

Acoustic Ecology in Commissioned Work

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ABSTRACT

As a collective, which is specializing in sound scenography, Idee und Klang Audio Design creates auditive environments for exhibitions and the public space. Sometimes we create our own artistic pieces, but in most cases, we are hired by a client. Nonetheless, in our 17 years of existence, we have found that more times than not, there is room to align our own beliefs with the ones of the project to some degree. This paper focuses on two aspects: a) the ways in which acoustic ecology informs our work as sound scenographers and b) our experiences with commissioned projects, which feature acoustic ecology as a core topic.

1. INTRODUCTION TO SOUND SCENOGRAPHY

Sound scenography is a relatively new field. One in which architecture, acoustics, communication, sound design, and interaction design intertwine and form new concepts.

As a collective, which is specializing in sound scenography, we create auditive environments for exhibitions and the public space. In our book *Sound Scenography – The Art of Designing Sound for Spaces* [1], which we have released together in 2021, we call sound scenography the art of designing sound for spaces. Sound is incredibly underestimated and underused as a design medium. This is especially true in a spatial context: The way a space sounds has an enormous impact on the way we feel when we move within it. This is a strength we systematically harness in our work. By composing spatial soundscapes in tailor-made multichannel formats, we try to seamlessly integrate sound into architecture, or much rather, aim to see it as a part of it. Similarly to the way the lighting reveals the characteristics of an architectural space to our eyes, sound reveals its characteristics to our ears.

2. HOW ACOUSTIC ECOLOGY INFORMS OUR WORK AS SOUND SCENOGRAPHERS

Our approach in sound scenography is heavily influenced by acoustic ecology: all the core principles of composition and sound design for our spatial soundscapes are borrowed from nature and our interaction with it:

2.1 Orientation

In outdoor spaces, humans and other animals constantly use the sounds that surround them for orientation purposes. Acoustic landmarks such as waterfalls help them figure out their location within their environment. This is especially important in situations with low visibility or at night. The way these sounds are reflected and filtered also reveals a great deal of information about the environment such as its dimensions, its shape or the characteristics of the materials, which are present in it. In indoor environments, such orientation can take place in similar fashion if we consciously integrate acoustic landmarks into our sound scenography.

2.2 Attention

Unlike visual information, sounds have an effect on humans and other animals regardless of whether we are actively listening and paying attention or not. Another important difference between our sense of sight and our sense of hearing is that the sense of hearing is a global, omnidirectional sense and can pick up a lot of information at once. The sense of sight, on the other hand, is directional and can only selectively focus on a single point or area in space at any given time - the rest of the visual field remains blurred, and anything outside of it is not perceived visually at all. In nature, the sense of hearing is crucial to spot potential dangers early on and – vice versa - to help predators detect potential prey. In man-made environments such as exhibitions, we harness this by using sound to purposefully direct the attention of visitors.

2.3 Association

In nature, various sounds contain crucial information. The specific characteristics of wind sounds can reveal information about an upcoming thunderstorm for example. Such cues can be learned by humans and other animals and help them navigate their lives intuitively. In sound scenography, we use this feature of sound to condense complex emotions into specific, short sound cues. Sometimes even a fraction of a sound is enough to trigger associations or memories. One example is the film soundtrack of *Jaws* (Steven Spielberg, 1975). If you were to play the first double bass note of this soundtrack to a random group of people, there's a high possibility

that at least one person in the room would immediately recognize the sound and draw a connection to the film. In this way, the emotional world of an entire film is re-activated by a single sound!

2.4 Spatial Depth

A single sound i.e., a single point source provides limited spatial information. If two point-sources are combined, with a physical distance or offset between them however, a three-dimensional listening space opens up. The great number of point-sources present, such as birds and insects, is the reason why nature spoils us with soundscapes with tremendous spatial depth. This is something we aim to emulate in our work by composing for tailor-made sound systems, which usually feature a great number of discrete audio channels and speakers in various different locations. Walking around in a spatial soundscape, which is played back on such a system, leads to a constant change in acoustic perspective. This results in a similar experience to walking around in a soundscape in nature.

3. ACOUSTIC ECOLOGY AS A CORE TOPIC IN OUR PROJECTS

To come full circle, acoustic ecology has also found its way into our projects as a core topic. Sometimes we create our own artistic pieces, but in most cases, we are hired by a client of some kind. This means that our influence on the philosophical and ideological message of a given project, is limited. Nonetheless, in *Idee und Klang Audio Design's* 17 years of existence, we have found that more times than not, there is room to align our own convictions and beliefs with the ones of the project to some degree. The following paragraphs are an attempt at summarizing our experiences with commissioned work with a focus on acoustic ecology.

As spatial audio experts, our focus in such projects lies as much on the faithful reproduction of the recorded sounds as on the methods of capturing it in the first place: We work with various formats. Among others, we use our own system called AROS (acousmatic room orchestration system), which we have utilized in many projects such as the !Khwatla San Heritage Center near Cape Town, South Africa. Its exhibition documents the daily lives of the San, the hunter-gatherer cultures in the African South-West. Their gentle ways of co-existing with the biosphere they are living in, taught us a lot about acoustic ecology. Sound plays a crucial role in their everyday life as sounds of the weather and the fauna provide valuable information. We joined the San in numerous activities in the Kalahari Desert (Namibia), using our 8-channel ORTF-3D microphone rig to record along the way. Drawing from this rich material, we then created a 21-channel soundscape composition for the exhibition, which was divided into three areas highlighting the aspects of nature, village and culture respectively. The focus of this project was to preserve a version of today's acoustic reality and to make it accessible, both

for today's population as well as future generations. There are only very few San left that still live as hunter-gatherers today and whose ancestors were among the pre-colonial communities that once could be found all over southern Africa. It is the kind of thinking that aligns with efforts such as the UNESCO world heritage program – but for sound.

A project in this context, which is still ongoing, is the *Klangweg Toggenburg*, for which we are overseeing the entire audio creation process. The *Klangweg* is an extensive public hiking trail in an alpine environment in Switzerland's Toggenburg region. Hikers on this path will be able to discover a great number of sound art pieces created by various different artists. These are integrated into the soundscape of the surrounding ecosystem and hereby function as its extension, sensitizing visitors regarding its liability to sound pollution. In a piece by landscape sound artist Ludwig Berger, for example, the trail will branch out into five different sections, each of which will feature a different kind of gravel with an individual rock type and grain size. When walking on each kind, the footsteps of hikers will create a sound that resembles the sound spectrum of a different kind of cricket, respectively. To mimic the crickets even more accurately, a visual score will be provided to help hikers imitate the rhythm of the animals' chirps with their feet. Another piece will be created by Swiss artist Marcus Maeder.

For the temporary exhibition 'Earth at its Limits' at Natural History Museum Basel (Switzerland), we created three spatial soundscapes, which simulated the idea of untouched nature. Each focusing on a different environment - the forest, the ocean as well as the alps – the exhibition grappled with the notion that this kind of pristine environment, void of human interference, is quickly turning into a relic of the past, one that can soon only be experienced via an artificially created soundscape. As a counterpoint, we also created a fourth soundscape. This one featured the sounds of a wide array of natural disasters, whose prevalence and severity is directly impacted by climate change.

The same museum is currently planning a comprehensive new building. We are working on multiple concepts for the redesign of its permanent exhibition. One of which features a life-size replica of a whale, which is hanging from the ceiling of the huge staircase, which connects the various exhibitions. The plan is to connect the replica to the tracking device of a live animal, one that is actually roaming the ocean. The live data will reveal the current depth the actual whale is swimming in, from which we can derive its heart rate. The sound of its heartbeat will then be played back via a massive subwoofer, which is built into the body of the replica whale.

4. CONCLUSION

Sound scenography combines approaches from the fields of architecture, acoustics, sound design and interaction design, offering new concepts and possibilities. With a strong influence from acoustic ecology, we have incor-

porated core principles derived from nature into our work as sound scenographers, including orientation, attention, association, and spatial depth. However, our interest in and commitment to acoustic ecology extends beyond the functional. We believe that now is the time to open our ears to nature in order to learn from it. To learn how to live as a part of it rather than to face it as predators and exploiters. We are trying to shape our work in a way that sensitizes listeners to the intricate relationship we share with our environment on a sonic level. Given

the impact sound can have on us humans, we would even say that this is, as gentle as it might be, an activist notion at its core.

5. REFERENCES

- [1] Ed. Idee und Klang Audio Design, Ramon De Marco, "Sound Scenography – The Art of Designing Sound for Spaces" *avedition*, 2021.