

# Sing Broken Ice (for Pauline)

Betsey Biggs, 2024

In memory of Pauline Oliveros

Commissioned by the Peabody Institute Laptop Orchestra

## INSTRUCTIONS

CONDUCTOR patch should be run out to house speakers (channels 1-2) and if possible a subwoofer (channel 3).

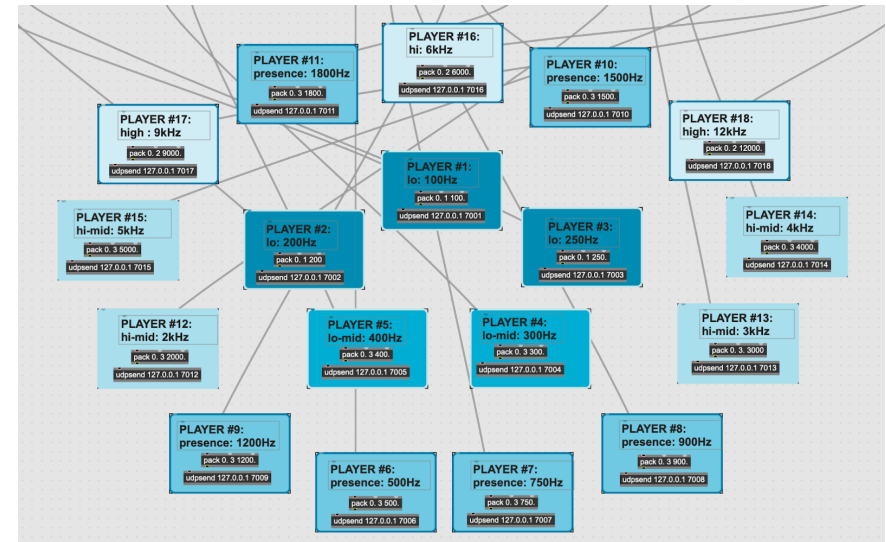
When you turn the patch on with the big toggle, you will be prompted to import "1979-2023\_min\_arctic\_sea\_ice\_extent.csv" in the "Sing Broken Ice media" folder. This imports the data that controls the piece. This should also start the main audio loop; if there are issues, just drag "singbrokenice\_loop" to the audio player. Please note that the players will need the audio loop along with their player patch on their laptops.

All PLAYERS should form a concentric circle, sitting comfortably. Each player has an assigned frequency cutoff; lower frequency players should sit in the middle, high frequency players to the outside corners.

Each PLAYER will be running a Max patch ("singbrokenice\_player\_n") on their own laptop. Data is sent between the patches using udp send and udp receive.

PLAYERS should not need to interact with their Max patch and should dim their screen to black. They should try to sit so that their built-in laptop microphones avoid the output of their own and other players' speakers as much as possible (I realize this is a virtually impossible task).

Here is a suggested seating plan:



CONDUCTOR: Fade house lights down as dark as possible. As you do press the START PIECE button. This will begin a number of events:

- fade in audio on the house speakers
- fade in audio on the players' speakers, which are fragmented by frequency filters.
- begin the timer
- begin reading through the sea ice data, spitting out numbers to control the patches.

PLAYERS: Close your eyes. Slowly listen to the sounds of arctic ice melting. The crackles, sighs, shifts. Become aware of your own crackles, sighs, shifts, melting. Become aware of the pitches you can hear, the pitches you are imagining, the pitches you are. Slowly vocalize your breathing. Hum, sing,

sigh, shriek: melt and break as the ice is melting and breaking. This can be very quiet or very loud.

Your voice will not be amplified. However, it will be analyzed, and its MIDI pitches sent to the conductor's computer. These pitches, together, will form a pool of possible frequencies to be sent back out to the players' laptops and mapped onto resonant filters sent occasionally to the players' audio.

ALL: Over the course of the piece, the likelihood and intensity of these resonant frequencies interrupting the natural sounds of the melting ice, as well as reverb and glitch audio effects applied to them, will be controlled by monthly sea ice data from the past twenty years. The more ice has melted in a month, the more intense the resonant frequency interruptions will be.

CONDUCTOR: end the piece around 10 minutes when the melting ice has become submerged in a sea of drone and glitch by clicking the END PIECE button to fade all sounds out.

Players: Slowly listen to the sounds of arctic ice melting. The crackles, sighs, shifts. Become aware of your own crackles, sighs, shifts, including your own breathing. Become aware of the pitches you can hear, the pitches you imagine. Slowly vocalize your breathing. Hum, sing, shriek, respond naturally to the sounds of the ice. This can be very quiet or very loud. Your voice will not be amplified. However, it will be analyzed, and its MIDI pitches sent to the conductor's computer.

These pitches, together, will form a pool of possible frequencies to be sent back out to the players' laptops and mapped onto resonant filters sent occasionally to the players' audio.

Over the course of the piece, the likelihood and intensity of these resonant frequencies interrupting the natural sounds of the melting ice, as well as reverb and glitch audio effects applied to them, will be controlled by monthly sea ice data from the past twenty years. The more ice has melted in a month, the more intense the resonant frequency interruptions will be.

The conductor ends the piece when the melting ice has become completely submerged in a sea of drone and glitch by clicking the END PIECE button to fade all sounds out.