

Mar Menor and Vättern as Aquatic Doppelgängers

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Abstract Lake Vättern in Sweden and Mar Menor in Spain are different waters, yet each has come to be lived and governed in a doubled form: a familiar waterbody and an estranged counterpart. This paper develops the concept of aquatic doppelgängers to track how such splits are produced through civic, legal, and political practices that shape what counts as harm, who can speak, and what futures become plausible. The concept shows how doubling turns crisis into a dispute over what the waterbody is, opening a struggle over how it can be protected, defended, and acted for.

Keywords Aquatic doppelgängers. Ontological politics. Waterbodies. Legal personhood. Rights of Nature.

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1 Introduction

Lake Vättern in Sweden and Mar Menor in Spain are very different waters: one a deep, cold lake, and the other is a shallow, warm coastal lagoon. Yet each has come to be lived and governed in a doubled form. Vättern is widely cherished as a stable source of drinking water, known for its clear water and ecological distinctiveness. At the same time, it is increasingly treated as something else: a waterbody entangled with militarised activities, PFAS (per- and polyfluoroalkyl substances) contamination, and a widening sense that environmental protection can be negotiated, weakened, or made conditional. Mar Menor, long known as a beloved place of bathing, fishing, and memory, has come to appear in a more estranging guise: a lagoon marked by algal blooms, recurring ecological collapse, and shoreline scenes of marine life suffocation. In both cases, the crisis is not only that the waterbody deteriorates. It is that it becomes two coexisting versions that do not easily reconcile.

This paper develops the concept of aquatic doppelgängers to name a condition in which waters come to appear in doubled form. A doppelgänger is a double that is recognisable as something familiar, but which returns in an altered and unsettling form. The figure has a long history in literature, where it often marks a split, haunting, or troubling resemblance (Dorfman 2020). In Freud's (2003) account of the uncanny, the double is associated with mirror images, shadows, repetition, and the return of what was once familiar but has become strange or threatening. As Cixous (1976) notes, Freud's analysis moves across unstable registers; between certainty and hypothesis, science and fiction, and material objects and their symbolic meanings.

I draw on this genealogy, but relocate the doppelgänger within environmental social science. In this context, uncanny doubles are not only literary or psychoanalytic figures. They also offer a way to understand how environmental change unsettles the categories through which nature is made familiar. Familiar environments can begin to feel strange, unstable, and haunted by the possibility that ordinary ecological events are also signs of wider climate and planetary breakdown (Bubandt 2018; Klein 2023).

By speaking of aquatic doppelgängers, I extend this insight to contested waters. The concept names situations in which waters remain attached to familiar meanings, as drinking-water sources, bathing places, ecological refuges, or sites of collective memory, while also appearing as contaminated, collapsing, militarised, or legally unstable versions of themselves. The uncanny lies in this doubling: the water is still recognisable, but it no longer appears fully at home with itself.

This paper therefore uses the doppelgänger not as a decorative metaphor, but as an analytical figure for environmental social

sciences. It helps track a specific empirical dynamic: situations in which multiple ways of knowing and enacting a waterbody harden into a split that becomes difficult to hold together. Here Annemarie Mol's (2002) notion of ontological politics is helpful, because what is at stake is not only competing interpretations but which version of the waterbody is allowed to count as real in practice.

By placing Mar Menor and Vättern side by side, this paper traces how aquatic doubling works across temporal, cultural, political, juridical, and affective registers. The question that follows is not only whether these waters are healthy or degraded, but which version of each waterbody is made actionable: which facts hold, which harms count, who is allowed to speak, and what forms of defence become possible. Mar Menor's legal personhood sharpens this analysis. With Law 19/2022, the lagoon is recognised as a subject with rights to exist, evolve, and be restored, offering a new public and legal persona through which harms can be named and obligations argued over. Vättern's current struggles unfold in a different legal setting, yet they are increasingly threaded into a related repertoire of rights-of-nature organising, tribunals, and collective gestures such as the *Abrazo al Agua*, a public embrace for the water. The waters are different, yet these civic and legal experiments show how aquatic doppelgängers appear not as copies, but as recurring forms through which familiar waters return, across sites, as altered and politically charged versions of themselves.

2 Theoretical Anchor: Aquatic Doppelgängers

The introduction defined aquatic doppelgängers as familiar waters that return in altered and unsettling form. This section develops the concept further by asking what kind of double is at stake, why water lends itself to such doubling, and how these doubles become politically and legally consequential. The doppelgänger is useful here not because waterbodies become fictional characters, but because environmental crises often produce a split between different versions of the same water: the remembered water, the measured water, the polluted water, the legally protected water, the dying water, and the water imagined as capable of return.

In Freud's (2003) account, the double is ambivalent. It may appear as mirror-image, shadow, guardian figure, but it also comes to signal threat, loss, and the fear of death. This ambivalence matters for environmental crisis because doubles can promise continuity while also registering that continuity has already been disturbed. Bubandt's (2018) account of the Anthropocene uncanny makes this visible in relation to weather, species, and ecological processes that remain familiar while becoming newly strange. A warm day,

a storm, or a proliferating species may still be encountered as part of ordinary nature, yet it can also appear as a sign of climate disruption or ecological imbalance. The double therefore does not simply reproduce the familiar. It returns the familiar in a changed form, allowing something to be recognised while also suggesting that it no longer fully coincides with itself.

Water intensifies this dynamic. Seas, lakes, lagoons, and rivers have long been figured as life-giving and life-taking, alluring and threatening, ordered and chaotic. Aquatic figures such as mermaids and serpents condense this doubleness, foregrounding watery environments as simultaneously familiar and alien, cherished and feared, and imagined as pure and toxic. Thinking with water in this sense draws attention to the sea's capacity to appear in paired forms: waves come in sets, surfaces mirror and distort, and what is submerged may return altered (Casavecchia 2023; Strang 2023). Waters also have what blue humanities scholars describe as a twofold condition. They are at once material and storied: ecological and chemical realities, but also shaped through memory, attachment, image, law, and narrative (Oppermann 2019). This twofold condition is central to the aquatic doppelgänger. The double emerges where material transformation and symbolic attachment no longer hold together easily.

Naomi Klein's (2023) exploration of the doppelgänger extends this logic through the notion of the 'mirror world': doubles can refract reality in distorted yet persuasive ways, producing parallel versions of the familiar. As Klein writes, "For centuries, doubles have been understood as warnings or harbingers. When reality starts doubling [...] it often means that something important is being ignored or denied" (Klein 2023, x). Here the doppelgänger functions less as metaphor than as symptom: a disturbance in which multiple versions of the same thing compete to become the real.

Science and technology studies offer a further way to understand how such doubles are made and stabilised. In technoscientific settings, data doubles and digital twins stand in for bodies, infrastructures, and environments, translating heterogeneous relations into a proxy that can be monitored, compared, and acted upon (Leonardi, Leavell 2024; Amoore 2025). Such doubles are not faithful mirrors. They are selective constructions, stitched together from measurements, models, and assumptions. In Annemarie Mol's (2002) terms, they produce 'multiples', where different enactments become more or less authoritative depending on the practices that sustain them. Doubling is therefore not only a way of multiplying realities. It is also a way of making realities manageable, because it foregrounds some relations while obscuring others, with consequences for how harm, responsibility, and action are organised.

Recent work on watery death and loss helps sharpen what is distinctively aquatic about this process. Peterson, Bezan and Falconer (2024) argue that death studies carry a terrestrial bias, treating death and loss as sedimentary and place-fixed. Watery worlds complicate this assumption because bodies and traces drift, disperse, dissolve, submerge, surface, or become preserved under particular conditions such as freezing. Jesse Peterson's (2024) provocation on whether a sea can die pushes this insight beyond the corpse to the waterbody itself. Public controversies often turn on competing enactments of the water's status: whether it is still living, already dying, or capable of recovery. A dying sea is therefore not a neutral description but one stabilised version among others, each privileging particular qualities as the conditions of life. This shifts the analytic from asking whether a waterbody is dying to for whom it dies: who gains and loses when specific attributes are made decisive, and when that diagnosis becomes the basis for action (Peterson 2024).

Doubling is also lived. When a waterbody changes, people may remain in place while the place no longer feels like itself. Albrecht's (2006) concept of solastalgia describes this distress of staying while a home environment changes around those who inhabit it. In such situations, the earlier water does not simply vanish. It remains present as a felt reference point: an earlier abundance, an earlier sense of safety or trust, against which the present is continually measured (Farrelly et al. 2014). Traces of what has been undone may press into the present, making the new normal feel unstable (Tsing et al. 2017). Water can be haunted not only by memory and loss, but also by residues that are difficult to see, contain, or narrate. Contaminated water becomes an archive of invisible presences, carrying traces of past decisions, accidents, and struggles.¹ This produces a haunting situation in which the present water is shadowed by what it used to be, what remains materially present within it, and what it is feared to be becoming.

The aquatic doppelgänger therefore brings together three analytical registers. First, it names an uncanny register, in which familiar waters return as strange. Second, it names an ontological-political register, in which different enactments of the same waterbody compete to count as real. Third, it names an affective and juridical register, in which damaged waters become objects of grief, responsibility, protection, and possible repair. This makes the concept useful for analysing how ecological crisis is not only detected or narrated, but organised into actionable versions of reality.

1 See Nonhuman Nonsense and Cacciatori, C. (2024). "Haunted Waters". <https://nonhuman-nonsense.com/hauntedwatersproject>.

3 Methodology: Researching Aquatic Doppelgängers

I now turn to Mar Menor in Spain and Lake Vättern in Sweden as aquatic doppelgängers. Rather than comparing them as parallel cases, I ask how particular versions of each waterbody are produced, stabilised, contested, and made actionable across public, scientific, activist, and legal settings, and how these versions begin to resonate across sites. The comparison is therefore also attentive to how Mar Menor and Vättern become partially entangled: how legal concepts, activist practices, public performances, and imaginaries of damaged but defensible water travel between them, allowing one waterbody to help shape how the other is seen, addressed, and cared for.

The analysis draws on two overlapping bodies of material. First, it is grounded in field engagement with both cases in 2024-25, including participation in and observation of civic events and knowledge-making practices through which the water bodies were publicly staged (for example demonstrations, the Vättern court hearing in 2024, three Vättern workshops, and Mar Menor's *Abrazo al Agua* in 2024 and 2025). Second, I undertake document and media analysis to follow how the cases are narrated, evidenced, and disputed in public and legal arenas. Where translations from Swedish or Spanish are used, they are my own, supported by AI-assisted translation and checked against the original text.

A further premise is that doubling is not only something I study, but also something my research can participate in. Analysing aquatic doppelgängers requires attention to how observation, translation, and forms of public circulation shape what becomes visible and persuasive. My positionality differed across the two cases. In Spain, I was primarily an observer of public and legal performances through which Mar Menor's personhood was enacted and contested. In Sweden, Vättern is my primary research field. In that setting, my exposure to Mar Menor became part of the work: I drew on the Mar Menor experience in Vättern workshops and blogposts, and these interventions helped stimulate local discussion and experimentation, as a way of rehearsing the lake as something that can be addressed, defended, and cared for. The study therefore treats research as situated and refractive, following how doubles are enacted without presuming a view from nowhere (Haraway 1988; Mol 2002). Analytically, it proceeds through close, iterative reading across materials, guided by the doppelgänger perspective. The analysis proceeds in two steps: it first examines Mar Menor, then turns to Lake Vättern.

4 The Uncanny Double of Mar Menor

I surrender myself to your sea; I let myself become yours,
as one must give oneself, to be yours.
If I were to close my eyes, I would remain-
made into one being and one voice: drowned alive.
(Carmen Conde)²

Mar Menor is a shallow coastal lagoon in south-eastern Spain that has long been lived as a place of bathing, fishing, and seasonal dwelling. Carmen Conde wrote *Los poemas de Mar Menor* in the mid-twentieth century as a meditation on this intimate, everyday sea. In her writing, Mar Menor is not simply described; it is addressed. The lagoon appears as a counterpart with whom one can make a pact: a place where livelihoods and ecological rhythms are imagined as mutually sustaining.

Conde's poems are used here as an archive through which the lagoon's earlier public persona remains active in the present. That matters because contemporary struggles do not begin from a blank slate. They draw on older ways of relating to Mar Menor even as the lagoon is forced into new and incompatible public forms. The sections that follow trace how Mar Menor is doubled across time, the shoreline, and institutions and law.

4.1 Temporal Doubling: Past, Present, Future

The 2016 green soup event is often recalled as the moment Mar Menor's degradation became difficult to ignore. The lagoon did not simply deteriorate; it appeared in an altered guise – opaque, thick, and light-blocking – as nutrient-fuelled algal growth turned the water murky green. In everyday terms, green soup names estrangement: a lagoon that is still there but no longer behaves like the lagoon people thought they knew. The fish-kill episodes of 2019 and 2021 then punctuated this altered time. They became dates people return to, reference points that organise memory and make crisis feel recurring rather than exceptional (Cabello, Brugnach 2023).

People living with the lagoon routinely narrate this change as a temporal doubling: the present is experienced through comparison with an earlier Mar Menor that remains accessible through memory, language, and cultural archives. One example is María Encarnación Carrillo's (2024) reflection, which turns to Conde's poems as a way of returning to the Mar Menor of 1959 and imagining the lagoon

² “Me abandono en tu mar, me dejo tuya | como darse hay que hacerlo para serte. | Si cerrara los ojos quedaría | hecha un ser y una voz: ahogada viva” (Conde 1959).

as the “natural paradise” it once was. In Carrillo’s account, the verses become “a lyrical record of a place that no longer exists”. That record does not sit safely in the past. It sharpens the present by making today’s lagoon feel both recognisable and harder to inhabit as before. Carrillo’s point also shows how this temporal mirror is built: not through vague nostalgia, but through concrete reference points that can be pictured, named, and missed. Conde’s Mar Menor is a calm sea surrounded by palms and almond trees, salt mills and traditional fishing traps, with “the moon reflected in its waters”. Such details allow people to hold two versions of the lagoon together – then and now – without needing to generalise. The lagoon’s signature seahorse has come to work in a similar way. Once abundant, it has become a symbol of decline through its disappearance, and efforts at reintroduction complicate that story by producing a returned seahorse that is both familiar and changed. The seahorse becomes a living marker of what has vanished and what might return, folding decline and fragile renewal into a single figure.

A more recent archive of this everyday temporal comparison appears in the short film *Mar Moribundo* (2025), which follows local residents whose lives are bound up with the lagoon. Their testimony holds two Mar Menors together: the childhood lagoon of blue water and abundant life, and the present dying sea marked by decay and recurring crisis: gilthead bream, mullets, prawns, king prawns dying en masse, and abandoned beaches. One speaker captures this as dispossession: “The beach of my childhood has been stolen. They’ve stolen it from me”. Another describes talking with her son about seahorses as the moment she realised how much had already disappeared. These accounts show how the lagoon’s past does not vanish when conditions change. Loss returns as an absent presence that remains tangible because people can still name it, describe it, and measure the distance from what once was. *Mar Moribundo* also opens a future tense – hesitant but insistent. Alongside mourning, residents voice the belief that recovery is still possible: “Nature has the ability to regenerate itself”, one insists, recalling other seas that have recovered when pressures eased.

Across the last few years, film has become one of the key media through which Mar Menor is staged as recurring crisis – a place where ordinary life is forced to live with long disruption and to struggle for viable futures. *Sofía volverá* (2022) pushes this temporal double furthest by shifting the story into a future that feels faintly unreal. As a docu-fiction that plays with the figure of the climate refugee, it follows Sofía, a fisher’s daughter, who leaves when a fish-kill breaks the conditions for staying. The label is usually reserved for distant others; here it returns nearby, making dystopia feel local and intimate (Cano 2022). Decades later, Sofía returns in 2056 to a Mar Menor described as recovered through joint work by neighbours and

institutions. Yet the return is still marked by quiet estrangement: even with a healed lagoon, displacement has rewritten belonging, memory, and continuity. Conde's poems thread through the narrative like a ghost archive, holding up an earlier Mar Menor as both guide and accusation. In this sense, the film turns temporal doubling into a political question about futures: not only what is lost, but how a recoverable lagoon is made thinkable, and what kinds of return it can (and cannot) repair.

4.2 The Vital Lagoon and Its Mortuary Shadow

The fish-kill episodes of 2019 and 2021 did not only mark time; it surfaced something unsettling: a shoreline mortuary where tonnes of underwater life were washed up into public view as corpses. Local activists insisted on naming the scene as 'suffocation' or 'ecocide', not 'hypoxia' or 'anoxia', to prevent technical language from dulling what was happening (Sánchez 2024). What disturbed people was not only the scale of death but where it appeared. Fish and other marine beings – creatures expected to live out of sight – ended up on beaches and promenades. Spaces of swimming and leisure became spaces of decay. This is what Maddrell and Sidaway (2010) call 'death in the wrong place'. Peterson et al. (2024) also help explain why these scenes carry such force in aquatic settings. Public attention is often triggered when death becomes visible; when it surfaces and strands. The fish kills become more than tragic signs: they become material traces that demands explanation and a response from authorities.

This is sharpened by an institutional contradiction. Mar Menor is one of the most decorated ecosystems in Europe: for example, it is a Ramsar Wetland of International Importance, and part of the EU's Natura 2000 Network (Vicente Giménez, Salazar Ortuño 2022). On paper, the lagoon appears exceptionally protected. Yet in practice, decades of nutrient runoff from intensive agriculture, unregulated urbanisation, and untreated sewage have left it in chronic eutrophication, repeatedly tipping into collapse. This produces an unsettling double. Mar Menor appears twice: once as a protected jewel, and again as a degraded basin of neglect. This doubleness is made explicit in civil society's slogans and banners: against "Mar Menor Muerto" (dead Mar Menor) they demand "Mar Menor Vivo" (living Mar Menor) (Avilés Conesa 2023, 75).

4.3 Juridical Double and Political Mirror-World: Law 19/2022

It is this split – Mar Menor as a living waterbody that can be imagined as a rights-bearing being, and its threatened shadow treated as an object – that moves into law and politics, as rights-of-nature proponents and their opponents struggle to define what the lagoon is, what counts as harm, and who can speak for it. For proponents, legal personhood became a way to shift the terms of that struggle after decades of being protected on paper while repeatedly returning as crisis in practice.

The route to personhood was not merely symbolic; it was procedural and labour-intensive. Law 19/2022 was propelled through a Popular Legislative Initiative (ILP), which required activists to reach a formal threshold of 500,000 signatures. They ultimately gathered 639,824 valid signatures under difficult Covid-19 conditions (Vicente Giménez, Salazar Ortuño 2022). Each signature was part of the labour through which the lagoon was made legible to the state as a rights-bearing subject: Mar Menor became a ‘person by law’ through paperwork, verification, and procedural thresholds. Out of that civic work, Law 19/2022 now confers legal personhood on Mar Menor and its basin. The legal innovation is stark in its simplicity: alongside the familiar waterbody – ecosystem, place, livelihood, and landscape – Spanish law produces a second figure, a rights-bearing subject with the capacity to act in legal proceedings. The law recognises the lagoon’s right to exist and to evolve naturally, and rights to protection, conservation, and restoration. Damage to Mar Menor is no longer only a regulatory problem to be managed; it becomes legible as injury to a plaintiff. In this sense, Law 19/2022 produces a juridical double: Mar Menor as ecosystem and place, and Mar Menor as legal person.

Yet this legal innovation carries a Freudian uncanniness. The uncanny is not simply the strange; it is the familiar returned in altered form. Here, the lagoon becomes ‘like humans’ in the narrow sense that it is granted a recognisable legal voice – rights, representation, a capacity to act – while remaining decisively not-us: a body of water. Activist formulations such as ‘Mar Menor has now a voice; we are Mar Menor’s voice’ register the practical arrangement this creates. Humans must still speak on behalf of the lagoon, but in doing so they also enact it as a subject, forming what Youatt (2016) describes as collective personhood. The juridical double is therefore an unsettling reconfiguration of the ‘we’ that law assumes when it speaks of Mar Menor as a legal person.

Once the juridical double was made, it was immediately contested. Klein’s (2023) ‘mirror world’ is useful here because the struggle is not only over stronger protection, but over which version of Mar Menor can be made to stand as legally and socially real. In one version, the lagoon is a legitimate rights-bearing subject; in the other, it is

quickly denounced as an illegitimate duplication of ‘persons’. This clash sharpened when the far-right party Vox challenged the law’s constitutionality, arguing (as the judgment summarises it)³ that by granting legal personality (art. 1), recognising rights (art. 2), and extending standing widely (art. 6), the law equates a natural entity with human beings and confers a status and dignity that, they argued, belongs only to humans. Vox stressed that the Constitution is an essentially anthropocentric doctrine which treats the environment not as a rights-holder but as an object of public policy. Another concern was that the law invites legal uncertainty and arbitrariness because it sets out rights with “vague, diffuse, and undefined” content.⁴ The Constitutional Court rejected these complaints and confirmed the law, explicitly naming legal personality a legal fiction that the legislature may confer in pursuit of the public interest. The Court acknowledged that earlier jurisprudence had framed the environment as an “essentially anthropocentric concept”, but underlined the legislature’s broad margin to moderate law towards a more ecocentric approach because of the “undeniable connection” between ecosystem life and human life.⁵ On that basis, the Court reframed personhood as a reinforcement of dignity, since “a dignified life is only possible in suitable natural environments”, and dignity is preserved in “symbiosis” with an environment humans may transform but “must not destroy”.⁶

This debate over what Mar Menor is and needs is not confined to the courtroom. It also takes shape in struggles over what ‘restoration’ is allowed to mean: which drivers are named, which evidence is treated as credible, which actors are blamed or absolved, and which futures are presented as feasible (Cabello, Brugnach 2023). In July 2024, for example, the Regional Assembly of Murcia debated reforms to the lagoon’s restoration framework. Outside, activists held banners targeting Fundación Ingenio – an organisation criticised for shifting attention away from intensive agriculture (Avilés Conesa 2023). In the hearing, its director argued that wastewater was the lagoon’s principal problem, bolstering the claim through selective citations of scientists that opponents described as pseudoscience and misinformation (Sánchez 2024). The eerie effect is that governance still looks like governance, yet its centre of gravity shifts when agroindustrial organisations and exporters are able to steer what restoration is made to mean (Vidal Coy 2026).

3 STC 142/204, 180840, in the Official State Gazette, 31. 26 December 2024. <https://www.boe.es/boe/dias/2024/12/26/pdfs/BOE-A-2024-27140.pdf>.

4 STC 142/204, 180840.

5 STC 142/204, 180850.

6 STC 142/204, 180851.

What matters here is less any single episode than the recurring effect: Mar Menor is made to appear in competing versions: either a rights-bearing subject that demands restoration, or an overstated problem whose causes lie elsewhere. Legal personhood sits at the centre of that struggle – not as a settled solution, but as a contested point of reference for what protection should mean and who may insist on it. One such question is whether Mar Menor can be treated as a victim, a question that has been taken to the European Court of Human Rights (Levy 2025). The point is not only procedural. It forces a harder test of what it would mean to speak of injury and protection when the claimant is a lagoon, and how far European rights frameworks can stretch their categories of harm without snapping back to the human as the default subject. In this sense, personhood is not an endpoint but a legal form that keeps opening new sites where the lagoon can be made to count or refused.

Legal personhood, then, does not settle the lagoon's status once and for all. It has to be repeated, defended, and made present in public life. A prominent example is the annual *Abrazo al Agua* (Embrace the Water) demonstrations. Each August, people form human chains along the shoreline, symbolically encircling the lagoon in a collective act of embrace. The gesture is simple, but it does consequential work. It turns bodies into a temporary boundary that mirrors the lagoon's perimeter, and it stages the lagoon as a being that can be held and accompanied. In this sense, the embrace rehearses personhood in public: it makes Mar Menor-as-subject feel real by repeatedly assembling a collective around it. Versions of this embrace have travelled, including to Lake Vättern, to which we turn next.

5 Vättern as Aquatic Doppelgänger

a tiny tiny butterfly's wingbeat
can increase in wind strength
accelerate
explode
as a hurricane
on the other side of the earth
(Camilla Linusson)⁷

Lake Vättern is Sweden's second-largest lake in the south-central part of the country. It is often described as a deep, cold, crystal-clear inland sea and widely treated as a dependable, life-supporting waterbody. Yet deep, clear-water lakes can look stable from the shore, while their long residence times allow harms to accumulate out of sight and become difficult to reverse. Something like this is now at stake in Vättern. The lake is increasingly entangled with military activity and with extractive and industrial pressures: effluents from paper mills, leakage risks from active and proposed mines, and PFAS contamination linked to the air force base at Karlsborg.

The image of purity is also complicated by official dietary advice. The Swedish Food Agency (2025a; 2025b) recommends that children and young people, and those who are pregnant, breastfeeding, or planning pregnancy, eat certain fish from Vättern only two-three times per year because they can carry elevated burdens of persistent pollutants, including PFAS, and high levels of dioxins and PCBs. For others, the advice is to limit intake to at most once a week. This is how the lake's double takes shape in everyday terms: contamination is translated into limits, frequencies, and vulnerable groups, into guidance about what can be safely eaten and, by extension, what the lake can be trusted to provide as drinking water. The lake doubles as a life-supporting waterbody and as a site of exposure.

Drawing on Mar Menor's *Abrazo al Agua*, Vättern's supposed sturdiness has also been re-staged as something that requires care; something that must be held. Leading up to, and on 9 August 2025, people encircled parts of the lake, joining hands to symbolise unity with its waters. The embrace reached roughly one per cent of the shoreline – modest in length but expansive in affect, producing ripples of media attention and new membership for environmental groups. Organisers counted each person as one metre and set 300,000 metres as the symbolic target: the length required to encircle the lake and, at the same time, the approximate number of people who depend on Vättern for drinking water. Counted this way, the chain reached about

⁷ “en liten liten fjärils vingslag | kan öka i vindstyrka | accelerera | explodera | som en orkan | på andra sidan jorden” (Linusson 2025).

3,000 metres – one per cent of the goal. The gesture also performed a characteristic doubling: bodies became shoreline metres, the shoreline became a countable total, and that total doubled as a public made visible through its dependence on water – care multiplying like a butterfly's wingbeat, as the organiser-poet put it (Linusson 2025).

5.1 Vättern's Contaminated Double: PFAS and the Security Exception

A particularly uncanny concern is the expansion of military activity and the presence of PFAS, a collective term for 'forever chemicals' used since the mid-twentieth century that persist in bodies and environments and are difficult to remove once released. In Vättern, a central source has been firefighting foam, used repeatedly in the Swedish Armed Forces' firefighting exercises at Karlsborg. The military frames this as unavoidable: preparedness requires regular training, and in a worsening security situation marked by rearmament and NATO membership, the Karlsborg base must expand. These claims become consequential through formal decisions. In that context, the government granted permission to increase shooting from 1,000 to 69,000 shots, to drain large volumes of water from a waterlogged runway – water described as containing PFAS – towards the lake, and to stockpile contaminated materials in a long embankment by the shore (KN2023/01033). This is one place where the lake's shadow is made official: not as rumour or suspicion, but as a managed consequence built into an authorised plan.

Environmental defenders took the government's decision to court. They contested the permission that enables intensified air force training and shooting at Karlsborg, alongside measures that allow PFAS-contaminated water linked to the air base to be drained towards Vättern. The case was handled primarily in writing, with an oral hearing in 2024. There, activists from Aktion Rädda Vättern (ARV) presented their case, including witness testimony from a farmer living near the airport, and screened a film showing rusting ammunition along the shoreline. They described children encountering dangerous munitions while bathing, including fears of swimming into undetonated material in the lake (Perkins 2024). In other words, the controversy did not stay inside the permit file: it travelled through testimony, images, and scenes staged at the shoreline as evidence.

The Supreme Administrative Court of Sweden's verdict (HFD-4941-23) held that the decision shall remain in force. The Court conducted a limited legality review and framed the government's room for manoeuvre as a margin of discretion the decision must not exceed. Even on the core water-law question, the Court accepted a

framing in which the permitted activity cannot be said to 'jeopardise' meeting the relevant environmental quality standards. The Court even glossed over the term in unusually vivid terms, associating it with chance, hazardous play, gambling, and risk-taking, only to conclude that the threshold is not crossed here. In this way, a key threshold is not only set in policy; it is reiterated in jurisprudence, and then re-enters public conflict as something activists must argue against.

Read through aquatic doppelgängers, this is Freudian uncanniness in an everyday register: not the completely unfamiliar, but a bathing place interrupted by what should never have been there – militarised residue, the possibility of detonation, and slow toxicity. The shoreline becomes the place where submerged training grounds and chemical persistence cross into ordinary perception. Numbers intensify this shadow version because they make it harder to dismiss as rumour or exaggeration. PFAS appears not only as a diffuse background worry but as concentrated 'hotspots': at one firefighting training site, the Armed Forces measured 2,300,000 nanograms per litre in groundwater (Perkins 2024, 15). As a baseline reference point, the environmental quality standard for PFAS in Swedish lakes is 0.65 nanograms PFOS per litre (PFOS being a PFAS substance banned in 2008). Environmental defenders point to water tests showing PFAS levels in the range of 2-5 nanograms per litre. Meanwhile, what counts as 'safe' exposure is a moving target. In 2020, the European Food Safety Authority lowered the tolerable intake – how much PFAS a person can be exposed to without expected harm. In Sweden, this has been translated into a drinking-water limit of 4 nanograms per litre, which the Swedish Food Agency has decided to apply from 2026 (Perkins 2024, 12).

The numbers do more than indicate contamination; they expose a split in how the lake is defined. Vättern is framed as a protected drinking-water source, yet the same decision system can authorise practices that add to its toxic load because they are tied to defence training and established routines. This coexistence – protection as principle, permission as practice – makes 'defence' unstable: it names both safeguarding and authorised exposure.

5.2 The Mirror World of Defence

Here, 'defence' does not point to one object of protection but two. In one version, Vättern is a strategic drinking-water reserve that must be shielded from contamination. In the other, Vättern is a defence landscape that can be asked to receive contamination in the name of preparedness. The split becomes readable in how defence is spoken about. Government rhetoric about 'clean nature and a toxin-free everyday life' sits alongside decisions that, in activists' view, move PFAS-contaminated water towards a major drinking-water source (Lennartsson 2025). Vättern's defenders therefore reverse the direction of protection. In their account, the lake is not safeguarded by the military; it is placed at risk by the very institutions charged with safeguarding the nation. Roadside signs make this reversal blunt: "Here the Defence Forces poison the drinking water" (Perkins 2024, 15). I retain the literal translation Defence Forces (*Försvarsmakten*) here because the accusation depends on the word defence being turned back against itself, otherwise officially translated as Armed Forces. The same inversion is made by the chair of Swedish Water: "We cannot defend Sweden if we poison our inhabitants", paired with the insistence that "military and civilian defence must go hand in hand" (Dalhielm 2025). In doppelgänger terms, the Armed Forces take on a doubled role: familiar as the institution of protection, yet returning in an altered guise as a source of harm. The same actor appears twice - guardian and contaminator - so that defence becomes unsettling rather than reassuring.

This doubling is not only rhetorical. It is built into territorial designations and legal procedure. The area around the air base is a military *riksintresse* (national interest), and the dispute also turns on who can contest decisions when national security is invoked. The climate and environment minister is cited in Perkins (2024) as arguing that the standing rights environmental organisations otherwise have under the Aarhus Convention do not apply where national defence may be affected. In other words, defence narrows who can speak and what can be weighed. What unsettles, then, is not only that an exception exists, but how easily it can become a template - a new normal that some actors can inhabit as reality, while others experience it as an omen of a breakdown of the justice system.

In the 2024 hearing, the state-of-exception logic was not only argued in doctrine; it was also voiced in vernacular terms, as witnesses translate 'protection' into ordinary comparisons of whose bodies are treated as worth shielding. The farmer witness recounted that cows should not be exposed above 65 decibels, and that the Armed Forces offered to rebuild the farmhouse, while for humans living in the house the exposure was treated as acceptable (Perkins 2024). That comparison - cows versus humans - is a small,

sharp device for asking who counts as the protected subject. That is precisely what the rights-of-nature repertoire tries to rework by staging Vättern itself as the subject to be defended.

5.3 The Juridical Doppelgänger in the Making: Vättern-as-Subject

Alongside the familiar Vättern, another version of the lake is taking shape. Rights-of-nature organising tries to bring a different Vättern into public view: Vättern as a subject that can be addressed, defended, and spoken for. This does not begin in state law. It begins in civic staging.

A key moment came in 2019, when the International Rights of Nature Tribunal held a mock trial in Sigtuna on the premise that the lake has rights.⁸ In preparation, Swedish Earth Rights Lawyers, with assistance from the Community Environmental Legal Defense Fund, drafted a Declaration of the Rights of Lake Vättern. Adopted at the Earth Rights Conference in 2019, the declaration sets out what it would mean to treat the lake as a living ecosystem rather than an object of management. It defines Vättern as an interconnected system of aquatic and terrestrial life; it proclaims rights to exist, flourish, regenerate, and perform natural functions; and it articulates human duties to remedy violations and restore the lake's integrity.

Two years later, in 2021, this work continued in a digital format.⁹ Vättern was raised again at the Tribunal's European hearing, where civil society groups argued that the lake's rights were being violated through military activities, PFAS pollution, and mining threats, despite its status as a drinking-water source and Natura 2000 area. They called for legal recognition of Vättern's rights, restoration measures, stricter pollution controls, and an Ombudsman for Nature. These tribunals lack legal force, but they do not lack consequence. They help establish Vättern-as-subject as a public persona that can be invoked when harms are disputed and responsibilities contested.

What matters here is that the lake does not need to appear in court as a formal litigant for this juridical double to do work. The work lies in making Vättern-as-subject socially credible and politically usable: a way of naming harms, allocating responsibility, and arguing for protection as care for a harmed being, not only as resource management. In that sense, rights-of-nature organising

⁸ GARN (2019). *Rights of Nature Tribunal 2019. The Vättern Case*. <https://www.rightsofnaturetribunal.org/cases/vattern-case/>.

⁹ See "Lake Vattern case: European Tribunal in Defense of Aquatic Ecosystems (English)". <https://www.youtube.com/watch?v=wtoFkI0xa4g>.

does not invent a split from nowhere; it gives a recognisable form to an already lived doubleness: Vättern as living waterbody, and Vättern perceived as a legal person. This emerging subject is not produced through legal language alone; it also depends on practices that make the lake's vulnerability perceptible.

One such practice comes from the research project *Whose Body of Water?* (of which I am part): the scaled textile replica of Vättern produced by Thomas Laurien (see this special issue). The replica counters an ingrained image of the lake as an unfathomable depth capable of swallowing waste, pollutants, and bullets. By making the lake's relative shallowness tactile and visible, the artefact brings a different Vättern into view: not an imagined abyss, but a fragile and penetrable body. Used in workshops with practitioners and activists, the textile lake invites participants to encounter this shallow double, to grasp vulnerability differently, and to orient responsibility through touch, proximity, and care. Passed hand to hand, it does not merely reflect the lake's shape; it helps make Vättern's competing versions speakable and harder to ignore when protection is decided.

6 Conclusion

Read through aquatic doppelgängers, the Vättern case – like Mar Menor – turns on which version of the waterbody can insist. In both sites, the waterbody is repeatedly made present in two coexisting forms, each supported by distinct practices and authorised voices. One is the familiar waterbody: Vättern as a deep, potable lake; Mar Menor as a cherished lagoon of everyday life and memory. The other is the unsettling counterpart: Vättern as a recipient for forever chemicals, an archive of militarised residue, and a lake handled through procedural exception; Mar Menor as green soup and an ecosystem made publicly knowable through shoreline scenes of fish suffocation and abandonment. The stakes of this split are governance. Which version holds determines what counts as harm, what must be repaired, and who is authorised to insist.

If the doppelgänger is often framed as a harbinger, these cases suggest something more specific: when waters begin to appear twice, it becomes harder to hold on to a single settled account of what they are, and that disturbance can become the condition for insisting, for dispute, and for demanding repair and possible return. The aquatic doppelgänger, then, is not an omen from elsewhere. It is the waterbody itself, made to appear as both itself and not-itself at once, so that what it is and what can be done about it can no longer be taken for granted.

Who is it that comes walking,
barely touching the waves...?
Who multiplies the catch and carries off the multitude?
Are you the sea – or that lake the sun of wrath dried up?
Are you the sea, or a mirror that has fallen from the sky
so that we, who are yours, may dream the sea?
(Conde 1959)¹⁰

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10 “¿Quién es el que viene andando, que apenas pisa las olas...? ¿Quién multiplica la pesca y arrebatada muchedumbres? ¿Eres un mar, o aquel lago que secó el sol de la ira? ¿Eres el mar, o un espejo que del cielo ha descendido para que nosotros, tuyos, queramos soñar el mar?”.

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