The Cosmic Pond

A multiple-component project arising from an artist residency

Ian Thompson

Research Portfolio (REF category T - Other)

Ian Thompson
Senior Lecturer
School of Design
University of Greenwich
i.d.thompson@greenwich.ac.uk

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REF statement

Originality

Originality lies in both the submitted residency proposal, and in the approaches to producing the work. Central to the proposal was an investigation of bioacoustic activity within a freshwater pond habitat, live-streaming sounds to a 4.0 speaker installation in an adjacent observatory. A floating craft carrying a stereo hydrophone pair was built to spatially capture sound from within the pond for the live installation, and for high fidelity archival recording. The hydrophone craft was a novel method of monitoring freshwater fauna, potentially useful in further studies.

Rigour

Imagining the reservoir adjacent to the North Pennines Observatory as The Cosmic Pond was a solid context for public engagement, and a catalyst for dialogue across a broad spectrum of local interest groups at three public events. Conversations among participants were recorded and edited as part of the project's documentation. Local experts in astronomy and ecology were invited to contribute, attracting diverse audiences. Care was taken to document of the residency in detail, and this is available in the public domain. Although the overarching inquiry was artistic rather than scientific, a substantial amount of invertebrate activity was recorded with timecode, available for further artistic works or scientific study.

Significance

The project arose from an artist residency funded by Arts Council England. The initial application was peer reviewed by Allenheads Contemporary Arts, UK. The project demonstrates how an art residency can activate diverse public interest around a central theme. Outputs have longevity as research resources through online documentation, and material gathered has already been used in subsequent artworks. The most significant output is the use of stereo hydrophones to monitor freshwater soundscape ecology, an area of burgeoning research interest. The project has led to an invitation to participate in 'The Space Below' sound installation in Greenwich foot tunnel with live hydrophone sound, London, March 2020

Contents

Introduction

The Cosmic Pond is a collection of outputs from an artist residency at Allenheads Contemporary Arts (ACA), Northumberland, UK, between May and July 2018. It is a collaborative project produced by Sarah Sparkes and Ian Thompson.

Proposals for artist residencies were invited as part of BEYOND, a series of projects hosted by ACA in 2018. The Cosmic Pond proposal was one of two selected by peer review, with Arts Council England funding of £2000 plus £600 expenses awarded.

ACA shares its location (a former village schoolhouse) with the North Pennines Observatory, often used as inspiration for art projects addressing philosophical and conceptual matters around space, time and sensory experience,

Reflecting on the nature of humanly uninhabitable space, we proposed to explore the old reservoir opposite the observatory using stereo hydrophones, relayed the sound to a gallery installation nearby. Our creative premise was to observe any correlation between sound of life in the pond and the movement of celestial bodies, particularly the full Moon on May 28th 2018.

In developing the work we invited contributions from local experts with interests in ecology and astronomy, and hosted public events using our residency as a gateway into wider engagement with arts practice, acoustic ecology, and the natural environment.

> *"Space and time are interconnected; stars, planets, human and other lifeforms all create ripples in the cosmic pond."*
>
> (Spakes & Thompson 2018)

Residency outputs

A summary of key components of the project.

Physical works:

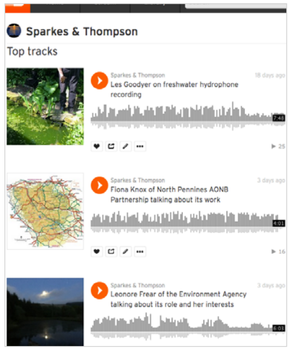
- Stereo hydrophone rig *Terraqueous II*
- Sound installation in observatory's warm room

Public events:

- Full Moon at The Cosmic Pond: 29th May 2018
- Sunset to Sunrise at The Cosmic Pond: 2nd-3rd June 2018
- BEYOND Closing Weekend: 21st-22nd July 2018

Legacy:

- Two weeks of freshwater fauna audio recordings, available for further acoustic ecology research
- Renaming of the reservoir as The Cosmic Pond
- Full documentation available online at: sparkesthompson.art/cosmic-pond



Top: Visitors listening to The Cosmic Pond
Left: Pond dipping with local schoolchildren
Right: Audio documentation on SoundCloud

Research

A broadly constructivist research strategy was used to draw upon as much local knowledge as possible. Stakeholders across all aspects of the residency were interviewed, providing vital insights which informed our approaches to developing the work. Edited versions of these interviews are available as part of the project's documentation.

Durham-based wildlife sound recordist Les Goodyer shared hydrophone recording and freshwater species identification advice, and a helpful summary of the limited existing research in that particular field of acoustic ecology.

Fiona Knox of the North Pennines AONB Partnership spoke to the wider social and political contexts of local ecosystems, and about the 'Cold Blooded and Spineless' project which uses art practice to raise awareness of invertebrate habitats.

A creative problem solving approach was applied to constructing the stereo hydrophone rig, drawing on a number of online resources to complement existing knowledge of audio engineering.

Interviewing local wildlife sound recordist Les Goodyer about freshwater hydrophone recording

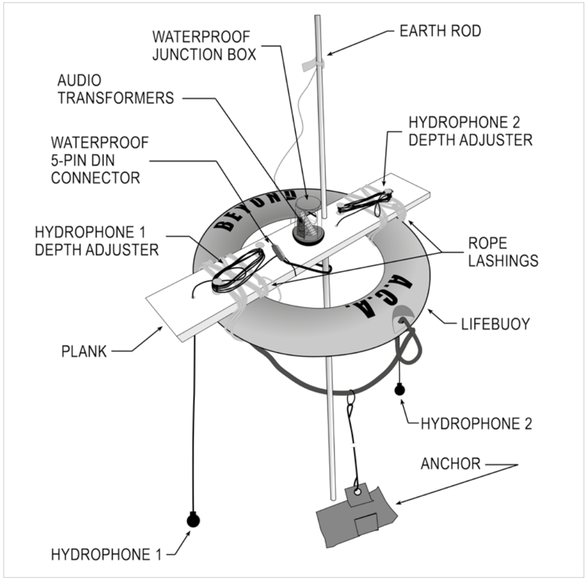
Hydrophone rig Terraqueous II

This stereo hydrophone rig, named in tribute to Carl Sagan, became the focal point of the residency. Built around a lifebuoy, it conceptually represents a spacecraft - a vessel also designed to support human live at the threshold of an uninhabitable realm.

Using a pair of low-cost hydrophones as a spaced stereo pair arranged to take the speed of sound in water into account, we were able to explore the pond's biophony in detail. The stereo image enabled identification of individual insects within the space and perception of relative distances between them.

The hydrophone audio was fed to four loudspeakers in the observatory warm room arranged as complementary stereo pairs to give (literally) a sense of immersion.

The audio feed was recorded almost continually for two weeks, and streamed online for the final weekend event. An unfortunate lack of access to reliable broadband internet in rural Northumberland prevented continuous live streaming of the audio feed, as was our initial intention.



Technical illustration of Terraqueous II, aesthetically referencing similar diagrams of NASA Apollo II craft

Installation

The audio feed from the hydrophone rig was relayed to loudspeakers installed in the warm room adjacent to the North Pennines Observatory. This was chosen as the most suitable location as it combined observation of the cosmos above with the sound of the pond below. The pond was visible from the room too.

The audio feed was connected via c.50 meters of audio cable across the bottom of the pond. A wireless solution had been considered, but it was unclear how reliable this would be in terms of maintenance and sound quality.

The installation also included a series of informative posters featuring a variety of pond insects, designed in a similar style to those already in the room featuring planets and displayed among them.

The room was accessible to observatory users through the duration of the residency, so the audio feed was also available on headphones for disturbance-free listening. It also provided a suitable venue for ad-hoc demonstrations and discussions with visitors as the project progressed.

Top: Installing audio cable from hydrophones to shore
Left: Laying subaqueous audio cable to hydrophone rig
Right: Installation in observatory warm room

Public engagement

The residency activated public interest in soundscape ecology, imaginatively linking this to astronomical observation. All events were fully attended.

Three public events associated with the project brought together a diversity of groups, and included talks by cosmologist Dr Fred Stevenson about the Moon, and local ornithologist Keith Bowie about birdsong and avian communication. Each talk was followed by a presentation of our work, and an opportunity to hear sonar communication among local bats using heterodyne detectors. We also led a nocturnal soundwalk through the local area, with a discussion about the experience over breakfast afterwards.

The project was presented to MA Creative Arts Practice students from Newcastle University, and to local schoolchildren visiting for a pond-dipping session.

The closing event included a hydrophone making workshop, and transmission of the pond sound via ‘silent disco’ headphones for visitors to explore the site while listening to the pond.

Top: Local schoolchildren visiting the Cosmic Pond
Left: Hydrophone making workshop
Right: Visitor in the Cosmic Pond listening pod

Legacy

The Cosmic Pond is an example of how an artist residency can activate public interest across arts, ecology, and technology.

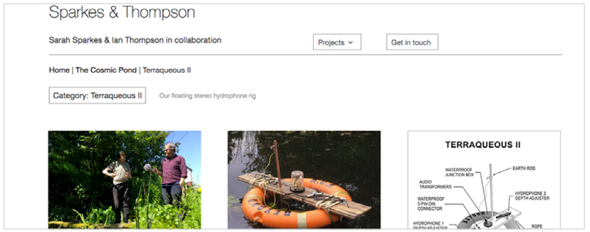
The project is fully documented online as a fully accessible reference resource for arts practitioners, ecologists and parties with interests in freshwater habitats and bioacoustics. This includes: details of methods used; edited interviews with contributors; sound works recorded at public events:

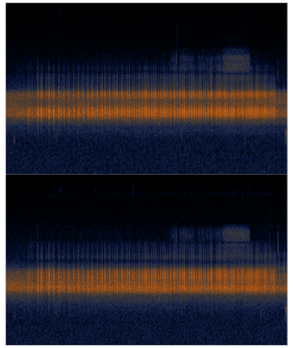
sparkesthompson.art/cosmic-pond/

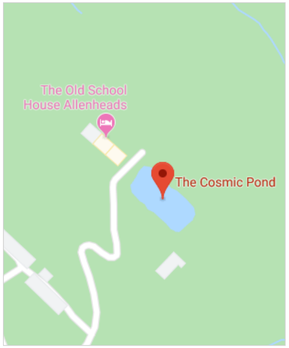
Recorded material has already been used in subsequent artworks (Sparkes & Thompson, *The Syncrhonising Cue*, 2018), and will be released as an album in 2020.

The stereo hydrophone rig has been used to record sounds from the River Thames for “The Space Below” installation in Greenwich foot tunnel, London, UK March 2020.

Full versions of recorded materials are available for further research on request.







Top: Cosmic Pond project online documentation
Left: Spectogram display of pond insect stridulation
Right: The Cosmic Pond on Google Maps

Appendix

Images and weblinks

Launching the Terraqueous II hydrophone rig

Informative pond-life poster in style of existing astronomical posters in the observatory's warm room

Terraqueous II hydrophone rig before launch

Visitors to closing weekend event listening to the Cosmic Pond on 'silent disco' headphones

Hydrophone recording with Les Goodyer

Their sounds don't come out to us, but our sounds definitely go back to them.

Before we started building the Terraqueous II rig, we went to meet local wildlife sound recordist Les Goodyer. Les gave us some insight into the range of species we'd hear in the Cosmic Pond.

An active member of the Wildlife Sound Recording Society, Les has been recording aquatic life in his own pond and other bodies of water around the North East for several years.

Les met us at his home on the outskirts of Durham where he told us about his inspiration and experiences of hydrophone recording over a cup of tea and some delicious cake. He played us some of his recordings too:

Meeting the locals

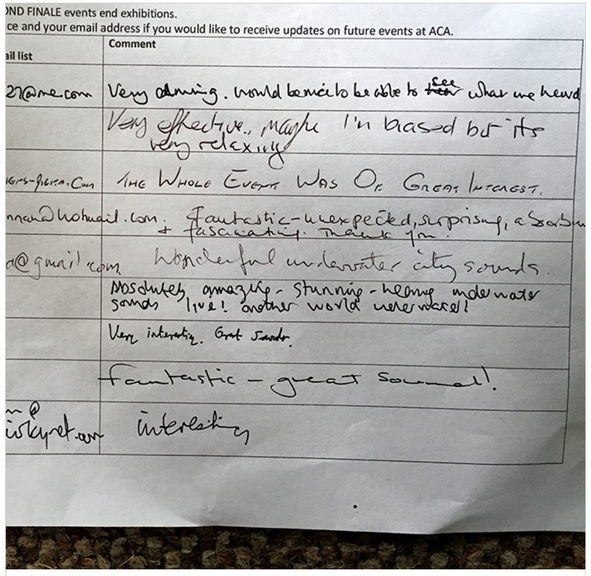
It's great to have the observatory to bring the arts and science together.

A core aim of our residency was to engage with local experts and others concerned with the environment around Allenheads, inviting them to share their experience and knowledge.

While preparing our first public event, Full Moon at the Cosmic Pond, we were fortunate to catch Fiona Knox from the North Pennines Area of Outstanding Natural Beauty Partnership as she was dropping off some bat detectors for us to use. She told us about the AONB Partnership's role, and the importance of the arts in engaging public awareness:

Later, at our launch event, we met Leonore Frear, Environment & Business Development

Pages from the Cosmic Pond online documentation, with links to sound works



Feedback sheet from closing weekend event

Online references:

Allenheads Contemporary Arts BEYOND residency:
https://www.acart.org.uk/beyond

North Pennines Observatory:
https://www.northpennobservatory.org.uk/

*Full Moon at the Cosmic Pond event:
https://www.northpennobservatory.org.uk/event-2936549

*Sunset to Sunrise at the Cosmic Pond event:
https://www.northpennobservatory.org.uk/event-2936571

**These events were fully attended, despite the information on the boking pages.*

Complete publicly accessible project documentation:
http://sparkesthompson.art/cosmic-pond/


sparkesthompson.art/cosmic-pond