Title: Sonic Swells – Riding Swells

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1. PROGRAM NOTES

"I want to know what it says. The sea, Floy, what is it that it keeps on saying?"
Charles Dickens, Dombey and Son

Huge ocean waves and weather, surfing waves, and the art of musical improvisation crash together in this multimedia performance. Sonic Swells - Riding Swells combines sonification of ocean weather data from Bells Beach, Torquay, Australia, sonification of a surfer's movement data surfing at Bells Beach and the Urbn Surf Wave Pool, and live saxophone performance. The ocean weather data and movement data interact to create a modulating soundscape that the improvisor performs against, with further sonic effects applied to the saxophone from the surfer's movement data.

2. PROJECT DESCRIPTION

Sonic Swells is an iterative sound art project that explores the use of the sonification of ocean weather data, the sonification of movement data from a surfer riding waves, and live performance as tools for music composition. While many works have been created that use the sonification of weather and geophysical information, [1] [2] layering ecosystem data with human movement data in the same area is less explored. This work adds the element of improvisation and live music performance, with effects controlled by the surfer's movement.

The overall form of the work seeks to embody the process of the creation of ocean waves, and is in three sections – capillary, fetch and breaking. Many of the physical processes that comprise these stages are used to influence creative elements of the work, including for example, wave sets, wave dissipation and capillary to gravity waves

The piece largely employs parameter mapping sonification [3]. Ocean weather data is collected through a free API and converted to sound in max/MSP, driving the parameters of a very large additive and subtractive synthesiser that uses pink noise as its fundamental sound source. The sonification includes swell direction and wind speed that nudge the audio around the stereo or surround speaker field, and wave height and swell period driving an undulating filter effect. The severity of the conditions dictates the complexity of the soundscape, and for this version of

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the work a very large day of swell was selected from Easter 2019 at Bells Beach. The resulting sonification was recorded and arranged into the work.

The performance comprises a laptop, the saxophonist, and projections of surfing. The surfers' movement data was collected with a DIY kit including an iPhone, an esp32 watch for data logging, and a small WIFI router with battery. This information influences elements of the ocean weather sonification and manipulates audio effects on the saxophone performance.

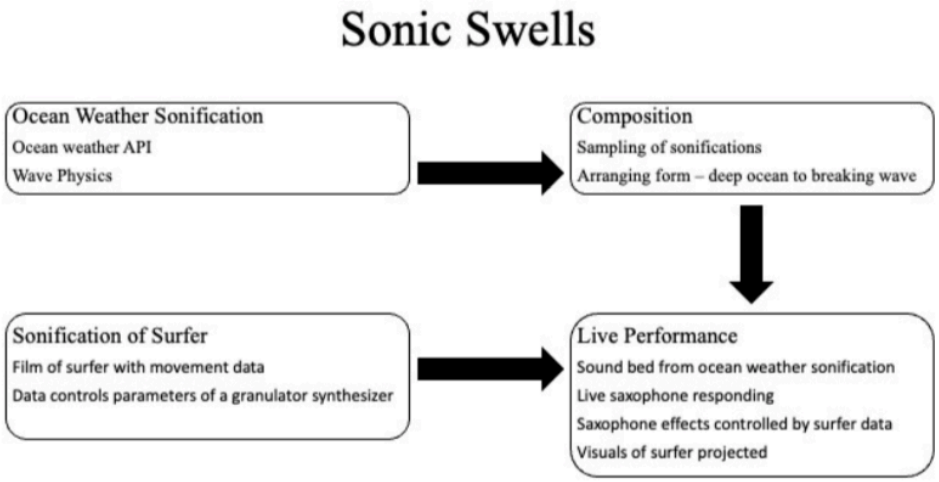

Fig. 1. Sonic Swells.

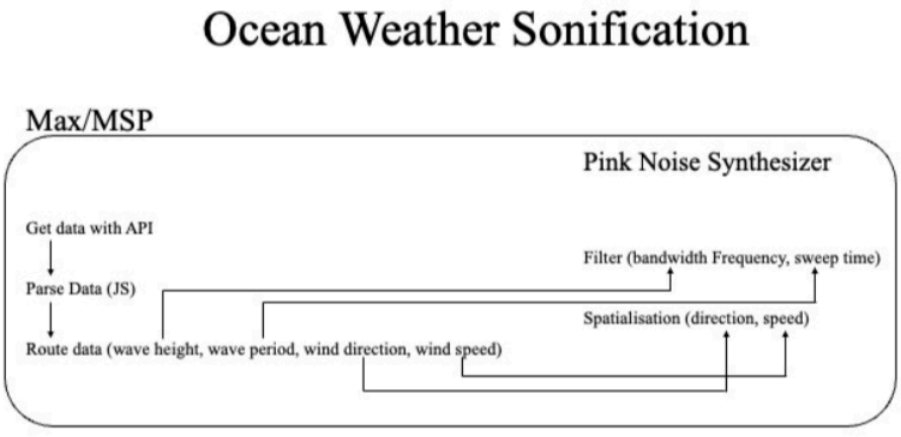

Fig. 2. Ocean Weather Sonification.

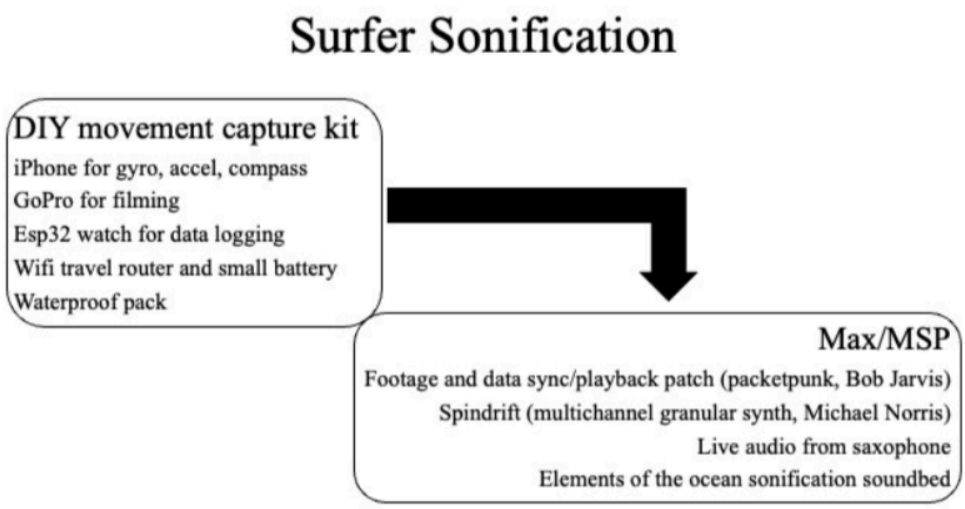

Fig. 3. Surfer Sonification.

3. PERFORMANCE NOTES

Live performance requires a stereo, quadraphonic or octophonic speaker setup, a 2 to 8 channel interface, a projector, a microphone (sm58) and stand. The performer's laptop connects to interface and microphone, with projection and audio run from here.

ACKNOWLEDGMENTS

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ETHICAL STANDARDS

The surfer in the footage is the author. The weather data is obtained through the free service, stormglass API, with which the author has no affiliation. The movement data capture hardware and software was developed by Bob Jarvis and used with his permission. Spindrift is a granular synthesizer created by Michael Norris and free to use in Max/MSP. The composer receives a scholarship from the University of Melbourne on which time this piece was created.

REFERENCES

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[3] T. Hermann, A. Hunt, and J. G. Neuhoff, *The sonification handbook*, vol. 1. Logos Verlag Berlin, 2011.