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Komuna Maro: Artistic Research as Collective Knowledge Production in a Capitalocene Seascape

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Abstract

The notion of the ocean as a pristine expanse, untouched by human culture and technology, no longer reflects present reality. In what historian and geographer Jason W. Moore terms the Capitalocene, both human and non-human inhabitants of marine and coastal regions are deeply embedded in multi-scalar metabolic processes intrinsic to the capitalist mode of socio-ecological (re)production. Despite the urgency of transforming these planetary circuits, comprehensive and transcultural forms of oceanic knowledge remain scarce, hindered by language barriers and disciplinary divides. Weaving through the story of Komuna Maro, an arts-based research project focused on networks of marine communities, technologies, and infrastructures in the northern Adriatic, the article explores possibilities for overcoming these gaps by engaging with the following questions: How can we conceive of the ocean as a material lifeworld without overlooking the political and economic realities that interact with and leave traces in the depths of oceanic matter? What epistemological framework might establish a logical connection between the brutal exploitation of workers in maritime economies and the devastation of non-human marine life, without resorting to a generalized critique of "Western modernity," which offers limited analytical tools for understanding the maritime dimension of global capitalism? How can we generate and share genuinely popular, critical, transdisciplinary, and transcultural forms of knowledge that call for a (re)invention of an "emancipatory oceanic internationalism," rather than a retreat into localized and fragmented vernacular knowledge systems? Finally, what is—or could be—the role of artistic research in addressing these questions?

Keywords

artistic research; Capitalocene; collective knowledge production; critical ocean studies; experimental geography; investigative aesthetics; maritime capitalism; northern Adriatic; oceanic internationalism; urbanisation of the sea

1. Introduction

This article offers an insight into the artistic research project Komuna Maro, which began in October 2023 at the Institute for Contemporary Art at Graz University of Technology and was transferred, in April 2024, to the Institute of Architecture and Design at TU Wien, where it will continue until the project's completion in September 2027. Focusing on the networks of marine communities, technologies, and infrastructures in the northern Adriatic, Komuna Maro (meaning "common sea" in Esperanto) aims to uncover hidden power structures within the maritime economy, create new "cartographies," and propose alternative narratives for the region.

While the article maintains a close connection to the above-mentioned research project, its principal aim is neither to outline the project's objectives nor to present its interim results. Owing to the arts-based nature of the research, these results only partially take verbal form and cannot be adequately translated into an academic paper. Instead, they are presented, and in some cases have already been presented, through traveling exhibitions, participatory actions and interventions on sailing boats and public docks, open "laboratories" and workshops, non-academic publications, podcasts, web applications, and other non-scientific formats. Rather than functioning as a project report, the text offers a reflexive, meta-level perspective on the research, critically engaging with key tendencies within the emerging fields of the "blue humanities" and ocean-related artistic practice. It identifies the conceptual foundations of these tendencies and assesses their potentials and merits, while also revealing their limitations and proposing alternatives, thereby delineating the particular position that Komuna Maro occupies within the field of related artistic practices.

The status of the project within the text is twofold. On the one hand, it is used as an example to demonstrate how the theoretical positions developed in the argument translate into concrete research practice. On the other hand, the specific socio-ecological context with which the project engages independently shapes the lens through which broader conceptual and methodological questions are approached. Making these reciprocal connections explicit establishes a dynamic movement—akin to circular ocean currents—that creates a continuous exchange between practice and theory, moving beyond a one-directional relationship between "theoretical foundations" and "empirical applications."

Accordingly, the argument does not follow the usual structure of an academic paper—progressing from hypothesis to proof to conclusion. Instead, it moves between a tangible description of the project and an engagement with abstract theoretical questions encountered along the irregular coasts of an interdisciplinary, transcultural, collective, and open-ended research practice. The first of these questions concerns how we might conceive of the ocean as a deeply material lifeworld without overlooking the political and economic realities that interact with and leave traces in the depths of oceanic matter. A further question asks what kind of epistemological framework could logically connect the exploitation of maritime labor with the destruction of non-human marine life, without resorting to generalized critiques of "Western modernity" that offer limited analytical tools for understanding the maritime dimension of global capitalism. Furthermore, the article explores how we might produce and share truly popular, critical, transdisciplinary, and transcultural forms of knowledge that call for the (re)invention of an "emancipatory oceanic internationalism," rather than a retreat into localized and fragmented vernacular knowledge systems. Finally, it reflects on the role that artistic research plays—or could play—in addressing these questions.

In the next section, I describe the emerging area of study in which Komuna Maro is situated, briefly outlining the development of "critical ocean studies," highlighting key publications and tendencies within the field, and relating them to contemporary artistic practices engaging with the ocean. This is followed by a short overview of the specific features of the northern Adriatic that make this maritime region particularly suitable for studying the complex, multi-scalar entanglements of diverse socio-ecological actors and processes characterizing the "Capitalocene" era (Moore, 2017a, 2017b). After this contextualization, I navigate some of the theoretical debates that have shaped the conceptual foundations of the Komuna Maro project and continue to be renegotiated within our research practice. Building on these theoretical considerations, I then outline Komuna Maro's methodological approach and envisaged presentation formats, while situating the project within the broader question of how artistic research can contribute to producing and sharing new forms of popular knowledge about the sea.

2. Research Context: The Blue Turn

The idea of the sea as an empty expanse that invites contemplative solitude and romantic fantasies does not correspond to the everyday reality of marine spaces. The development of legal mechanisms and technologies for governing, monitoring, traversing, and economically exploiting the oceans has led to an increasing "urbanization" of the marine environment (Couling, 2016). Today's oceans are home to a multitude of interconnected trade, migration, communication, and control networks, as well as infrastructures for raw material extraction, aquaculture, shipping, flood protection, desalination, border surveillance, warfare, and research. Together with the changing marine ecosystems with which they are interwoven, these networks and infrastructures form elements of an emerging planetary "bio-technosphere." The ocean—long imagined within modern, land-centered consciousness as a distant realm at the murky margins of law, culture, architecture, technology, and economics—is becoming both a pioneer and an embodiment of a new planetary condition marked by increasingly manifest interconnections between historical and geological time scales, human and non-human habitats, geopolitical and geochemical processes, technological and "natural" objects, as well as microscopic, anthropological, and astronomic scales.

This new perspective on the ocean and the associated shift in its significance—both in scientific and popular discourse—has led to a renewed, interdisciplinary interest in maritime topics, often referred to as the "blue turn" (Braverman & Johnson, 2020a). The first important publications contributing to the emergence of what is now known as "critical ocean studies" (Deloughrey, 2019) examined oceans as social constructs (Steinberg, 2001) or, in dialogue with the scholarly tradition established by Fernand Braudel, viewed oceans as socio-ecological landscapes shaping the history of specific geographical regions (Horden & Purcell, 2000). These groundbreaking texts were followed, since around 2010, by a series of publications rooted in postcolonial and indigenous studies (Ingersoll, 2016), critical infrastructure, design, and architectural studies (Couling & Hein, 2020; Starosielski, 2015; Tavares, 2024), political ecology and human geography (Armstrong, 2022; Steinberg & Peters, 2015), critical legal studies (Braverman & Johnson, 2020b; Braverman, 2022), as well as Marxist (Campling & Colás, 2021), feminist, and neo-materialist approaches (Alaimo, 2025; Helmreich, 2009).

Complementing the blue turn in the humanities and environmental sciences, diverse artistic engagements with the sea have gained prominence, contributing to more inclusive, imaginative, and holistic ways of producing knowledge about the marine world. Allan Sekula's *Fish Story* and his broader engagement with

maritime spaces and economies marked a key turning point, using realist aesthetics to reveal the exploitative practices of globalized maritime capitalism. Sekula's interest in the complex and opaque economic processes taking place in international waters has been further developed in several projects by the interdisciplinary studio CAMP (including the group's 2017 video installation *From Gulf to Gulf to Gulf*) and in Jacob Hurwitz-Goodman and Daniel Keller's film from 2018 on ultra-libertarian seasteading endeavors. Another significant current in sea-related artistic practice—represented by artists such as Robertina Šebjanič, Kerrie O'Leary, Kat Austen, Marco Barotti, and Susanne M. Winterling, among others—has explored the transformative, interspecies entanglements of marine life, probing the intersection of technological and biological processes through interdisciplinary modes of inquiry. These practices challenge entrenched binaries between nature and culture, the bio and technosphere, the living and the non-living, the human and the non-human, and science and art.

A further important area encompasses visual explorations of marine infrastructures and extractive frontiers. In *Prospecting Ocean*, Armin Linke investigated deep-sea mining through legal, technological, and perceptual frameworks (Hessler, 2019), while Trevor Paglen's series of maps and photographs of submarine cables exposed the submerged geographies of digital capitalism. This cartographic impulse was further developed by the Territorial Agency, whose large-scale mapping projects—developed in collaboration with the TBA21-Academy—have visualized emblematic processes and fragile zones of transformation across the world's oceans, combining scientific data with aesthetic and political critique. While Territorial Agency has used modern satellite imaging and cartographic techniques to reveal planetary-scale transformations of the ocean under stress, other artists—including Taloi Havini, Latai Taumoepeau, and Seba Calfuqueo—have interrogated, subverted, or "queered" Western technologies of ocean research and representation, often drawing on indigenous ocean-centered life forms and ancestral rituals.

Although contemporary art's engagement with the ocean has been rich and multifaceted, there appears to be a gap—one that may be difficult to bridge within the conceptual frameworks explicitly or implicitly invoked by many of the aforementioned artistic practices. This gap can be described as a structural absence of projects capable of connecting and jointly articulating the concerns and experiences of the modern, highly internationalized global maritime workforce (rather than those of marginalized local populations or traditional communities) with the problems related to the devastation of oceanic environments. One of the reasons for this absence likely lies in the prevailing combination of new materialist philosophies with postcolonial and indigenous studies that underpins much of contemporary ocean-related art. As I discuss later in the text, none of these discourses offers an adequate framework for an integrated socio-environmental analysis of the complex and interrelated manifestations and effects of global capital that incessantly circulates through and across the world's seas. As a result, many arts-based oceanic experiments and inquiries that aim to connect social and ecological concerns and imaginaries end up substituting artistically articulated, politically grounded analysis with depoliticized moral appeals for "greater empathy with the ocean."

Komuna Maro seeks to address the gap described above. This undertaking has required a profound engagement with the project's theoretical foundations and a continual reworking of its methodological cornerstones, resulting in a distinctive conceptual framework that challenges some of the prevailing assumptions within contemporary sea-related art discourse. A further specificity of the project is that, in order to facilitate an integrative approach focusing on the *interdependencies* among various aspects of

complex marine environments, the research area has been deliberately confined to a relatively small geographic region—the terminal section of the gulf formed by the Adriatic Sea.

3. Northern Adriatic: Charting the Field

While the northern part of the Adriatic Sea has served for centuries as both an element of cohesion and an object of territorial disputes between coastal cities and states, various marine processes and practices have simultaneously interwoven this space with global socio-ecological networks, migration routes, and geostrategic interests. Several factors have contributed to the special characteristics of the marine and coastal zone north of the imaginary line connecting the Kvarner Gulf in the east with the Po Delta in the west.

Firstly, this part of the Adriatic Sea has been the subject of a long series of disputes that continue to this day, resulting from conflicting territorial claims and competing geostrategic aspirations, often involving regional, national, and supranational actors. Today, the northern Adriatic Sea is divided into the territorial waters of Croatia, Slovenia, and Italy, with a section of international waters between them. While tensions between Croatia and Slovenia over the border demarcation in the Bay of Piran persist, the agreement between Italy and Croatia on the declaration of exclusive economic zones, reached in 2020, has added a new component to the complex and layered territorial organization of this maritime area, making it exemplary of contemporary ocean governance. Political tensions are also fueled by the northern Adriatic ports, which, due to their importance for transnational trade networks, have often served and continue to serve as arenas for geopolitical rivalries. Recent manifestations of these tensions, which illustrate the multi-scalar nature and shifting dynamics of the political economy of seaborne trade, include the controversially discussed and ultimately abandoned investments by Chinese port operators in the ports of Rijeka and Trieste (Figure 1). Both ports are embedded in local, national, and regional political-economic dynamics while simultaneously reflecting global geopolitical tensions (Deganutti, 2025; Mohan et al., 2024; Strobel, 2023).

Intensive maritime traffic and related coastal industries, natural gas extraction on Croatian and Italian offshore platforms, the influx of industrial and agricultural wastewater via the Po River, as well as overfishing, microplastics, old fishing nets, and other debris on the seabed all pose a serious threat to the sensitive shallow-water ecosystems of the northern Adriatic. Meanwhile, a series of global ecological disturbances related to climate change, ocean acidification, and possibly other environmental factors—whose origins cannot always be traced to one specific cause or clearly defined location—are also reaching the northern Adriatic. A vivid example of the complex and multifactorial nature of such phenomena is the occurrence of massive mucilage events (Vilibić et al., 2025), whose intangibility, unpredictability, and immeasurability render them characteristic of what Morton (2013) has termed "hyperobjects." A similar case that illustrates the inseparability of economic and ecological marine networks is the uncontrolled spread of so-called "invasive species," many of which—like the Atlantic comb jelly *Mnemiopsis leidyi*—have most likely been introduced into Mediterranean waters via the ballast water of transoceanic ships (Malej et al., 2017).

In addition to non-human marine life, many workers whose livelihoods are tied to and dependent on the sea have also been affected by economic changes and geopolitical shifts that operate on a much larger scale than that of their daily lives. These global processes have shaped migration patterns that directly impact working conditions in local maritime industries. In Monfalcone—home to the largest shipyard owned by the

Figure 1. Construction works at the Zagreb Deep Sea/Rijeka Gateway Terminal, Port of Rijeka, February 2025. Notes: The development of the terminal has been marked by a controversial concession procedure, which resulted in APM Terminals—a subsidiary of the Danish shipping giant Maersk—acquiring the majority stake in terminal operations, following the indirectly enforced withdrawal of a Chinese consortium; Photo by Ana Opalić (Komuna Maro).

Fincantieri Group (currently the biggest European shipbuilding company and one of the few to survive the translocation of the shipbuilding industry to East Asia)—the influx of unskilled foreign workers, which has allowed the industry to keep labor costs low and working conditions appallingly poor, has challenged the structures and operating mechanisms of the traditional trade unions (Panariti, 2024). At the same time, thousands of workers have lost their jobs due to the closure of once-powerful shipyards in Pula and Rijeka. In Koper and Trieste, outsourcing and other forms of port labor precarisation have provoked a wave of large-scale strikes, underscoring the importance of building broad alliances and overcoming cultural and institutional divides to enhance the effectiveness of maritime workers' struggles (Panariti, 2022).

As everywhere on, above, and within the sea, all significant processes and trends that characterize the current socio-ecological realities of the northern Adriatic are mutually intertwined and embedded in multi-scalar relational systems. As such, they require forms of investigation and engagement that transcend the usual boundaries between different languages and national territories, as well as between the humanities and social sciences, research and activism, "subjective" narratives and "objective" information, reflexive analysis and forward-looking speculation. In this sense, Komuna Maro aims to apply and further develop the methods of artistic research in order to explore and rethink the interdependencies between social, biological, and technological aspects of a more-than-human habitat such as the northern Adriatic. In particular, it investigates whether and under what conditions the exploitation, commodification, and destruction of marine and coastal lifeworlds can give rise to new forms of solidarity that transcend not only national and ethnic boundaries, but also those between human and non-human "workers" in maritime economic networks.

4. Theoretical Considerations: Why We Should *Not* Attempt to Land on the Sea

The increased interest in ocean-related topics in scientific and popular discourse has developed alongside—and under the influence of—current debates about the concept of the "planetary," which has emerged as an alternative to the concept of the "global" in the context of impending climate change (Chakrabarty, 2021; Danowski & Viveiros de Castro, 2016; Latour, 2018; Likavčan, 2019). In these debates, the idea of the global and the historical practice of globalization are criticized for reducing the planet to a smooth surface across which resources, people, capital, and information can move fluidly and at increasing speed from one point to another. In contrast, the concept of the planetary takes into account the three-dimensionality and complexity of the Earth, understood as a holistic and fragile system of intertwined social, biological, and geochemical processes. Since this cross-scale interconnection of all being is the essential characteristic of the fluid medium par excellence—and is particularly pronounced in marine spaces—the concept of the planetary constitutes an important conceptual pillar for the Komuna Maro project. However, because this term is interpreted in different and sometimes contradictory ways in the humanities and earth system sciences, a precise positioning within the relevant debates has practical consequences for the orientation of the project.

In the context of contemporary art, Bruno Latour has been a particularly influential figure in promoting the concept of the planetary. In some of his theoretical writings and in the major curatorial project *Critical Zones* (2020), he called for a renewed "landing on Earth" (Latour, 2018; Latour & Weibel, 2020). This appeal refers to a departure from "modernizing" and globalizing abstractions toward earthbound ways of living, thinking, and researching. Latour is careful not to slip into a conservative revival of "ethnos:" on the contrary, the very fact that the environmental crisis and accelerating climate change are turning all of us into a kind of migrant (as we "feel the ground slip away beneath our feet") could serve, in Latour's view, as an opportunity to strengthen trans-ethnic forms of solidarity (Latour, 2018, pp. 14–16). However, there are aspects of this position that I would like to question and counter with alternatives that appear more suitable as a conceptual framework for investigating the ocean as a planetary lifeworld. Indeed, Latour's call to return "down to Earth" and the role played by other land-related metaphorical expressions (such as "earthbound," "terrans," "Gaia-centric," etc.) in his central argument suggest that his position might still represent a land-centric version of the concept of the planetary—challenged by authors such as Steinberg (2001) and other key figures in the field of critical ocean studies (Braverman & Johnson, 2020b; Braverman, 2022; Deloughrey, 2019).

One potentially problematic consequence of Latour's approach concerns the fact that rootedness in specific environments, which is linked to "earthboundedness" and acknowledged by Latour (2018, pp. 16–21) as an expression of the basic human need for safety, has commonly been used as a justification for land ownership (which Latour has never explicitly rejected). Even though he explicitly differentiates between "localists" and "terrans," and interprets the former category (with which he associates reactionary nationalism and other forms of territorial exclusionism) as the flip side rather than a viable alternative to globalization (Latour, 2018, pp. 22–27), his conceptual apparatus still seems to disadvantage those who—due to forced and often repeated displacement—never had the chance to develop "situated" and "grounded" worldviews.

Related to this conceptual framing, which implicitly privileges "grounded" over nomadic forms of life, is Latour's (2018, pp. 15–16) thesis that for most inhabitants of the First World, "landlessness" is a relatively new experience, and that, unlike indigenous peoples whose lands were taken by colonizers, most First World citizens still confront landlessness primarily on a symbolic level, as a result of general destabilization brought

about by climate change and environmental degradation. This thesis is problematic from a historiographical point of view, as it overlooks the massive land grabs that occurred during the formation of capitalist social relations in most European countries between the 16th and 19th centuries, in the context of so-called "primitive accumulation." This omission prevents Latour from recognizing landlessness as a defining feature of the global proletariat—a feature that, in the Marxist sense, could serve as the basis for worldwide solidarity among the dispossessed in their struggle against the ravages of capitalism. In contrast to Latour's framing, such a claim could not as easily slide into a conservative demand for a renewed "earthbound environmentalism" based on place-based rootedness.

Unlike Latour, philosopher Likavčan (2019, para. 6.11–6.15) connects the concept of the planetary with Gayatri Chakravorty Spivak's notion of the "defamiliarization of home" as a result of increasing forced migration. Following Spivak, Likavčan sees in this defamiliarization an emancipatory potential—one that could transform us from owners of the land into "custodians of the planet." Those who live by and with the sea know what this means: the emotional connection to the ocean knows no locality, no boundaries, and no ownership. One could say that the sea is an "unhomely home:" it is too vast, too fluid, too complex, and too unpredictable for us ever to land on it firmly or permanently. At sea, we are always just guests—always in passing, always on the move (save for the anarcho-capitalist fantasy of seasteading). This, however, does not preclude us from developing a strong and durable emotional attachment to the ocean. In other words, one can love the ocean without being grounded in any one specific maritime location. This is not merely a sentimental assertion or an abstract philosophical idea, but an argument with real political implications: if we want to develop a form of environmentalism that can genuinely attract and include the displaced and the "landless," the ocean might offer a more appropriate conceptual framing than the earth.

Latour's appreciation of "earthboundedness" is also linked to his criticism of modernization (and the consequent globalization) and those who drive it forward—"modernizers" (or "globalizers"). Unlike Marx's concept of social classes, however, Latour's concept of modernizers is not based on structural relationships: what distinguishes modernizers from their opponents seems to lie largely in a mere difference of opinion, or in a vague notion of "elites" as the primary beneficiaries of modernization. The only social group that can actually be thought of as a structurally anchored opposition to modernizers—that is, a group whose concrete life conditions and experiences are clearly distinct from those associated with modernization—are indigenous peoples. Although Latour himself does not draw this conclusion, the association between "earthboundedness" and indigenous lifeworlds has been explicitly made by other scholars—for example, in their influential book *The Ends of the World*, de Castro and Danowski (2016) build on Latour's notion of the planetary and his concept of "terrans," relating these concepts directly to indigenous ontologies and ways of life, in which the authors identify viable alternatives to the universalizing abstractions of the Western knowledge system.

It would be unreasonable to deny that the current revaluation of "indigenous" forms of knowledge—especially within critiques of globalization—has provided important intellectual support for numerous struggles to preserve threatened habitats and resist extractive practices by large multinational corporations, including in diverse maritime environments. This includes contested regions such as the Arctic and the deep ocean, as exemplified by controversial deep-sea mining projects. As noted in Section 2 of this article, this revaluation has also inspired a prolific wave of sea-related artistic research and practice centered on indigenous experiences and promoting indigenous knowledge systems as alternatives to what is increasingly understood as Western "extractivism."

However, while the foregrounding of indigenous lifeworlds in contemporary sea-related art has undeniable merits, it also presents serious limitations and problematic implications. First, the concept of the indigenous lends itself even more readily than that of the nation to essentialist interpretations: who can legitimately claim indigenous status, and who cannot? Who was the first to inhabit a land, a coast, or an island, and who came later? Although the notion of "strategic essentialism" was originally introduced and promoted by Spivak to describe the temporary and deliberate adoption of a shared group identity by marginalized peoples in order to achieve political or social goals, its application poses considerable challenges and reveals the general shortcomings of identity-based politics—shortcomings identified by several critics of postcolonial theory and subaltern studies associated with Spivak's work (Chibber, 2013; Parry, 2004). In the first place, it is difficult to determine when essentialism is truly "strategic"—and therefore justifiable—and when it is not. In addition to the dangers of essentializing and idealizing indigenous lifeways, another problem inherent to identity-based political strategies is that marginalized groups, in the course of their emancipatory struggles, can become fully integrated into the capitalist economy—a scenario that, in the case of indigenous communities, has often been referred to as "tribal capitalism." How these dynamics manifest in a specific maritime context has been insightfully analyzed by De Alessi (2012) in a study of Māori fishing in New Zealand.

A further problem that arises from relying on indigenous traditions as a foundation for ocean-related activist and artistic practices is epistemological in nature. If the economic, institutional, and technological apparatuses of maritime globalization are to be replaced with something more inclusive, just, and sustainable at a planetary scale, we will need to create a shared critical knowledge about how these apparatuses actually function, as well as a comprehensive collective vision of what should come in their place and how. It is unrealistic to expect that indigenous knowledge systems, which are commonly rooted in very specific local conditions, could on their own provide the basis for such an overarching international project.

Finally, the concept of the "indigenous" is of limited use in contexts where modern ways of life became established relatively early and across the board—for example, in global shipping, which has long been regarded as the embodiment of a modern and international workforce. Even though the exploitation of seafarers on transoceanic ships has historically been highly racialized (Campling & Colás, 2021)—often precluding the formation of broad and truly transcultural alliances in maritime labor struggles—important steps have nevertheless been made, and significant victories achieved in this area (Fink, 2011). The preconditions for these achievements included a shared vocabulary of workers' rights and the creation of modern institutions to promote them. Furthermore, a generalized critique of modernization and the related privileging of "indigenous ways of life" also seems problematic in regions where the introduction of modern industrial production and lifestyles was the result of collective efforts to break free from traditional forms of domination and exploitation. This applies, among other places, to the karstic regions along the eastern Adriatic coast, where the self-organized partisan struggle during World War II was also a struggle to build a modern and secular state.

To summarize, the current focus on indigenous knowledge systems and ways of life in critical ocean studies, as well as in sea-related artistic research and practice, is grounded in a conceptual framework that cannot adequately integrate the emancipatory, anti-capitalist, anti-colonial, and anti-racist varieties of modernity, which have been essential in many maritime contexts. Nor can it serve as a sufficient foundation for the creation of new collective and transcultural forms of knowledge capable of connecting and channeling multiple struggles for more livable, inclusive, just, and sustainable marine environments.

Returning to Latour, there is one more aspect of his notion of the planetary that requires elaboration: his endorsement of the Gaia hypothesis. Originating in the scientific work of Lynn Margulis and James Lovelock, the Gaia hypothesis posits that the planet should be viewed as a living organism—that is, as a dynamic, organic whole (Latour, 2017). This approach, which is often interpreted in ways that carry esoteric or spiritual undertones, has served as a foundation for deep ecology and as a point of departure for general critiques of "Western technology," which—within this conceptual framework—is seen as a series of abstract mechanisms of domination. However, this kind of critique generally fails to acknowledge that without a global network of "intelligent machines" for collecting and processing environmental data, it would not be possible to rigorously substantiate the conceptualization of the planet as a self-organizing system, to formulate robust theories of anthropogenic climate change, or to recognize the complex interrelationships structuring the ecological and geochemical processes of the global ocean system. In this context, media philosopher Bratton (2019) has formulated his own provocative version of the term "terraforming," countering the technology-pessimistic interpretations of the Gaia hypothesis with a vision of deliberate and critically informed planetary infrastructure policy. Both Bratton and Likavčan understand the planetary technological network not as something separate from the "natural" biosphere, but rather as an integral part of evolutionary development—a form of decentralized intelligence that links technical devices with humans, animals, plants, microorganisms, continental plates, and the world's oceans (Bratton, 2019; Likavčan, 2019, para. 6.21–6.27).

Even though Bratton and Likavčan show little interest in the relationship between power and technology, their approach does not necessarily lead to a denial or trivialization of the concrete relations of power and domination that have been established through specific technologies—and are still being maintained, reproduced, or expanded today. A careful analysis of these relationships is essential if we are to build the pacifist and planet-serving infrastructure policy that Bratton promotes. For example, it would be not only misguided from a historiographical perspective but also dangerously naive to ignore that many key technologies used in modern oceanography originated in the military-industrial complex of the Cold War (Oreskes & Krige, 2014; Squire, 2021), or that their current development and deployment are largely driven by private corporations competing for global accumulation (Blasiak et al., 2018; Childs, 2022). To bring about sustainable social change in this context, we must combine critical analysis with collective efforts aimed at alternative development and the emancipatory repurposing of modern technologies (Srnicek & Williams, 2015). This is as true for the increasingly technologized ocean spaces as it is for the land.

The idea that technological progress should be seen as embedded in historically and geographically specific and dynamic power relations—rather than as a plain expression of a generalized "domination of nature by humans"—also implies questioning the concept of the Anthropocene, which has rapidly spread from geochronological debates into broader scientific and popular discourses. The term implies that humans *as a species* are responsible for recent changes in the Earth's geochemical properties, and thus for the environmental crisis and climate change. While most proponents of the planetary concept, including Latour and postcolonial theorist Chakrabarty (2021), adopt this view, it has been challenged by several scholars, notably historian and human geographer Moore (Moore, 2017a, 2017b). As a counter-concept, Moore introduced the term Capitalocene, which locates the causes of recent environmental transformations not in "anthropos"—humanity as a whole—but in the global socio-ecological conditions specific to capitalism. One of Moore's key theses is that the "production of cheap nature"—i.e., the systematic devaluation of everything considered outside exclusionary defined human society—is not an undesirable side effect but a structural

necessity of the capitalist economic system. This perspective enables us to view the domination and exploitation of workers, slaves, women, and non-human life forms as part of the same systemic mechanisms specific to capitalism. From this, in turn, a new concept of more-than-human solidarity can be derived, one that builds a stronger bridge between the previously loosely connected environmental and labor struggles—without falling into technological pessimism, esoteric worldviews, the privileging of "earthbound" over migratory lifeways, or the idealization of indigenous knowledge and traditions. The ocean—due to its remoteness, which enables both extreme habitat destruction and intense labor exploitation—requires the development and consolidation of these new forms of solidarity more than any other place.

These considerations bring us to the final question of this brief surf through the convoluted currents of contemporary philosophical elaborations of the planetary and their implications for ocean-related critical research: What is—or could be—the genuine contribution of arts-based research methods to the production of popular, transdisciplinary, and transcultural forms of oceanic knowledge capable of sustaining a durable alignment between maritime labor struggles and environmental movements? My tentative answer to this question—and one that resonates with our research practice in the framework of the Komuna Maro project—is that artistic forms of inquiry, owing to their capacity to embrace contingency (Borgdorff, 2012), are better suited to explore types of connections and relationships that *matter* (in the sense that they participate in shaping oceanic lifeworlds) but are not of causal nature, are too complex to be assessed by established scientific methods, are not yet well understood, and/or cannot be described by verbal, numerical, or graphic means used in conventional academic output formats. To illustrate this, we might think of a transoceanic cargo ship as a microcosm in which multiple and diverse lifeforms and lifeworlds converge and intertwine—along with the metabolic circuits of the global economy in which they are all entangled in one way or another: from algae and other sessile organisms attached to the hull, to small pelagic fauna transported via ballast water, to marine mammals and birds following ships over long distances, to members of mostly international crews stratified by rank and cultural background, to various types of occasional passengers, including researchers, inspectors, trainees, refugees, or stowaways. Engaging with such complex Capitalocene entanglements is a meaningful and timely research task, but no single scientific discipline would engage with it, given the contingent and heterogeneous nature of the relationships involved and the resulting impossibility of reducing the inquiry to any one specific research question. To be sure, artistic researchers alone could not accomplish the task either; they would have to engage other disciplines, from marine biology to occupational sociology, political economy, and anthropology. However, arts-based research has the unique capacity to initiate, coordinate, and channel transdisciplinary collaboration in such convoluted maritime contexts, precisely because of its radically open nature and lack of disciplinary confines.

A further advantage of artistic inquiry in engaging with complex oceanic entanglements lies in its potential for citizen inclusion—both in research processes and outcome presentations. While the development of "citizen science" has made scientific practice more inclusive, the participation of "non-experts" typically remains limited to tasks predetermined by researchers, because of the codified nature of methodologies in most scientific disciplines. The standard output formats—academic publications and conferences—are even more restrictive, and attempts to make research accessible to broader publics often result only in science mediation, where non-scientists appear as passive audiences for simplified versions of research findings. By contrast, arts-based research, owing to its open and experimental character in both method and presentation, offers a broader scope for genuine public engagement. However, given that contemporary art is itself highly institutionalized, implicitly codified, and made inaccessible to many through various symbolic mechanisms of

exclusion, overcoming these barriers requires conscious and careful research design, a sustained effort to collectivize research practice, and a decisive move away from studios, galleries, and festivals as primary venues for presentation. Instead, beaches, estuaries, lagoons, docks, ships, and offshore installations should be claimed as new spaces of collective research in which knowledge is co-produced and co-presented.

This claim also points to a specific privilege of artistic engagement and a potential strategic choice available to artists working in contexts shaped by exploitation, discrimination, human-rights violations, irresponsible depletion of natural resources, and other unsustainable or unjust practices. In such contexts, many artists have strategically invoked the notion of "artistic freedom," which in many countries is anchored in fundamental legal frameworks and/or widely accepted cultural norms. This enables artists to engage in various forms of critical inquiry and subversive acts that, if carried out within conventional scientific or activist frameworks, might be perceived as dangerous or even declared illegal—but when disguised as art tend to be generally tolerated and considered benign. For artists working at these margins of art and activism, what constitutes an artistic act is precisely the conscious and subversive play with the cultural and legal norms that define the social role of the "fine arts," in order to pursue radical political aims. The ocean—a space where extreme levels of exploitation and neglect converge with legal difficulties in addressing these injustices due to complex and often ineffective jurisdictions—has also been a site where such entanglements between artistic research, activist intervention, and political advocacy have proven particularly abundant and productive. This tradition—represented in the northern Adriatic by art and cultural organisations such as Ocean Space (Venice), Drugo More (Rijeka), and Pina (Koper)—forms the basis of the artistic strategy adopted within the Komuna Maro project.

5. Komuna Maro: Creating, Exploring, and Exhibiting a Common Sea

Figure 2. Komuna Maro expert advisor for international economics, Katja Kalkschmied, principal investigator Ana Jeinić, and artistic director Ana Dana Beroš during field research in the Port of Venice, May 2024. Note: Photo by Ana Opalić (Komuna Maro).

The core features of the conceptual and methodological approach of the Komuna Maro project are closely tied to the considerations outlined in the previous section. The first of these is the decision to embark on an ambitious project of "experimental cartography" of the northern Adriatic—one in which different spatial scales, degrees of abstraction, and modes of perception, representation, and technological mediation are combined and juxtaposed in a radical and continuously evolving manner.

In line with Moore's framing of the Capitalocene, human and non-human actors are understood as entangled in power relations shaped by multi-scalar circuits of capital accumulation. The infrastructures and technologies explored through fieldwork (e.g., ports, shipyards, pipelines, offshore platforms, surveillance systems, etc.) or employed in the research process itself (e.g., geoinformation systems) are viewed as integrated systems requiring critical scrutiny, sustainable transformation, and radical democratization. This position is reflected in a specific stance on knowledge production: rather than opposing "vernacular" and "modern" forms of knowing, Komuna Maro seeks to connect multiple knowledge systems, democratize the research process, repurpose available analytical tools and technologies for emancipatory aims, and create accessible collective archives. This is realized, for example, through the crowdsourcing of online maps or the use of satellite data to visualize otherwise invisible power structures within the maritime economy.

Methodologically, the project integrates experimental and crowdsourced cartography, visual ethnography, art photography and videography, performative and discursive formats of knowledge production, communication design, and web-based art. In addition to the project team and invited artists, the research process involves a wide range of participants—fishers, port and ship workers, logistics professionals, activists, local politicians, journalists, marine biologists, planners, recreational sailors, and others—whose knowledge and everyday practices are tied to the sea. These collaborators participate from the outset as informants, advisors, and co-researchers. The ultimate goal is to produce a multifaceted, transnational, multilingual, accessible, and open-ended "critical atlas" of the northern Adriatic.

Following the previously outlined arguments, the political territories and economic networks investigated in the project are understood as intersecting and intertwining with the living spaces and trajectories of human and non-human inhabitants of the sea and coastal zones. These include the everyday routes of recreational sailors and fishers; visible and invisible barriers and thresholds that limit access to specific places for specific actors; shifting migration routes of birds, fish, and other marine organisms; probable pathways of the introduction of invasive alien species; shrinking biotopes of endangered macroalgae; and the spread of phytoplankton blooms. It is precisely these connections and dependencies that form the core focus of the research. To enable an understanding of the vast and multifaceted entanglement between the circulation of capital and the trajectories of life, large elements of maritime infrastructure—ports, LNG terminals, offshore gas platforms, carbon capture and storage facilities, underwater pipeline landing stations, shipyards, salt pans, and aquaculture sites—are conceived as nodes where different types of networks, scales, and spatialities overlap and interact. These facilities, in turn, function as anchor points and structuring elements within the research process.

An understanding of the intertwining of political structures and economic processes, often operating at broader spatial scales, with the human and non-human lifeworlds of the northern Adriatic is enabled not only by integrating what is commonly regarded as the domain of the social sciences with areas of inquiry traditionally associated with the natural sciences, but also by combining different registers and viewpoints,

thereby producing a complex and multilayered outcome. Specifically, the project engages three symbolic "levels of perception," corresponding to distinct dimensions of ocean-related research: the "atmospheric," the "littoral," and the "submarine." Throughout the research process, these three levels are continuously interwoven and reconfigured, allowing for unexpected associations and a multiplicity of perspectives.

The first level (atmospheric) involves cartographic research in the narrow sense, employing representational forms based on the collection and processing of geo-referenced data (Figures 3 and 7). This includes the creation of layered maps that capture rarely visualized conditions and interdependencies, for example, correlations between fish stock depletion, ownership structures, and labor conditions in the fishing industry, or between major shipping routes and the probable trajectories of invasive species introduced to new marine habitats via ballast water (Figure 7). These maps often combine the (re)processing and integration of existing geo-referenced datasets—originally produced by other institutions or researchers—with extensive, partially crowd-sourced geo-tracking activities carried out or coordinated by the research team. They are intentionally based on standardized cartographic projections and open-source digital mapping technologies to maximize legibility across a wide range of social groups. This approach aligns with the theoretical considerations outlined in the previous section: as the project's title suggests, its principal aim is to use art as a device for creating—within a politically heterogeneous and multilingual region—a *common* language and framework for action, rather than relying on vernacular epistemologies rooted in the traditions of any specific community. However, beyond serving as visual tools for constructing shared knowledge, the maps also function as devices for visually indexing and structuring the subjective experiences of both researchers and participating citizens—for example, through geo-referenced field recordings or entries in the research

Figure 3. Mediterranean Sea, mass concentration of chlorophyll-a in seawater on 20 June 2024. Notes: The map is related to the occurrence of an extreme mucilage event in the early summer of 2024, observed in Sveta Katarina Bay near the Port of Koper; map design: Federica Pessotto and Lucia Rebolino (Komuna Maro). Source: Copernicus Marine Service (2024).

diary—thus forming a collective archive of personal encounters with the sea. In fulfilling this dual function, the maps embody one of the central aspirations of the project: to connect generalizable knowledge with personal experiences, science with art, and politics with poetics—while carefully avoiding any attempt to dissolve these oppositions or reduce one side to the other.

The second level (littoral) centers on "unmediated" human perception. Investigated through ethnographic methods—such as fieldnotes (Figure 4), photography (Figures 1, 2, and 5), video and audio recordings, and interviews incorporating photo elicitation—this level reveals the intersections between global politics and local lifeworlds, showing how the lives and practices of human and non-human inhabitants of the northern Adriatic are shaped by, and respond to, broader environmental and geopolitical processes.

The final level (submarine) concerns the investigation of submerged, microscopic, or sedimented environments that are often hidden or inaccessible (Figures 6 and 8). These spaces are simultaneously material manifestations of global maritime politics and dynamic arenas where new and complex marine interactions emerge. This level of inquiry involves close collaboration with marine biologists and oceanographers and combines underwater photography and audio recording with the sampling of physical sediments and biological material. By incorporating these local material traces and submerged actors—embedded within interrelated circuits of capital and matter on a planetary scale—the project enables an integrated examination of the social (political and economic) and material (chemical and biological) processes that shape the contemporary ocean, as well as the macro and micro-scales at which these processes operate simultaneously.

The research diary, transformed into multilingual essays—each dedicated to a specific site in or along the northern Adriatic coast—serves to connect and structure the research archive, which consists of visual and physical materials produced across all three levels of inquiry (Figure 4). Written by members of the research

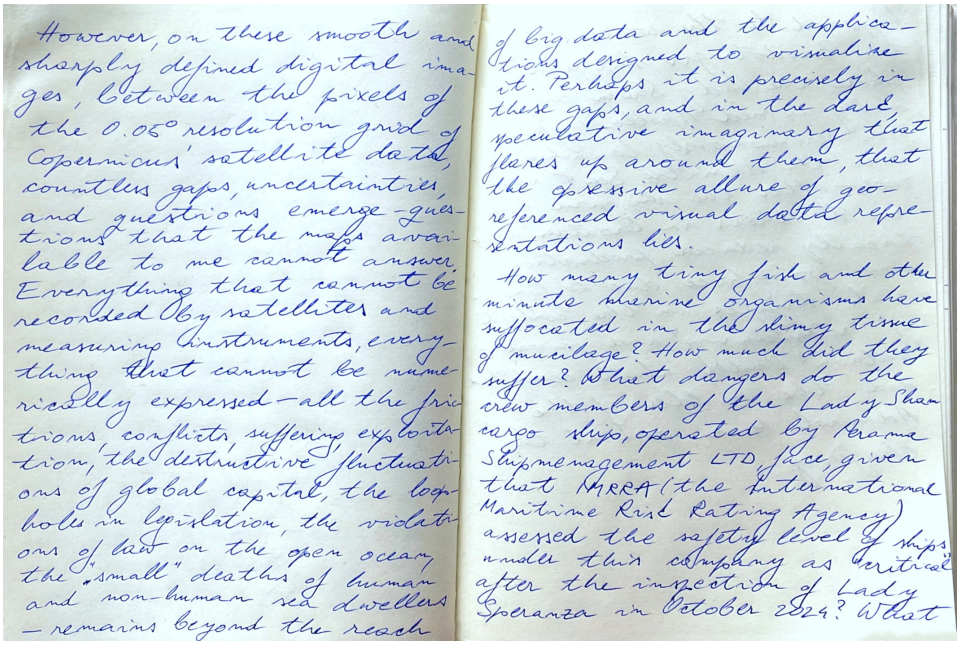

Figure 4. Excerpt from the research diary. Notes: The entry weaves together maps, photographs, and biological samples related to a specific moment and location (20 June 2024, Sveta Katarina Bay); photo by Ana Jeinić.

team, these essays incorporate knowledge and insights shared by numerous interview partners and advisors, who are acknowledged as co-creators of the content. While the formats in which the research is presented are diverse, two principal modalities stand out: open-ended analogue archives in the form of large-scale, waterproof "nautical pilot books" ("portolani"), and an interactive, partially crowdsourced web platform.

Figure 5. Bathers at Sv. Katarina Bay near the Port of Koper, Slovenia, enveloped in mucilage under a horizonless sky obscured by Saharan dust. Notes: Ships in the background, from left to right: Paresa (IMO 9008134), Aspasia Luck (IMO 9223485), Admiral Moon (IMO 9437220), and Lady Sham (IMO 9171383), 20 June 2024; photo by Ana Opalić (Komuna Maro).

Figure 6. Macro patterns of mucilage, Sv. Katarina Bay, 20 June 2024. Note: Photo by Ana Opalić (Komuna Maro).

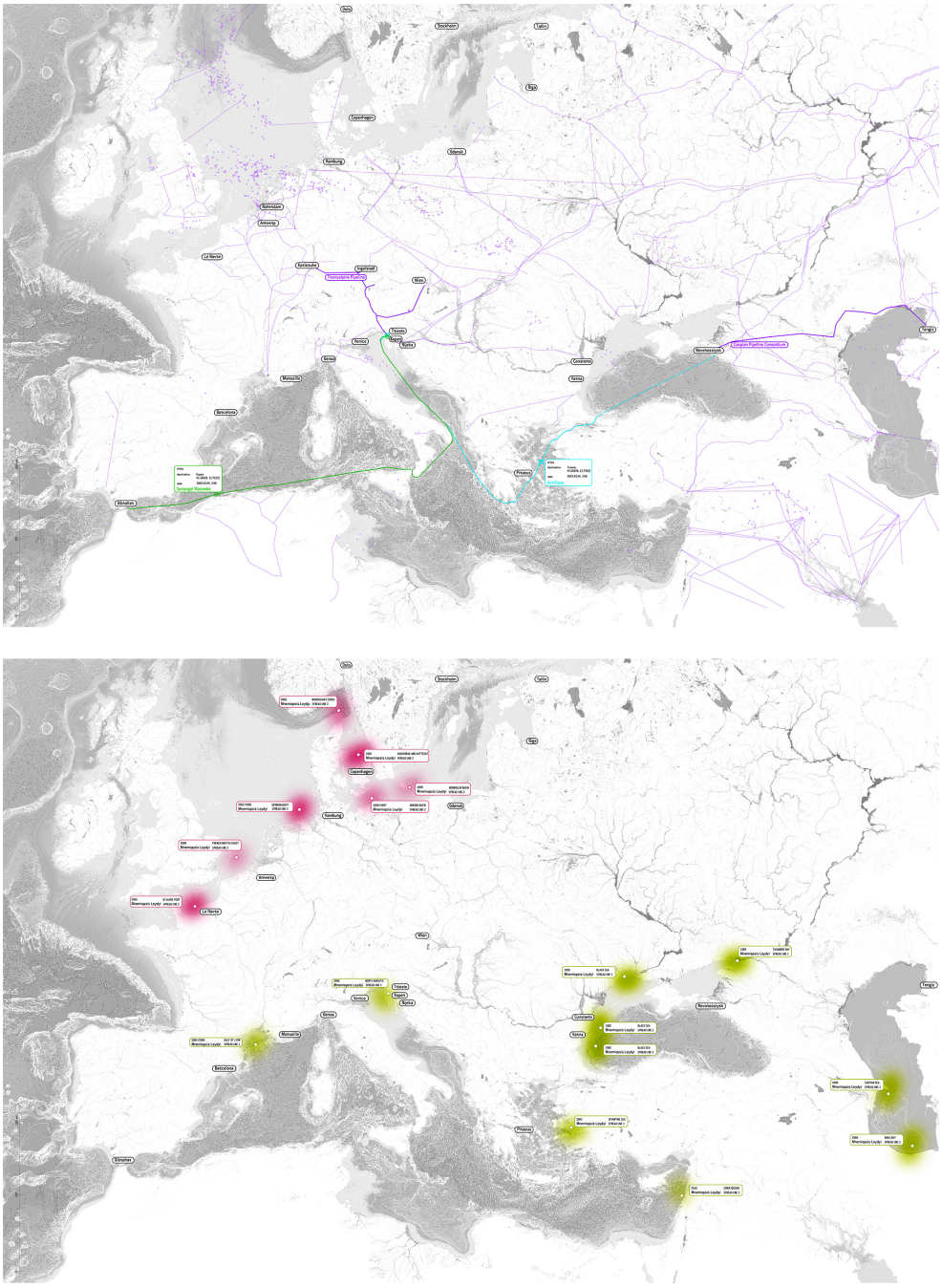

Figure 7. Two layers of a composite map related to the oil terminal at the Port of Trieste. Notes: Upper map/layer shows the trajectories of the crude oil tankers Sonangol Maiombe (IMO 9766322) and Achilleas (IMO 9458494) prior to their arrival in Trieste. Thick purple lines indicate the probable trajectories of crude oil before loading and after unloading from the two tankers. The background shows oil infrastructure, including extraction sites and pipelines; lower map/layer shows the probable trajectories of the spread of the invasive comb jelly *Mnemiopsis leidyi*, thought to have been introduced to European seas from the western Atlantic via ballast water from cargo ships. Yellow circles indicate one probable route of spread, and purple circles indicate another; maps developed and designed by Federica Pessotto & Lucia Rebolino (Komuna Maro). Sources: Ship trajectories (upper map/layer) from VesselFinder (n.d.); Oil infrastructure (upper map/layer) from Global Energy Monitor (2025); Data on Mnemiopsis records (lower map/layer) from Malej et al. (2017); Background data (both maps/layers) from EMODnet (2024), HydroRIVERS (Lehner & Grill, 2013) and HydroLAKES (Messager et al., 2016).

Figure 8. *Mnemiopsis leidyi* in the Gulf of Trieste, August 2025. Note: Photo by Matija Kralj Štefanić (Komuna Maro).

Field research is divided into two phases, each culminating in an "exhibitionary expedition"—a hybrid event combining a research journey, open laboratory, and traveling exhibition aboard a sailing vessel (Figure 9). These interim presentations take place on docks along the Adriatic coast, where parts of the emerging "atlas" are displayed in the form of the aforementioned pilot books (Figure 10). The performative nature of these journeys is a central aspect of the exhibition concept: the fact that the materials on display are transported by members of the research team on a small sailing boat from one port to the next—across the territorial waters of Croatia, Slovenia, and Italy—creates an organic connection between the subject, practice, and presentation of the research. While estimated dates and times of pop-up exhibitions in different coastal towns are announced in advance, dependence on winds and waves entails a certain degree of unpredictability and synchronizes the rhythm of these events to that of the sea, further reinforcing the connection between the content and the form in which the project is carried out and presented.

The dissolution of strict boundaries between research practice and public presentation, which reflects the open-ended character of the project, is made possible by the dual function of the sailing journeys. These voyages serve both to transport material collected during earlier phases of fieldwork and to gather new material to be added to the research archive and future iterations of the exhibition. Specific data, such as GPS logs and sea surface temperatures—collected using DIY devices installed by multimedia artist Mihael Giba—as well as photographs and audio recordings from the vessel, are transmitted in real time via a web app (www.komuna-maro.com) whose background changes according to the current color of the sea surface. These transmissions translate into the boat's route and an expedition diary on an interactive map, linking the personal experience of sailing with a visual archive of the sea.

In the final year of the project, following the completion of fieldwork, the web app will be developed into a comprehensive digital platform containing maps, texts, photographs, and other digital artifacts generated

throughout the research process. These elements will be layered, interconnected, and partially open to future contributions through crowdsourcing. A series of public workshops is planned to accompany the platform's launch, offering both critical context and technical guidance to encourage active participation in the ongoing expansion of the digital archive. Through these practices, Komuna Maro aims to contribute to the emergence of a "common sea," both as a concept and as a lived reality: a sea no longer defined by domination and exploitation, but reimagined through collective exploration and care.

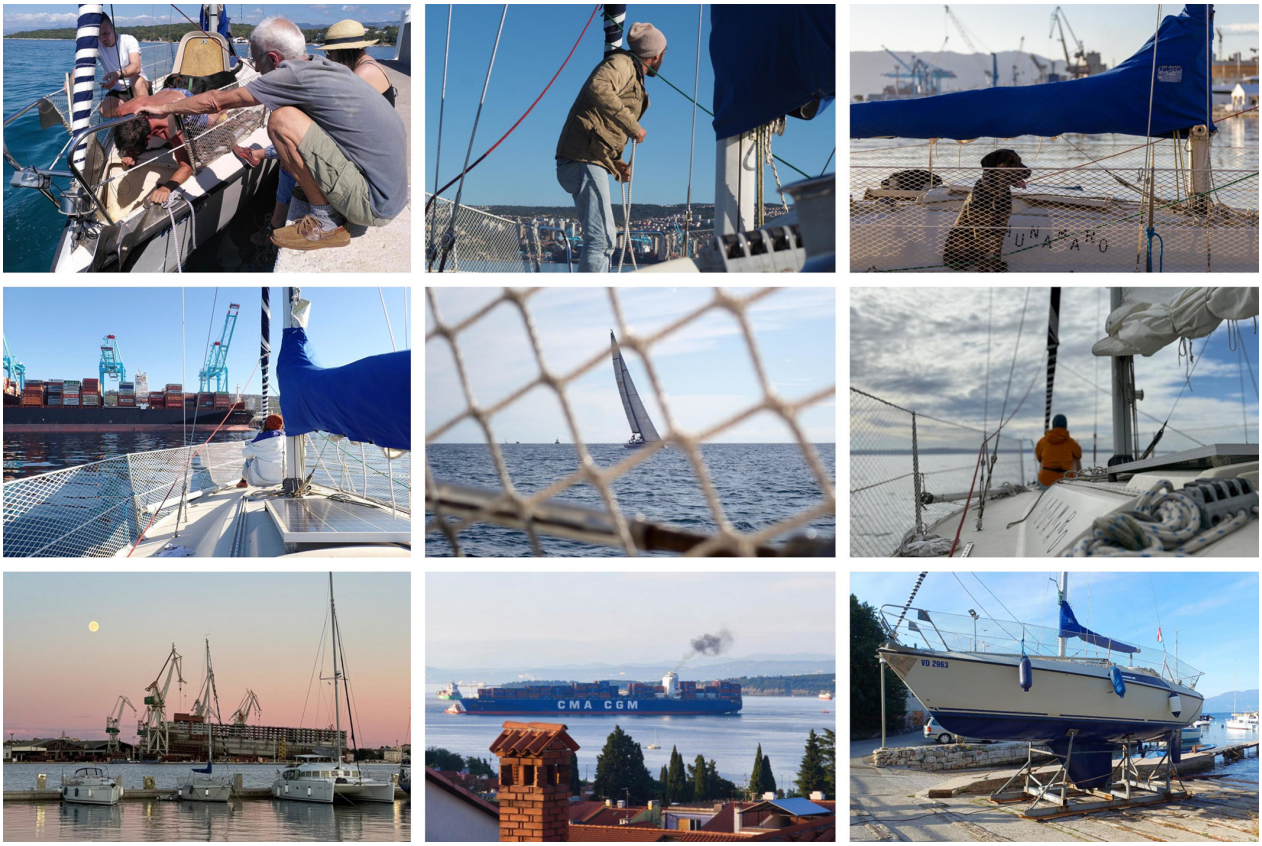

Figure 9. Photos from the visual diary of *Exhibitionary Expedition 1*, September 2025. Notes: The first photo (upper left) shows multimedia artist Mihael Giba, exhibition captain and photo/video artist Matija Kralj Štefanić, photographer Slobodan Kovač, and Komuna Maro researcher and artistic director Ana Dana Beroš installing DIY equipment for collecting and transmitting basic oceanographic data during the journey; photos by Matija Kralj Štefanić, Ana Dana Beroš, and Ana Jeinić (Komuna Maro).

6. Conclusion

This article has discussed some foundational concepts that continue to inspire critical ocean studies and ocean-related art, using the arts-based research project Komuna Maro both as a starting point for theoretical reflection and as an example of a research practice that embodies the positions and strategies outlined in the theoretical discussion. Beginning with a critical analysis of the notion of the "planetary" in the work of Latour and his call to "land back on Earth," the theoretical argument proceeded by questioning idealized approaches to indigenous practices and vernacular knowledge systems in contemporary art. It concluded by proposing alternative concepts and strategies for arts-based ocean research, such as Moore's notion of the Capitalocene; a more nuanced, analytical investigation of the infrastructural, technological, and political

realities that shape the contemporary ocean; and an an argument for what may be termed "emancipatory oceanic internationalism" as an alternative to networks and movements grounded solely in local traditions, spiritual beliefs, or essentialized identity categories.

The examination of the core concepts and the proposal of alternatives was then followed by a discussion of the specific potential of arts-based ocean research to generate the kinds of knowledge required by these alternative approaches, namely, critical, transformative, and collective forms of knowledge capable of conceptualizing the entanglements of capital and matter, global politics and local lifeworlds, and the exploitation of human labor and devastation of non-human life across the oceans of the Capitalocene. I identified three main features of arts-based research that create this potential: its capacity to investigate significant but non-causal relationships; its inclusive character; and its subversive power, grounded in the notion of artistic freedom. Finally, I presented the Komuna Maro project, bringing the theoretical considerations back into the context of concrete research practice, with which these ideas are closely interwoven.

While the critique of concepts associated with certain strands of new materialism, postcolonial studies, and indigenous studies is not new per se, I hope that by articulating this critique from a specifically maritime perspective and situating it within contemporary ocean-related art and humanities, I have contributed new insights to an expanding field of research and practice. The same applies to the concept of the Capitalocene and the other theoretical arguments discussed here: the main contribution I aim to make lies in connecting these debates to specific oceanic concerns and in envisioning a form of arts-based ocean research that can meaningfully contribute to the investigation—and, hopefully, radical transformation—of the Capitalocene ocean. Finally, I have sought to demonstrate what such a form of research practice might look like in the specific geographical context of the northern Adriatic.

Figure 10. Pop-up exhibition in Rijeka within the framework of *Exhibitionary Expedition 1*. Note: Photo by Matija Kralj Štefanić (Komuna Maro).

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Conflict of Interests

The author declares no conflict of interests.

Data Availability

Information related to Exhibitionary Expedition 1—including the voyage route, photo diary, collected oceanographic data, and photo documentation of the pop-up exhibitions—is currently available on the project's provisional website (www.komuna-maro.com). This website will be expanded as the project develops, and small-format printable versions of the "portolani" books discussed in this article will be added over the course of 2026.

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