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Sonoshaping the Frozen Seas: Exploring Sonic Imaginaries in the Polar Sounds Project

Geraint Rhys Whittaker [1,2]

[1] Helmholtz Institute for Functional Marine Biodiversity (HIFMB), University of Oldenburg, Germany
[2] Alfred Wegener Institute Helmholtz Centre for Polar and Marine Research, Germany

Correspondence: Geraint Rhys Whittaker (geraint.whittaker@hifmb.de)

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Abstract

Artists have long shaped cultural imaginaries of the polar regions, and advances in acoustic technologies over recent decades have expanded these imaginaries to include the sounds of the polar seas. Collecting such recordings, however, typically requires specialised equipment and substantial logistical and financial resources, limiting access to those able to travel to the poles. Art–science collaborations therefore play a crucial role in making polar acoustic data accessible for creative interpretation to those unable to visit. This article examines such a project, Polar Sounds, that provided 103 musicians and sound artists from 31 countries with recordings from the Arctic and Antarctic oceans and invited them to compose new works from these materials. Unlike most projects requiring artists to enter the field, Polar Sounds brought the field to them. Using interviews with 63 participating artists, the study investigates how their imaginaries of the polar seas evolved through engagement with the acoustic data. By tracing the artists' interpretive journeys, this article explores what artistic creativity can reveal about how non-polar scientists come to know and then reimagine polar worlds, as well as how sound offers unique spatial perspectives for understanding representations of the ocean.

Keywords

art–science; ocean communication; polar sounds; science communication; sonic imaginaries

1. Introduction: Popular Perceptions of Polar Worlds

Due to melting sea ice, the expansion of tourism and advancements in exploration technologies, the polar regions and their oceans are more accessible to humans than they have ever been (Hemkendreis & Jürgens, 2024). This access, however, is largely limited to a narrow segment of society—primarily scientists, seafarers,

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military personnel, commercial companies, wealthy tourists, and, in the case of the Arctic, the region's Indigenous and local residents. As such, most people will never directly encounter these places. Yet, despite this physical distance, the polar regions and their oceans occupy a unique position in contemporary popular culture and global environmental imaginaries (Nielsen et al., 2024), prompting some to suggest that they have become the most mediated places on earth (Glasberg, 2012; Kelman, 2022; Steinberg et al., 2015).

Think for a moment of what the aesthetics of these regions mean to you, and depending on your own familiarity, you are likely to be able to describe a scene that features at least some of the following: ice, snow, the cold, isolation, certain endangered mammals, Indigenous communities, or a place under threat due to human-induced climate change. Such prominent polar imaginaries have been established over time through multimedia representations in novels, poetry, films, documentaries, photography, the diary notes of early scientists and explorers (Hansson, 2018; Hince et al., 2015; Leane, 2018; Lehtimäki et al., 2021; Truswell, 2015), as well as news coverage analysing the polar regions' role in geopolitical issues such as climate change, resource exploitation, and Indigenous politics (Dodds et al., 2017; Nilsson & Christensen, 2019; Nuttall et al., 2018; Pincus & Ali, 2016). What most people know about the polar regions, therefore, relies heavily on how they are represented to global audiences, and determining who is able—or unable—to construct these narratives, as well as how they do so, is essential for understanding the power relations underpinning such imaginaries (Nielsen, 2020; Salazar, 2017; Steinberg et al., 2015).

Artists have long played—and continue to play—an important role in shaping polar imaginaries from both within and beyond the regions themselves (Hemkendreis & Jürgens, 2024; Huhmarniemi & Jokela, 2020; Jokela, 2024; Michałowska, 2020; L. Roberts et al., 2021; Stevens et al., 2019; Whittaker et al., 2024). Their perspectives can either reproduce established historical narratives and stereotypes about these places or offer alternative interpretations of polar aesthetics that challenge dominant media representations (Bloom, 2022), thereby introducing "new modes of perception" through which to engage with the polar regions and their oceanic spaces (Crawley et al., 2023, p. 280). In doing so, they make meaningful contributions to the continually evolving "mosaic" of polar imaginaries (Steinberg et al., 2015, p. 12). Historically, artistic representations of the oceans have primarily focused on visual representations above the waterline (Crawley et al., 2023). Increasingly, however, as acoustic technologies advance, more attention is being given by artists and humanities researchers to the materialities of sound for creating and exploring relations deep within the volumes of polar ocean spaces (Coutu et al., 2024; Dobrin, 2021; Helmreich, 2016; Steinberg et al., 2025; Whittaker et al., 2024).

Sound is a critical component of oceanic understanding: it is used by mammals as a form of communication and navigation and used by scientists to understand ocean worlds and the anthropogenic impacts on them (Duarte et al., 2021; Erbe et al., 2025; Van Opzeeland & Slabbekoorn, 2012). Direct engagement with sounds from the polar regions, however, is usually only possible through acoustic data collected by scientists in the Arctic and Antarctic oceans. Such recordings are challenging for artists to collect independently, as they typically require specialised equipment and substantial logistical and financial resources. When provided with this sonic data, however, artists can offer novel perspectives on polar environments by connecting "the under land, the world above, and the observer" to alternative imaginaries of polar worlds and polar futures (Coutu et al., 2024, p. 28; Gilmurray, 2020). Art–science projects are thus one way to make accessible the sounds of the polar seas and reimagine them through various lenses beyond their scientific utility (Whittaker et al., 2024).

This article will explore a project that did this, Polar Sounds. Polar Sounds was initiated and coordinated by me (an artist-researcher) in conjunction with acoustic scientist Ilse Van Opzeeland, marine geographer Kimberley Peters, and in collaboration with the global sound mapping project, Cities and Memory. Through this collaboration, more than 100 musicians and sound artists from around the world were paired with acoustic data from the polar oceans collected by scientists from the Ocean Acoustics Group at The Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research (AWI OZA). The artists were given the freedom to compose new works using these recordings, opening up the sounds of the polar seas to people who otherwise would not have access to them (Whittaker et al., 2024). Unlike many previous artistic sound projects associated with the regions, the artists involved in Polar Sounds did not undertake residencies there and remained in the comfort of their own homes. As such, the project responds to Leane and Marx's (2025, p. 3) call for greater understanding of how people with "no special connection" relate to polar spaces.

This article begins by discussing polar and oceanic imaginaries, before introducing the Polar Sounds project and outlining the methodology used to gather artists' reflections. It then examines insights from the interviews to explore the *process* of how the artists produced their compositions to understand how their sonic imaginaries of the polar regions and their oceans evolved through the creation of their pieces. By exploring the process of how the artists' own imaginaries changed through participation in the project—rather than providing a textual analysis of the individual pieces—the article responds to earlier calls I have made for more academic work which takes the holistic and transformative journey of an art–science collaboration seriously, and the relations it can foster with ocean spaces. In other words, this approach emphasises that the process is "as valuable as the art that is produced" (Whittaker, 2023, p. 4) and extends the literature on art–science collaborations beyond only textual interpretations, to illuminate their impact across multiple levels of engagement (Paterson et al., 2020; Schnugg, 2019). By attending to the processes and practices through which imaginaries are constituted—rather than solely to their outcomes—we can more effectively apprehend the "active creation of subject–space relationships" and analyse how "formerly unknown spaces and places," such as the polar regions, become "conveyed with meaning" (Pohl & Helbrecht, 2025, p. 1502) by individuals who might otherwise be unlikely to encounter them.

2. Constructing Polar Ocean Imaginaries Through Creativity

As with outer space, the polar regions and their oceans—though inaccessible to most people—have long captured the imaginaries of populations who live far from them (Leane, 2023; Triscott, 2017). For this article, imaginaries refer to the ways in which people construct understandings of how a place is and how it is thought to be. They consist of the "stories and legends" that give "legitimacy" to collective narratives (Taylor, 2004, p. 23), functioning not only as a frame of consciousness for social life but also come to construct it (B. Anderson, 2006). In the context of ocean imaginaries, although, as J. Anderson and Peters argue (2014, p. 9), "representation can only take us so far in knowing water worlds," the imaginaries that exist in society matter because they can impact popular opinion on what the ocean is and what it can be (Steinberg et al., 2015). How imaginaries develop also matters as they are inherently contested and never politically neutral, with certain narratives dominating discourse, marginalising alternative voices and perspectives (Levy & Spicer, 2013; P. Roberts et al., 2016). Imaginaries, therefore, become important mechanisms through which populations create—or fail to create—connections with places. It is thus vital to understand what Jessop (2010, p. 339) calls the "meaning-making instruments" that are used to maintain and uphold imaginaries within social life.

Once such meaning-making instrument is art. How artists tell stories about the sea influences how it lives in the cultural imagination (Mathieson, 2016). Because polar ocean spaces are inaccessible to most people, the stories told about them are often constructed either by a select few or by individuals likely to never experience these environments firsthand (Steinberg, 2014). As a result, the imaginaries that emerge presuppose the improbability of most people's direct physical contact with these regions (Roldan & Nielsen, 2022). Access to these spaces for artists is generally limited and unless they are Indigenous to—or living in—the Arctic, or are granted a commission to visit either poles—such as The Arctic Circle residency program, a yearly expedition which sails to the Arctic with a team of "international artists of all disciplines, scientists, architects, and educators" (The Arctic Circle, n.d.)—only a small number have the privilege of working directly with the materialities of these environments (Jackson, 2019; Nielsen et al., 2025). Consequentially, art–science collaborations—where artists and scientists work together to share data and think through scientific topics via a creative lens (Jung et al., 2022; Whittaker, 2023)—can provide an indirect method for those who do not have access to these regions to come into contact with their materialities. Thus, these collaborations contribute to constructing new imaginaries of polar and oceanic spaces by shaping connections between science, society, and the sea, in "excess" far from the oceans' depths (Peters & Steinberg, 2019).

When discussing how art–science collaborations contribute towards the construction of polar imaginaries, it is important to clarify what is meant by polar regions. These regions can be defined in various ways depending on legal, scientific, social, and cultural perspectives, but are generally referred to as the areas around the North and South poles, including the Arctic and Antarctic oceans and territories, respectively (Polar Region, n.d.). In popular imaginaries of the climate polycrisis, the polar regions are often homogenised, grouped alongside "deserts," "rainforests," and "coral reefs" as globally recognised "threatened environments" at the forefront of climate change (Hansen, 2019, p. 3). Imagining the polar regions as a singular entity, however, has complex social and cultural consequences. On the one hand, it can obscure the specificity of place and the diversity of issues within each region, marginalising, for example, the stories and lives of local and Indigenous people in the Arctic and those who have cultural ties to Antarctica (Agsten, 2021; Dodds & Woodward, 2021; P. Roberts & Howkins, 2023; Wehi et al., 2022). On the other hand, conceptualising them together under the term "polar" can symbolically unite these two critical places at the forefront of cryosphere politics, fostering connections of solidarity and inspiring climate action and consciousness (Mamzer et al., 2021). Accordingly, when this article refers to the polar regions collectively, it does so whilst recognising the key differences between them: most notably that the Arctic is home to four million people, and the two regions differ in their governance structures. At the same time, it acknowledges their shared characteristics: their symbolic roles in a rapidly changing cryosphere, their importance in global politics and cultural discourse, and their aesthetic similarities in how they are represented and imagined, as will become evident throughout this article (Bloom, 2022; Nuttall et al., 2018).

This tension is important to acknowledge when considering how artistic projects contribute to the imaginaries of polar worlds. In the Arctic, Indigenous communities have been creating ocean-informed art for generations (Aamold et al., 2017; Ellis et al., 2015; Hessel, 1998). Consequentially, any discussion of what polar art is and what it can become must recognise the diverse contributions that emerge across different territories and scales. This raises important ethical questions: Who gets to contribute to polar art? Whose work is discussed? Who gets access? And should more polar art be created if doing so risks reproducing various forms of exclusion? Some have even suggested that Antarctica should be left free from

artistic or further interpretation, to preserve the possibility "of walking the other way, not exploring any further, not taking any more pictures, not allowing any more tourism, not collecting any more information" (Jijón, 2022, p. 107).

This article argues, however, that art–science collaborations are vital interventions for building "a new cultural commons" (Bloom, 2022, p. 5) of engagement with the polar regions and their imaginaries, enabling participation by multiple actors across multiple scales—and that the term polar is useful for doing so. Such collaborations are a crucial means of diversifying access to locations that are central to the environmental futures of everyone on the planet. One of the motivations for creating the Polar Sounds project was the belief that sharing scientific data is a key way to open avenues for people from diverse backgrounds, from all over the world, to engage the polar regions without having to visit them. This approach democratises science and scientific data, whilst provoking wide-ranging conversations about some of the most pressing environmental challenges the polar regions and their oceans face (Whittaker, 2023; Whittaker et al., 2024). In other words, sharing scientific data that is fundamental to environmental futures with a broad range of participants creates new forms of connection that expand the possibilities of what this data can be and what it represents. As Steinberg et al. (2015) argue, imaginaries are never fixed; we must attend to the various ways they are continually being made and remade. Thus, analysing art–science projects contribute to understanding the fluid and continually evolving nature of polar imaginaries.

3. Sonic Imaginaries of Polar Worlds

The roots of the word imaginary derive from the word image (Grimshaw-Aagaard et al., 2019), and when discussing polar imaginaries, it is unsurprising that visual perspectives dominate, while sonic imaginaries are less recognisable in popular consciousness (Coutu et al., 2024). Returning to the question posed earlier about describing polar aesthetics, imagining what the polar regions and their oceans *sound* like to you is likely to be far more difficult. What you might describe is a place of silence, perhaps listing the sounds of the wind, prominent mammals, or even the ice (Martin, 2015). However, sound is a fundamental component of polar marine life above and below the waterline, with many species relying on it for communication, navigation, and reproduction (Thomisch et al., 2016; Van Opzeeland et al., 2013). Sound is also a crucial tool that scientists use to understand the polar regions (Llobet et al., 2023) and—as in many other oceans in the world—the polar oceans are becoming louder due to increased human activity (Duarte et al., 2021). Sound is thus an important sense to consider when discussing polar imaginaries.

From a cultural perspective, increasing attention is being given to sound as an important signifier for understanding polar relations, with many of these accounts focusing on the role of music in shaping polar imaginaries (Griffiths, 2015; Nielsen et al., 2025). This includes music created by local and Indigenous communities (Aubinet, 2023; Cocq & Dubois, 2020), music played by sailors and research scientists during expeditions (Watson, 2015), and music later inspired by the "heroic age" of exploration (Wiesel, 2012). Moving on from music, other studies have explored the sounds of daily life, including the sounds from inside and outside polar living quarters (Pharaoh, 2015). More recently, artists and humanities scholars are engaging directly with acoustic data collected in the Arctic and Antarctic oceans to create and contest understandings of polar ocean relations (Dobrin, 2021; Whittaker et al., 2024). Sound artists such as Alie Giles, Andrea Polli, Paul D. Miller (DJ Spooky), Jana Winderen, Daniel Blinkhorn, Douglas Quin, Chris Watson, Max Eastley, and Cheryl E. Leonard, among many others, have made significant contributions

through artistic interpretations of polar acoustic data (Giles, 2015; Gilmurray, 2020; Philpott, 2020). These projects, however, typically involve artists travelling to the Arctic or Antarctica to collect the sounds themselves (Samartzis, 2015) and are therefore shaped by the perspective of visitors to the regions. This article, however, focuses on a unique art–science project, Polar Sounds, which instead brought recordings from the Arctic and Antarctic oceans to a large number of artists from around the world, without requiring them to leave their homes. The artists were not only given access to a distinctive collection of polar ocean recordings, but were also given the freedom to compose whatever they wished using the sounds. Accordingly, this article explores the imaginaries the artists held of the sonic world of the polar seas before participating in the project and then how they subsequently developed through the works they created.

4. The Polar Sounds Project

The Polar Sounds project emerged from an ongoing art–science collaboration between me, an artist-researcher, Ilse Van Opzeeland, an acoustic scientist, and marine geographer Kimberley Peters. We have been working together to explore how art–science collaborations can be used both to create opportunities to think differently about and with the ocean and ocean science, and how these approaches can be shared with wider audiences for the purpose of science communication and public engagement (Whittaker, 2023, 2024; Whittaker et al., 2024, 2025). During early discussions while planning potential art–science projects, one idea we wanted to investigate was what would happen if some of the acoustic data collected from the polar oceans at the AWI OZA were shared with musicians and sound artists from around the world. We therefore sought answers to some of the following questions:

> Could we discover how familiar non-scientists are with the soundscapes of the polar seas? Could we understand not only how artists interpret these sounds but also what they do with them and produce from them? Could we use that as a basis to both shift the sounds from the lab to the wider world, and to allow different publics to engage those sounds not just through listening, but creating? What might these endeavours in creativity tell us about how people understood and understand the ocean, before and after the creative process? This, in essence, was the basis of Polar Sounds. (Whittaker et al., 2024, p. 4)

To develop the project, we partnered with Cities and Memory, one of the world's largest sound-mapping websites, and through this collaboration, a call for artists was publicised. A total of 103 artists from 31 countries were selected to take part in the project, ranging from professional to amateur and everything in between. Polar Sounds is therefore a unique art–science project because of the unusually high number of artists who were given access to this scientific data simultaneously.

Each artist received one sound clip from an archive that included biological sounds (such as the vocalisations of whales and seals), geological sounds (such as collapsing and colliding ice shelves), and anthropogenic sounds (such as seismic air guns and shipping noise). Snippets of these sounds can be found on the website of the AWI OZA. The artists were then given three months to create a composition of their choice, and the resulting pieces ranged from songs to soundscapes to fictional narratives, among other forms. When the project launched in February 2023, it gained significant news media attention, appearing on prominent television, radio, and online platforms globally, as well as being widely shared across various social media platforms. As a result, it reached a potential audience of millions (Whittaker et al., 2024). It became a

meaningful point of connection between the polar regions, the scientific knowledge produced about them, artists, and diverse publics (for an in-depth analysis of the design of the Polar Sounds project, see Whittaker et al., 2024). The Polar Sounds project remains online, and all the compositions are available to listen to here. The works continue to have a new life through the Polar Portal art installation—a repurposed phone booth that houses the compositions and allows members of the public to listen in an isolated space. The Portal will travel to various locations, enabling audiences to experience Polar Sounds in situ. As such, the project and its legacy continue to evolve three years after its initial launch.

5. Methodology: Preparing for Polar Exploration

This article is not a textual analysis of the individual compositions themselves, although they will be referenced throughout. Instead, it focuses on the process the artists underwent in creating their pieces and how participation helped them navigate their sonic imaginaries of the polar seas. By process here, I do not mean the conditions that led to the creation of the project—this has been discussed in detail in Whittaker et al. (2024). Rather, it focuses on "the creative and cultural" journey the artists experienced when "embedding the scientific and technological elements in concept and knowledge creation" (Birsel et al., 2022, p. 121), into their thought process. In other words, this article examines the decision-making that shaped how the artists familiarised themselves with the acoustic data, reflecting on what their imaginaries of the polar regions were prior to participation and how these developed through creating their compositions. It illustrates how imaginaries of polar worlds are constructed and reproduced through intimate engagement with their materialities—in this case, acoustic data collected in the Arctic and Antarctic oceans. By doing so, this article follows how the artists' experience of shaping the sounds of the frozen seas, allowed them to interact with a place which although at first "does not make sense" due to it lying "outside the normal coordinates, experiences, backgrounds, and so on, of an individual (or group of individuals) and thus might seem senseless, nonsensical, or incomprehensible," then how through creativity, it "suddenly starts to make sense (Pohl & Helbrecht, 2025, p. 1502).

To explore this, interviews were conducted after the artists submitted their compositions—for a detailed explanation of participant selection, see Whittaker et al. (2024). Briefly, an open call attracted over 300 applicants, which was narrowed to 103 based on criteria including prior experience and diversity considerations to "ensure representation across genders and locations" (Whittaker et al., 2024, p. 4). Participation required artists to agree in principle to being interviewed. However, despite multiple email invitations sent before and after the submission of their pieces, only 63 artists—just over half of all participants—made themselves available. This highlights a common challenge faced by researchers coordinating art–science projects; for some of the artists, their sole priority was creating the work, and nothing beyond. As such, after the initial contact, we chose not to continue to pursue anyone who was not interested in contributing to the research component.

Interviews ranged from 30 minutes to two hours, depending on the availability of both the interviewer and interviewee, language proficiency, and internet constraints. All interviews were conducted online and in English. Because participants' first languages included English, Japanese, Greek, Arabic, and Swahili, among many others, hiring translators was beyond the scope of the project. For some participants, conducting the interviews in English felt restrictive; when discussing technical or emotional elements of their work, they noted difficulty expressing themselves clearly. It is therefore important to acknowledge the linguistic

challenges of a global project and how these differences can shape the direction of conversation. Artists were based in countries including Argentina, Egypt, Israel, Wales, India, Estonia, Ecuador, Chile, Slovenia, Hong Kong, New Zealand, Brazil, Indonesia, and Kenya, amongst others. Participants with at least part of their countries being within the Arctic Circle included those from Norway, Sweden, Iceland, the US, Canada, and Russia.

The interview structure was divided into four sections. The first section focused on getting to know the artists and understanding why they wanted to contribute to the project. The second section explored the artists' familiarity with the topic. Questions addressed what they knew about the polar regions and the soundscapes of the polar seas before participating, as well as how they reacted when they first heard the acoustic data. The third section examined the artistic process and the reasoning behind their creative decisions. The final section investigated what the participants learned about the soundscapes of the polar seas through their involvement with the project and how this influenced their future understanding of the regions.

Before each interview, all participants were asked to listen to their composition, and I, as the interviewer, also listened to every piece more than once. Upon submitting their compositions, participants were also asked to provide a short-written description of their work, which I read prior to each interview (when interviews were not possible, some of these descriptions have been used instead in this article to describe certain pieces, all of which can be read on the polar sounds website provided earlier). These ranged from a few sentences to a couple of paragraphs. After all interviews were completed, they were transcribed and then coded in NVivo, with the coding structured to reflect the four sections identified above. In this article, interview data will be referred to in two ways: first, through quotations presented in text boxes, and second, within the text through smaller snippets referring to the artist's name, followed by the title of their composition in brackets. To listen to the compositions of the featured artists, please refer to the previously provided link, where you can use the search function to locate pieces by title.

6. Discussion: How Familiar Are You With the Sounds of the Polar Seas?

To understand the imaginaries the artists held about the polar regions before participating in the project, two primary lines of inquiry were pursued: First, what the artists knew about the regions and their soundscapes prior to involvement, and second, what motivated them to take part. When asked about their prior knowledge, most participants did not distinguish between the Arctic and Antarctica, instead speaking about them in similar terms. This may be because the project was titled Polar Sounds and was framed in a way that encouraged artists to think of these regions collectively rather than as distinct places. Although participants were informed that the sounds they would have access to were recorded in the Arctic and Antarctic oceans, their descriptions offered little differentiation beyond geographic location. This suggests that the artists' initial perceptions echoed broader popular narratives that often merge the two regions into a single, undifferentiated imaginary. Therefore, when analysing the interviews, it is important to consider how wider popular imaginaries of the polar regions contribute to a homogenised view of the Arctic and Antarctica, rather than treating them as separate worlds—and to reflect on the consequences of this (P. Roberts & Howkins, 2023).

Of the 63 interviewees, none had visited Antarctica, and only two had visited the Arctic Circle. One of the artist's experiences of the polar regions involved flying over the Arctic from Japan to Europe. Four participants

mentioned either visiting Iceland on holiday or taking part in an artist residency there. As a result, Iceland served as a point of comparison; even though participants acknowledged that most of the country is not part of the polar regions, they nevertheless viewed it as similar enough to influence how they imagined those environments to be. Alaska was cited in a similar way by two participants who had visited and felt its cold climate made it comparable. These comparisons suggest that weather and climate have strong "imaginative components" that shape the "natural and intangible cultural heritage" (Adamson & Rapson, 2024, p. 2) through which people who have never visited the polar regions imagine them to be.

Regarding familiarity with polar scientific data, one artist had previously used Antarctic data in a creative project, and three others had worked with Arctic data. Two additional participants explained that, through their careers as scientists, they had worked with data from the regions, though not in an artistic context. Overall, however, the majority of artists had no direct experience with either visiting or working with the polar regions. Most of what they knew came from visual or written representations—film, television, books, photography or news, and social media. Influential sources included popular films such as the *March of the Penguins*, and nature documentaries by David Attenborough, Jacques Cousteau, and Werner Herzog. When asked how they imagined these places, many offered similar responses: they envisioned ice, snow, cold temperatures, the mammals that inhabit the regions, and the idea of the poles as indicators of environmental decline and climate change. A dominant imaginary among participants was how the polar regions are unfamiliar and inhospitable places to humans. Words such as "unknown," "remote," "solitude," "untouched," "undiscovered," and "loneliness" were frequently used (Box 1).

Box 1. Reflections on prior polar imaginaries.

> I don't…you know I don't feel like I know a ton about the Polar regions! I feel like you know I'm aware that they're cold regions at the earth's pole, and the Arctic is to the north and the Antarctic is to the south, and that they're vast regions and that they're really important, and…and the…the climate and the circulation of ocean currents that kind of keep the climate stable in our world…I…because of my work, I focus a lot on climate impact, so you know sea level rise and…and melting glaciers and…and melting sea ice are something that are on my mind a lot! But in terms of like you know sort of wonder of the Arctic and the Antarctic, I sort of have this general…general idea but not that much familiarity. (Elizabeth LoGiudice, As Above, So Below)
>
> Probably the…high fragility and the loneliness, but things make a lot of sense to me, you know…it's a place that it's not made for humans, you know! And I have a high respect for the place that they're not made for humans, in which ok, you must to go there, put all your equipment and you must to survive there but it's not something you live, with, very spontaneously….But this feeling of loneliness and fragility especially you know, like an image, like a poetry, like a lyric image, you know, this is what I feel there. (Rodrigo Romero-Flores, Under Threat)
>
> I think one thing is like the solitude in a way. Because I'm a quite anxious person or, yeah, probably not an anxious person. I'm living in an anxious space and it's…[laughs] it's been a long anxious space! So like being alone in a place is just…sort of like psychological situation that interests me in a way and the…yeah, the solitude probably, and like how wild and remote these areas are. And yet like on the same globe. The extremes I think also like fascinate me in a way, the cold and the darkness and then the light, like how…because it's really an extreme environment. (Nathalie Rosenbaum, Translatlantilexic)

These reflections illustrate how the longstanding "metaphor of the continent as a blank-page" (Leane, 2007, p. 68) continues to influence people's perceptions, imbuing the regions with a sense of mystery that shapes many individuals' relationships with them (Brackett, 2010). This romantic tension between the known and

unknown—so prominent in polar literature for centuries (Leane, 2015; Wilson, 2003)—clearly lives in the imaginations of people with no direct connections to these places. Many artists also shared that because the polar regions were perceived as unlike anywhere else in the world, they held a particular intrigue. This was often cited as a key motivation for participating in the project. The regions' perceived "barrenness" and their being "unlike anywhere else on earth" (Yao, 2024, p. 4) underscore their power to capture public imaginations, and inspired many of the artists to want to engage with the regions' acoustic materialities. Yet, this same imaginary also highlights the challenge noted earlier of depicting the Arctic and Antarctica together: viewing the regions as barren and uninhabited risks erasing the 4 million people who live within the Arctic Circle and those who have continuing cultural connections to Antarctica.

Absent from these imaginaries was the volumetric nature of polar geographies (Squire, 2017; Steinberg & Peters, 2015; Yao, 2024), and, consequentially, their sonic dimensions—particularly those beneath the waterline. When asked what these regions and their oceans *sounded* like, most participants had limited knowledge. Some mentioned whale sounds, encountered through "whale therapy" recordings, and two participants referred to Roger Payne's 1970s LP songs of the Humpback Whale. It is notable that, just as visual imaginaries of the Arctic have become intertwined with the image of the polar bear (Born, 2018; O'Neill, 2022), sonic imaginaries of the polar seas were similarly linked to a charismatic iconic mammal: whales. Although beyond the scope of this project, this raises questions about why certain species become pervasive symbols of ocean soundscapes, what the consequences of this are, and how such associations might be used to foster emotional connections with distant places central to climate change action (O'Neill, 2022; Whittaker et al., 2025).

Because this was a sound art project, some participants also referenced prominent sound artists who have worked in the polar regions, such as Chris Watson and Jana Winderen, and a few vaguely recalled hearing polar sounds in nature documentaries. Overall, however—and perhaps surprisingly, given that the group included sound artists, musicians, and individuals interested in soundscapes—familiarity with what polar environments actually sound like was largely absent from their imaginaries. At the outset of the project, their sonic imaginaries of the polar regions centered on notions of places that were "untouched," "undiscovered," and "quiet." This perceived absence of sound was tied to an idea of the polar regions as pristine and unspoiled—forming what has been described as a "sonic utopia" (Jäggi, 2021). This aligns with existing research showing that imaginaries of the polar regions are often dominated by visual landscapes (Mamzer et al., 2021), with little attention paid to sound or what occurs beneath the waterline. As a result, when considering the impacts of polycrises on ocean spaces, most artists entered the project with little awareness of the politics of sound and had no emotional, physical, or intellectual connection to it. In other words, the dominant sonic imaginary of the polar seas was that of a vast space largely silent, isolated, and disconnected.

7. The Act of Listening

Before receiving an individual sound to work with, participants were able to listen to every clip in the collection and rank their top three preferences. After hearing the sounds, many emphasised not only their unfamiliarity with the soundscapes of the polar seas but also how different the recordings were from what they had imagined. Most participants were surprised to learn how busy and sonically rich the oceans are, and many were unaware of the acoustic impacts of anthropogenic noise in these regions or had not considered the issue in depth. Upon listening to the sounds for the first time, participants consistently described them

as "otherworldly," "alien," and "mysterious." These initial encounters elicited strong emotional reactions: some artists laughed, others mentioned getting "goose bumps," and many described feelings of "awe," "fear," "loneliness," and "inspiration." Thus, the sounds created a visceral and emotional connection between the data, the polar regions, and the participants—unlike anything they had experienced before (Box 2).

Box 2. Reflections on polar soundscapes.

> I wasn't aware of the kind of drilling sounds and those kind of…and the sounds of ships and that kind of thing, because I listened to all of the recordings, all fifty of them when I started the project, and I'm glad I did that, just to get a sort of idea of the whole thing. And that was…that was quite an eye-opener really to hear all of the sounds….It's a noisy place, it's a very populous place, and I don't…you don't tend to think about that, being a land-based creature! (Claire Pearson, Briefest Encounter)
>
> You view like all the footage of these Arctic regions on television and they look so sparse and bare, but you listen to some, particularly the animal, the Whale song and stuff like that, just the place is crowded, it's just teaming with life underneath, there's just so much happening, it's fascinating, you know and it's like you know this is just…this is a city for a different species. (Cárthach Ó Nuanáin, What Lies Beneath the Ice Is Sacred)
>
> But yes, I immediately began to imagine like this is…a very special context, you know, like this is not an everyday soundscape or this is not a…these are not everyday sounds for me. So it was quite new, it was quite surprising. (Jorge Martinez Valderrama, Voces en el Mar Polar)
>
> Yeah, I mean…ok, so like for…it…it sounded like very ethereal and very…magical, you know, like there…and that one in particular I really liked, there was a lot of like aliasing and like static in it. And so there was like some…it felt like it was like sort of a recording into like another world. You know like if we were able to record the like ghost world or something like that. (Daniel Koestner, Balaena)
>
> Oh, I mean it's such a longing…it's such a beautiful, longing…mysterious voice, you know that I guess…I guess my first…impulse was intrigue and wonder and astonishment, which I feel like we need in our lives a little bit more! This curiosity, right? So I was very curious. (Jane Rigler, In Reverence of a Blue Heart)

These reactions demonstrate how sound is a deeply embodied medium that can move us both physically and emotionally (LaBelle, 2007). In this project, sound offered a way to experience the materialities of the polar regions not only externally but internally within the body (Coutu et al., 2024). Given the central role of emotions in understanding environmental polycrises, ocean spaces, and changing polar environments (Levi & Peters, 2024; Lewis & Broadwell, 2024; McKinley et al., 2023; Thomas-Walters et al., 2025), it is important to emphasise how sound provided a unique pathway for forming a connection to these unseen places. Even before the artists began shaping the recordings, it was evident that the "act of listening" offered a powerful, "embodied and immersive" experience that "transported" them deep into the polar seas (Barclay, 2022, p. 38).

When selecting which sound they wanted to work with, the artists' reasons for choosing particular recordings varied. For many, the choice began with an instinctive emotional reaction—they simply liked the sound. For others, the origin of the sound was what intrigued them—the species or source made the recording appealing. Some participants were drawn to the technical qualities of the sound—its tone, frequency, pitch, percussive qualities, or whether it contained a "natural" melody. For these artists, the sound's origin mattered less than its sonic characteristics. Others chose or avoided sounds from which they could extract a broader political or environmental meaning. For example, Tara Downs (The Physicist and the Selkie) intentionally avoided certain recordings, such as the collapsing ice shelves, because they found them

emotionally "triggering" and instead preferred to work with something more melodic and less politically charged. Others, including myself, were drawn to these very sounds. In my case, the seismic airgun appealed because of its emotional resonance: to me, it sounded like a war on the oceans and I wanted to explore that idea in my piece First Contact. This underscores how both negative and positive emotions are central to how people understand and relate to symbolic places key in environmental conflicts and how sound can be an important catalyst in provoking these responses (Brosch, 2021; Kovács et al., 2024).

Listening to the recordings thus made the artists "accountable to the entangled demands of the historic present" (Wright, 2022, p. 2) of the polar regions, offering powerful points of contact for recognising the importance of the changing soundscapes. The diversity of emotional responses also illustrates that listening is a highly varied process; no two people hear the sounds of the polar seas in the same way. This reminds us that as Howes (2019, p. 26) states, the "perception" of sound "is a cultural act, not simply a psychophysical phenomenon," and when considering how broader publics might interpret unfamiliar scientific acoustic data, it is important to recognise that sonic imaginaries of "sustainable climate" (Barron & Losleben, 2025, p. 202) will be shaped, perceived, and acted upon differently depending on how such recordings are related to. This shows how, for those who have no connection to the polar regions, field recordings can become "mutable documents" (Wright, 2022, p. 150), which can significantly shape emotions, transforming what is initially collected to be scientific data into being tools of inspiration and embodied connection (Whittaker et al., 2024).

8. Sonoshaping the Polar Seas: How Did You Create Your Piece and Why?

Once the artists received their sound clips, the extent to which they familiarised themselves with the source and the meaning of the sound depended on how much research they chose to undertake. Most conducted a brief internet search to find images or videos related to the sounds' origins. Some engaged in more in-depth research, taking time to learn as much as possible about the sound and its context, drawing on policy reports, news articles, and academic papers. A small number, however, preferred not to research the sound at all; they wanted to respond intuitively, without additional information (Box 3):

Box 3. Reflections on how much the artists wanted to know.

> No, no, I was…it was more instinctive, and it was all suggested by the sound….The sound created images in my mind and in my ears. (Carlos Devizia, A Taste of the Endless)
>
> Ah, for me, I let the sound guide me because the polar…the earth poles actually were something new and were something relatively new to me. And for that…that sound was actually you know like a guide, like a guide into which now it would lead me now to a place where I have never known, and it's an unfamiliar territory, into which no….So you're actually discovering things that are actually new, but then you haven't known about them. So for me, it was that guide, the sound was a guide for me to the polar…to the poles actually, to Antarctica and the Arctic. For me, it prove…it proved to be a guidance and a…I wouldn't call it a leader, but it led me into finding that…that piece of music. (Wahinya Mwirikia, Thayù (Peace))
>
> Yeah, I little bit, yeah, I didn't go in-depth or anything, but yeah, I did want to read up about this particular seal and you know learn a bit more. Because I like to maybe to try and incorporate some of that knowledge into the piece, you know. And I think that was what I was going for, or at least was in my mind when I was putting together the piece, is that this seal is…not a lot is known about it, it's only found in a relatively small area I think. So that I…that kind of…idea of it being a bit of a mystery, that was something that I was trying to like incorporate into my piece. (Adrian Williams, Once More, Ross Seal)

Box 3. (Cont.) Reflections on how much the artists wanted to know.

> Yeah, yeah, I did some research because I wanted to emulate somehow like the organic interaction of the animal in its community, and in relation with its environment, with its context. So…yeah, I wanted to know…I mean I had these sounds that were very interesting for me, but still I search for…for many more, like I tried to…to find if there was something else that this seal would do with the sound, and how and when you know. So yeah, I wanted to learn what they eat, how they sleep. So yeah, I tried to emulate a little bit of that…like routine in the piece, like I tried to make it sound like a…a soundscape that is…we'll get to that, but something that was very natural and organic. (Jorge Martinez Valderrama, Voces en el Mar Polar)

This variation highlights the different ways the artists' compositions were shaped—or not—by their pre-existing polar imaginaries, regardless of how limited these might have been. Some relied solely on their prior knowledge, creating compositions without researching what polar soundscapes are or might be. Others expanded their understanding through further research, incorporating this new knowledge into their creative process. In other words, some artists created a world in response to the sound based on what they already knew, whilst others enriched their knowledge. When considering how non-scientists engage with scientific data and the materialities of the polar seas, the amount of knowledge they possess—and are willing to acquire—significantly influences how they interact with it and what they can imagine it to be—or not be. As Grimshaw-Aagaard et al. (2019, p. 1) note, how we imagine places to be sonically has "its genesis in past experience" and so when understanding how people with no direct experience of polar environments form place-attachments to them, it must be emphasised that imaginaries are fluid entities linking people in particular patterns of "obligation, desire and commitment, increasingly over geographical distances of great length" (Urry, 2002, p. 256). It also shows that, once in the hands of the public, scientists cannot control what happens to their data (Whittaker, 2024) and that acoustic recordings become "vulnerable conduits of knowledge" in which "their partial and perforated status leaves them open for use and abuse" (Wright, 2022, p. 150). In other words, the narratives that emerge from such data are not only unpredictable but remain rooted in the humans who generate them, along with their accumulated experiences and personal knowledges.

9. Multi-Sensory Imaginaries

The compositions produced were highly diverse, ranging from musical pieces (Diana Chester, Whale Walking; Mr Sakitumi, Majestic Mammalia; and Elissa Goodrich, Sounding with the Whales), works of spoken word (David Lol Perry and Fyfe Dangerfield, Stand By and Ana Mora, Reflections on the Seals), songs with lyrics (Hauser, Sealed), to underwater jam sessions (Baying Ridges, Sea Creatures), and even a dystopian play for voices (Geraint Rhys Whittaker, First Contact), to name only a few. Collectively, these works demonstrate how artistic creativity provides multiple ways of interpreting acoustic data, creating "a mosaic of applications" (Wright, 2022, p. 150) that stretch the boundaries of what polar oceanic data is imagined to do and represent (Paterson et al., 2020). Although one condition of participating was that each composition incorporate at least part of the original sound clip, artists varied widely in how they edited the material. Some believed the clips should be altered as little as possible in order to, as Nathalie Rosenbaum (Translatlantilexic) noted, remain "true" to the sound and do it "justice." These participants felt that altering them too much would, as Wahinya Mwirikia (Thayù Peace) stated, change the "vibe." Some artists wanted the original sound to remain the focal point of the piece, in order to prevent the sound from becoming, as Óscar Mascareñas (Deep Blanco) put it, "an ornament" or mere "addition" to a broader musical composition.

For others, the sound served more as a catalyst for imagining new worlds and futures for ocean acoustics (Geraint Rhys Whittaker, First Contact), and for some artists, fidelity to the original recording was less important. In this sense, participants approached their compositions in diverse ways: some treated the process as a conversation with the sounds themselves; others constructed imagined worlds they believed the sounds could inhabit, informed by pre-existing imaginaries of polar soundscapes; and others developed what Jane Rigler (Reverence of a Blue Heart) described as new "dialogues" for envisioning alternative worlds, or what Elissa Goodrich (Sounds with the Whales) termed "dreamscapes" in which polar sounds might reside. This diversity highlights how sonic sources can generate radically different creative outcomes for polar imaginaries and that artists negotiate varying degrees of fidelity to the original recordings, from careful preservation of their sonic "integrity" to more transformative reinterpretations that used the sounds as prompts for speculative or narrative exploration.

However, sound alone was not the only sense which influenced the shaping of the pieces. For most of the artists, having what Amanda Stuart (Oceana—The Underwater World of Orca and Ross) calls a "visual soundscape" to help paint an "aural picture" was important when deciding how to approach their pieces. As many artists explained, because they had never experienced polar worlds firsthand, establishing a visual understanding was essential to their creative process. They would often refer back to whatever visual imaginaries of the polar regions they could find as a foundation for creating sonic ones. This underscores that, because imagination involves "high-level cognitive ability that can occur in different sensory modalities" (Krüger et al., 2024, p. 1870), the ways people construct imaginaries of distant ocean spaces are multi-sensory and multidimensional; they are not independent of other lived imaginaries or sensory experiences formed elsewhere. In other words, because multisensoriality is vital for "stimulating creativity" (Cimier et al., 2025, p. 6), it must be highlighted that the sonic imaginaries of the polar seas created in this project were also shaped by existing visual imaginaries of the polar regions. As such, although the recordings collected in the polar oceans may contain "novel qualities geared toward sound," they always pass through "an assembly of multisensory, technological, and contextual production" (Wright, 2022, p. 150). In the same way that atmospheres in physical space can be curated through various sensory experiences such as sound, light, touch, and smell (Böhme, 2016; Spence, 2022), when we consider how sonic imaginaries are portrayed and perceived in times of polycrises—particularly by those who cannot experience them in situ—we must remain attentive to their multidimensional and multi-sensual qualities. That is, when understanding how artists imagine the polar worlds sonically, we must do so across the senses, paying attention to the importance of mental imagery and the multiple "representations accompanying the experience of sensory information with external stimulus" (Cimier et al., 2025, p. 1).

10. Polar and Un-Polar Moods: Instruments of Imaginaries

Ranging from hopeful to melancholic, and from dark to curious, the compositions became metaphors for emotional extremes. Because "emotional experience" is crucial for sound perception (Asutay & Västfjäll, 2019, p. 384), choosing the right sound can either complement or disrupt how polar imaginaries are perceived and portrayed. For many artists, the key to shaping these perceptions lay in the instruments they selected. Some instruments were chosen because they aligned with the expectations artists held about what a sonic imaginary of the polar seas should sound like, whereas other instruments were considered "un-polar." For example, Carlos Devizia (A Taste of the Endless), a saxophone player, refrained from using his main instrument because he felt it did not fit the mood of the piece. By contrast, for Nicolo Scolieri (Surface Feeling), the flute was a natural

choice for evoking ice, snow, and polar worlds because of its "pitch" and "fluidity." The diverse use of the piano across the compositions further illustrates how instrument choice shaped the emotional atmospheres attached to sonic imaginaries of polar worlds. For Pria Wood (Meditation on Erignathus), introducing piano was a difficult decision because it felt "manmade," in contrast with the sounds of the bearded seals. For Ana Mora (Reflections on the Seals), however, the piano offered an "intimate," "calm," and "peaceful" tone. Meanwhile, for Daniel Koestner (Balaena), the piano was the perfect instrument to "carry" the bowhead whale's voice, with the remaining instruments forming "the space that the whale would exist in."

These examples suggest that musical instruments—their timbre and acoustic properties—were fundamental in constructing the "emotional landscape" (Liu et al., 2018)—and in this case, *seascape*—of the compositions. By attributing certain instruments as "ill-suited" (Schutz et al., 2008, p. 127) and privileging others, the artists, through selecting the expressive palette of their pieces, were making clear decisions over how the sonic atmospheres of the polar regions should and should not sound. This process allowed them to manipulate the emotional resonances attributed to these unfamiliar places by crafting the specific narrative they wished the acoustic data to communicate. This suggests that although most artists were unfamiliar with the soundscapes of the polar seas, the emotional atmospheres they created were strongly influenced by preconceived imaginaries shaped by existing representations in popular culture. Dominant imaginaries influence how people think a place should or should not be, and when imagining a polar soundscape, many artists relied on the "acoustically external" world they already knew and lived in (Riddoch, 2019). Thus, although they were conjuring up new *submersive* atmospheres of the ocean deep using unfamiliar data collected below the waterline (Whittaker, 2025), it was the visual dominance of what they knew above the water that often guided—and ultimately shaped—the emotional trajectories of their compositions.

11. Spatialising Polar Connections

Because the artists were unable to rely on personal connections with the regions, they used familiar reference points from their own lives to shape a sense of place attachment—the "interplay of emotions, knowledge, beliefs, and behaviors" (Junot et al., 2018, p. 50)—that creates familiarity with places they had never visited. Personal spatial references were particularly prominent, as the artists drew on their own sense of place to open conversations with the ideas the sounds inspired. For Hossam Hilal (Hoot), the guttural and rhythmic call of the minke whale took him to Wādī al-Ḥītān (the Valley of the Whales) in his country of Egypt, inspiring him to connect the Arctic desert to the deserts of his home landscape. Using the daf, a drum widely utilised in his culture, he echoed a sound similar to that of the minke whale, providing a constant pulse throughout his piece, linking place, tradition, and the distinct environmental histories of the two regions.

In my piece First Contact, after likening the sounds of seismic airguns to bombs exploding and wondering how this might impact whale populations, I turned to the audio archives of my home city, Swansea. There, I found oral histories of local residents describing the impact of the bombings during the Second World War. Drawing on these recordings, I created a fictional narrative in which the whales themselves speak—using the archival human voices as if they were the voices of the whales to describe the impact the seismic airguns had on them in the ocean. And for Gardika Gighi (Unknown Arctic Dreams), the Javanese gong, a central gong in a gamelan orchestra, became a way to connect environmental issues in his home country of Indonesia with those in the polar regions. The spatial reflections highlighted in these examples became what Pohl and Helbrecht (2025, p. 1490) call "geographical sensemaking" tools used by the artists to negotiate their polar imaginaries. Thus,

the process of making the compositions and engaging with the acoustic data on an intimate level produced unique multi-spatial imaginaries and a "relational way through which the subject situates spatial environments, relates them to their own self, and positions themselves regarding wider social and political issues" (Pohl & Helbrecht, 2025, p. 1490).

The spatial references that the artists used to shape their compositions were likewise echoed in the additional sound recordings they incorporated, which were drawn from non-polar imaginaries. Pratyay Raha (Crosswave) used recordings of rain in Kolkata alongside the sound of the crabeater seal to imagine what it might be like if the seals were present in her city. Gabriel Edvy (The World Is Passing Away and So Is Its Desire) mixed in wolf howl field recordings from a wolf conservatory in New York to represent the sound of a wendigo—an evil mythical creature in Algonquian folklore—thereby linking ideas of environmental destruction across spaces and cultures. When Jessica Rowlands (Rhythms of the Ice) first heard the sound of narwhals, she sensed a natural rhythm in their calls. To highlight the tensions between animal sounds and human-made ones, she juxtaposed the narwhal recordings with pre-recorded sounds of weaving machines. And for Eva Q Månsson (Sirens of Antarctica), combining the sound of the ross seal with that of a war siren produced a composition intended as a "warning" about the dangers of human-induced climate change.

Thus, the compositions and their associated imaginaries were not isolated; they were woven together through multiple spatialities and materialities. In other words, when polar imaginaries are created by those who have never visited the regions, they are not independent of other sonic imaginaries; they are multifaceted, interconnected, and relational. This shows how the artists' engagement with the sounds of the polar seas went far beyond simply responding to scientific data. They developed multidimensional relationships with the recordings, drawing on an array of spatial and personal imaginaries that extended beyond the bounds of immediate polar geographies. This underscores how sound holds what Aceska and Doughty (2023, p. 1374) describe as a "spatializing capacity" to imagine and reimagine the "symbolic and material boundaries between people and spaces." Therefore, when considering sonic imaginaries in times of environmental polycrises, it is crucial to remember that reacting to sound is a process that is "constantly creating an auditory image that situates us within our current environment and mediates our relationship to it and its other inhabitants" (Truax, 2019, p. 654). Thus, when exploring wider polar imaginaries—how they develop, how we relate to them, and who has the opportunity to shape and portray them—they cannot be separated from personal politics and positionalities.

12. "I Can Reach Around the World With my Slippers On": Post Project Reflections

Whilst most of the artists initially participated in the Polar Sounds project out of curiosity and fun, the process ultimately became a transformative experience for many in diverse ways. Although, as with all projects, some artists took part and then moved on without much further reflection, for the majority, involvement in Polar Sounds inspired a desire to learn more about the polar regions and their oceans. As Vincent Kather (Acoustic Encounters of a Fin Whale) explained, a "curiosity was woken" within him, and for Nicole Vereau (Profunda Señal), the project motivated her to study more about the origin of the sound that she was given. As she stated, she had never seen a whale in her life, and through participating in the project, it helped her "understand the real scale of this…it… gives me more…motivation to study whales!"

For others, the project rekindled an existing interest in the regions, allowing them to access imaginaries beyond their previous reach, and to engage with them at a much more embodied level. As Nicolo Scolieri (Surface Feeling) noted, he felt connected to the polar regions and their oceans, even though, as he simply put it, "I've had no connection up until this point." Being able to listen—and then work—with often unheard sounds of the polar seas was a visceral experience that forged intimate relations both with the sounds themselves and with the spatialities of the polar regions. This was emphasised by Oscar Mascarenas (Deep Blanco), who, although he did not necessarily learn new information, described forming an embodied connection both "through the sounds of the seals" and through the sounds "that I created." For him, the project gave "the opportunity to be there somewhat through my ears, and my imagination….it has made this vastness very real, very physical." And for Simon Holmes and Pete Nash (Ghost Nets), participation revealed the threat of sound pollution in the polar oceans; in their words, it "opened" their eyes and encouraged them "to think about pollution in a very different way." For some, the project inspired a desire to visit the polar regions; for others, having access to the data without physically needing to travel there changed their minds about wanting to visit. In other words, becoming familiar with the materialities of the polar seas was enough for some artists to conclude that certain places should remain off limits, out of respect for the uniqueness of these environments. And for others, participating in the project gave them an invaluable opportunity to politicise their pieces and use them as a form of audio activism. David Lol Perry and Fyfe Dangerfield (Stand By) felt it was their duty to participate in order to "weaponise the sound," and Amanda Stuart (Oceana) hoped anyone listening to her piece would "stop, listen, and think."

These post-project reflections, therefore, emphasise the power sound artists can wield in creating works that can "encourage others" to:

> Open our ears to ecological issues, to listen to and understand the warning signals, and to explore ways in which we might learn to live more harmoniously within the ecosystems of which we are a part, and upon which we all depend. (Gilmurray, 2020, p. 458)

By participating in the project and having control over how their sonic imaginaries were shaped, the artists gained a sense of agency, feeling like they could contribute to contemporary and future conversations surrounding ocean health and polar futures (Gabriel, 2014). As such, through becoming intimately familiar with the sounds of the polar seas, most artists felt more aware, engaged, and connected to the polar regions, and many expressed that their sonic imaginaries shifted—from viewing the polar seas as acoustically sparse to recognising them as diverse and acoustically rich.

13. Conclusion: A Multi-Dimensional Future of Participatory Polar Imaginaries

As the oceans play a pivotal role in understanding climate polycrises, the polar regions are—and will continue to remain—critical in these discussions. Not only are they key sites for regulating atmospheric and oceanic processes (Mukherjee, 2024), but they also hold an influential and distinctive place in popular environmental and climate imaginaries (Steinberg et al., 2015). Because both the Arctic and Antarctica are largely out of physical reach for most of the world's population, storytelling remains vitally important for shaping the imaginaries of these regions (Alexander et al., 2020; Glasberg, 2012; Pincus & Ali, 2016). However, their physical inaccessibility often means narratives are controlled by a limited few. This article responds to calls for more projects and research that bring the materialities of the polar oceans to people who live far from

them (Leane & Marx, 2025), by examining what happens when acoustic data from the Arctic and Antarctic oceans are shared with artists around the world who are invited to compose works about them, from the comfort of their own homes.

In summary, four significant points emerge from this article. First, before participating in the project, the artists knew little about the diversity of ocean acoustics in the polar regions or about the detrimental impact humans are having on the soundscapes of the sea (Duarte et al., 2021). Although the effects of anthropogenic noise in polar environments have long been examined (Duarte et al., 2021; Erbe et al., 2025; Van Opzeeland & Boebel, 2018), greater attention needs to be paid to understand why the politics of sound are so absent from public cultural imaginaries of the poles and what the consequences of this omission may be. Second, sound is an effective medium for creating embodied, emotional connections between diverse publics and scientific data (Whittaker et al., 2024). The Polar Sounds project demonstrates that engaging with sound—and being allowed to shape with the materialities of ocean spaces (Dobrin, 2021)—offers a visceral way to relate to polar environments and to emotionally register the environmental crises facing our oceans. When physical distance makes first-hand understanding extremely difficult, sound can forge connections and render otherwise inaccessible places accessible (Helmreich, 2016). The process of playing with sonic imaginaries of the polar seas proved to be both transformative and educational, fostering meaningful engagement with scientific data and creating a deeper understanding of the politics of polar spaces. It also provided the opportunity to shape multiple realities of what the sonic imaginaries of the polar seas can be, thus providing a moment to use creativity as a tool for pondering various environmental pasts, presents, and futures.

This brings us to the third point emerging from this research: how people interact with and construct imaginaries of distant polar oceans is inherently multi-sensory and multi-spatial. In other words, to understand the "effects and emotions of socio-natural engagements" (Barron & Losleben, 2025, p. 192), attention must be paid to how imaginaries intersect multiple sensory expressions. Although participants had limited prior knowledge of the soundscapes of the polar seas, their creation of sonic imaginaries was nonetheless shaped strongly by pre-existing visual imaginaries with what a polar soundscape should—or should not—sound like. Whether reflected through the instruments selected or the emotions and moods conveyed, many artists noted that certain atmospheres felt "more polar" than others. Dominant imaginaries of the polar regions clearly influenced the final compositions, indicating a need for further research into how and why such imaginaries become established. Artistic engagement, however, became a way of exploring these dominant narratives, but also challenging them through allowing the individuals to explore what the regions should and should not sound like. Thus, when considering how polar imaginaries are constructed, I suggest we take into account the many ways that different senses interact; even in the creation of sonic imaginaries, visual imaginaries are highly influential. This article, therefore, calls for adding this "dimensionality" to the way environmental imaginaries are analysed and hopes to be a "springboard for more detailed exploration of embodied apprehension" (Joy & Sherry, 2003, p. 280).

Finally, this article underscores that art–science collaborations are a critical interdisciplinary means for non-scientists to engage with scientific data and the environmental politics of ocean polycrises (Paterson et al., 2020; Whittaker, 2023). Art and science are "indistinguishable in the contemplation of wonder and the quest for understanding" (Griffiths, 2015, p. 13), and thus, with increasing calls to understand the societal impacts of research (Brenninkmeijer, 2022), as well as to engage "diverse stakeholder groups in collaborative processes"

(Britton et al., 2021, p. 2) of environmental action and robust ocean understanding, this article advocates for making polar and oceanic data more freely available for members of the public to play with, edit, and explore. As this research demonstrates, environmental imaginaries are powerful, and granting artists the freedom to shape them through collaborative practice can "elucidate openings for more just, effective, and sustainable futures" (Chhetri et al., 2023, p. 267). As such, the more points of contact that can be created between society and the sea to inspire and familiarise non-scientists with ocean crises, the better equipped society will be to support future protection of the polar seas and beyond.

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Conflict of Interests

The author declares no conflict of interests.

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About the Author

Geraint Rhys Whittaker is an artist-researcher interested in exploring how art–science collaborations can be used to investigate, challenge, and change public perceptions on some of the most pressing threats facing our oceans.