on the endangered species list. The song moved and touched people in ways that helped motivate and mobilize protections measures. Humpback whale populations have increased significantly since that time, and in many parts of the world are no longer considered endangered.

The songs of the Humpback whales are featured in Winter's music.

“Whale Lullaby” (Call and response music written utilizing humpback whale melodies consisting of M6-M6-M7-M6 ascending). This very famous music was written in the 1980s when the humpbacks were on the endangered list. Paul Winter wrote the music as a way to bring awareness to them. Their beauty and melody touched many people. Paul Winter worked with a marine biologist, Dr. Roger Payne who made recordings of Humpbacks during the 1980s.

Here is a recording of solo whale at regular speed (as humans hear the sounds):

<http://music.paulwinter.com/track/solo-whale>

His slowed down version you can be heard here:

<http://music.paulwinter.com/track/slowed-down-solo-whale>

Paul Winter utilized the whale song harmonic overtones in his compositions –

Whale Lullaby:

<https://www.youtube.com/watch?v=t5GOB3ncrTI>

Listening to the slowed version the harmonic overtones are very discernable, and M6-M6-M7-M6 intervals can be heard.

#### WHALES SONGS FOR SOUND HEALING

Combined with the sound of ocean waves, meditations, and quiet music they are powerful and effective for helping people with insomnia and for general relaxation. and are also used in sound healing music. A quick Google search of whale music will bring you to the many YouTube recordings /videos of whale music used for sleep. Their low frequencies are often combined with Delta Waves and Binaural beats for ultimate relaxation experience.

Here is a recording that incorporates Delta waves with the natural sound of the Humpback whale:

<https://www.youtube.com/watch?v=rBQ4BzR4ysw>

Questions for ongoing research:

- have been any changes over time (ie, stressors have increased in more recent times with concurrent population decreases –
- can we discern changes in their sounds?.
- What are their natural frequencies?
- what is their home note?
- Could Sound healing help the whales cope with the stressors they are experiencing more and more frequently?

Two approaches to healing:

1. helping the Right Whales by utilizing their sounds and natural frequencies to create music compositions that will help bring awareness about them to the general public, their beauty, joyful presence and healing sounds can be enhanced through music.
2. Once discovered, perhaps their natural frequencies can be played to them (if there is a way to do that!) at sea. This could help bring them to a more peaceful place, help heal the stress reactions in them, and help them heal in general.



*Prayer & mantra for the Right Whales*

*We are Joy*

*We are Love*

*We are Life*

*We hold the world together, We hold the world together*

*We have Joy*

*We have Love*

*We have Life*

*We hold the world together, We hold the world together*

