

*About just intonation:*

Just intonation is a tuning system that allows one to create pure harmonic relationships between notes based on the use of whole-number ratios. This contrasts our current system in much of Western classical music of equal temperament, where all notes are equally slightly out of tune in order to allow one to play with any other tempered instrument (often fixed-pitch) in any key without having to retune or change instruments. Just intonation selects a fundamental tonic and uses this frequency to calculate the tunings for all other notes in the scale based on the location of that note in the harmonic series. Therefore, to play in a different key on a just intoned instrument would sound quite out of tune. Common prime numbers of the overtone and undertone series are used to calculate basic relationships, with 2, 3 and 5 being the most common and accessible, and 7, 11, 13, and 17 yielding more note possibilities that explore sweeter, richer, neutral, or near-tempered notes. Different intervals can yield new and unique interference beats, and some can all but eliminate them to produce only pure harmonic waves. Just intonation was commonly used in early monophonic and polyphonic music (Pythagorean tuning), and was revived in the 20th century by pioneers such as Harry Partch and La Monte Young, the latter of whom is well known for his 5-7 hour durational piano work, *The Well-Tuned Piano*, which many acclaim as prophetic in its exploration of the primes of 2, 3 and 7, eliminating the use of 5:4 triadic harmony. Surrounding La Monte's work were other artists to explore JI such as Tony Conrad (who, it is said, introduced it to La Monte), Terry Riley, Michael Harrison, and Catherine Christer Hennix, amongst many others. In many regions of the world, rich forms of folk and classical music can be found in variations of just intonation and microtonal systems such as Indian Classical gayaki (vocal music); the systems of Persian dastgah, Arabic maqamat, Azerbaijani mugham; music of the Great Highland bagpipes; and forms of Javanese Gamelan (and notably American Gamelan pioneers such as Lou Harrison, Daniel Schmidt, David Doty, Jarrad Powell all used sets tuned in just intonation); amongst others.

*About the tuning of the composition:*

The shruti boxes are primarily tuned using a combination of the primes of 2, 3, 5, and 7, with the 17-limit shruti box containing primarily primes of 11 and 13, with one 17-limit interval (32:17, small septendecimal major 7th). I selected a 17-limit major 7th in order to have 3 unique and very close together major 7ths to play together, allowing their harmonics to interact.

The tuning for each box is as follows (*only notes used in the composition are included*):

The Gray Whales (7-limit shruti)  
1:1, 8:7, 7:6, 4:3, 3:2, 14:9, 7:4, 27:14, 2:1

The Bowhead Whales (17-limit shruti)  
1:1, 3:2, 11:7, 22:13, 7:4, 32:17, 2:1

The Humpback Whales (7-limit shruti)  
1:1, 8:7, 7:6, 4:3, 3:2, 14:9, 2:1, 7:3

The Blue Whales (7-limit harmonium with octave extensions)  
1:1, 3:2, 2:1, 9:4 [9:8 oct], 8:3 [4:3 oct], 3:1 [3:2 oct], 28:9 [14:9 oct], 7:2 [7:4 oct], 15:4 [15:8 oct], 32:7 [8:7 2nd oct], 14:3 [7:6 2nd oct]

Dreams of the Forty Whales  
of the Harmonic Reed System

*Performed by*

*Glacial Time Communion*

*In memory of Yoshi Wada (1943-2021);  
and in dedication to  
Michael Harrison, La Monte Young,  
and the sentient goliaths of our oceans;  
may we learn from them to generate greater harmony,  
compassion, and peace for each other, for our planet,  
and for our spirits.*

August 14th, 2021  
8:00 pm

*About the work:*

Katrina Wolfe - movement, choreography, handmade costume, handmade veils, voice  
Joey Largent – 7-limit harmonium, voice, composition  
Danielle Quenell - 7-limit shruti box, voice  
Tae Kim - 17-limit shruti box, voice  
Kaliane Van - 7-limit shruti box, voice

Joe Iano - photography

*About the performers:*

*Joey Largent's* work explores the relationships between sound, environment, and context, focusing on improvised music for dance and long-duration solo and ensemble compositions, often working with just intonation, feeling-based improvisation, timeless-based performance, and long, subtle tones that gradually unfold over time. Much of his performance and recording practices are created in or inspired by site-specific, isolated locations in nature. Joey's compositional style comes from studies in Southeastern European folk music, butoh, improvisation, microtonality, and North Indian classical music. Amongst others, he has studied with Rose Okada, Michael Harrison, Jung Hee Choi, and La Monte Young.

*Katrina Wolfe's* primary work is the practice, teaching, and performance of Motion Awareness: a movement technique that utilizes sensitivity to the physical sensations of the body as the impetus for both action and sustaining postures in stillness. Motion Awareness was developed through Katrina's combination of her five-year practice of Vipassana meditation with her study and practice of butoh and visual arts. Katrina's work in figurative sculpture, anatomy, drawing, oil painting, photography, abstract sculpture, and costume design are active inspirations in her interdisciplinary performance practice. Her work seeks to offer both viewer and practitioner increased awareness of the universality of impermanence, resulting in the cultivation of intention, empathy, and compassion in all aspects of life.

*Taehyung Kim* (b.1988 Seoul) is a Korean-Canadian architectural designer and artist based in Seattle, WA. His practice is informed by various research mediums that investigate spatial experience and narratives of space through the lens of framing, embodiment, duration, and domesticity. Taehyung earned M.Arch and Honors B.Arch at the University of Waterloo School of Architecture in Canada and recently presented his research at the Dennis Tate Civita Fellowship Residency and Cornish College Incubator Residency. He is currently a designer at Graham Baba Architects.

*Kaliane Van* is a self-taught multi-instrumentalist, audio engineer, writer, dancer, and live sound technician who studied audio technology through Fairhaven College at Western Washington University. Kaliane creates music aleatorically and incorporates intuitive tunings and tempos that are improvised and influenced by nature spirits, cosmic mysteries. They weave digital and analog realms of freaky folk ad-libbing and textural tones into sonic landscapes and sound design for fantasy worlds and spoken word poetry.

Seattle-based photographer *Danielle Quenell* has spent twenty years surveying the boundless world of visual storytelling through still and moving images. Her work aims to transcend the specific moment of its creation and reveal the inconsistencies in our experiences of time and physical space. By embracing a range of antique technology and historic processes, and often working in discontinued film and paper stock, every image is an exercise in vertical time-- a celebration of deliberate slowness, decay and imperfection.

I first conceptualized *Dreams of the Forty Whales of the Harmonic Reed System* after a series of lessons in just intonation with Michael Harrison, a composer I've admired over the years for his just intonation piano work, and, who also spent much time in his early years learning from La Monte Young, both as his tuning assistant for *The Well-Tuned Piano*, and also as his protégé, living in his loft and sitting next to him during every 5-7 hour performance of *The Well-Tuned Piano*. We are, in many ways, disconnected from the idea of lineages in our society, and while I have my critiques of it, I feel it really is so important to be able to find those who inspire us and to seek out knowledge from them directly in order to aid our own visions into truly manifesting. I realize that oftentimes, some of the knowledge we seek is intuitively already in us, and maybe even something we discover we can't get from our inspirations, or even from their students who carry that knowledge. It is a difficult, hard-to-parse situation, but meaningful, perhaps, to have new ideas circulating inside of us.

The instrumentation of the piece is made up of three shruti boxes and one harmonium that have been tuned by hand using filing tools and a hertz counter into four different microtonal tunings of just intonation using intervals of the first 7 primes (2-17) of the harmonic series. The more primes one explores, the more detailed and minute the sonic possibilities are. The piece was written using my own graphic score format, inspired by the incredible (and recently passed) composer Yoshi Wada, color-coding the notes so that anyone of any background (be it musical or non-musical) could play it. Each note on each instrument represents the song of a single whale, therefore, *'the forty whales'* refers to the forty separate voices that are present in the work. Four to six vocal parts are included in addition to the shrutis to reach forty.

The composition tries to tackle so many things: the unities of humanity, climate change and its effect on the sentient and beautiful creatures of our oceans, friendship, ecstasy, love, grief, suffering, existential chaos, and the hypnosis of it all. I can't help but think of the dichotomy of feeling so alone during this time, and yet so close to others at moments too. I wanted to write a piece that allows all of us to be close to each other, if not in merely physical space, in sonic and emotional space as well. This is paired with an exploration and fascination with the ways natural harmonics remind me so much of whale songs, and how Earth's whale populations - while making a gradual comeback after the devastating whaling industry booms from the 16th to 20th centuries - are now facing risk from environmental factors of Earth's changing climate. They are some of the last true megafauna on Earth, some of which can live to be over 200 years old. The number 40 refers to a concept in the mystical faith of Alevism in Turkey known as *Kırklar Cemi*, or, the Assembly of the Forty Beings, which is often mentioned in Alevi/Bektashi music (that I have loved so much), specifically that of Neşet Ertaş and Ali Ekber Çiçek, who often refer in their mystical ballads to these *cemi* (gatherings) in conjunction with the practice of *semah* (ritual dancing) and *deyiş* (the chanting of Alevi hymns). I feel, in a parallel sense, that we could perhaps practice our own semah and chant our deyiş in union with the forty.

All this, for me, is joined quite seamlessly with the movement work and philosophy of Katrina. As a Vipassana meditator of over five years, her attention to detail and subtlety in movement is profound. I can think of no other more appropriate pairing of experiences and intuitions as with hers. From Katrina: "I will be joining the piece with my movement, allowing me to share a very important aspect of my movement practice that has not previously been a focus in my performance work. This type of movement is contained, making slow and subtle shifts over a long period of time. As the sound ebbs and flows like moving water, lava, the slow growth of organic forms, the body will utilize the sonic vibrations to be moved as would any other element in natural world, relinquishing all sense of humanness to become what the body actually is: simply another aspect of nature."