

Meeting a River Artistic Methods for Practicing River Relations

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Abstract *Hydroformations* investigates the Rhine as an entity in their own right through artistic methods that seek to enable the river to voice themselves. Emerging from prior engagement with the BíoBío River, the project is grounded in embodied encounters. This paper weaves ecological and political histories of both rivers, reflects on practices of meeting, listening, and sensing, and explores sedimentation as a material-discursive concept for confronting injustice and fostering riverine relations.

Keywords Embodied knowledges. Artistic research. River justice. Co-creation. Sedimenting.

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1 Introduction

On a remarkably sunny day in October 2025, a group of 18 artists, researchers, and scientists are standing on a sandy beach of the Rhine River at Arnhem, just past the Dutch-German border. After spending the full day in the floodplains together, we are gathered here to do an embodiment exercise, thinking with the sediment of the river. Some of us have been calling for a swim, others approach the water with an air of suspicion. Artist Maud van den Beuken, present to guide the activity, invites the group to step into the water. Some do so with childlike enthusiasm, taking away any barriers for others and, in the process, unintentionally restoring something; it is an invitation, permission perhaps, to follow the intuitive human bond with water, a need to be in contact and relation with the river.

Our tentative attempts at relation are part of a 5-day intensive programme called *Rhine River Lab: Meeting A River*, which is one of the final activities in the year-long *Hydroformations* project, initiated and undertaken by artist Xandra van der Eijk. In this project, the artist set out to ‘voice’ the Rhine through individual and collective artistic research and engagement with the river’s actants. The project was an effort to come to know the river at their own terms. It emerged from a deeply personal experience of the artist in the heavily exploited and industrialised BíoBío River region in Chile, fuelling thoughts about river and social justice, belonging, and ongoing settler colonialism. The project arose within a broader context of hydrofeminist practices and the exploration of ideas underpinning the rights of nature movement. Each of us were there at the riverside because the questions posed by the open call for the lab had resonated with us: How do you meet a river on their own terms? How can you sense a rivers’ nature, their being, beyond control, measurement and extraction? How to know a river?

This paper aims to present a collection of learnings and thinkings along the process of meeting the Rhine and BíoBío River, carrying our experiences to the pages of this journal. As such, our method of enquiry is grounded in embodied encounters. The paper weaves together these encounters with a selection of specific ecological and political histories of these rivers. These histories give urgency to our desire to meet the river differently. We speak with multiple voices, offering our embodied experiences as well as the knowledge we have learnt from others. Through this storytelling, we offer reflections on practices of meeting, listening, and sensing. We describe how we have opened space for the voice of the river and their relations. We also pay attention to the eclectic materiality of the Rhine, and think with sedimentation as both a material process and a concept that names how embodied knowledge and practice can confront injustices and build better relations with the Rhine.

2 Meeting a River, Grieving a River: Memories and Reflections Offered by Xandra van der Eijk

The *Hydroformations* project arose,¹ after years of meandering, from time spent in Chile during an artist-in-residency programme called Valley of the Possible. It was the pilot programme, organised in the Cañon del Blanco: “a remote and secluded valley in Wallmapu (La Araucanía Andina), Chile, surrounded by ancient volcanic landscapes with a high level of biodiversity and a strong Indigenous presence”.² During the month-long stay, the group undertook many outdoor excursions, engaged in collective exercises, and endeavoured to understand the local context, including meeting members of the First Nations Mapuche communities [fig. 1].



Figure 1 Encountering graffiti in support of activist organisation Plataforma Política Mapuche (PPM) in Temuco, after an initial meeting with members of the Mapuche community. 2019. Temuco, Chile. Photo by Xandra van der Eijk. Please note that the community members that were affiliated with the Valley of the Possible programme were not necessarily also involved or aligned with Plataforma Política Mapuche

1 The first three sections of this article draw on the experiences and memories of Xandra van der Eijk preceding the *Hydroformations* project and *Rhine River Lab: Meeting A River*, and are therefore written from their point of view. From section four onwards, the text draws on the collective experiences and memories by all three writers of this article (Xandra van der Eijk, Martine van Lubeek and Elliot Hurst).

2 Valley of the Possible (2026). *VALLEY OF THE POSSIBLE | About*. <https://valleyofthepossible.com/about>.

The residency participants shared a lodge; cooking, eating, reading, and talking together, with barely any mobile phone reach or internet access, truly submerged in the valley. Recognising and departing from the troubling position of being a white, western organisation and team, and running from settler lands, the programme was an honest attempt at finding out if and how a residency like this could run here, building bridges over perpetuating harmful practices. Rather than reflecting on whether or not the residency programme succeeded in this, this paper focusses on first-person accounts and personal experiences.

A short walk from the lodge runs the Río Blanco, straight from the nearby Sierra Nevada mountain range. The broad riverbed consists of small rocks, and there are no fences, no signs, no directions. Every day the river is changed. Crossing into the countryside means crossing the river, which can sometimes be done by walking through, sometimes by wading, and sometimes it is simply impassable. One day it had been raining, quite consistently, and we walked in wetness, far upstream. Upon return, the river had swollen to many times its earlier size. Carefully crossing a first section, helping each other, we reached an island that gave us a good view of the river. Water was thundering around us as it became clear that the river had changed course entirely, dragging along with it rocks and branches, hastening to flow downstream. We were not safe, had no option but to go on, and could not linger for long. I remember a silent nervousness, grey, green, rocky, wet, cold, slippery, the intensely clean air, and a soaking, drowning presence of the river. There was no gentleness, no softness. Just force, overwhelming, and unpredictable. A collapsed tree, a proper, large, adult tree trunk, that was washed away and became stuck between rocks in a way that it formed a bridge, was our salvation.³

The timing of this immersive research period aligned, contrary to our group's experience, with an enduring mega-drought in Chile (still ongoing today), bringing watery topics to the headlines continuously. This prompted a deep dive into the causes and effects of local water-related issues, quickly making clear that the country was, in many ways, representing a possible global future in terms of the effects of climate change and neoliberal capitalism. Famous for its 1981 free-market Water Code, the Chilean approach to reducing water to its economic value has led the country to become the world's leading example for the commodification of water. Though there are aspects to the Water Code that may be considered successful

3 Recollection of an experience of Xandra van der Eijk during Valley of the Possible.

(depending on context, priorities and political views entirely), it is by now clear that the code has had a profound negative impact on social equity and environmental protection, leading to problems with river basin management, coordination of multiple water uses and that it is lacking in finding resolves to water conflicts (Bauer 2014).

Being submerged in Wallmapu territory and exchanging with local Mapuche communities made obvious the particular effect the Water Code has had (and is having) on First Nation peoples. Their communities faced difficulties obtaining and managing water rights when the code was being implemented and lacked the legal personhood that was needed to hold water rights as a community or collective (Macpherson et al. 2023). The effect of this becomes painfully clear in the case of the Rio BíoBío, the second largest river of Chile, flowing into life from Lago Gualleteu on Mapuche-Pehuenche land just east of the Cañon del Blanco.

During the 1980s, when Chile was under the Pinochet dictatorship, state-owned companies were being privatised. This included power generation operations. Following long-term strategic acquisitions, the company Enersis S.A. gained a firm grip on Chilean energy, as well as on other South American energy markets. Meanwhile, Spanish company Endesa Spain was targeting the Latin American market for expansion. In 1997, the company started bidding for a controlling stake in Enersis, succeeding by first acquiring a 32% stake in Enersis in 1997, followed by another 32% in the subsidiary Endesa Chile in 1999, leading to a total control of 64% of the company (Trillas 2001). With the takeover, approximately 80% of Chile's non-consumptive water rights were transferred to Endesa Spain and its partners.

As early as 1965, Endesa Chile had plans to build a series of six hydro dams in the Rio BíoBío (Nelson 2013). By the 1990s, the company had gotten so influential that it was able to secure a loan through the International Finance Corporation (IFC), a member of the World Bank Group, to build the first dam, Pangue, as a stand-alone project (World Bank 2006). It was clear however, that the Pangue dam would only function in conjunction with a second dam further upstream, the Ralco dam, and the proposal was therefore commonly known as the Pangue-Ralco project (Barrera-Hernández 2005).

The Mapuche-Pehuenche peoples of the BíoBío region, together with the government agency in charge of indigenous affairs (CONADI-National Corporation for Indigenous Development), supported by environmentalists and NGO's, raised concern over the plans. Emphasising that giving permission for the Pangue dam would, by definition, result in the construction of the Ralco dam, they made clear there would be a cumulative impact on the communities upstream and downstream, endangering the environment and water quality in the process. The dispute was taken to court, gaining major public attention. The case was built around "the right of Endesa

to alter the Bío-Bío river's flow in a manner that could potentially injure other water rights holders" (Barrera-Hernández 2005, 14). In addition to the Mapuche viewpoints, it was argued that reduced and uneven water flows would affect agriculture and the livelihood of downstream farmers. Chile's Supreme Court, setting a dangerous precedent, decided to prioritise non-consumptive water rights over consumptive water rights, effectively clearing the path for the Panguel-Ralco project.

In 2022, after eleven years of negotiating, a major amendment was made to the Water Code. It is now stated that water will be considered a "national property for public use" (Proyecto de Ley que Reforma el Código de Aguas [Water Code Amendment Bill] (Chile) art 5.). Further changes included that access to drinking water and sanitation is a human right, that it would not be possible to create water use rights in glaciers, and that the state will promote the protection of existing waters for the benefit of First Nation communities. For most of these new laws to have the intended effect, changes to the Chile's constitution would have to be made. In a historic attempt to do so, voters eventually rejected both a progressive and a conservative draft, leaving the 1980 version of the constitution in place. Existing water rights, given in perpetuity, are therefore still valid. Struggles around ownership, exploitation, and social justice persist. In addition, Chile's rivers are still not protected through any meaningful legal protection framework (Weber et al. 2023). Today, the Río Bío-Bío has four mega dams on their main trajectory⁴ and 9 smaller dams on their tributaries. A fifth one, regardless of major opposition, is currently under construction by Rucalhue Energía SpA and is controlled by China International Water and Electric (CWE), a subsidiary of the state-owned China Communications Construction Company (CCCC).

I remember a sun, bright red, setting. A reservoir lake. Wetlands with birds. A water surface is still as a mirror, reflecting hues of the softest pink and purple [fig. 2]. A visitor centre, newly constructed, abandoned. There was a viewing platform overlooking the lake. View on both sides was obstructed by trees, not yet full-grown. Through the branches, bright orange buoys. And a straight, hard edge – barely visible. The Angostura dam [fig. 3], third after Panguel-Ralco.

⁴ For an impression of three of the four mega dams and their reservoirs, see Figures 2-7.



Figure 2 *Angostura Reservoir*. 2019. Los Junquillos, Chile. Photo by Xandra van der Eijk



Figure 3 *Angostura Dam*. 2019. Los Junquillos, Chile. Photo by Xandra van der Eijk

Deeper into the area in the early morning air. A small beach on another reservoir lake. It feels off, eerie. There is no sound. No birds, no movement. Panguingue reservoir [fig. 4]. We reach Alto Bío-Bío, find our guide, and tour the town. There is poverty. A monument. Shared moments in broken Spanish, considered the language of

the oppressor. Spoken and unspoken pain of injustices beyond imagination. Centuries of fighting for the right to exist. That single question that lingers and lingers: *¿Por qué estás aquí?* And the only answer I have is that water is life, and we are bound through water.



Figure 4 *Pangue Reservoir*, 2019. Alto BíoBío, Chile. Photo by Xandra van der Eijk

A dam so big it seems impossible to hide, yet it is hidden [fig. 5]. No doubt this is a strategy, as every major hydroelectric infrastructure on the route so far has been obstructed from view. Finally, it opens up. Ralco basin [figs 6-7]. “There is a sickness to the river”, echoes the rough translation of a conversation with our Mapuche-Pehuenche guide through my head. A damaged bond between waterbody and watery body, a physical ache that is gestured more than explained in words.

We are so deep into the area now that there is no need for pretence. No outsider ever travels here anymore. Violence is everywhere. We are met with total suspicion and total curiosity. Are we here to get something? Bring something? *¿Por qué estás aquí?* Not asked in a demanding way; rather, in a legitimate-question way. I carry the question forward.



Figure 5 *Pangue Dam*. 2019. Alto BíoBío, Chile. Photo by Xandra van der Eijk



Figure 6 *Ralco Reservoir and Dam*. 2019. Alto BíoBío, Chile.
Photo by Xandra van der Eijk



Figure 7 *Ralco Reservoir*. 2019. Alto BíoBío, Chile. Photo by Xandra van der Eijk

The return offers another perspective, of even more destruction, and a glimpse into a revenue model. Big monoculture eucalyptus forests and trucks loaded with tree trunks drive on and off over a dam. The light turns soft once more, as if the atmosphere is trying to soften everything the river has had to suffer. I realise: I have lost and found my faith in people, all between two sunsets.⁵

2.1 River Teachings

The encounters with the two rivers left a deep and lasting impression that, for a long time, needed to settle. It did not seem right to develop artistic work from the fieldwork. What initially started as artistic research, concerned another's ancestral history and cosmology, multi-generational, enduring pain, and lived reality. It would not be right to speak to that, nor to benefit from it in any way. As much as there was a deep sense of injustice and love for the river and their people, there was no honourable way forward that included working with the gathered materials.

Instead, I carried the rivers within me. And they kept asking me:

5 Recollection of a two-day experience following the BíoBío River from Angostura basin to Ralco Dam reservoir. An independent fieldtrip undertaken during the Valley of the Possible residency.

Who is your water?

Who are your ancestors?

Where do you belong?

How are you paying our teachings forward?

What is your role in our harm?

If we are a part of you,
How are you a part of us?

What is your story?

One question lingered. I was born on the banks of the Rhine. And I did not care for them.

How was it possible that two Chilean rivers felt closer than my home river? Rather than trying to resolve it, I simply acknowledged it was there. And that by giving it attention, by giving the river attention, I created a space for the river to voice itself to me. All I had to do was listen.

2.2 “There is a Sickness to the River”

I am following a small social trail down to the otherwise fenced-off Rhine riverbank, across from an infamous industrial site in Basel, Switzerland. A tire is hung from a tree, clearly meant to swing and then jump into the water.

On the first day of November in 1986, 1,200 tonnes of pesticides, solvents, and other toxic chemicals washed into the river here. Another 10,000-20,000 m³ of firefighting water, containing 30 tonnes of pesticides and insecticides, and 200 kg of mercury compounds follow (ICPR 2016). The emerald green waters of the Rhine turned a deep red, as if pierced through their heart and bleeding. On the shores, fishes started to wash up by the thousands. The disaster is the result of a fire at a storage site of Sandoz, a producer of medicine and other chemicals. On day 3, Sandoz issued the first information about the toxic discharge, directed at the waterworks along the Rhine. By day 5, an estimated 150,000 eels had been found dead (ICPR 2016); an extinction-level event for the species.

It is hard to imagine children playing in this highly industrialised part of the river. Not yet a lifetime has passed, and the generational memory has already sedimented into the unconscious. Some of the

trees on the banks have been cleared, leaving their year markings uncovered. A quick count proves they have witnessed what happened, and have, almost certainly, metabolised part of the contamination.

Only a day earlier, I drove up to Basel from Karlsruhe, where the Rhine underwent their very first “course correction” in the early 1800’s (Cioc 2002, 48-54). The Tulla Project, after its inventor Johann Gottfried Tulla, went through three main stages. In this section of the Rhine, the river was heavily meandering, effectively creating big swaths of marshlands that were regularly overflowing and that sustained a rich biodiversity. Both posed problems for surrounding villages, as there were regular floods and the people were plagued by mosquito-borne diseases, such as malaria. By digging ditches in crucial places in the curves, the force of water would follow that route, thus effectively forging a new path, cutting off the curves, and creating a canal-like flow that would become the new riverbed. It was an enormous amount of manual labour: “On average, four thousand workers participated in the digging of the ditch. Each one of these ditches was eighteen to twenty-four meters wide and about six kilometres long” (52).

A road now directly adjoins the straightened river, leading along the French-German border. Hardly a picture of Rhine Romanticism, the far-reaching consequences of the industrialisation of the river that was effectively set in motion by the Tulla Project now come into view. In the only Rhine section where the river is considered territory of France, just over 100 km long, eight hydrodams have been built since 1933. Quite accurately, each a 15-minute drive apart. At the Rhine Gorge on the Vorderrhijn, a ranger shares that there are no fish in the Alpen Rhine. Like at Pangue reservoir, it is silent here, in a way beyond words.

The Sandoz disaster was described as a wake-up call, fuelling international cooperation among the countries that share the river catchment. The International Commission for the Protection of the Rhine (ICPR) started a comprehensive restoration scheme, the Rhine Action Programme (ICPR 1987). In Switzerland, rules for the regulation and management of the storage and handling of chemicals were implemented. 2700 tons of contaminated materials were cleaned up on the site, after which it was sealed in concrete. Sandoz paid millions in damages and contributed to a fund dedicated to ecological restoration. The production of high-risk chemicals was stopped on location and moved to non-European countries in a blatant act of colonialism. Two firefighters were charged with negligent pollution for the disaster; the Sandoz management goes unscathed (ICPR 2016). In 2002, the ICPR declared the Rhine a “living water body” once more (ICPR 2002).

Yet, recent reports on the water quality of the Rhine River literally trouble the water. In 2023, Bund für Umwelt und Naturschutz

Deutschland (BUND), one of the biggest and most influential environmental agencies of Germany, reported that exceptionally high discharges of Per- and Polyfluoroalkyl Substances (PFAS; also known as ‘forever chemicals’) have been measured in the Rhine at Leverkusen. Since there are no legal frameworks to limit the emissions of PFAS substances in Germany, the German government condones the continuation of PFAS discharge. And the latest report of the Vereniging van Rivierwaterbedrijven (RIWA-Rijn) signals the emerging threat of lithium pollution in the Rhine River basin due to the industrial growth of lithium extraction, refining, and recycling along the Rhine and Main in Germany (Riwa 2025, 32).

“This is why others and I have said that if you want to know what is not yet, look to where it has long already been”, Elizabeth Povinelli writes (2021, 37). In the juxtaposition of BíoBío and Rhine, it is not so easy to distinguish who represents the “not yet”. She adds a warning:

And as you look, remember that unless you contribute real effort toward changing these ancestral dynamics, the new rounds of ruinous action will not simply level the playing field, nor merely place those who have long benefitted from toxic liberal capitalism and its newer illiberal versions – it will lash more forcefully those who have already borne the toxic and climatic burden of racial and colonial capitalism. (37-8)

Having truly met and seen the Rhine now, those words are taken to heart.

3 On Listening and Sensing (as a Practice)

Spending time at the edges, walking the floodplains, and returning in different seasons and weather conditions brought me into sustained proximity of the river. Being-with meant mostly listening in the form of practicing sensitivity in the field. Gradually, that changed into an embodied orientation towards the river’s state of being that day in that specific location. All senses aided in the action of listening, as an openness towards a kind of sensory relationality. Eventually, I broadened my attention and awareness towards the materiality of place. I understand it as a way of being, guided by material processes: tracing how sediment settles and is mobilised, how infrastructures redirect flow, how contaminants circulate and accumulate. It becomes a relational practice of attending to what materials do.

Using artistic methods as a mediator to approach the river, they remain a living, material, historical presence whose matter is storied and agentic. When I kneel at the riverbank and handle sediment, the encounter is epistemic: the granular differences between sand and

clay, the immediate re-settling of disturbed particles, the persistent dampness that clings to skin; all foreground the river as an active process rather than a static object. It is a living archive to be reckoned with and listened to. The river's matter does not illustrate a pre-existing thesis; it constrains, redirects, and sometimes resists the research trajectory itself. I view the Rhine as an active collaborator that participates in the production of knowledge and in the reconfiguration of how that knowledge takes form. I describe this as working with the 'materiality of place' (Van der Eijk 2022), where the value of this practice lies in creating space for unearthing narratives and accepting them as they emerge from the field.

Within the *Hydroformations* project, my curiosity grew towards all the different ways a river might express themselves, and how to design methods, tools, and protocols that might offer some sort of dialogue between us. The act of being-with the river, somatic and embodiment exercises and protocols, exercises in expanding perception, finding tools that might support or enable that, doing more materially mediated exercises in responsive chemistry, using sound recording, applying methods for mapping and modelling, or even the simple act of letting the presence of something in the field guide the way to a narrative, all contributed to an expanding archive of methods. A toolkit for voicing, while acknowledging that the voicing is always a mediation between the practitioner and the river, and that, in turn for whatever is voiced, other potential voicings are silenced. It is a practice that only works with continuity and commitment, offering plurality through time. This may offer a way of mattering the river, bringing their presence to the forefront so that their complex nature is acknowledged.

From believing I was living in the 'not-yet' towards understanding the Rhine being in some ways 'ground zero', made clear to me that the real work is in dismantling the existing imaginaries around the river. Current existing imaginaries confirm a (false) sense of safety, of superiority, of control. To achieve such a shift in thinking requires that, whatever method is used, the process of engagement with the river is centralised and that part of the praxis becomes organising for collective transformation.

In advocating for collective working structures, Artist Jeanne van Heeswijk underscores that transformative imagination emerges through sustained dialogue, mutual accountability, and the co-production of social space, thereby redefining artistic practice as a civic and political undertaking grounded in shared responsibility (Van Heeswijk 2021, 11). I think of the way the Mapuche-Pehuenche continue to mobilise for change, and how this is only possible because of the existing life-giving, ancestral bond with the river. In the context of the Rhine, this bond has to be forged before the urgencies are felt (with a note that this, like in Chile, does not apply to those who are

impacted by the systemic issues, such as communities living near highly industrialised zones). From this insight and need, the Rhine River Lab emerged.

4 Rhine River Lab: Meeting a River

Rhine River Lab: Meeting A River took place as a 5-day pressure cooker programme in the floodplains of Arnhem.

The initial concept of a lab and its basic structure was developed shortly after returning from Chile, when I co-founded and developed the programme *Cartographies of the Vanishing Now* (2019) for FIBER festival as one of many acts in ‘paying it forward’. Taking my praxis’ general methodology as a blueprint, the lab offered a context programme, collective fieldwork, and workshops centered around a single troubled and storied place. The concept was refined for a second lab, *Sound Ecologies* (2021), and later evolved into a co-creation programme for the Municipality of Utrecht (Gemene Grond), in the Rhine-related lab *Water Is What We Make It* (2022).

Working with a familiar concept allowed space to alter it towards the needs of the *Hydroformations* project. Rather than a one-time inspirational programme, *Rhine River Lab: Meeting A River* was directed towards fuelling further collective action. As one outcome, this paper is co-written by project-initiator Xandra van der Eijk and two lab-participants: Martine van Lubeek and Elliot Hurst. From here on out, this article switches from prior experiences leading up to the Rhine River Lab, to our collective experience of the lab. Part of this is a joint attempt to describe a first surfacing of learnings, thinking through the idea of ‘sedimentation’.

4.1 Addressing the Premise

In the open call, the lab is framed as a response to the underlying coloniality of Dutch water governance history, rooted in control and domination of the inherent ‘sogginess’ of these lands: “Centuries of engineering, regulation, and extraction have shaped not only the river’s course, but also the tools and languages through which it is understood”.⁶ The lab purposefully aims to move away from modern hydrological practices that reproduce narratives of anthropocentrism, despite their sometimes good intentions. Instead, its central question of inquiry is: “How do you meet a river on their own terms?”.

⁶ Hydroformations (2026). *Rhine River Lab: OPEN CALL*. <https://hydroformations.com/rhine-river-lab-open-call/>.

The very asking of this question already partly unsettles the precipice of modern hydrological cycles based on anthropocentrism, because it indicates that a river *has* their own terms. The act of asking makes the river already thought of as an entity in its own right: a living, material, historical, and political presence. The question gestures towards a decentering of the (modern) human in favour of the self-determination of the river and their kin. Yet, asking the question also poses a grounded, ethical challenge: Can the river even be met on their own terms while they are still being forced into shape in ‘our’ anthropocentric terms? How might we navigate the difficulty of decentering ourselves from the centre of modern hydrology?

The choice of the word ‘meeting’ reflects a gesture towards decentrality, since the process of meeting something or someone happens *in relation to* that something or someone. To meet the Rhine River then, does not only entail engaging in an encounter between the one that meets (the participants in the lab) and the one that is met (the river), but to actively search for ways to be in relation. To meet the Rhine River as a sentient presence can mean: to come into the presence of the Rhine, to come together (un)intentionally, to experience something, or to join something.⁷ Each of these definitions of the word implies a specific orientation towards relationality and interdependence.

Here, we are reminded of the Nishnaabeg intelligence of sintering as explained in the book *Theory of Water* by Michi Saagiig Nishnaabeg scholar Leanne Betasamosake Simpson, which was part of our reading list for the lab. Simpson, departing from her experience in competitive skiing and the place Jackson Creek, tells a story about the process of sintering as a joining, based on the idea that “the first thing a snowflake does when it lands from the skyworld is to join bonds, actual physical bonds, with its neighbours” (2025,18). Sintering is a process of snowflake world-weaving without destroying its neighbours: a joining of bonds in a nonextractive, nondominating way; a way in which Michi Saagiig Nishnaabeg make worlds (18).

A couple of pages along, she shares a story about the *Conjuncture* podcast episode “Against Pessimism” featuring Robin D.G. Kelley. Reflecting on the present moment whilst listening, Simpson wrote down: “This is where we are. We don’t need to be defensive about anti-fascism, but active, engaged and on the offensive” (20). She continues to reflect on the ease of becoming disengaged (if one has the privilege). The ‘present moment’ happened to be the day she saw Mark Rutte, then Prime Minister of the Netherlands, performing an apology for the Netherlands’ “historic role in the slave trade”. The

⁷ See the entry “meeting” in the *Cambridge Dictionary*. <https://dictionary.cambridge.org/dictionary/english/meeting>.

Prime Minister's shameful performance revealed the deep, persistent coloniality that leaks into all aspects of Dutch life: state structures, logistical infrastructures, practices of governance, education systems, and modern Dutch identity. It is crucial to explicitly state here that Nishnaabeg life and Dutch life exist alongside one another in completely different worlds. Where Nishnaabeg life is "the unapologetic, place-based Indigenous alternative to the destructive logics of the settler colonial state" (Simpson 2017, back cover), the Dutch state represents and continues to enforce settler colonialism through a logic of coloniality.

As inhabitants of colonial worlds, we should take up our responsibilities of practicing solidarity across bodies of water, alongside those who suffer from the violence of settler colonialism that our world co-produces. We must not disengage from the realities that our world produces. Instead, we should take action by joining the struggle, as well as practice the world we want to inhabit. In this sense, the question 'how do you meet a river on their own terms?' could propose an entryway into critiquing the persistence of European modernity and Dutch settler colonialism. At the same time, through the premise of practice, it might open space for nondominant, nonextractive relationalities through practices of listening, sensing and encountering.

4.2 On Listening and Sensing (in the Rhine River Lab)

Over the course of the lab, we turned to different tools to understand what was underneath the surface of the river. Sitting on one of the rock groynes that fix the river's course, we lowered hydrophones into the river to listen to underwater sounds [fig. 8]. As we turned up the volume on the recorder, an unexpected noise came filtering through our headphones. Alongside the slap and rustle of waves against the rocks was the faint sound of music. We listened and discussed, and decided this was probably from the next groyne over, where several people were fishing, reclining on camping chairs. The water carried the sound more strongly than the air. This was a practice of listening as collective, experimental, and surprising. Later in the lab, Elliot drew on experience of hydraulic modelling to find an online dataset of bathymetric data. This data mapped the most recent survey of the riverbed, collected using sonar, a form of listening to sounds reflected from the sediment. The bathymetry data were visualised using colour gradients developed from photos taken during the lab. These images showed the sediment of the river as a varying topography, patterned by dredging. They also revealed the interaction of river flow with groynes and other structures, leaving deeper holes where eddying water had eroded sediment. The tools we used for this submerged

listening bring a certain irony. These are techniques through which we seek to know the river differently, to become more attuned to other voices. Yet these are also listening methods relying on technologies developed or typically used for alternate purposes. The hydrophone was developed during the First World War, a military technology required for detecting submarines. The sonar bathymetry data that reveals the shaping of sediment on the riverbed is collected and made available at regular intervals because this is essential information for shipping along the Rhine. Listening to how sound travels through the water makes it possible for boats to do the same.



Figure 8 *Collectively listening underwater. 2025. Rhine, Arnhem. Photo by Xandra van der Eijk*

Listening and voicing are practices that need to be approached with care. These practices also lead us to consider how our practices during the lab might align with political campaigns related to rights for nature, expressed through the legal personhood of rivers or other water bodies. These campaigns have often been associated with struggles for Indigenous ownership or custodianship of lands and waters, representing a rejection of ontologies imposed through colonisation (Parsons, Fisher 2020). In Europe, the Confluence of European Water Bodies, established in 2023, has brought together a growing number of “waterbody representatives” aiming to “function as a support system, a campaign and an interdisciplinary research group”, “advocating for the recognition of water ecosystems as legal, cultural and political players in our democracy” (Confluence of European Waterbodies 2024). Through Xandra van der Eijk’s persona, the Rhine has been a member since 2024.

The implementation of RoN approaches in practice has often relied upon institutions or human representatives who act on behalf of and speak for the water body (Cribb, Macpherson, Borchgrevink 2024). There is much to unpack here about what it means to speak for someone, especially a nonhuman being. As Elizabeth Povinelli (2016) argues, in the context of ongoing settler colonialism, capitalism, ubiquitous though unevenly distributed toxicity, and other forms of hydrosocial violence, nonhuman voices must be allowed to disrupt or disturb, rather than be expected to integrate smoothly into existing forms of governance. *Hydroformations* emerged from the idea that before assuming to speak *for* the Rhine, it is necessary to *know* the river better, especially through methods different from those that are used to know the river instrumentally. This is an ongoing process, and this paper offers only our initial attempts.

4.3 Sediment as Materiality

On the second day of the lab, we took an antique ferry across the Rhine. In doing so, we were leaving behind the city of Arnhem and the hills of the Veluwe, a glacial moraine pushed up by rivers of ice. On the other side, we stepped onto Meinerswijk, the floodplain of the Rhine. Here, our ways of thinking and sensing the river would shift. The tidy separation of water and land that we had come to trouble the day before would further dissolve into an assemblage of sand, trees, pond water, puddles, fish, clay, bridges, boats, birds, beavers, houses, algae, plants, and wild horses. In the midst of this wild mixture of bodies and materials, an intervention by artist Maud van den Beuken drew our attention towards sediment as a foundational material for knowing the Rhine.

Standing in the sandy shallows of the river, on a small beach between two groynes, Maud began by reminding us that the word ‘sediment’ comes from the Latin verb ‘sedere’, which means ‘to sit’. Thinking of the settling of sediment to form the riverbed, we were invited to see how this river movement and stillness could map to the motions of our own bodies. We were asked to explore the sediment at our feet, to think about the specificity of this sediment – “Look at it in different places. Is the sediment everywhere the same?” – and its role as an archive: “Which knowledge has this sediment all carried from its previous places? And what has it been witnessing?” These questions suggest that the sediment also has a voice that we can learn to listen to. We were then each handed a plastic bucket to be filled to the brim with sediment from the river.

As we spread out across the beach, our bucket filling was occasionally interrupted by the waves thrown up by barges travelling down the river, waves that seemed to surge onto the beach once the

ship was past. These barges provided a reminder of why thinking about sediment was so crucial to understanding this river [figs 9-10].



Figure 9 *Stepping into the river.* 2025. Rhine, Arnhem. Photo by Xandra van der Eijk



Figure 10 *Gathering sediment.* 2025. Rhine, Arnhem. Photo by Xandra van der Eijk

The Rhine is a significant logistical infrastructure and has been for centuries. The Central Commission for the Navigation of the Rhine, established in 1815, describes itself as the world's oldest international organisation. Today, the Port of Rotterdam is the 11th largest in the world by cargo volume, the largest in Europe. To keep the Port open for container ships, millions of cubic metres of sediment must be dredged from the lower reaches of the Rhine each year. This sediment is carried downstream from the Rhine catchment, or drifts in from the North Sea. At the same time, emergency engineering works have been required elsewhere within the river delta, where deep holes in the riverbed, carved out by floodwaters, have threatened to erode the dikes keeping polders dry (Mosselman 2022).

These stories highlight what Giacomo Parrinello and Mathias Kondolf have termed 'the social life of sediment' (2021). Such a perspective is also taken up by Flore Lafaye de Micheaux, Jenia Mukherjee, and Christian Kull (2018), who draw attention to chars: sedimentary islands that are elements of the hydrosocial territory of the lower Ganges River. The sediment flux of the Rhine has a long social history. The Rhine, like many other European streams and rivers, was drastically transformed several thousand years ago, as sediment from land newly cleared for agriculture filled in braided river valleys, creating the channel and floodplain morphology now viewed as 'natural' (Brown et. al. 2018). Channel straightening through the early modern period increased the velocity of the river, encouraging sediment erosion. Then, in the past century or so, more and more sediment was trapped behind dams, leading to further lowering of the channel downstream. All of these changes ripple through the web of relations around the river, altering the lives of humans and other creatures.

We saw the social life of sediment for ourselves, as we walked through the floodplain along the perimeter of ponds formed not through the sinuous meandering of the river, but through the digging of mining pits for clay extraction. We also watched mechanical diggers piling up sand to create what the planners call a 'river dune', reshaping the sediment of the floodplain to create dry land for housing development. And we collected sand in our buckets on a beach created between two of the many groynes that needle the riverbank, placed there to keep the sediment sedimented, to prevent the water from mobilising, from changing course.

Once we had filled our buckets with sand, we took turns to performatively dump them onto a sheet. We then took hold of the fabric and attempted to carry the weight we had accumulated. As we strained to keep the accumulated sediment suspended, our bodies pulled closer by the mass, Maud explained how this represented the equivalent of a single second of the ongoing dredging required to maintain operations at the port of Rotterdam [fig. 11].



Figure 11 *Returning sediment to the river. 2025. Rhine, Arnhem. Photo by Xandra van der Eijk*

Unlike the Port, which dumps sediments in designated offshore dumping sites (or, if it is contaminated, into a waste dump called ‘The Slufter’, within the port area), we returned our sediment to the river in the same location we had collected it. This exercise was an invitation to join the hydrosocial sedimenting and desedimenting that creates the riverscape. It asked us to be responsive to, and perhaps troubled by, the massive mobilisation of sediment occurring along the river. And this troubling is not because of some unreflexive hostility to modern infrastructure. The day after we walked through the floodplain, 800 people carried out a mass action to blockade the port. Their motivation was to confront and disrupt the port’s role as an “artery of the logistics empire, a system that enables and supports the arms trade, genocide, and colonial oppression”.⁸

4.4 Sedimentation, Knowledge, and World-Making

The geological concept of sedimentation made its way to the Western philosophical realm of phenomenology through the writing of Edmund Husserl a century ago. He worked with the metaphorical meaning of sedimentation in order to grasp the way through which impressions of the present lifeworld become layers of meaning in one’s sedimented

⁸ See the Instagram post by Geef Tegengas (2025). <https://www.instagram.com/p/DPqgP9lDfid>.

past, and theorised how these layers of sediment simultaneously constitute one's being in the present.

Accompanying us during the lab was cultural practitioner and artist Anna Bierler, who was there as our 'gatherer'. Drawing inspiration from Ursula K. Le Guin's *Carrier Bag Theory of Fiction*, Anna approached gathering not as taking, but as making containers capable of holding multiplicity, contradiction, and play. Each day, we were welcomed with a prompt to think with the river. 'What disappears when the river floods?', 'How does your breathing change besides moving water?', 'What forms of labour, technology, or observation are directed toward the Rhine today?'. She helped us gather memories, notes, thoughts, pictures, and threads from our riverine dwellings. We were building collective layers of encounters in the shape of small, thermal-printed notes [figs 12-13]. Traces of our collective dwelling.

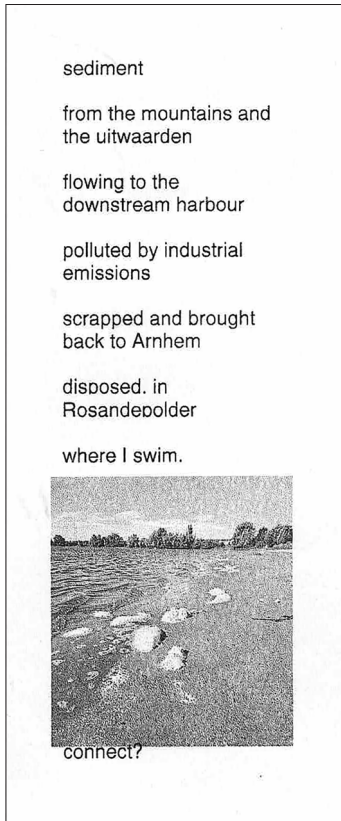


Figure 12
Receipt of prompt response. 2025.
POST, Arnhem

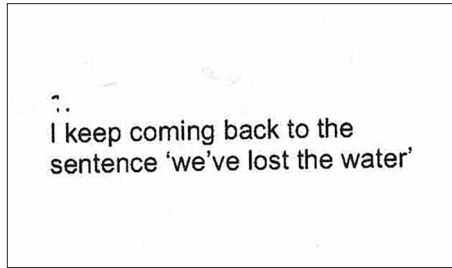


Figure 13
Receipt of prompt response. 2025.
POST, Arnhem

Philosopher Chung Yan Wun describes the two-folded nature of the metaphorical meaning of sedimentation as follows:

on the one hand, things that fade out or disappear over time do always leave a trace that contributes to the birth of something else discernible in or even essential for the present and the future, just as the disappearance of wind and air leaves particles that form the rocks and stones of our earth; on the other hand, just as rocks and stones do not come into existence all of a sudden and out of pure nothingness, things in general always have undergone a historical process of formation that invites a retrospective gaze. (Wun 2025, 6)

This description grounds the metaphor in place-based processes of sedimentation that unfold over time.

The geological process of sedimentation illuminates the forgetfulness that is produced by sedimentation itself: layers of sedimented matter become invisible as soon as new matter settles down on the same grounds. In the same manner, past impressions of the lifeworld become sedimented layers of meaning. They might lie deep down in the bottom layers of sediment, away from a conscious mind, but still “shape the contours of our experience, knowledge and understanding” (Geniusas 2023, 1028).

Crucial for our thinking with sedimentation as a possible emergent practice of meeting the Rhine River is the premise that sedimentation and its produced forgetfulness does not only pertain to individual experience. Phenomenologist Johan Blomberg explains that “similar to how individual experience becomes sedimented into habitualized patterns, there is a culturally inherited constitution of historical sedimentations in the life world” (Blomberg 2020, 81) and continues with Husserl’s gradual acceptance of our inevitable situatedness within a specific history. What ethics, practices, or ways of being, then, have been turned into sediment, and which did not make their way down to the grounded layers of memory?

On day 4, we gathered all our reflections and layered them all together according to yet another set of prompts. We gathered methods of listening, walking, filtering, weathering, attuning, photography, zine-making and writing. We found overlaps in themes such as circularity, voicing, reciprocity, commoning, solidarities, and becoming. And based on our sedimented experiences, we took the time to slowly come together before diverging into the groups with which we would prepare for the public moment on the last day.

5 In Conclusion

If sedimentation refers to the way that knowledge and actions consolidate over time, creating fixed types or traditions, then it also has another side that can be disturbed. The river shows us that with enough effort, sedimentation can also be unsettled, or desedimented. In contrast to the violent (de)sedimentations of the Rhine in the Port of Rotterdam and the ASM-harbour in Arnhem, the lab itself facilitated the space to let our own experiences of the river settle and to find new ways of meeting the Rhine.

After four days of wandering, making, thinking, talking, eating, and dwelling together, we came together on Sunday to prepare for our public gathering. We worked with the traces of the skill shares, our memories, the harvested prints, and our own bodies to collectively give an offering to the river and invite others to participate with us. We kicked off the public moment with an exhibition containing all our gathered traces, so everyone who participated in the programme would be present – even if their physical bodies were not. We gifted everyone a photographic print with instructions for a silent walk before making our way over the bridge, crossing the distance between POST and the floodplains to be with the river one last time as a collective. We listened in a circle to the river's stream before sharing our gift with the river: a wish. One that we could whisper, cry, or call to the river, for they might speak back.

There is a certain poetics to be found within the wish, because it circles right back to the wish that preceded the lab: the wish to come to know a river on their own terms. The intimate reality of living with the BíoBío River informed the emergence of the lab in the artist's local, Dutch context. They started the *Hydroformations* project with a journey along the stream of the river to be with the river. This being-with the river opened up a process from embodied orientation to a sensory relationality to ultimately an awareness towards the materiality of place: a place-based orientation of artistic practice within which the Rhine takes on an active, participatory role in the production of knowledge and the ways in which that knowledge takes shape.

The real work was found in the necessity of dismantling the existing imaginaries of the river. Not only because they confirm a (false) sense of safety, superiority, or control, but because they reproduce specific colonial logics. Therefore, the lab's opening question was a tactical way of propelling the thinking already towards an alternative, before the lab even began. The premise of meeting a river on their own terms already sparked imaginations about ethics, practicalities, and solidarity with communities of struggle.

One way of meeting the river that circled back throughout the lab was meeting through listening, where listening was also understood beyond the ears. Listening and voicing were taken up as political practices that flowed into the Rights of Nature movement before moving back again to the river, where we continued our listening to the sounds under the surface.

Just like the layers of the earth go through a deep process of sedimentation, our experiences do so as well. They move through time and metaphorical space, they sediment, they become layered textures of being. Even though they might turn into oblivion, they still co-constitute the groundedness of our being. This groundedness is therefore based on certain assumptions that can be unsettled through the idea of deconstruction or desedimentation. They are still present, but rendered forgotten. Yet, these sedimentations still co-constitute our being in the world. The gathering practice within the lab enabled a thinking practice of sedimentation, which was made explicit through the materiality of the thermal paper.

6 Flowing Together

From the Rhine River Lab, a clear desire emerged to keep engaging with each other and the river. Today, we are slowly braiding an alliance, possibly a collective, though the course still needs to find its way. For now, there are monthly online get-togethers to keep each other updated, to share and discuss new ideas and possibilities for future in-person meetings and collective undertakings. A few important efforts have already been made that are worth mentioning here: the launch of the *Hydroformations* online publication, that gives insight into all the research activities and that holds contributions by multiple group members; a bi-monthly 'embodied reading group', where each of us spends time with the river alone, synchronised with the others, and following the same prompt. The week after, we meet online to discuss our experience in the field and reflect on selected reading materials; and of course, the co-writing of this article.

We continue our collective artistic inquiry into what it means to think of the Rhine River as an entity in and of itself. We continue

to practice meeting the Rhine and other kindred rivers on our own terms. And we continue to come together as bodies of water.

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