



**Funded by
the European Union**

Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or European Climate, Infrastructure and Environment Executive Agency (CINEA). Neither the European Union nor the granting authority can be held responsible for them.

MORE-THAN-HUMAN, SEA-FACING, ECO-SOCIAL CHANGE-MAKING

Advice from the *Bauhaus of the Seas Sails* project

ANN LIGHT

This is a lightly edited version of the D2.5 deliverable for Bauhaus of the Seas Sails (hereafter BoS), under EU Horizon Europe grant agreement 101079995, approved in early 2026. It has been edited for readability, and updated, in moving from a deliverable to a more general report.

It was authored by Ann Light, with contributions from many parts of the BoS team. Alphabetically, contributors were Simona Bussotti, Klaas Kuitenbrouwer, Eileen Laurie, Roberta Palmieri, Stefania Toso, Cristiano Pedroso-Roussado, Inês Valle and Katinka Versendaal, as indicated.

It was written as part of Malmö University's contribution to BoS and supported by the University of Sussex' School for Progressive Futures.

Table of Contents

EXECUTIVE SUMMARY	5
1. INTRODUCTION.....	5
3.1 BAUHAUS OF THE SEAS SAILS (BoS) PROJECT OVERVIEW	5
3.2 ARTICULATING THE PRACTICES INVOLVED	7
2. THE NEED FOR ACTION ON OCEANS	8
4.1 THE TRANSFORMATION NEEDED	9
4.2 THE SEA(S) INVOLVED	10
4.3 DESIGN IN THE FIELD	10
3. BOS VISION OF CHANGED RELATIONS.....	11
5.1 THE MORE-THAN-HUMAN	12
5.2 THE ECO-SOCIAL	15
4. EARLY MATERIALS FOR PILOTS.....	15
4.1 THE CO-DESIGN TEMPLATE	16
4.2 THE OCEAN AMBASSADOR COMPASS	17
6.2.1 Sustainable: Living together with the Ocean in a symbiotic way	18
6.2.2 Locally Grounded: Building on the local ecosystems, knowledge and capacities	18
5. THE PILOTS AND THEIR WORK.....	19
5.1 DELTA	20
5.2 GENOA/GENOVA	22
5.3 HAMBURG	23
5.4 LISBON	24
5.5 MALMÖ	25
5.6 OEIRAS	26
5.7 VENICE	27
6. THE ZOÖP DROP.....	29
6.1 BECOMING A ZOÖP	29
6.2 THE FIVE PHASES OF THE ZOÖNOMIC ANNUAL CYCLE	30
6.3 THE SPEAKER FOR THE LIVING (SPEAKER)	31
6.4 ZOÖPS IN BOS.....	31
6.4 IMPACTS ON THE ZOÖP.....	36
7. MORE-THAN-HUMAN IN THE PILOTS	37
7.1 EXAMPLES OF STRATEGY	37
7.1.1 Changing Meanings	37
7.1.2 Changing Connections	38
7.1.3 Changing Power	39
7.2 MORE-THAN-HUMAN: HAMBURG PILOT	40

8. LEARNING WITH/FROM THE SEA	45
8.1 EXAMPLES OF STRATEGIES FOR ENGAGEMENT WITH THE OCEAN.....	46
8.2 INTERNALISING LESSONS FROM THE SEA	47
8.3 THE VOLUPTUOUSNESS OF GOURMET SEAWEED	48
9. CHANGING/BEING CHANGED.....	51
10. LEARNINGS IN DOING ECO-SOCIAL CARE	54
10.1 THE THREE LINKED CHALLENGES	55
10.2 ORGANISATIONAL IMPEDIMENTS TO EMBRACING THE MORE-THAN-HUMAN	55
10.3 THE VALUE OF LEARNING MATERIAL	57
10.4 THE IMPORTANCE OF SPEAKERS FOR THE LIVING	58
10.5 SENSITISING COMMUNITIES AND SPEAKERS.....	58
10.6 THE OPPORTUNITIES THAT ART PROVIDES FOR CARE	59
11. CONCLUSION	62
REFERENCES	65

Executive Summary

This document provides an overview of how BoS attempted “more-than-human, sea-facing eco-social change-making” as a particular feature of its work. The document starts with sections explaining how to understand key terms and activities and continues, using summaries of pilot work and case studies drawn from different areas of Europe and different roles within the project, to capture a sample of practices which might be adjusted for context and employed elsewhere. The report finishes with a discussion of how the work met its more-than-human ambitions, touching on its impacts, its limitations and what advice can be offered to other projects engaging with the same regenerative issues. In doing so, it accords with the codesign principle of hearing from individuals and groups in their own words. Unless stated elsewhere, material is drawn from interviews and visits with pilot teams over the three years of the project, conducted by the principal author.

The report primarily focuses on insights and reflections on more-than-human aspects of the BoS project. This entails a particular philosophical commitment, that, at time of writing, requires explanation. Therefore, this document is both longer and more theoretical than an ordinary project report. It has been written on the assumption that, with growing interest in the *more-than-human*, it will be a contribution with the potential to reach and capture the imagination of a broader public. It is not intended to be read as a whole, but as a series of summaries and case studies flagged for particular insights.

1. Introduction

1.1 Bauhaus of the Seas Sails (BoS) Project Overview

The Bauhaus of the Seas Sails (BoS) project was a lighthouse demonstrator project funded by Horizon Europe under the heading HORIZON-MISS-2021-NEB-01-01. Its core purpose was to deliver seven demonstrators (referred to as pilots), designed to advance urban-ocean relations across coastal western Europe. These pilots have been implementing ecological and culture-driven innovative initiatives to test and produce territorial transformation impact in their local contexts. Each pilot was testing three combined methodological components – more-than-human philosophy, arts-driven process and inclusive co-design – in their own fashion. This combination encouraged the pilots to move beyond simply designing *for* a community to designing *with* them, including non-human elements, such as water and tidal, marine and coastal species. The learning curve was steep, but each pilot found value in the project approaches and the means to continue beyond the project.

The project overall adhered to four key principles adapted from New European Bauhaus (NEB) values:

- Sustainable
- Inclusive
- Beautiful/Aesthetic
- Locally grounded (an additional value specific to BoS).

All the pilots' work emerged through co-design that brought diverse actors from local communities together to identify and address local issues. To support this way of working, which is less hierarchical than many urban management practices and also less familiar, the project introduced two organisational components for structure: the Sea Forum, an influential group including scientists, policy-makers and the like, to be built around the pilot members to support, advise and assist them; the Ocean Ambassadors, recruited by the pilot team (sometimes with help from the Sea Forum) to build on the achievements of the core team and inspire and recruit further participants. The ambassador role was to spread interest and action among broader populations, in what was conceived as a cascade model of codesign and care. In addition, artists and creative practitioners were spread through the pilots' work, some wholly integral to how the pilot unfolded and some more focused on particular initiatives and slices of activity. This artistic activity put creative processes at the centre of the project, sometimes through artists' work and, at other times, incorporated into working methods across the pilot. This model (fig 1) of stimulus spreading outwards was characterised as drops and ripples (and, in terms of impact, waves):

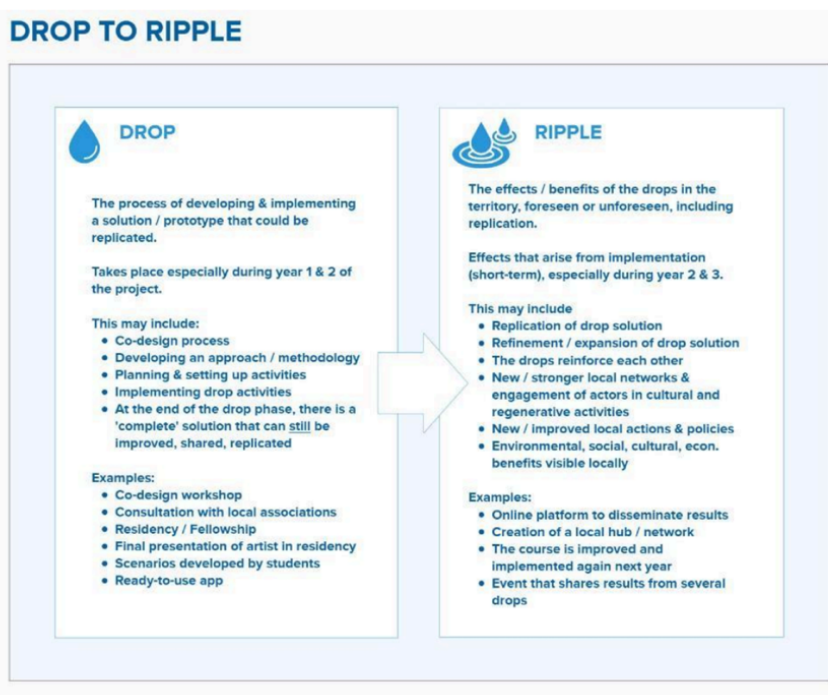


Fig. 01. Definition of 'Drop' and 'Ripple', included in 'Theory of Change sessions' in Mural App, March & April 2025, Maëlle Salzinger (WP5).

- **Drops:** prototypes, initial activities and designs included from external sources to trigger local activity and interest in the pilots' work;
- **Ripples:** the concrete application of sustainable solutions on the ground, often scaled from the drops, with the goal of shaping long-term projects funded by municipal partners after the project concludes.

The *BoS* project had several goals at outset, including to:

- Foster a community of care: Working to ensure care is built into each aquatic ecosystem in such a way that it is sustainable and sensitive to regional climate adaptation and mitigation ambitions;
- Inspire transformative change: Employing cultural interventions as a force for change and bringing in designers, artists, curators, and cultural workers to lead processes;
- Introduce intersectional and multi-layered co-design: Delivering an intergenerational, interspecies and intercultural co-design process;
- Identify a new ecological aesthetics: Conveying the possibility for changed sensibilities as a result of a plural, interdisciplinary, and interspecies practice.

1.2 Articulating the Practices Involved

BoS inherits some grounding from an earlier EU project on arts-led transformation, called *Creative Practices for Transformational Futures* (CreaTures, 2020-2022). This report draws on the earlier project's relational orientation (see Light et al 2024) and its evaluation framework for exploring and articulating more-than-human arts practice¹. In this framework, the processes of creative practice are shown to offer diverse approaches to eco-social change-making², and the chart of nine dimensions, with its categories of meaning, connection and power, is helpful to see how these approaches can be understood (see fig2). Of these, the role of *caring* has been stressed in BoS. Both *eco-social* and *more-than-human* are based on rethinking fundamental relations to show the interdependencies that underlie our worlds, while the eco-social stresses what human collectives can bring to bear. The following sections of the report consider how the project changed meanings, connections and power.

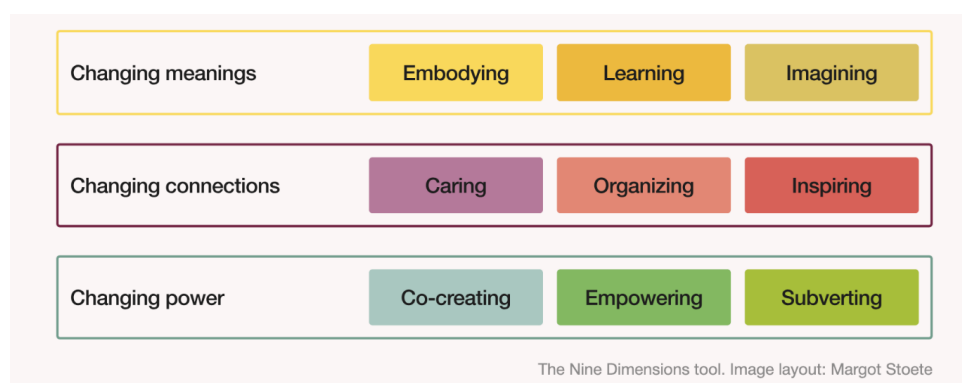


Fig 02: the 9 dimensions of the CreaTures framework, drawn from: <https://creaturesframework.org/>

¹ <https://creaturesframework.org/>

² <https://creaturesframework.org/eco-social-change-and-eco-social-futures.html>

2. The Need for Action on Oceans

The work of BoS was *sea-facing*. As this document was being written in September–November 2025, the seventh planetary boundary, that relating to the acidification of our oceans, was breached³, recognising further degradation in the ocean’s ability to act as Earth’s stabiliser. What the Stockholm Resilience Centre had set in 2009 as the safe limit for the hosting of life in the sea was overshoot and with it, seven out of nine limits for safe life on the planet. At the same time, what has been called the first *global tipping point* was reached, with corals unable to renew at the speed at which they die⁴.

Yet, as recently as 2017, a survey reported that “Life Below Water” – the Sustainable Development Goal concerned with sea habitats and their contribution to human and planetary flourishing – was ranked least important by social scientists⁵. Since then, we have entered the Ocean Decade⁶, with global attention turned to ocean science: from sustainable fish stocks and nursery habitats such as seagrass, to reefs as natural sea defences, algae as an alternative food source, and other pressing challenges and opportunities. UNESCO’s work on ocean literacy – the understanding of how the ocean affects us and how we affect the ocean⁷ – has started to address diminishing concern for and knowledge of the sea and the need to ‘restore humanity’s relationship with the ocean’⁸, now given additional weight in Europe with the EU’s Ocean Pact⁹. More attention has been paid to threats – acidification, warming, pollution, habitat loss, deep-sea extraction and Arctic exploitation – that intensify the challenge of connecting people with marine life before it is irrevocably damaged¹⁰.

Nonetheless, life below water remains largely indiscernible for the majority of the world’s populations. As one practitioner notes, marine conservation ‘...takes place in an “alien” world: most people have never been diving or snorkelling, so how could they possibly imagine life underwater... why would they care about something that has no part in their daily life?’¹¹. Mainstream cultures have a clear prioritisation of land. The ‘natural world’ in the *Oxford Dictionary of English*¹² comprises: ‘plants, animals, the landscape, and other features and products of the earth’, but *landscape* and *earth* do not readily call to mind seascapes, ocean floors or water. This absence reflects how underwater environments

³ <https://www.pik-potsdam.de/en/news/latest-news/seven-of-nine-planetary-boundaries-now-breached-2013-ocean-acidification-joins-the-danger-zone>.

⁴ <https://www.oceanrising.co/p/breaking-news-our-planet-has-hitl>

⁵ The sdgs in order, reported at: <https://www.newamerica.org/digital-impact-governance-initiative/sdgs-order/>; <https://dc.law.utah.edu/cgi/viewcontent.cgi?article=1154&context=scholarship>

⁶ <https://oceandecade.org/>

⁷ <https://oceanliteracy.unesco.org/about>

⁸ <https://aquadocs.org/items/541f4fd9-4f2c-4641-9a35-6e59eaedd9a5/>

⁹ https://oceans-and-fisheries.ec.europa.eu/european-ocean-pact_en

¹⁰ <https://royalsocietypublishing.org/doi/10.1098/rstb.2021.0271>, <https://www.greenpeace.org.uk/challenges/deep-sea-mining/>, <https://geographical.co.uk/geopolitics/the-world-is-gearing-up-to-mine-the-arctic>, <https://www.noaa.gov/education/resource-collections/ocean-coasts/ocean-pollution>.

¹¹ <https://xrmust.com/xrmagazine/michal-lovecky-ninja-mueller-how-water/>

¹² <https://www.oed.com/>

remain conceptually and experientially invisible, prone to what Publicover calls ‘sea-blindness’¹³. This invisibility persists despite the sea’s vital infrastructure for countless species, much as soil underpins terrestrial life (Puig de la Bellacasa, 2019). This distance from lived experience (which is growing more pronounced across all engagements with other-than-human life, Richardson 2025) raises critical questions: how might coastal communities relate to the life of the waterways around them? What could prompt care for the vast, invisible ecosystems beyond our coasts? How might design contribute?

Addressing these questions requires approaches that make life in the waters round our coasts (and the waterways that feed them) both visible and meaningful in everyday life. This report shares processes designed to make this marine world discernible, appreciable and, thus, better cared for. It derives its examples from coasts in western Europe, but aspires to present learning that could have value in other places.

2.1 The Transformation Needed

The Independent Intergovernmental Body on Biodiversity (IPBES)’s 2024 *Transformative Change Assessment* warns that humanity must redefine its relationship with nature. This requires building inclusive and diverse visions that recognise the interdependence of people and ecosystems guided by an ethics of care for all life. Transformation, IPBES argues, requires shift across views, structures and practices, with ‘true transformation’ occurring only when all three align¹⁴. However, there are serious disconnects in current expectations of transformation. As science and technology studies scholar Jasanoff cautions, global scientific assessments often detach knowledge from meaning: while meanings are rooted in lived experience, climate facts emerge from impersonal observation (Jasanoff, 2010). This disconnect is evident in ocean policy. The intergovernmental Blue Paper¹⁵ acknowledges perspectives of ‘those who have lived in, worked on and stewarded coastal and continental waters for centuries or millennia’ (p2), highlighting deep, non-monetary relationships that communities hold with the sea; contributions to cultural, social and legal identity; a sense of place; spirituality; mental and bodily health; and human security. However, it finds that values and interests that matters to individuals and societies ‘could be more strongly represented in high-level ocean policy discussions’ [ibid].

These arguments point to a crucial gap: despite visions of embedded, meaningful relations with the sea, dominant framings remain global, abstract, and detached from everyday life. Further, years of messaging that fails to create change may not just be wasted, but detrimental. As well as allowing further degeneration in environmental conditions, it allows a corresponding creep away from receptivity, where ‘systemic inertia into the human–nature relationship’ persists even if environmental conditions improve, given that ‘previous

¹³ <https://environmentalhumanities.blogs.bristol.ac.uk/2019/05/20/unless-we-regain-our-historic-awe/>

¹⁴ <https://www.ipbes.net/transformative-change-assessment>

¹⁵ <https://oursharedseas.com/wp-content/uploads/2020/10/Allison-et-al.-The-Human-Relationship-with-Our-Ocean-Planet.pdf>

generations have passed on low levels of nature orientation’ (Richardson 2025). This report responds by showing how working with communities by/through design can offer pathways towards the situated, relational change envisioned by IPBES.

2.2 The Sea(s) Involved

Sea covers about 70% of the planet, holds 97% of the world’s water and produces roughly half the oxygen we breath¹⁶. This vast, connected body of water becomes local through temperature and tide, dissimilar even across the same beach, supporting life according to salinity and current, and temperamentally dependent on the weather.

The coastal areas discussed in this report vary widely, neighbouring the clear shallow waters of the Öresund off Malmö in the north, via Germany, the Netherlands, Belgium and Portugal going south into the force of the Atlantic, round to two Italian sites related to the saltier, less tidal, Mediterranean, including the Venice Lagoon. Along this western coast, with its strong history of factories and boatyards using the seafronts for manufacturing and commerce, most recent generations have had no business with the sea. Commercial fisheries involve fewer people and many fishing communities have had to look elsewhere for a livelihood. With industrial-style agricultural exploitation of coastal land, and the remains of a manufacturing past tying up many coastal strips, a majority of people dwelling in coastal towns regard the ocean as occasional recreation in prescribed beach areas. Many sites are being redeveloped now to bring people back to the seafront. Elsewhere, preparations are taking place for a future of rougher seas. The work performs best when both social and environmental goals can meet. But while these sites share (post)industrial challenges with other coastal areas, each site is a unique environment providing for a range of sea animals and plants, many of which are vulnerable to warming temperatures and the run-off pollution from our fields and cities. Development needs to be mindful of its impact. The deep shipping lanes are already filled with the debris of historical building initiatives.

2.3 Design in the Field

The work described here is not the large-scale reshaping of seafronts or heritage areas, though this is going on round the pilots. It is a more intimate work, akin to educational interventions yet conceived at a city or regional scale. In these respects, it is closer to some research initiatives appearing in design, such as:

- Read et al’s (2024) schools project using Arduino sensing technology to gather ocean data and inform children about ocean health. The work applies de Salas et al.’s Rainbow Model of Ocean Health (2022) to help learners develop environmental awareness, citizen science skills, and community-based knowledge.

¹⁶ <https://oceanservice.noaa.gov/facts/ocean-oxygen.html#:~:text=Scientists%20estimate%20that%20roughly%20half,is%20consumed%20by%20marine%20life.>

- Cumbo and Potts' *Our Water Stories* (2024), run with children to help them reflect on their emplaced experiences of water and how these relate to broader water discourse.
- Velho et al (2025) on the workings of plankton to the human eye with an interactive, multi-screen digital simulation that gamifies the biogeochemical cycling of marine microbial ecosystems.
- The *Coastal Nature Lab* handbook of saltmarsh regeneration¹⁷, with particular relevance to work in Hamburg and on the Belgian side of the Rotterdam/Antwerp Delta.

What distinguishes BoS work from these smaller initiatives is the cascade model at the heart of the project, with a vision of changed cities through interventions that reach outward from a visionary core. While the theme of viral codesign is covered elsewhere, the ambition to find patterns of influence that may be unexpectedly powerful derives from a reading of more-than-human relational thinking and distinguishes BoS: pairing cascading codesign initiatives with locally-conceived individual tools for impact.

3. BoS Vision of Changed Relations

Embedded in BoS is a continent-wide vision of an interdisciplinary, intergenerational and interspecies movement that addresses the complexity and scale of the current predicament. The vision acknowledges climate crisis as 'emerging from human exceptionalism of generations schooled in the dichotomy of humans vs nature'¹⁸. Embracing a relational aesthetic of beauty as a quality concerning the wellbeing of ecosystems, the project has sought to reinforce regenerative approaches that replenish resources and protect biodiversity. The project worked to inspire cities to regenerate aquatic ecosystems, reduce pollution and intervene in areas such as tourism, cultural heritage and food supply chains, but did so from the perspective of changing relations as much as practices.

Seven pilot sites (in the project referred to as Delta [Rotterdam and rural Belgium], Genoa, Hamburg, Lisbon, Malmö, Oeiras, and Venice) and their communities of humans and non-humans were invited to create the project's activities. A goal was reconceptualising the agenda of design: moving from fixing to caring, growth to nurture and certainty to contingency. This amplifies Anders Emilsson's (Malmö pilot) call, in 2015, for the emergence of a design 'that is no longer a science of the artificial, but rather a science of lifeworlds... where quality survival for both humans and nonhumans is possible' (p56) and which goes from 'relieving symptoms and fixing flaws in the existing system to creating entirely new systems' (ibid). The work of doing this reconceptualization has been partly practical, but driven by a commitment to changed human-world relations. BoS wanted to challenge human exceptionalism, so success entails a change in the understanding of relations

¹⁷ <https://wp.lancs.ac.uk/cnl-patterns/about/open-handbook/>

¹⁸ <https://bauhaus-seas.eu>

themselves. Consequently, while this document details methods and approaches that seek to work on this transformation, it starts with philosophical position statements that set the context. This section explains the approach underlying the project and why there is a deliverable on “sea-facing, more-than-human eco-social change-making”, when coastal change-making activities have been covered elsewhere.

3.1 The More-than-Human

More-than-human became a popular term in the lifetime of the project, growing year on year (see fig 3) and gaining popularity significantly just after the application for BoS had been submitted. Within the field of design, interest in the more-than-human has risen rapidly, while McGregor and Alam (2022) suggest that ‘More-than-human concepts are sweeping the social sciences and environmental humanities’ (p170). They argue this challenges anthropocentrism, including that of research cultures. Humans are seen as one actor among many, ‘in constant negotiation with the agencies of non-human others, such as animals and plants, but also soils, winds, rivers, climates and much more’ (ibid).

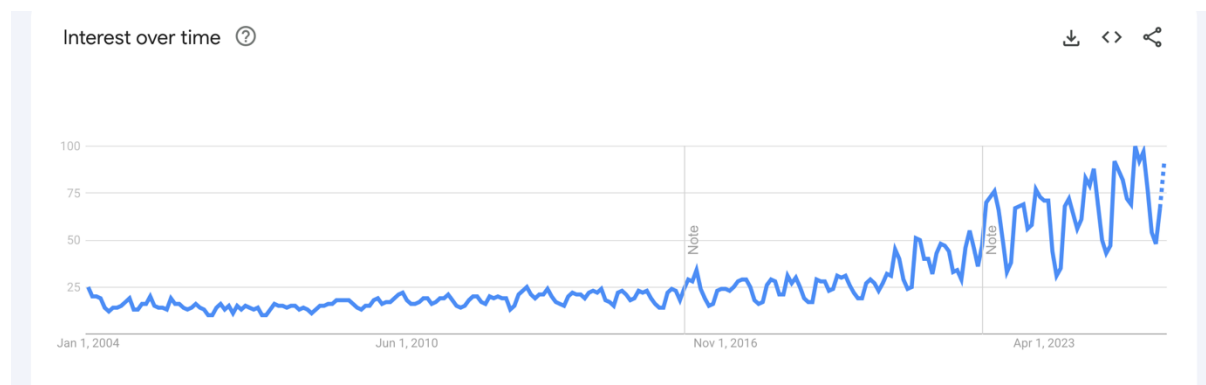


Fig 03: Google Trends analysis of the term *more than human* over 20 years of web searches, showing interest rise, principally just after the application for BoS
(<https://trends.google.com/trends/explore?date=all&q=more%20than%20human>).

While this, perhaps, gets close to how the BoS project team understood *more-than-human* at outset, it is worth recognising that the term remains open to a wide variety of interpretations, and that BoS touched many thousands of people across its seven pilots, each of whom was making their own interpretation. Even three years on, there is no consensus within or outside the project to point to and no systematic metric for evaluating how the more-than-human should be approached.

As the project was starting, Yoo et al (2023) took a broad definition of ‘other-than-human stakeholders’, which include ‘intelligent systems (e.g., conversational agents, internet of things) ...buildings, monuments’. By contrast, Akama et al (2020) focus on ‘being and interconnection’ where a ‘widening and deepening of “self” to include the more-than-human ...reveals the trade-offs that are being made in prioritizing traditional human-centred

perspectives' (p2). Some work is taking this orientation to mean concerned with non-human (or all) living beings (i.e. multi-species), or with "nature" or natureculture (Haraway 2003, a concept that resists the separation of the living and the made). For some, it is acknowledgment that agency is distributed over systems and does not merely pertain to human actions; others use it to focus on relationality and onto-epistemologies in which humans are not separate from their environments. There are related terms that emphasise different aspects of these complex shifts, for instance, *kincentric*, with creative resources to promote recentring humans as part of interdependent worlds¹⁹.

BoS counts among its Dutch partners the philosopher Rosi Braidotti, who writes extensively on the *posthuman* and shifting human-world relations (e.g. Braidotti 2010). She suggests that advanced capitalism produces conditions of hybridity in which the 'category of "life" has accordingly cracked under the strain, introducing new degrees of complexity in our understanding of living matter' (p76). In other words, boundaries are not as clear as they were. Loss of metaphysical privilege by the human produces ontological insecurity and nostalgia (p74), she suggests. Further, 'science and technology, far from being tools of human emancipation and progress, are the leading forces behind this massive overturn of the basic tenets of both humanism and anthropocentric world views' (p73). However, this leads not to care, but a 'state of crisis, such as the crisis of human rights, of human values, bioethics, the environment and sustainability' (ibid). In this *posthuman* condition, what do we mean when we talk of *more-than-human*? What distinctions are useful?

In this document, no single meaning of *more-than-human* is adopted, reflecting how pilots in BoS made their own philosophical and practical interpretations. Influential in this was the early provision of guidance on co-design, a compass for pilots to use²⁰ (see s4) and introduction to the zoöp model (see s6 for an overview), which encouraged a plural and locally-conceived approach. This plurality has had several advantages: pilot teams could respond creatively to the conditions in which they were working, while adopting the level of sophistication relevant to their constituency of participants, from policy-makers to residents to artists, all of whom might have a different grounding in these issues.

- At its simplest, the *more-than-human* was represented by the purpose of the project, to connect more city-dwellers with their ocean and thereby work towards better ocean health, via ocean literacy and understandings of ocean needs.
- At its most complex, the regenerative systems approach of the zoöp, see below, took its underpinnings from contemporary feminist technoscience, citing Haraway (e.g. 2003; 2016) and their colleague Braidotti.

This gave considerable creative freedom to teams to learn and innovate. Importantly, however, despite an apparent similarity, the project never framed its work as *engaging with nature*. A problem with this latter phrase is that the very invocation of nature in the idea of

¹⁹ <https://www.kincentricleadership.org/>

²⁰ <https://bauhaus-seas.eu/ocean-ambassadors-compass/>

‘engaging with’ is part of what the project was seeking to overturn: as if humans are somehow separate from the world that sustains them. The Oxford English dictionary, again, captures a human-exceptionalist tradition, describing “nature” as meaning *what is not human*. Thus, the word *nature* itself reinforces separation²¹. This separation also runs counter to traditions in non-Western and Indigenous contexts, where talk of “in nature” is criticised for creating a false binary: ‘Nature is viewed as separate, outside, ideal, perfect [as if] we exist outside of the life of Nature. Indigenous peoples speak of our role *as* Nature. (Actually, Indigenous languages often don't have a word for Nature, only a name for Earth and our Universe.)’²².

A further dimension can be invoked here, which is the status of knowledge in contemporary feminist technoscience. If, with Barad (e.g. 2007) and others, we understand knowledge less as a categorical pursuit and more an artefact of the process of discovery, we might see a *more-than-human* way of knowing as resistant to definition, opposed to binaries and open to the kind of slipperiness of which Morton speaks (2016). This indeterminacy is not a weakness, then, but a feature, allowing for the undermining of total or oppositional ways of knowing (and being), as part of the onto-epistemological shifts proposed.

Thus, this review points to eight (mostly-complementary and cumulative) tenets of a more-than-human philosophical approach which aggregate towards a different ontological basis for relations:

- The world and its movements are understood in systemic, relational and/or ecological terms (i.e. complex, entangled and enmeshed).
- All species, beings and life systems (and their agencies) are viewed as interdependent, even while local conditions and species preferences affect our care.
- All beings have our own types of meaning-making, acknowledging that the vitality/ ongoingness of living beings gives us a particular stake in how things come to pass (see Haraway 2016).
- Human knowledge, concerns and priorities are decentred, while accepting that humans hold much of the potential to recognise and accept the worlds this ushers in.
- Interdependencies and the primordial care this engenders constitute our worlds.
- A reading of agency as emergent, indeterminate and co-created (New Materialist, e.g. Barad 2007; Haraway 2016) and/or distributed (Latour 2005) is embraced.
- The approach is post-functionalist and post-utilitarian in valuing beings in our own right, in our individuality and collectivities, without judged to need a reason to exist.
- Action on these worlds provides care of non-human, multi-species, interspecies and/or habitat-based life.

²¹ <https://research.reading.ac.uk/research-blog/2024/05/10/a-new-campaign-wants-to-redefine-the-word-nature-to-include-humans-heres-why-this-linguistic-argument-matters>

²² <https://www.permaculture.org.uk/articles/whitewashed-hope: a message from 10+ Indigenous leaders and organizations>.

3.2 The Eco-Social

Pilots used the four BoS precepts (beautiful, sustainable, inclusive and locally-grounded) for designing their projects. Much of this manifested as engaging and including *people* in considering their local seascape, despite (and because of) the tenets above. The work took a pluralist and inclusive approach, hinging not so much on knowledge as on *meaning* (Jasanoff 2010). This draws attention to the critical role of the *human*, even in the project's *more-than-human* approach. BoS, with its concern for local considerations, was 'eco-social', acknowledging the need for a fusion of ecological and social requirements in responding to climate change, and seeking climate justice in generating futures.

Eco-social resists dualities while referencing structural politics. Written in the context of water, Waal and Driessen (2025) suggest that 'Eco-social design is about taking up the challenge of actively crafting ecologies and societies as embodied relations, as ways of knowing and telling stories' where 'this means that shaping and staging the relations between humans and all the lifeforms and materials we are entangled with is key to intervening in our world' (p.37). An earlier view of *eco-social change-making* comes from Houston et al (2022), which places the emphasis on: 'a recognition that there is no ecological without social because it is the massing of human intention and change (and the disproportionate impact of human activity) that affects all other life and possibility for life, partly played out through the Anthropocenic aspects of climate collapse'. It is also a reminder that without social and environmental justice for people, mass mobilization for change may be impossible. The need for change is both away from unsustainable practices and towards humane ones. Further, working towards eco-social futures is a political undertaking, which 'involves bringing people together to see themselves as agents of change – not just as individuals asked to reduce their lifestyles or take a cut in living standards... but as groups embarking on a journey to make futures that evolve from different ontological starting points. Eco-social change means systemic change and that which needs to happen for a more eco-socially sustainable world' (Houston 2022). Through Bauhaus of the Seas Sail's association with the EU's earlier CreaTures project, this view of *eco-social* influenced BoS' language and commitments²³.

4. Early Materials for Pilots

Few generic project materials were created for use by all pilots (except reporting forms), but there was guidance on how to introduce eco-social, more-than-human and sea-facing elements through two key documents: the Template to explain BoS co-design principles²⁴; the Compass to help ocean ambassadors understand their role in the project and offer

²³ see <https://creaturesframework.org/eco-social-change-and-eco-social-futures.html>

²⁴ <https://www.diva-portal.org/smash/get/diva2:1826944/FULLTEXT01.pdf>

examples of engaging with broader publics²⁵. The following excerpts show how these relational elements were introduced and supported.

4.1 The Co-Design Template

The template introduced the four principles informing BoS work: the NEB principles (to be sustainable, inclusive, aesthetic) with the addition that work should be *locally grounded*, since co-design requires a responsiveness to context, from selecting participants to performing interventions.

The principles were accompanied by sliders. The sliders, without being prescriptive, allowed pilots to place themselves somewhere as a benchmark across the four and consider where they might aim to reach, in each category, by the end of the project (e.g. fig4).

**The sea as a
resource**

**The sea, people
and cities seen as
mutually
dependent**



Fig 04: the slider for prompting thought about transition towards greater sustainability, as it was referred to deriving from the NEB principles, taken from Seravalli, Light and Emilsson (2023).

The text of the *Sustainable (reconciling with the Sea)* category is quoted in full:

‘The notion of sustainability is traditionally framed according to the sustainable development model²⁶ which articulates sustainability as a matter of balancing between environmental, economic, and social dimensions. In the last 10 years, sustainability studies have been promoting a different model that emphasizes the central role of natural supporting systems. According to this model, the social and economic dimensions are situated within the ecological one. This model highlights how, without thriving ecosystems, there is no possibility for human life. This fundamentally challenges the traditional understanding of nature as a resource for human life and the division between humans and nature that characterizes western cultures. Developing sustainable societies demands that we revise the way we understand and value nature and fundamentally change the relationship between humans and natural systems. With inspiration from the work of IPBES, which advocates for biodiversity at global level, BoS pilots will focus on the shift from ‘living from the sea’ to ‘living with...’ and ‘...as the sea’. We interpret this as a shift from understanding the sea as a resource to understanding the sea, people, and cities as interdependent and connected. Such a way of incorporating the goal of ‘sustainable’

²⁵ <https://bauhaus-seas.eu/ocean-ambassadors-compass/>

²⁶ For references, see the original template.

recognizes that a change in systems as well as individual behaviors and choices are needed. It is fundamentally a change of values and relations.’

The *Sustainability* category supported a changed relationality and considerations of non-human life, but, given the eco-social nature of the project, so too did the section on *Inclusiveness*, which stressed that ‘careful inclusion of different interests allows for the reconstruction of relationships and creating a common effort’.

In the section on *Aesthetics*, the emphasis was on cultural shift: ‘to unpick the boundaries between humans and nature that have been maintained by Western philosophies and fuel 21st century crises of overconsumption and waste’. *Aesthetics*, here, is concerned with relations, not abstracted beauty, where the experience of connection and effort made to build on life’s intrinsic interdependencies form the underpinning criteria. This can be seen as an ambitious amplification of the NEB commitment to *beautiful/aesthetic* as a quality for action research in Europe. In finding beauty in the relational, it offers a more-than-human starting point.

The final category in the co-design template (*locally-grounded*) reflects the project’s intention to ‘recognize and legitimize the diverse range of know-how already present in coastal and marine communities and ecosystems’ (BoS Manifesto²⁷). Both environments and people need to be met “where they stand”, meaning that no idea will find resonance unless it is also perceived as relevant.

4.2 The Ocean Ambassador Compass

The second major guidance document (part of WP2’s contribution to the ocean ambassador scheme across pilots) was the Compass. This booklet comprises 40 pages of ideas and information (see fig5 for a flavour of the style), designed to interest, provoke and support the pilots in bringing in and equipping Ocean Ambassadors as they rolled out the engagement tier of their work. To this end, it includes a calendar at the back for ocean-orientated days of celebration, such as *World Beach Day* and *World Water Monitoring Day*.

The Compass was intended to help ambassadors work to spread an ethos, incorporating the values of the project in its production by making it approachable and inviting. The cascade model relies on supporting people to feel equipped to inspire others. These materials, with engaging illustrations, were available to anyone in the project who wished to work creatively to shift values and change practice. For this reason, they are available in the five languages of the project partners, as well as English, for sharing more broadly on the project website²⁸.

The Compass takes the four principles of the project and renders them as learning journeys, with suggested reading and exercises, examples from the pilots and tips. Below, short

²⁷ <https://bauhaus-seas.eu/manifesto/>

²⁸ <https://bauhaus-seas.eu/ocean-ambassadors-compass>

sections are excerpted. Readers are referred to the rest of the Compass material as part of BoS's output on sea-facing, eco-social and more-than-human change-making.

6.2.1 *Sustainable*: Living together with the Ocean in a symbiotic way

The *sustainable* section alerts readers to the difference between 'conventional' and 'regenerative' sustainable practices, which - for oceans - include water management: 'Contributing to balanced, viable and resilient ecosystems by restoring seagrasses, mangroves, corals, forests and other natural eco-system by using approaches that are based on the needs of local ecosystems' (p19). Engagement mechanisms in this section include:

'If other living beings could talk to us, what would they say? Imagine you are the river, the Ocean, an animal or a plant. What do you need? What are your challenges? What do you like about your life? Do you have something in common with humans? If and how are you connected to them and other species?' (p21).

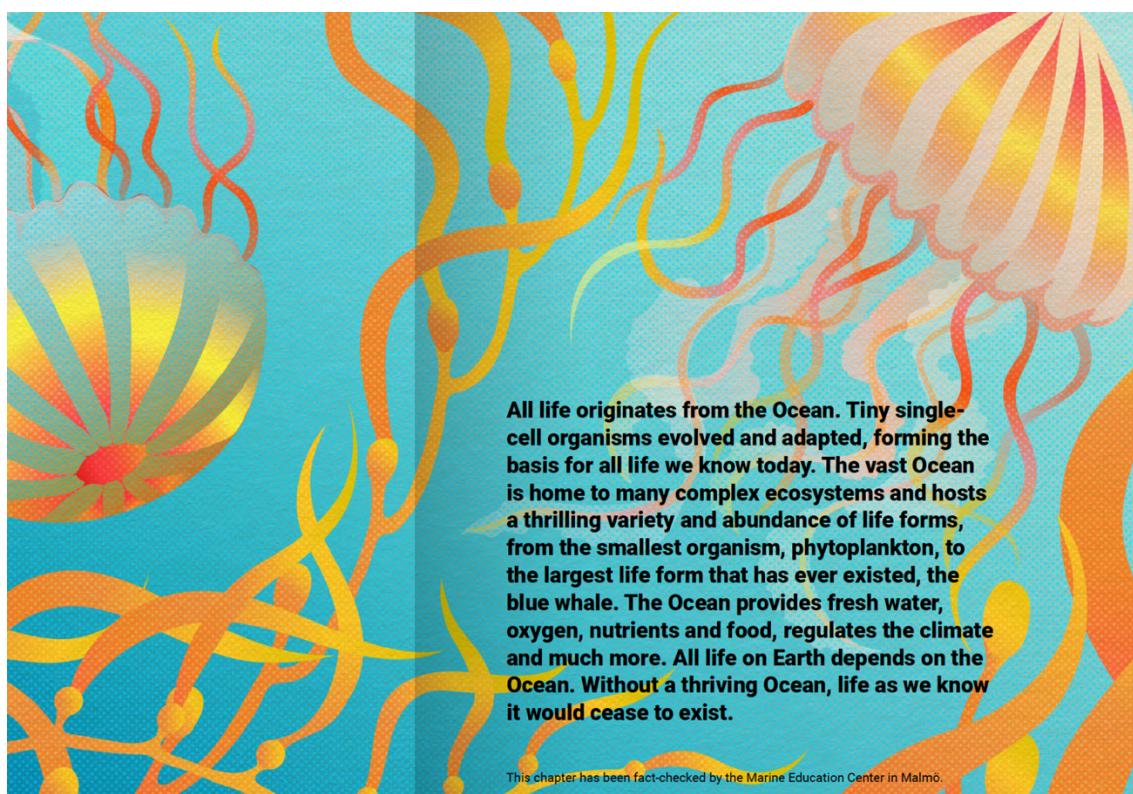


Fig 05: An extract from The Compass, designed to support the work of the Ocean Ambassadors in understanding and sharing the importance of the sea. Beautiful visuals and accessible text were key in creating The Compass. Compass by Seravalli, Light and Emilsson (2023); graphics by Emma Thorén.

6.2.2 *Locally Grounded*: Building on the local ecosystems, knowledge and capacities

In the section on *locally grounded*, readers are reminded that 'Regenerative Ocean cultures emerge from local conditions related to natural ecosystems and human communities. The

Ocean and its creatures have been here – experimenting – much longer than human beings. We need to listen to and learn from local ecosystems so that our actions support the diverse species that surround us.’ (p24). Awareness mechanisms in this section include:

‘Try to find the answers to the following questions:

- How have the water bodies historically shaped land and ways of living in your area?
- Who are the past and/or Indigenous inhabitants of your area? How did and/or do they interact with the water bodies?
- How do people use or interact with the water bodies and each other?
- Where can you find formal and informal knowledge about thriving water bodies?
- What efforts have been made to ensure thriving water bodies?
- Who are the organisations and people focused on helping water bodies thrive?
- What are possible ways to respectfully listen to and interact with the local water bodies and their species?’ (p26).

‘Find a way to include the interests of local water bodies and communities in your work. Can you listen to the voice of nature and local communities? Maybe you can have empty chairs or other placeholders in your process to represent local humans and non-humans.’ (p26).

In this way, more-than-human values were presented in a form that, while experimental in tone, remained open and easy to follow.

The Compass was presented as an inspirational workbook. The materials were largely used for community activities and to cultivate an ethos of regeneration and care through the project, while also being distributed at workshops and amplification events to promulgate BoS learning. Adoption was not stipulated. This spoke to the other dominant value, which was to let activities emerge from the work of each local Sea Forum and their priorities, addressed in locally-grounded ways.

5. The Pilots and their Work

This section presents the pilots²⁹, introducing the context in which they were working, key local initiatives and further plans. (The section draws from and augments Seravalli and Salzinger’s work as *D2.4 Description of contextual factors*, available on the BoS website). Material below comes also from the pilots’ Executive Plans and subsequent updates in a variety of meetings. Additions include how pilots focused upon and supported more-than-human, sea-facing, eco-social change-making and what their related plans are.

²⁹ While the descriptions give an overview of work undertaken by each pilot, it may be as informative for the general reader to skim these descriptions and concentrate instead on the themed summaries and case studies that appear below, in sections s8-s13.

As noted, pilots took project ideas from the participatory sessions (and the Executive Plans) and interpreted them in their own way. Apart from management meetings, the only common activity across all pilots was the *zoöp* workshop (the *zoöp* was a transversal drop), which evolved through the project, but kept its structure and impact as it toured sites. The *zoöp* drop's purpose was to help pilot teams adopt working methods that actively represent the interests of other-than-human life in organizational decision-making. This also involved choosing a Speaker for the Living (Speaker) in each pilot or local drop, to hold the role of representing other species and informing decisions about how human actions might impact life in the local ecosystems. More on *the zoöp* drop appears in s6.

5.1 Delta

The Delta pilot territory covers approximately 18,000 hectares of diverse landscapes and ecologies – it is the only pilot not based on a single city or city area. The name references the triangle formed by the Scheldt River, the port of Antwerp, and a major motorway, including polders, creeks, mudflats, and salt marshes and the international boundary between Belgium and the Netherlands. The region's primary concern is rising sea levels, causing flooding and erosion, but also altering rainwater patterns and impacts local environmental and urban behaviour.

The Delta pilot played out primarily in Rotterdam, Netherlands, and Saeftinghe, Belgium, allowing it to consider eco-social challenges in contrasting contexts, while recognising that these concerns transcend administrative and national boundaries. In rural Saeftinghe, the focus was on Grenspark Groot Saeftinghe, a landscape shaped by the protests following the 2005 de-poldering process at the Scheldt Estuary. The park was established to rebuild trust, while integrating ecological objectives with social and economic development. An active co-design process - pre-existing BoS and involving local inhabitants and people connected to the land - supports initiatives in sustainable agriculture, climate adaptation, recreation, biodiversity, mobility, and liveability, ensuring that solutions are grounded in local needs and practices. In Rotterdam, the eco-social focus reflected its urban challenges, bringing together the city's harbour, its working-class identity and the challenges of social justice and environmental sustainability. With the port gradually separating from the urban fabric, a concern was to develop new forms of engagement and connection so that citizens do not become disconnected.

The pilot chose two main drops for its work: Future Tidal Architectures and Living With Water, exploring the intersections of the ecological, social and political. It worked to create a students' After Summer School for learning about water management from an eco-social perspective and develop new imaginaries of water culture.

Future Tidal Architectures informed new planning and architectural practices that foreground the importance of the sea and marine life, focused on the Belgian rural area,

while also asking what living in proximity to water might mean given these challenges. The work explored conflicts between economy and sustainability, and between port activities and spatial expansion, while supporting dialogue among different stakeholders and across generations, about water heritage. It included workshops and master's courses at TU Delft, where students developed scenarios for the future of the Delta region to foster a multidisciplinary dialogue and community of practice. Young designers, planners, and spatial thinkers were asked to "work/build with water" with an emphasis on the historical understanding of land-water interaction. The goal was to make the next generation of architects and designers more aware of the value conflicts and trade-offs in decision-making, encouraging ownership to tackle Delta challenges sustainably and inclusively.

The Living with Water drop focused on the consequences of sea-level rise (flooding risks, erosion of farmland, salinisation of farmland) and the environmental crisis (loss of salt marshes, water pollution, arid soils, loss of marine habitats and biodiversity) in the urban context of Rotterdam - a city where, despite political commitment to sustainable urban development, tensions between competing interests (housing *versus* green and blue spaces) inevitably persist. This activity informed the development of a city-based "Curriculum for Change" through BoS partner Het Nieuwe Instituut in Rotterdam, focusing on learning from citizens' experiences with water. The Water School exemplified this approach, exploring the cultural value of water through participatory processes that integrated diverse forms of knowledge and envisioned how urban communities might coexist with dynamic water landscapes. The "Curriculum for Change" also include sessions in which the (developing) Zoöp methodology was applied to question of the ecological regeneration of public space.

Further activities included public talks, visits, walks, and networking events designed to enrich the audience's perceptions of living with water. For instance, an Ocean Ambassador developed a guided tour and workshops aimed at museum visitors in Rotterdam.

From this point in late 2025, the two areas will develop more independently. Rotterdam will focus on regenerative foodscapes (supported by the Zoöp methodology), while the strong community feeling in Saefthinge will be harnessed for *Designing Delta Narratives* workshops, drawing on four generations in the area.

Rotterdam is also home to the zoöp drop, which had a significant impact across the pilots, but which also drew on its work locally with arts organisation and zoöp parent Het Nieuwe Instituut (the first ever instantiated zoöp), to support all other cities to identify existing and potential regenerative relationships between ecological, economic, and social dimensions, see s6.

5.2 Genoa/Genova

Genoa/Genova, Italy, is uniquely situated between the mountains and the sea, forcing the city to develop horizontally along the northwestern Italian coastline. This dense urbanization—covering 93% of the coastline and crossing 65 river basins—has diminished its beaches, squeezed between construction and rising sea levels. Genoa's historical relationship with the sea, combined with its dense cultural heritage (271 assets per 100 km²), makes it a significant site for cultural and environmental interventions, despite the city's ageing demographics (a challenge across Italy).

The pilot was based in the Vernazzola neighbourhood, a waterfront area developed around the mouth of the Rio Vernazza within the Sturla district. Vernazzola retains characteristics of a traditional Ligurian fishing village, with small, colourful houses that reflect Mediterranean identity, though urbanization has gradually transformed its landscape. The neighbourhood includes one of Genoa's most popular beaches, situated in a closed inlet between tall, narrow buildings and the Sturla sewage treatment plant, hosting sports fishing clubs and traditional maritime trades.

The area has the potential for transformation and new social and cultural spaces are emerging, but the pilot faced eco-social challenges rooted in its history and culture. Protecting the beach from erosion in a sustainable way is an urgent priority, alongside the preservation of fishing heritage and vanishing traditional practices. By balancing heritage preservation, environmental protection, and social revitalization, the Genoa pilot set out to enhance Vernazzola's coastal identity, foster sustainable interaction with the sea, and reconnect the community with its historical and natural assets. Initiatives promoting awareness of the local biodiversity were intended to strengthen the connection between residents, visitors, and the coastal ecosystem, where tensions also exist with associations such as fishing and marine sports groups.

The pilot adopted the inclusive digital storytelling drop, using a participatory process led by a local company, Ideazione srl³⁰. As part of their engagement strategies to collect material and build up residents' interest, the pilot team used beach walking, creative focus groups to collect stories from local inhabitants and devices such as setting up a *Human Library*, where visitors could come in and request a story from a range of people acting as 'books'. This came together in an augmented reality app to make the collected stories widely available, with geolocalized content in the Sturla and Vernazzola area. The app, based on the MEMEX project³¹, is intended to enhance awareness of Genoa's water heritage and offer immersive digital experiences. The model is now being shared across other parts of Genoa to create a web of districts who can apply the method to have regenerative impacts, and networks are

³⁰ <https://www.ideazione.it/>

³¹ <https://memexproject.eu/en/>

being put in place to ensure its take-up, as a means of connecting Genoa residents to their pasts and futures.

As well as bringing storytelling to the pilot, the drop sought to address tensions round the development of the area, looking at different uses of the water by different groups and airing their priorities. From a start in the storytelling app, the work progressed to involving schoolchildren and diversified into ocean literacy. There are now plans for School Labs on the more-than-human approach (showing a take-up of the language as well as the ideas). The municipality also plans to continue working with D.A.F.N.E. (Environmental Dissemination and Naturalistic-Ecological Training), from which they drew their Speaker, which is also associated at the Genoa Marine Centre.

The Speaker had a particular impact in this pilot, encouraging intergenerational and intercultural dialogue to consider interspecies dimensions. For instance, she developed a survey for locals to report flora and fauna observations, fostering environmental interest. This helped communicate the value of ecosystems and regenerative perspectives, promoting the view of humans as part of the ecosystem, rather than just beneficiaries of "ecosystem services". See also s9.

5.3 Hamburg

Hamburg, Germany's second-largest city, is a major northern European port connected to the North Sea via the Elbe River. The city aspires to become the green digital transformation capital of Europe, yet it faces significant challenges related to intense human-led climatic and environmental changes in the region. Hamburg's food system is currently unsustainable, being largely disconnected from ecological needs. The pilot addressed the relationship between food and production, emphasizing the role of regenerative (agricultural) practices in the harbour, marshland, and surrounding farmland areas. Central to this vision was the promotion of short supply chains and support for local regenerative producers, fostering a creative gastronomy and food system that aligns ecological restoration with urban development.

The Hamburg pilot responded to the city's goals of sustainability, resilience, and green innovation by working to reconnect residents with local ecosystems and promote sustainable consumption practices. The Regenerative Menus drop explored how to establish resilient local supply chains. It used artistic and sensory experiences to reframe human relationships with food and highlight the impact of the food industry. The pilot brought together local chefs, food producers, scientists, artists and educational institutions leading to the co-creation of a curriculum for a culinary school. Food was used as a convivial and sensory way to raise awareness about water ecosystems.

The pilot work was based at a major exhibition at the Deichtorhallen Museum (Survival in the 21st Century, May – November 2024), where the educational public outreach programme *School of Survival* hosted over 100 public workshops/talks/events. The pilot linked local and international professionals already engaged with these issues in a series of fellowships and used this to integrate more-than-human perspectives into the city's discourse. This ocean literacy work was led by the Speaker, a regenerative farmer focused on soil wellbeing, and six other fellows, most of whom acted as Ocean Ambassador. Fishermen were also seen as *speakers for the living* for the invasive catfish and Chinese Hairy Mitten crabs and the almost extinct eel, translating and advocating for their needs.

An initiative called *The Fish Knows Everything*³² became one public face of the work and led the promulgation of a more-than-human view of relations across life forms and systems, now complemented by *The _ Knows Everything* open knowledge online platform. (See also section s7.2.) The platform and a nomadic version of the School for Survival will be travelling around European cities as a living archive to reproduce the practice elsewhere.

5.4 Lisbon

The Portuguese pilot at Lisbon focused on the Tagus River as an eco-social body, with particular attention to the Marvila-Beato neighbourhood. Historically shaped by fishing-based economies and industrial architecture, this area is now largely disconnected from the city and the river. Yet the Tagus, which falls under multiple jurisdictions across Spain and Portugal, brings to each neighbourhood the many dimensions that meet at its shores — regional, national, and local; north and south banks; upstream and downstream communities; and temporal layers of past, present, and future.

The Lisbon pilot worked to reconnect the city with the Tagus River and its estuary. The pilot emphasized the importance of understanding the river's ecosystems and the interactions between humans and non-human life, particularly in the context of the climate crisis, which sees rising salinity disrupt reproduction cycles, pushing species upstream and threatening the survival of native fauna such as lamprey (*Petromyzon marinus*) and European eel (*Anguilla anguilla*). Alongside ecological concerns, traditional fishing and waterside practices have declined. This fragmentation—in ecological knowledge, cultural memory, and social practices — set the scene for a Lisbon pilot highlighting food and culture as points of reconnection. Supported by Ocean Ambassadors shared with Oeiras, the pilot aligned itself with a commitment to United Nations *Agenda 2030*³³ and advancing the blue economy.

Lisbon chose a Blue Makerspace drop, exploring loss of habitats and biodiversity in the river through materials and making. Work born in two publicly-tendered commissions for artist residencies culminated in new materials and menus. Supported by the technical expertise of

³² <https://www.tlomagazine.com/the-fish-knows-everything-dutch-design-week-2024/>

³³ <https://sdgs.un.org/2030agenda>

the Bio Lab, one creative team developed new materials from oyster shells that promoted a deeper understanding of the river as an eco-social entity and questioned underlying assumptions about production processes, such as the primacy of economic interests. This included reimagining Portuguese tiles using renewable materials. In this way, the *Radical Waters-Concrete Matters* residency focused on creating prototypes from materials sourced from the Mar da Palha bioregion. The other commission supported the Regenerative Menu drop, addressing the decline of traditional fishing and cooking practices, using food to connect ecological, social, and cultural issues through creating new cooking traditions rooted in river life. The *Eating Between Tides* residency produced a regenerative menu using ingredients from the Tagus Estuary and beyond the Marvila area. The *Lisbon Spice Rack* aimed to involve the community in learning about edible wild and marine plants, including foraging, drying, and fermenting local resources.

The two residencies inspired the co-creation, with community input, of a mobile modular community kitchen designed from recycled materials. The Gulbenkian is taking forward parts of the regenerative menu on a permanent basis in their public restaurant. Meanwhile, the zoöp drop has intersected with both major Lisbon initiatives, amplifying the perspective of other species through two dedicated Speakers. The pilot's "Bio Lab" and developing "Food Lab" will support community engagement collaborating across the banks of the river while discussions on setting up a blue makerspace with the municipality continue.

5.5 Malmö

Malmö, situated in the transnational Öresund Region of Sweden, is characterized by a young and diverse population: nearly half of its residents are under the age of 35, and the city hosts inhabitants from 179 different countries, giving the highest immigration rate of the major Swedish cities. This demographic diversity affects urban development, social cohesion, and cultural engagement. For instance, to address population growth and foster sustainable development, Malmö is transforming a former industrial dock area into Nyhamnen, a new residential and commercial district aligned with the United Nations *Agenda 2030*, however, building further well-appointed dwellings by the sea tends to aggravate rather than mitigate social differences across the city.

Despite a long coastline, access to the waterfront and knowledge about marine ecosystems remains unequal, shaped by factors such as income, proximity, and prior experience. Many residents continue to view the sea primarily as a resource, while some communities in the south-east of the city are almost oblivious to the sea's presence. Aesthetic and experiential connections to marine life vary widely and existing initiatives are fragmented and rarely reach the full diversity of Malmö's population, underscoring the need for stronger collaboration between artists, scientists, and local organizations to cultivate a shared ocean culture.

This work had a focal point in the redevelopment of the South Wharf Basin in the north-west of the city, which was led by the Marine Education Centre's vision of, and work on, an artificial reef. The Marine Education Centre also became Malmö's Speaker. The South Wharf Basin was established as Malmö's first "underwater park" during the project, bringing activities together such as an ocean walk, audio installations, underwater binoculars and access to rowing boats that linked participants to information about the basin. This Nature-Based Reef drop aligned with the political commitment to engage more local people, centring a range of activities that supported access and education, including an annual celebratory festival for Ocean Day. The festival brought together the many activities of Ocean Ambassadors and artists over the central two years of the project, featuring the sounds of the Öresund and the South Wharf Basin and their nonhuman inhabitants.

The Ocean Literacy drop focused on the social and cultural barriers that prevent different groups in the city from engaging with the sea and learning how to live with it in regenerative ways. It used storytelling and aesthetic activities to strengthen the connection between humans and nonhumans, presenting ocean-dwelling creatures as "our neighbours". Activities included visualizing, roleplaying (e.g. mussels and oysters), and exploring marine species through snorkelling and coastal walks. This has built on work by their key partner the Marine Education's Centre, which has focused on ocean literacy for many years. New work includes devising study plans for local and Sweden-wide learning circles for informal education about the ocean.

In Malmö, the Sea Forum progressed beyond advisory group to collaborate on delivering activities, such as co-designing the Open Call for Ocean Ambassadors and taking on Ocean Ambassador roles. The strength of the group had had other impacts: the commitment of the Sea Forum combined with a Memorandum of Understanding with the Zoöconomic Institute has encouraged the municipality to support ocean culture across the city's coast, to consider a more-than-human approach to urban development and to form an Ocean Culture Hub in collaboration with the university. In this way, the area is planning for a regenerative ocean culture, now also the theme of a university research centre.

5.6 Oeiras

Oeiras, near Lisbon in Portugal, possesses a significant collection of abandoned maritime fortifications and faces significant environmental challenges, including loss of marine life, marine litter, and overfishing. Despite its geographical proximity to Lisbon and its shared connection with the Tagus River, Oeiras' identity is distinct. While Lisbon's relationship with water is primarily framed by the river and its estuary, Oeiras' position at the transition from river mouth to Atlantic Ocean shapes its traditions, culture, and daily life, as well as the life in the river at that point. This dual relationship—with both the Tagus and the Atlantic—has historically defined the territory and continues to inform its contemporary cultural and ecological practices.

The Oeiras pilot emphasized the territory's rich maritime heritage and marine relationship, which is deeply embedded in local traditions, oral histories, and collective memory and the lives of inhabitants, reflecting a long-standing cultural connection to nearby waters. Oeiras complements this with a strong scientific base. Research institutions such as the Instituto Gulbenkian de Ciência (IGC) and the Instituto de Tecnologia Química e Biológica António Xavier (ITQB NOVA) contribute to knowledge in fields relevant to ocean and environmental research, while community initiatives shape education, history, and ecology, fostering a holistic approach to preservation and regeneration.

The Oeiras pilot focused on ocean literacy and connection with the Tagus estuary ecosystem, to envision the Tagus River as a *museum space*. The Ocean Literacy drop integrated traditional socio-cultural elements with scientific work connected to the Vasco da Gama Aquarium, particularly through collaboration with the Speaker, who was based there. In this way the zoöp work became integrated in work related to the Ocean Literacy drop.

Floating the idea of the *River as Museum*, a goal was to expand the Aquarium Vasco da Gama's programme into the Tagus River. The 'Tagus Museum' abandons the conventional idea of a physical structure, with the Tagus River itself taking centre stage and serving as its space. The aim was to create a unique immersive experience and paves the way for a transformative cultural institution that reflects eco-social relationships. The pilot committed to the collaborative residency program to explore possibilities, recruiting an art/science residency to work on *A Call to the Sea* and collaborate to investigate underwater soundscapes and species. Meanwhile, the initiative *Estação Eco-Fluvial do Bugio* was a speculative proposal that imagined the Bugio Lighthouse in Oeiras as both a radio station and an ecological study centre. Efforts included building open-source sound archives, with public sound walks, underwater listening sessions, talks, and multidisciplinary exhibitions to foster awareness of local ecosystems. Overall, key learning was to strengthen the perspective of non-humans and integrate it into the design of local policies.

5.7 Venice

Venice famously faces environmental challenges, particularly high tides, which threaten both its unique cultural heritage and urban life. The area's ageing population adds another layer of complexity: out of about 50,000 residents on the island, nearly a third are seniors, many of whom require support for social participation and integration. Restricted mobility, social disconnection, and divisions between seniors and students limit inclusion, yet senior citizens also represent a key resource for community revitalization. Engaging them in urban renewal initiatives could strengthen cultural continuity and resilience in a marine environment of challenges and opportunities, while encouraging intergenerational exchange.

The San Basilio and Santa Marta area of Venice, west along the Giudecca Canal, presents a complex urban landscape shaped by a mix of industrial heritage buildings, port facilities, churches, and traditional Venetian urban fabric. Ancient settlements in San Basilio have been

replaced over time by large industrial structures and residential neighbourhoods from the 18th-20th centuries. Many low-cost housing units now require retrofitting, while port activities, massive walls, and multiple fences have created physical and social barriers between the city, the lagoon, and local communities.

Despite these constraints, the San Basilio and Santa Marta area holds significant potential for transformation. Heritage renewal initiatives led by the Port Authority, municipality, and universities—including projects such as the Venice City Campus—are strengthening ties between academic institutions and the city. The Venice pilot aimed to activate the area's latent potential, fostering heritage preservation and community-led revitalization by addressing these interlinked environmental, social, and urban issues. The Future Tidal Architecture drop focused on the material cultural heritage of the area and its potential for development and renovation, combining it with intangible heritage (culture of the tide) and, in this way, exploring ideas that might produce more viable futures. This involved a workshop for architecture students focused on rethinking waterfront regeneration plans in areas like San Basilio and Santa Marta. The Regenerative Menu drop incorporated local culinary heritage and events, connecting cultural traditions with contemporary ecological concerns affecting the lagoon. This fostered intergenerational dialogue, leading to the development of a digital platform for traditional Venetian recipes and a digital lagoon atlas of memories to connect local knowledge with lagoon ecology.

The digital platform was part of a wider effort performed in the context of the Blue Seniors drop, aimed to understand seniors' daily challenges living in a water city and to propose digital platforms for supporting everyday needs and social inclusion. The activities involved 200 students and 400 seniors in the co-design of more than 50 prototypes, activating an intergenerational dialogue. Both the Blue Seniors and Regenerative Menu drops addressed seniors' needs and explored relations between species and the lagoon environment. The co-design process involved seniors, seniors' associations, and university students through interviews, surveys, focus groups, and boat trips. Boat trips proved transformational for participants, linking the ecological dimension of the lagoon with local life and providing a moment to share stories. This also became an opportunity to connect elderly residents, students, and researchers. Digital AR tools gave information about the invisible underwater landscape surrounding the travellers in the boat. Lagoon field trips utilized a hybrid electric propulsion boat with a low-noise engine, allowing participants to listen to the natural sounds of the lagoon and providing a direct benefit for marine species.

The zoöp drop intersected with all these efforts, amplifying the voice of the lagoon and its inhabitants through the pilot. Across themes, *Regenerative Lagoon* has brought together stories in a Web app to support citizens of all ages contributing and finding content about food, recipes and stories of the Venice Lagoon.

6. The Zoöp Drop

The zoöp model grew out of work by artists and designers at cultural institution Het Nieuwe Instituut (HNI), a partner in BoS. Created originally as a prefigurative example of how organisations could conduct themselves as a force for regeneration, the idea at that time was more speculative artwork than organisational plan, though even the contract existed in the first appearance in 2021. However, the Zoöp has since grown into an independent project with protocols and a process for instantiation and, in late 2025, there were more than 15 fully instantiated zoöps that run on the lines devised in these early experimental workshops, with many more in the pipeline. The zoöp team continues to innovate and fine-tune the practice, having moved, within the life of BoS, to the Zoöconomic Institute, a body no longer part of HNI. The zoöp was invited to be a drop in BoS and one that engaged all pilots – BoS pilots became pilot-zoöps for the duration of the project as part of working on the zoöp drop.

Since the zoöp drop affected everyone and produced some of the most interesting *more-than-human* results, this section explains the mechanisms used by the zoöp team with the pilots in some detail. The mechanisms evolved in specific ways that supported the pilots and were a response to the challenges they were meeting, so the story of the design of the interventions is also a reflection on what created *more-than-human* aspects across the project. Some pilots had little comprehension of the potential of the *more-than-human* framing of the wider BoS project until their team met together in the two-day workshop that was core to instantiating the pilot-zoöps in the project. So, to understand how pilots were changed, it is necessary to have an overview of how the zoöp model works and how it was incorporated. The detail here extends the understanding of the interaction between the pilots and the drop.

6.1 Becoming a Zoöp

The zoöp model is no longer just a *more-than-human* artwork promoting an idea for a different type of organisation and trying it out with parent body Het Nieuwe Instituut; it is an ecological intervention in everyday organisational life. While remaining a philosophical instantiation, it has transitioned to become an economic player, seen both in how it is organised (as a non-profit body called the Zoöconomic Institute) and in how it works with other bodies (creating an enabling governance structure from which to distribute resources better to acknowledge and support life). Zoöp is derived from "zoöperation" (a portmanteau word combining cooperation and *zoë*, Greek for life).

The process is as follows: An organisation signs up to become a zoöp and pays an annual fee, committing to a range of learning objectives and practices supported by the Zoöconomic Institute. The BoS pilots agreed to becoming a form of zoöp as part of committing to the BoS

project, however they were given their own category of “pilot-zoöp” once the limitations of mounting a relatively brief codesigned pilot became clearer. Within each pilot, with numerous partners at different levels of involvement, there were no representative organisational structures able to take on the mantle, sign a binding contract, adhere to and report on learning objectives, etc. In other respects, the pilot-zoöps followed the path of a zoöp, since the model is largely built round support for the role of the Speaker.

The zoöp model provides an organizational framework for setting up and enabling the Speaker position that will foster regenerative relationships between humans and nonhumans. The Speaker is the teacher and spokesperson that allows the organisation to move beyond “sustainability” efforts focused merely on minimizing harm or managing ‘nature’ as a resource to become entities that support and enhance the ecosystems they are part of. The organisational structure puts an emphasis on learning and evolving, designed round an annual cycle and rooted in its philosophical challenge to anthropocentric views and mandate to include non-human interests in activities. Each annual cycle builds on the last, but the speed of development and the activities’ scope are set by each organisation, allowing them to learn and change in their own way. The next sections explain how the zoöp worked in BoS.

6.2 The Five Phases of the Zoöconomic Annual Cycle

The zoöconomic annual cycle has five phases, undertaken yearly to guide the organisation's inquiry and operational direction. The first three phases form the baseline assessment of the organisation. This assessment involves mapping living beings and other agents present in the surroundings, revealing areas of harm and aspects across which action can be taken in the coming year. After the initial year, the zoöp discloses its regenerative targets, planned actions, and outcomes to ensure transparency in its ecological progress. Example interventions include improving the quality of soil life, sensitising audiences or local communities, introducing new species, or changing contract conditions. These same phases form the basis for the workshops that the zoöp team run to initiate an organisation and this was true for the pilot-zoöps of the BoS project too, across the summer of 2024.

Phase 1 (Identifying): The initial phase is focused on identifying the various actors that constitute the zoöp and its context. The goal is to surface challenges and identify existing and potential regenerative relationships across ecological, economic, and social dimensions. Questions include: Which bodies form the zoöp? What more-than-humans live in or visit the zoöp (e.g., trees, birds, soil inhabitants, insects, etc.)? What human-made artefacts make up the structure of the zoöp (e.g., fences, buildings, utility networks, etc.)? Which legal bodies form the zoöp (e.g., contracts, owners, laws, etc.)? Which organizational bodies play a role (e.g., governance, management, production teams, communication teams)? Which audiences and/or clients and their cultural-economic worldviews shape the work?

Phase 2 (Sensing and listening): The second phase shifts focus to understanding the relational dynamics and experiences of the identified bodies. This approach is influenced by concepts like care ethics and focuses on deepening a relational understanding. Questions seek to articulate how the bodies that form the zoöp perceive their world, and how they support and or constrain each other.

Phase 3 (Characterising): The third phase evaluates the quality of relationships between the bodies identified and explored in the previous two phases. Questions include: Do these bodies form degenerative and/or regenerative relations among themselves? Do they form relations that support all actors or in which some thrive at the expense of others?

Phase 4 (Focusing): The fourth phase is dedicated to setting actionable goals based on the baseline assessment. Questions include what goals can we work on in-house and what do we need outside support for?

Phase 5 (Intervening): The final phase involves planning and executing specific actions to achieve the annual regenerative goals identified. Actions involve planning specific and annual interventions on management, material and energy flow; on education of employees and/or surrounding actors; the relational sphere of the zoöp and its community.

6.3 The Speaker for the Living (Speaker)

Throughout zoöp processes, the Speaker is pivotal. The Speaker assists the zoöp with necessary knowledge and expertise and is tasked with the representation and translation of more-than-human interests within the zoöp's operational sphere. Their job is to prioritize life and support decision-making that enables more life to flourish. This model aligns with the broader goal of decentring the human and recognizing the intrinsic value of all living beings. Its objectives include developing a culture of collaboration between humans and non-human life based on an expanded multispecies understanding of 'society' and promoting ecological regeneration that resists extractive practices.

The role is not normally held within the organisation – it is an unaffiliated position chosen in consultation with the Zoöconomic Institute, like an independent board member, giving the Speaker more authority from which to reflect and speak. Individual Speakers are members of their own learning body called the Zoöconomic Foundation. In BoS, some Speakers were outside the pilot team and others were already a core part, yet this independence and attitude were essential to performing the zoöp duties.

6.4 Zoöps in BoS

As part of BoS, the newly-forming Zoöconomic Institute ran two-day zoöp workshops for each pilot, following, as noted, the same overall sequence as the zoöconomic annual cycle. These operated as a focused introduction to the issues of regenerative action, the Speaker's role, and mapping relations in the influence of the pilot. By giving a taste of the underpinning

more-than-human philosophy but concentrating on practical details of the locality and its actors, the workshop provided a transition point for a number of pilots and individual members. During the workshop, a fuller sense of the systems in which they were operating emerged, supporting people to see their actions in systemic terms. This was particularly true for people in the pilots' more peripheral roles, such as the Ocean Ambassadors (who were asked to join the zoöp workshop alongside more long-standing pilot members), but was also true for many at the heart of the planning. It was the moment that the actions of the pilot could be seen as part of a greater campaign to address/redress imbalances in habitat, while issues came into view in such a way that the new perspective supported the co-design. In fact, several ideas for regenerative action and how it could be structured emerged as a result of the connections between systems made by people attending the workshops.

The workshop techniques evolved to meet the needs of the pilots over the course of their run. For instance, the zoöp team made exercises easier by changing the styling of the forms that they were using, with later ones better able to communicate relationships (see figs 6-9, below). There were other mechanisms that supported the learning, such as people using the first person for talking about the needs and influences of a chosen species or agent upon other species/agent in their environment, rather than describing them in the third person. This grew into miniature role-plays as the workshops developed, prompted by questions from others keen to learn more. This asked participants to imagine their way into the world of various nonhumans and the systems of which they are part. Watching these unscheduled performances helped others understand the diverse needs in the area and shift thinking to include them. It provided an embodied introduction to the *more-than-human* for people with little precedent in thinking in this way. Systems became more apparent. Relationships took shape in front of them. This also threw focus on the value of the Speaker for supplying ecological information in the moment.

A key strength of the model is that, where much ecology focuses only on food chains and how this impacts species, the zoöp exercises asked people to consider both food relations (in the broadest sense of predator/succour/prey) and relations involved in habitat support, and how human behaviour and other actors influence these. This process had its own form designed to work through these dynamics (fig 6-9). Presenting these exercises online on a Miro³⁴ board, allowed each team to work together on each phase of the in-person workshop, supporting collaboration and also providing an enduring record for each pilot post-workshop that could be adjusted as additional actors were recognised or emerged.

In the workshop, the five exercises mapped to the phases describes above:

Identifying the various bodies (non-humans, human-made artifacts, legal bodies, organizational bodies, and audiences) that form the local (pilot-)zoöp.

Sensing and listening (fig 6) to how these bodies perceive their world and what helps or constrains them. This began to take form as speaking *as* the entities, which had the effect of

³⁴ <https://miro.com/>

allowing different parts of the ecosystem to address each other and build a sensibility that there is a whole system interplaying through the work.

Characterising whether the relationships among these bodies are degenerative or regenerative.



Fig 06: Miro screen showing work at the first, Hamburg, zoöp workshop to understand factors in the life of the kitchen at the Deichtorhallen exhibition. Diagram by Charlotte Lammens.

[In fig 7/7a,, below, it is possible to see completed examples of the main version of the relationship map that explored key players in the locality and their effect on each other. Each relation is presented by colour, thickness and solidity to show if it is positively/negatively, mildly/extremely and potentially/actually impacting. The relationship can be one-way or reciprocal and it is labelled with a verb that denotes its nature. This contrasts with early versions of this worksheet, where relations were expressed more simply and in a long line, which was more exhaustive, but uninformative by comparison because it did not allow impacts to cluster (Fig 8). And in the latest iteration of the same tool, the labelling of relationships has become two-fold (Fig 9): first supportive/constraining and then regenerative/degenerative, allowing greater understanding of the nature of the relationship before it is given a characterisation as judgment. This allows for a constraining relationship to be regenerative overall by managing excesses of destructive species, for instance.]

Focusing on the formulation of annual goals to alleviate identified pain points.

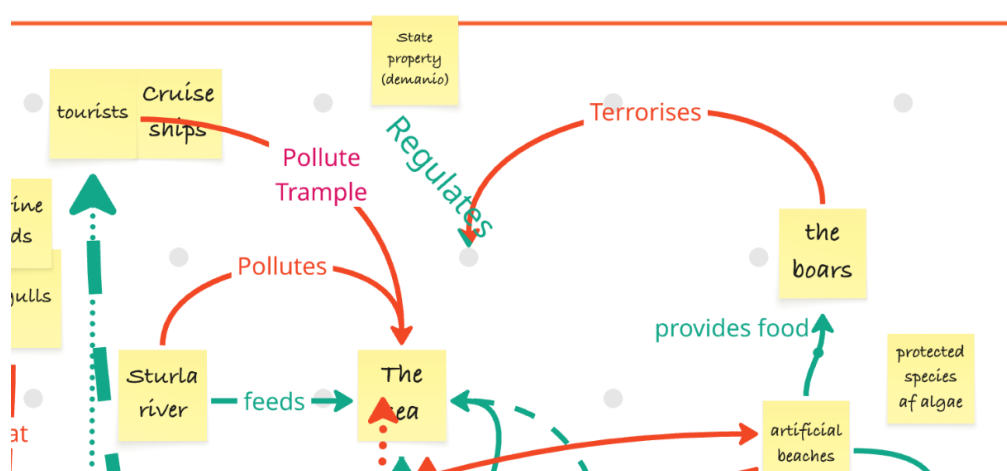
Intervening with specific, planned actions to realize the annual regenerative goals.

As noted, this intervention in the work of the pilots was decisive. It mapped systems instead of considering isolated actions and it presented the pilot initiatives with a Speaker who could explain the significance of decisions and advocate for silent species. All pilots credit zoöp

Advice for sea-facing, more-than-human eco-social change-making



Fig 07a: a detail of the relations in Genoa where cruise ships and wild boars cause particular challenges.



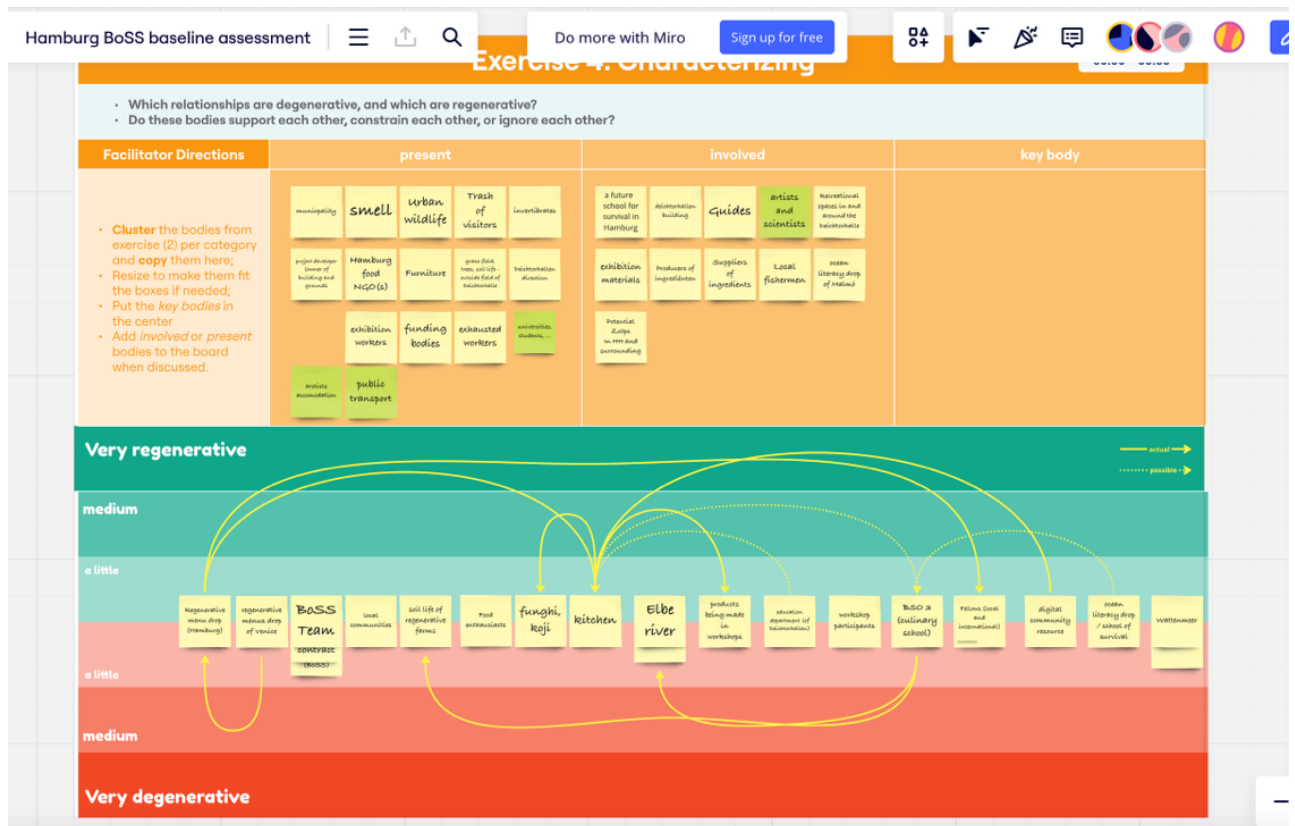


Fig 08: the earlier diagram for considering regenerative vs degenerative relations, which proved less negotiable. Diagram by Charlotte Lammens.

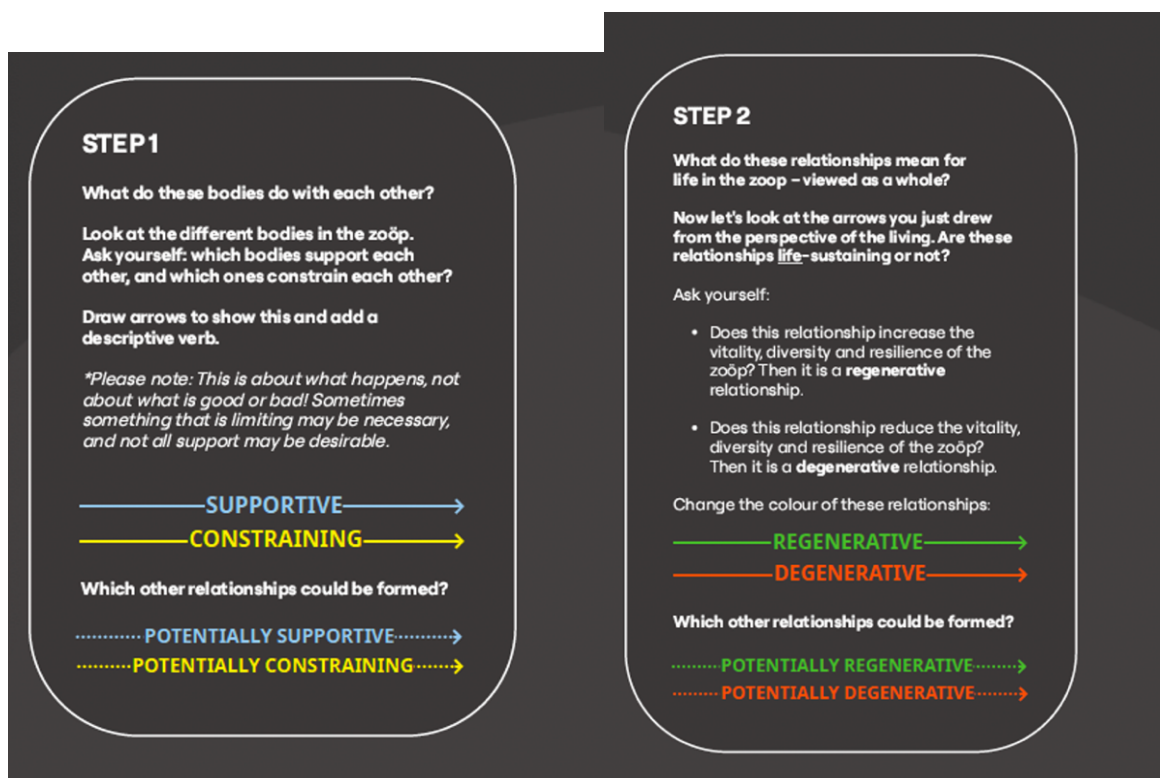


Fig 9: the latest iteration of the mapping relations tool, now divided into two steps: supportive/constraining and regenerative/degenerative. Diagram by Charlotte Lammens.

6.4 Impacts on the Zoöp

Not only did the framework of the zoöp lead directly to the development of new activities and solutions within the pilots, but the process of testing the zoöp model led to crucial organizational learning for the Zoöconomic Institute and provided a foundational methodology that could be scaled beyond the BoS project. Several zoöps in the Netherlands and beyond (Belgium, United Kingdom) are now being set up that draw from the learning of the BoS project, demonstrating the model's adaptability and potential for replication. This also builds on some of the relationships grown through BoS, though it is too early to say whether any of the organisations involved in the pilot-zoöps might investigate the structure for a more permanent zoöp commitment.

Three years of trying out structures and building relations also revealed the centrality of the role of Speaker (see Box 1). The Zoöconomic Institute is increasingly understanding the framework and protocols for setting up a zoöp as the enabling device that provides the conditions for the Speaker to successfully contribute a more-than-human perspective in spite of other imperatives, like commercial priorities.

Box 1. Klaas Kuitenbrouwer explains some of the Speaker's qualities

The Artist, The Netherlands

What makes a good Speaker for the Living?

Klaas Kuitenbrouwer, creator of the zoöp model, Zoöconomic Institute.

There has to be an eagerness to learn. So, if there's something that you don't know, then you can ask or know who to ask, or at least can express a desire to know. Because you have to be curious. That's a quality we see. Technically, you're an advisor. It sounds like a consultancy role, but it's not really that. It's really taking people along with you. *Advocate* is better than *advisor* in terms of practice.

Both the Genova (Simona) and Hamburg (Hannes) projects went out and found Speakers with qualities that we would select in a Speaker for the Living ourselves. This was true of the other pilots as well, for instance, with Michael and Linn of the Marine Education Centre, a project partner in Malmö, and Marco of the Vasco di Game Aquarium in Oeiras/Lisbon, who acts in much the same way, but his role was integrated in the pilot plan already.

There's just this love for everything that is alive. And they carry this education role – that they really want to share it and talk about it and make other people understand. There is, internalized, a possibility of *speaking on behalf of* from a basis of empathy, while knowing enough to be able to point out 'These really need this!' and 'This is what you could do for them...'.

We want Speakers for the Living learning from each other and aiding one another in each other's work. We have developed a method over the past few months that we call an *intervision session*. Now there's this online gathering that takes place 4 times a year with just the Speakers, to have this moment learning from each other and to discuss how it's going. And we ask them:

- Is there some moment when you ran into difficulties that you want to share with the group, and that you could get advice on from the others?
- Is there anything you can bring as a case study to the meeting that we can reflect on together?
- Is there something that you maybe want to celebrate because it went really well?

7. *More-Than-Human* in the Pilots

The previous sections have dealt with developing the *more-than-human* in the project. In this section, attention turns to the way it was used in strategy. The concept of *more-than-human* in the pilots refers to the adoption of a relational approach and integrating the interests, needs, and perspectives of non-human life and ecosystems into the design, decision-making and activities of the projects (s3). As noted above, it has philosophical underpinnings, but the main takeaway for pilots and municipalities is that this approach moves beyond an anthropocentric view, fostering regenerative relationships and increasing awareness of the interconnectedness of all living systems. This shift in thinking was carried into the practical aspects of the project in each city.

7.1 Examples of Strategy

Pilots approached the more-than-human diversely, as mentioned. Beyond the political/geographical contexts in which they worked, this reflects different aesthetic and ethical responses. Many of the resulting approaches are not exclusively beneficial to coastal and waterlife, but could pertain to regenerative practice more broadly. Nonetheless, they were developed in the context of, and worked to support, ocean life and literacy. (Here they are divided into the three orientations of the CreaTures Framework, mentioned in s1.3: transforming meaning, connections and power as a means of analysis, which is being used to articulate key more-than-human relations.)

7.1.1 Changing Meanings

Promoting empathy and understanding for the many – hardly visible – lifeforms below water.

Challenging human-centric views by moving beyond technical approaches to water that 'manage' its impacts on human lives to understand the diverse values and interests,

including social and cultural aspects of living with water and the importance of healthy ecosystems for *all* life.

Raising awareness of ocean life by discussing the value of the sea, the cultures it has supported, what impacts life below water and how new relationships might support it.

Telling inclusive digital stories that give space to multiple voices, including the more-than-human perspective alongside a diverse range of human stories.

Reframing relationships with food through artistic and sensory experiences, highlighting the impact of the food industry on animals and soil health, and promoting a shift towards more sustainable practices.

Encouraging awareness of local ecology, for instance teaching that many invasive species, water and saltmarsh plants are edible, that they can be sustainably grown or foraged with care and what that care looks like.

Experiencing *Life Below Water* through visiting the sea, visualizing life, roleplaying (e.g. mussels and oysters) and exploring marine species (e.g. herring, eelgrass, bladderwrack) to foster emotional connection and understanding.

Connecting pasts to futures by working with local people's memories and traditions and documenting the livelihoods of people already working in regenerative ways.

Changing culture by shifting from crisis narratives and a view of humans as unable to work regeneratively to proposing a collaboration with non-human communities.

7.1.2 Changing Connections

Stressing human-nonhuman connections by exploring the relationship between vegetal and animal species, the local environment and traditional culture, linking it to traditional recipes and stories of the area.

Dialoguing between scientists and artists to show that their practices are closer than often perceived, leading to a new approach to ocean literacy with more understanding and empathy for non-human life.

Regarding soil, salt and water as active participants and understanding the relationship of these infrastructural elements with what they support.

Creating an underwater park, such as Malmö's in the South Wharf Basin, with the idea that its inhabitants (marine species) are 'our neighbours' to be cared for.

Using water as a cultural space by building on local resources, such as Aquarium Vasco da Gama's programme for the Tagus in Oeiras, in an approach that goes beyond preservation and exhibition, engaging with and adapting to ecological context and fostering connection between visitors and the environment.

Producing listening experiences and sound archives to give visibility to 'invisible' species.

Regenerating food practices by finding food choices that are healing for the environment and local ecosystems, viewing cooking and eating as multi-species collaboration and educating local people /chefs to prepare edible invasive species as new food sources.

Building with biomaterial, finding new recipes for building material and investigating how this can be made sustainable longer-term.

7.1.3 Changing Power

Representing the needs and interests of non-humans in the structures of organisational and city life and the processes that determine these.

Amplifying emerging perspectives that reframe prosperity as regeneration supporting all living ecosystems, not just humans.

Integrating non-human perspectives in policy by advocating for the perspective of non-humans and integrating it into the design of decision-making.

Considering the impact of awareness-raising initiatives, for instance, using low-noise transportation and public transport for fieldtrips, minimising the effect of bringing people to encounter their local waterways directly, sourcing local food and using regenerative options.

Challenging human exceptionalism by emphasizing humans as part of the ecosystem rather than external beneficiaries of "ecosystem services".

Adopting a systemic view exploring water, habitat and food systems for all life in the locality and situating people within this system, not as external economic actors only able to take a human-centred perspective.

In summary, the *more-than-human* was eventually understood as a crucial lens to foster regenerative relationships, expand ecological awareness, integrate diverse knowledge systems (including traditional and scientific insights about non-human life) and shape design and policy decisions to consider the well-being of entire ecosystems. Considerable work was undertaken to change the meaning of waterways for the people local to them and to find means of connection to the life within them. Less apparent in this list is the extent to which this work affected power relations, despite the specific use of co-design, a levelling tool for collective decision-making, and the example of the zoöp, where the Speaker speaks on behalf of all life and its flourishing.

Non-human life was represented in the pilots, inspired by zoöp sessions or already written into the agenda, such as Malmö's underwater park. However, it is noticeable that most pilots used representations of non-human lives primarily to alert and sensitise people to what surrounds them. A systemic approach was similarly introduced to inspire citizens with a sense of the relationships they were part of and there was some challenging of human-

exceptionalism. For instance, in Genoa, the Speaker worked hard to embed as a less human-centric understanding of relations. Elsewhere, practically, labs (e.g. Food Lab in Lisbon) were established, with impact on food and materials.

The project's focus on the *more-than-human* was slower to change urban policy. The invoking of care relationships and new kin stayed largely focused on citizens not institutions, though pilots intend to continue their work and seek funding for related longer-term initiatives with greater reach. The example of Malmö's pilot is instructive here, as the pilot team (with support from the Sea Forum) began to affect core municipality policy for redevelopment of coastal areas, but it took strategic thinking from the outset to effect this change within the three-year period of the project. Similarly, we see Hamburg affecting culinary curricula and Delta affecting university curricula and land use in the rural area. All three of these pilots were already considering the *more-than-human* as a philosophical and practical position on ocean relations before the start of the project and Saeftinghe and Malmö were already explicitly working with forms of co-design. This points to the long lead-in time needed to make structural change in core parts of cities' agendas. Given the newness of some of the ideas introduced through BoS, it is to be expected that different levels of maturity would result.

7.2 More-than-Human: Hamburg Pilot

In view of these challenging dynamics, this section goes into greater depth to show how one pilot took on systemic change. The next pages concern how the *more-than-human* was incorporated centrally in Hamburg's pilot, with its connections to food culture and production. It demonstrates a tightly-structured plan to impact Ocean Literacy and introduce/extend Regenerative Menu practices in the local system, with a highly-systemic starting point and well-connected Speaker(s) for the Living.

The *Sea Forum* in Hamburg was chosen to bring key parts of the final vision together at outset: local experts on fish, the restaurant scene and regenerative farming; the art museum that would host the public participative elements; the receptive culinary school and, lastly, neobiota. As an early diagram explains (see fig 10), the neobiota represent local citizen science communities tracking new and native species, however, the *more-than-human* approach is characterised by the inclusion of this non-human group³⁵, rather than the people investigating them, which also represents their significance in the project.

Complementing the non-humans in the Sea Forum is evidence of a systems approach to altering food systems, centring on food, sea and the means of connecting to, and augmenting engagement with, local publics. While an ecological structure for the forum

³⁵ Neobiota are animal and plant species that have travelled to live in places that they were not originally present or not before 1492.

requires more creative work to call a meeting, it integrally challenges a human-centric view, at the same time, integrating a relational conception of how change will happen.

Sea Forum

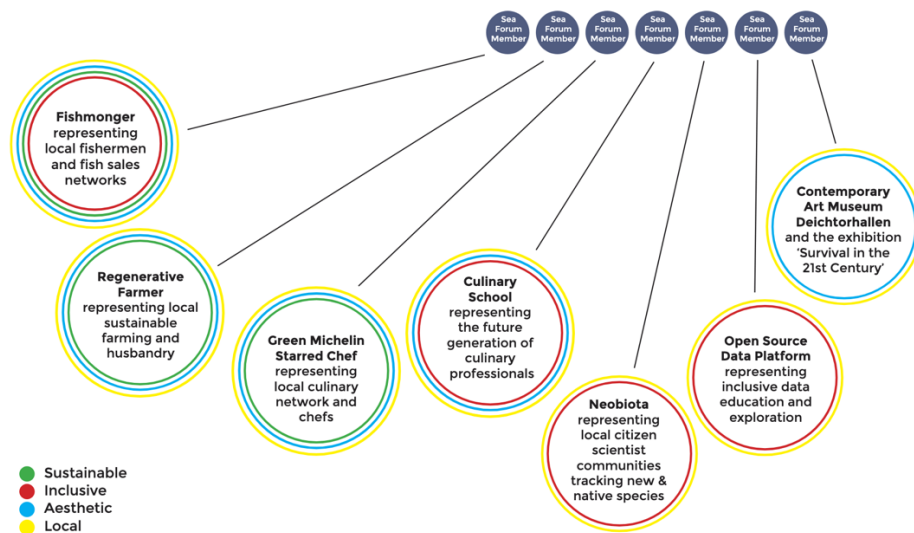


Fig 10: The original Hamburg pilot structure already shows how a broad set of relationships in the area can support a common focus, including the inclusion of neobiota. Credit: Katinka Versendaal, Hamburg pilot lead.

The Ocean Ambassadors were conceived as fellowship positions (see fig 11) so that there was remuneration for engaging communities and the chance to do applied research for seven specialists, ranging from international artists to local culinary experts. For instance, international fellow Tidal Garden is a collaboration of a designer, ecologist and chef, usually based in Italy, whose specialisation is salt marshes and the plants that thrive in brackish contexts³⁶. And the Speaker was a fellow and local regenerative farmer. These fellowships would produce a strand of participatory public work to feature in the art museum. Supported by this applied research, the Hamburg pilot ran the School of Survival - a kitchen, public outreach programme and living lab - alongside the exhibition *Survival in the 21st Century* (2024, Deichtorhallen, Hamburg) in the central year of the project.

The purpose was to develop the knowledge, concepts, and practical skills to tackle pilot questions: What forms of production and consumption, habits, ingredients, tools, and foodways are needed not only to survive, but to thrive? Can food become a transformative tool for imagining alternative futures and adapting to the present environmental crisis? The results of the research were presented within the eight-month outreach programme as lunches, tastings, workshops and lectures to visitors of the museum and the local culinary school. Each workshop and demonstration explored a different approach to food relating to

³⁶ <https://www.the-knowseverything.org/the-tidal-garden>

the amphibian context of the Elbe and nearby ocean, showcasing fermentation and curing techniques in the functioning kitchen.

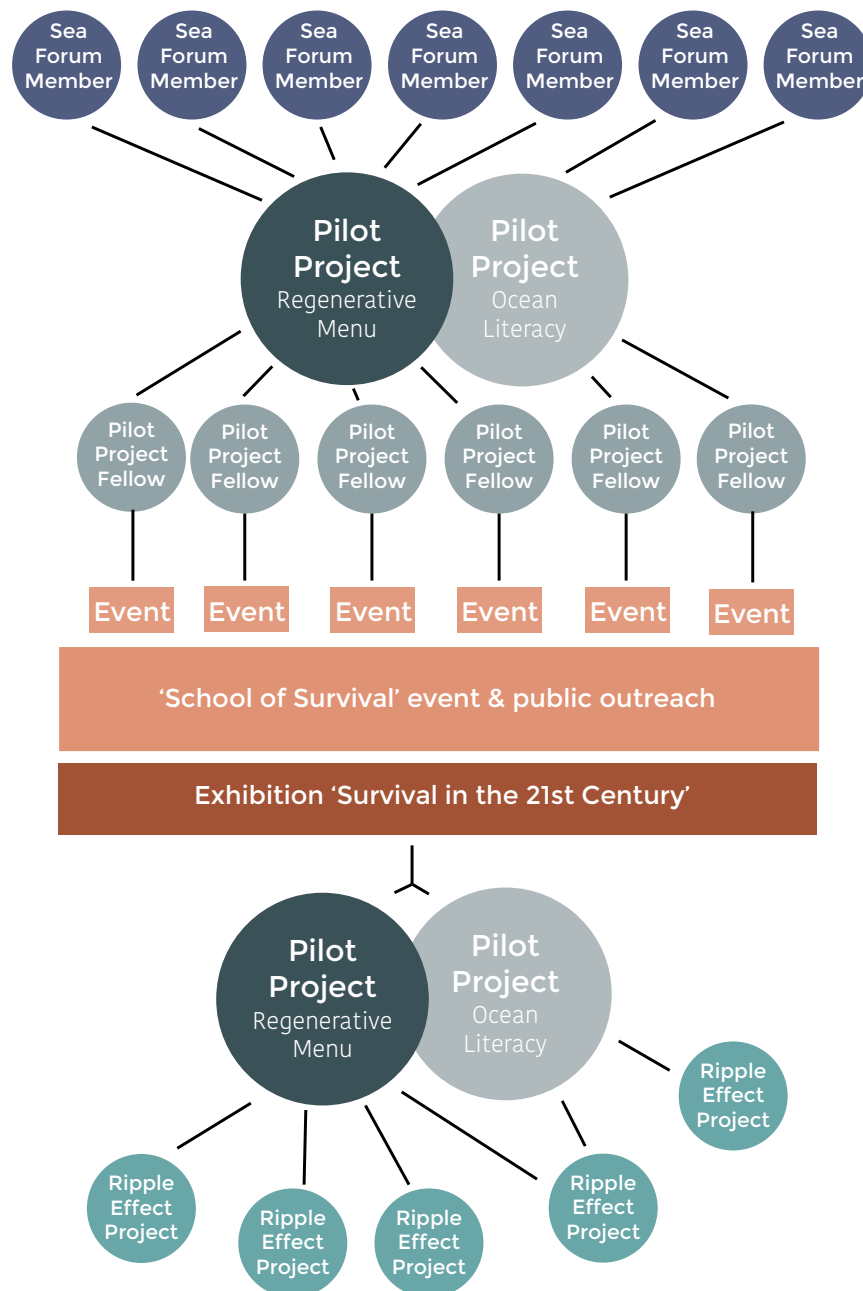


Fig 11: The overall process for producing change in the Hamburg food system laid out at the start of the pilot. Credit: Katinka Versendaal, Hamburg pilot lead.

Since the end of the public programme, work has continued with the local fellows and the culinary system in Hamburg. For instance, the learning from the programme has now become part of a pilot course at the culinary school supported by the fellows and the Speaker (see Box 2). The School of Survival programme (with an explanation of its

theoretical underpinnings) was incorporated into the exhibition catalogue *Manual for Survival* and has now become a nomadic school and foundation to engage and educate communities, able to move beyond Hamburg and start up in other cities. A wider online educational resource called *The _ Knows Everything* has been established as a platform and community that shares recipes and guidance on more-than-human approaches and showcases the work of the fellows and local providers, based on a central idea to the project: *The Fish Knows Everything*. In the near future, it is planned to test learning from Hamburg pilot as methods in new localities with the end goal of reproducing artist/science/gastronomy collaborations that transform culinary education and influence policy on agriculture and fishing.

The pilot demonstrates what can be achieved in targeting a key urban system such as food with a more-than-human approach, introducing strategic inspiration and linking relevant institutions, such as the culinary school. In Box 2, the pilot leader Katinka Versendaal shares more information about her vision, the philosophy of the project and the crucial role of the Speaker for the Living.

Box 2: Katinka Versendaal describes the Hamburg philosophy and the importance of the Speaker's role.

The Pilot Leader, Germany

More-Than-Human Food Futures

Interview with Katinka Versendaal, designer/researcher on speculative gastronomy

I work on what I call speculative gastronomy, where I explore food as a tool for speculation on desirable futures, and for reflection on the present crisis. BoS connected to this under the label 'Regenerative Menu'. *Regeneration* often, very comfortably, replaces *sustainability*. Sustainability has started to mean something very different than *in order to sustain life*. If you see 'sustainability' right now in a supermarket, it is 'This is a sustainable product, 30% less plastic'. All I see is *what about the other 70%*? I feel this watering down of the meaning of the word will, in the future, happen with *regeneration*, but, especially when we started, this was not the case, so regeneration still provoked a lot of questions. I framed it within this project as moving from extractive food systems and practices (i.e. something that damages our natural environment) towards something that has a healing effect. How can food choices and the act of eating have a positive effect on the ecosystems that we rely upon?

This became the core question and beginning of the framework. We have been developing an understanding of the more-than-human: more-than-human beings that we know mainly as ingredients, but also entities such as rivers and soil (which we also understand as beings, informed by indigenous or traditional forms of ecological knowledge). We try to understand them as metabolic subjects: How can an eel show us what's going on with the river, what is going on with the water quality, what is going on with pollution, what is

going on with human-made interventions such as dams? How do all these intertwined happenings affect this very specific subject, the eel and its community?

In the case of the eel, it's known primarily as an ingredient. So, this already brings a lot of tension as, in order to live, we must eat, which inevitably means to take a life in order to sustain our own, regardless as to whether this would be vegetal, fungal or animal life. But then, if we dive a little bit deeper, it also raises questions about our own society and the understanding of our role as humans within ecological cycles. Here we find two core beliefs that we examine within the project: the need of the individual over needs of the community or ecosystem, and the belief that death should be avoided at all costs, instead of being an inevitable part of life and healthy, resilient ecosystems. Perhaps the answers should revolve around what is given back, building caring, reciprocal relationships with more-than-human beings.

In Hamburg, we have five remaining river fishermen where there used to be like over 200 registered. For example, one of them; he and his family have been living off a specific 25 kilometres of the river Elbe for the last 400 years. I understand him and his family as part of this ecosystem - he hopes to pass it on to his children, as his father did to him. So there's a very different relationship in how he fishes, what types of gear he uses, how he understands what he shouldn't be damaging or be too extractive. The wellbeing of his family is tied to the wellbeing of the fish communities, the river and its beings. What are their ways of being that then bleed into this ecosystem and have this relationship of care and reciprocity?

We work with the local fellows - who are chefs - to understand cooking as a multi-species collaboration. As an example, we work with fermentation; we invite a microbial community to help us preserve our foods, make nutrients more accessible for us and enhance flavour and, in exchange, we create the ideal situations for this specific community to thrive temperature-wise and climate-wise. And we asked how we bring this way of thinking more broadly into cooking, eating other beings and exploring other preparation methods.

The zoöp project has been very helpful to give this a name, specifically the understanding of the Speaker for the Living. The project made sure that we now have a collective language to communicate about these concepts.

Hannes, who's our Speaker for the Living, is an industrial engineer for environmental technology, consultant and project developer for regenerative land use; he's been academically trained and worked in the fields of South Africa and Australia for years. The insights he gained there led him to start a regenerative farm outside Hamburg and now he's a full-time farmer providing to this culinary network. So, he is a centre of community as well as a centre of knowledge for this community. Now I'm working with Hannes on

what we want to happen next; that we develop a curriculum for the culinary school. This is a test run for a curriculum that can then be bought by the school, where Hannes becomes the coordinator of this programme. In the future, we'll expand it with different classes, different teachers, fishing, foraging, hunting... whatever should be added to that. And all the Hamburg fellows will be hired as guest lecturers in the culinary school to keep reproducing this class as part of the yearly programme.

The relationship that I have with Hannes is a very fundamental, important relationship within the project. He's a person that has a bit of academic understanding as well as a very practical one - so somebody who's really with his fingers in the soil but also understands soil as a living body.

And he is such a central figure in the regenerative community. Everybody knows him. His farm is one of the very few doing this type of regenerative work, but that also means that he's connected to the butchers who are working like this, and the fishers who are doing this, so he becomes the centre point of people with similar practices, even though different materialities. The farm is also the place where everybody from the culinary community, who is vaguely aware of these topics, buys from. So that's a second layer of community that he is able to tap into, and where he acts as much as an activist as a farmer. There's an ecology around Hannes, as well as an understanding of the greater ecology.

8. Learning with/from the Sea

A common mission across the project was to embrace the ocean (or watercourses leading to the ocean, such as estuarine river or lagoon) through approaches that foster regenerative relationships, raise awareness, and address local challenges related to aquatic ecosystems. The goal of working with coastal cities was to inspire care and encourage knowledge in (parts of) the population. This supported transformations in relations more broadly, such as city-wide municipal care for urban watercourses and the systems that depend on and feed them. The ocean, as noted above, is poorly understood even by most coastal dwellers. It is considered a leisure destination, an environmental threat and/or a source of food (and now also a potential source of materials from deep-sea mining) to be managed, but rarely regarded as a living ecosystem matching the land in complexity. Yet, as Hamburg pilot leader Katinka Versendaal indicates, above, the sea itself may be seen as a more-than-human *being*, as may the many species the water supports. This draws us back to the project's definition of the desired change in relational aesthetic, where experiences contribute to the shift from 'living from the sea' to 'living with...' and '...as the sea' (Seravalli et al 2023). Pilots introduced their own emphasis in considering these possible different relations, with most

actions more oriented to eco-social priorities, where human social inclusion guided efforts, in line with the project values of also being inclusive and locally-grounded.

8.1 Examples of Strategies for Engagement with the Ocean

Pilots aimed to broaden economic perspectives to water management through embracing discussion, diverse perspectives and a regenerative starting point. Activities included public-facing talks, sea visits, ocean/beach walks, networking events, audio installations, underwater binoculars, creative focus groups, heritage activities, and 'human library' events to engage community members. These techniques emphasized the value of citizen engagement and fostering reconnection with local ecosystems in ways designed to enrich the audience's perceptions of living with water and the social and cultural aspects linked to it. They incorporated the threatened ecological knowledge of local fishermen and included engagement with farmers, chefs, scientists, engineers, students, and artistic and educational institutions as well as particular groups such as youngsters, seniors, new arrivals and people from areas of multiple deprivation. While not every pilot had the same ideas about (or opportunities for) planning a longer-term outcome and while cultural factors played into what pilots considered appropriate to do, several strategies appear across them to embed the project's learning:

Challenging local food traditions with recipes made from invasive/new marine species to alter diets and move to more sustainable food resources, such as sea weeds and algae;

Planning events and labs to engage the community in visions for local waterways, to be funded over the longer-term by the municipality as water-related research and community engagement;

Developing digital tools that act as a platform for local knowledge, not replacing visits to locations, but enhancing them with located information using augmented reality or providing the impetus to visit, with stories of what they might see, tales of local customs, recipes, etc;

Building new traditions such as celebrating World Ocean Day with events around marine life and local landmarks, such lighthouses, above water, and reef, below it, stressing the use of non-harmful and even nourishing materials, like clay tiles for reefs where species like mussels, oysters, barnacles, fish, seaweed, and eelgrass are establishing themselves, and gentle/quiet forms of transport;

Creating cultural institutions, such as Malmö's underwater park or Oeiras' river as museum, promoting the idea that marine inhabitants are our neighbours to be cared for and offering more-than-human forms of engagement;

Imagining the life of marine and coastal species of interest as a means of sensitising to other species and the challenges they face;

Linking scientific and artistic collaboration with public-facing activities to position ocean literacy as a central pillar, cultivating insight into ocean/river systems' importance for regenerative practices and using trips and exercises (such as listening to *life below water* to foster emotional connection) to raise awareness of ecology, of sustainable choices, of meaningful actions and how to spread the word;

Treating water with the care that reframes it from a backdrop or obstacle to a living space made of connections, reactivating aesthetic dimensions and fostering feeling of being part of the environment;

Learning from the zoöp workshop's regenerative approach (see Pedroso-Roussado et al 2024) and how this resituates water and water actors at the centre of discussions, integrating more-than-human perspectives, shaping activities, driving education and informing organizational decision-making.

8.2 Internalising Lessons from the Sea

The sea as a *source of food* unsurprisingly dominated regenerative menu initiatives. In a project concerning coasts, traditional fishermen selling catch were informants in more than one pilot. Hamburg's engagement with food production included a fish trader. The Regenerative Menu drop tended to focus people on eating sensitively from the ocean and cooking species that are more plentiful, regenerate fast or behave destructively, such as varieties of invasive crab around the coast. Ocean Ambassadors discovered that every pilot had a type of invasive crab. Discussion of eating sustainably (and what to leave to recover or avoid) ran across several pilots, intersecting with discussion of traditions, intergenerational learning and other (human) cultural activities. There was a suggestion too that tourism menus could be an early and productive venue for eating invasive marine species to encourage local take-up, especially in cities where food traditions strongly impact eating practices. Hamburg used old methods for new flesh, working with the invasive catfish.

However, planning better ways to eat fish and seaweed brought a danger that it merely reinforced a human-centred view of the sea, with humans cast as predators not custodians, and this needed a counterbalance. While we benefited from coproduction with fermenting creatures, the dining initiatives were largely human-centred, encouraging the regenerative approach of eating species that curb other species' habitats and promoting sustainable food practices, but mostly referencing human cultures. If the project's goal was to reset relations, then interdependencies also needed foregrounding and mutuality needed stressing as part of steps to change practice. Work on habitats, respecting other lifeforms and living well with *life below water* was vital. In some cultures, the sea represents eternity and the flow of life. Hints of this existential quality appeared as part of boat trips, listening expeditions, storytelling, living libraries and other forms of engagement beyond bodily consumption. The zoöp workshop had foregrounded how species support each other through providing habitat as well as food (and how other non-organic agents also provide habitat or remove it) as

interdependent relations. Malmö's underwater park and the river as museum initiative from Oeiras offered cultural embodiment for a different relationship with that nuance.

8.3 The Voluptuousness of Gourmet Seaweed

Nonetheless, one of the aesthetic highpoints of the project was creatively conceived food from the sea. This involved new means of preparing and novel foodstuffs, also delightful for the ingenuity it brought out in chefs. Hamburg's initiative is described in s7. Lisbon held an *Eating Between Tides* residency with Rain Wu and team and delivered a *Lisbon Spice Rack* education programme on wild plants, took food education into schools and is now starting a Food Lab. Bringing together both Portuguese pilots, cultural partner Calouste Gulbenkian commissioned Joana Duarte to make a menu for 200 guests. Two of the dishes can now be tasted at the cultural centre's restaurant in Lisbon.

Joana Duarte – an Ocean Ambassador - is an ocean specialist, with a degree in marine biology, a masters in oceanography and 5 years' work in marine investigation in the Institute of Fisheries in Portugal before becoming a chef. As a founder of the project Rota das Algas³⁷, her job is to integrate scientific research, culinary innovation, and community engagement to promote regenerative practices and raise awareness of Portugal's marine biodiversity. Like many Ocean Ambassadors, she brought an existing love of the sea to the pilot, exemplifying the range and talent of local people ready to contribute to initiatives. Knowledgeable both as a chef and marine specialist, she used seaweeds across multiple courses, presenting them in the meal in edible arrangements loaded with significance. For instance, in the dessert course, the seaweed was prepared as a form of gel, which, when sliced resembled broken glass. She surrounded this with dust constructed from cocoa and seaweed powder. The combination, she said, evoked the post-industrial environment near the Tagus, from which she took inspiration (see Box 3).

Box 3: Inês Valle writes about the contribution of Joana Duarte, describing the artistry of the regenerative menu

The Cultural Producer, Portugal

The Summer Day 'Meeting Points' of Lisbon and Oeiras Pilots



Figs 12/13: 'Meeting Points: Art, Science and Ecology'. Photos by Joanna Correia/Courtesy of CAM–Gulbenkian

³⁷ <https://www.rotadasalgas.com>

During the summer, the Lisbon and Oeiras pilots held a special afternoon event entitled 'Meeting Points: Art, Science and Ecology', which was co-curated by Inês Valle and Rita Fabiana from the Live Arts Programme at the CAM—Calouste Gulbenkian Foundation. Taking place on 26 July 2025 at the Calouste Gulbenkian Foundation (CAM and Gardens), the event created a space for dialogue, reflection and exchange between people and the natural world. The programme included the final presentations by some of the artists-in-residence (Implementation and Replication Phase), including site-specific installations and live performances, accompanied by public discussions on their practices within both local and international contexts.

In this programme, the Calouste Gulbenkian Foundation, the project's cultural partner, invited Ocean Ambassador Joana Duarte, a biologist and chef with extensive knowledge of the Portuguese coast, to design a regenerative gastronomic experience connecting the Lisbon and Oeiras pilots. She collaborated on this project with the restaurant "Mesa do CAM" and both municipalities. The aim was to develop a menu that reflected the intersection of land and sea, tradition and innovation — a place where cultural heritage and contemporary narratives could converge. As in nature, no ecosystem exists in isolation; each is nourished by and contributes to the other. Joana Duarte's proposal thus translated the project's principles of ecological interconnection and cultural dialogue into sensory and culinary form, acting as a bridge between memory, place and future-oriented sustainability.

This cocktail-style menu, entitled "Boca do Estuário" (Mouth of the Estuary), drew inspiration from the estuarine zones of the Lisbon and Oeiras territories. It included regional and ecologically significant ingredients, such as seaweed, halophytic plants and invasive species from the Tagus River, whose consumption should be encouraged, as well as drought-resilient cereals and legumes. Additionally, the menu also took into consideration the dietary needs of various individuals, being both gluten-free and lactose-free.

It was served to the public in the Gulbenkian Gardens. The kitchen was located in the shade of the trees and was harmoniously integrated into the garden setting. Waiters emerged from this setting, magically carrying large platters adorned with long Portuguese seaweed and presenting each element of the menu in tandem with the natural scenery. The service was entirely free of plates, cutlery or plastic, allowing the gastronomic delicacies to be experienced in their purest form.



Fig 14/15: 'Meeting Points: Art, Science and Ecology'. Photos by Ana Vitória Vasconcelos/ Courtesy of CAM–Gulbenkian (2025) and by Joanna Correia/ Courtesy of CAM–Gulbenkian (2025).

The menu “**Boca do Estuário**” by the Ocean Ambassador, comprised three courses: a starter, a main course and a dessert.

– The Starter: **The Estuary Bite (“Patanisca Alfacinha”) (vegan)**. The vegan *Patanisca Alfacinha* constitutes a reinterpretation of the traditional Lisbon patanisca, incorporating sea lettuce (*Ulva spp.*) within a tempura batter prepared with chicharro flour, a drought-resistant legume consistent with the sustainable agriculture objectives promoted by the *Oeiras Experimenta initiative*³⁸. The inclusion of sea lettuce, a prevalent green algae in the Tagus Estuary, illustrates the integration of culinary innovation with the ecological characteristics of a complex and anthropogenically impacted estuarine environment. The dish is complemented by a halophyte-based garnish, including *Salicornia* and lemon powder, designed to reflect the mineral and saline profiles characteristic of the estuarine landscape and its native halophyte flora.

– The Main Dish: **Mordisco d’Oeiras (vegan)**. It consists of sorghum and cornbread crowned with a seaweed salad and *Suaeda vulgaris* mayonnaise, with a thin piece of cured and braised corvina on top. The sorghum and corn grains are drought-resistant crops, also selected as part of the *Oeiras Experimenta project*, which explores sustainable food systems under changing climatic conditions. The fish element is corvina (*Cynoscion regalis*), an invasive species recently found in the Tagus River. The seaweed salad contains *Ulva* and *Codium*, species of algae commonly found in the nutrient-rich waters of the estuary. Together, these elements embody the intersection of ecological adaptation and culinary innovation, offering a more sustainable and responsive approach to eating in the future.

–The Dessert: **Estuary Seaweed Mousse (vegan)**. This dessert consists of a light and airy mousse prepared from *Ulva spp.* and Atlantic nori, which are species of algae native to the Tagus estuary. The mousse is presented on a circular biscuit inspired by the traditional Palitos de Oeiras and garnished with Carcavelos “Valley of Oeiras” wine crystals and a

³⁸ <https://www.itqb.unl.pt/science-and-society/ciencia-cidada/oeiras-experimenta-living-lab>

“soil” of Marvila, represented by a mixture of cocoa and salicornia powder. Together, these elements evoke the natural and urban landscapes of the Marvila region. The dessert was paired with Carcavelos “Valley of Oeiras” wine, produced locally in Oeiras.



Fig16-20: ‘Meeting Points: Art, Science and Ecology’. Photos by Ana Vitória Vasconcelos and Joanna Correia / Courtesy of CAM–Gulbenkian (2025).

Written by Inês Valle, cultural lead of Lisbon & Oeiras Pilot - from cultural partner Gulbenkian - on commissioning the work of Joana Duarte, Ocean Ambassador, Chef and Marine Scientist. See also the media report (in Portuguese)³⁹

9. Changing/Being Changed

Much of the work of the project was to inspire residents and other local actors to care more about their coastal waterways and what happens to them. This was understood to have a knock-on effect in the locality, either through direct eco-social behaviour or through systemic changes, such as in food sourcing and preparing, or mobilising people’s political concern, thereby creating a greater sea lobby to support or initiate policy. Policy-makers, where present, were very engaged but continue to have to make careful decisions about

³⁹ <https://parqmag.com/wp/ponto-de-encontros-arte-design-e-natureza-no-cam/>

resourcing. There is a suggestion that participating municipalities will consider non-human life more fully in these decisions now.

Yet the more-than-human is not merely embodied in a set of species relations; it speaks of a philosophical approach that acknowledges the mutual influence of an ever-evolving system where nothing exists outside the system (as described in s3.1). Even as we design, we are being designed by our own designing – a double-movement whereby the things we make (both objects and relations) act upon us as we are making and engaging in these things (Willis 2006).

Being conscious of this inseparability, it follows, then, that the act of working to change others may most decisively change ourselves. Such shifts in thinking are well expressed by the key trio in the Genoa pilot: Speaker Simona Bussotti; pilot leader Roberta Palmieri; and Stefania Toso, building citizen participation (box 4, Fig 21). By way of context, s5.2 gives related background details of the Genoa pilot's activities.

Box 4: Key actors in Genoa share reflections on the changes they experienced from within the pilot.

The Pilot Team, Genova, Italy

What Changed in Our Practices during the Project

Simona Bussotti, D.A.F.N.E. (Environmental Dissemination and Naturalistic-Ecological Training) Enterprise, Genoa, Italy; Department of Integrative Marine Ecology (EMI), Stazione Zoologica Anton Dohrn–National Institute of Marine Biology, Ecology and Biotechnology, Genoa Marine Centre;
Roberta Palmieri, Genova Comune;
Stefania Toso, Ideazione.

Simona Bussotti: My role was to observe how much consideration was given to the non-human living in a coastal area by everyone: residents, visitors and also from the Pilot Team. The BoS project provided a unique opportunity to meet the residents and regular visitors of Sturla-Vernazzola, with whom we discussed the natural components (non-human) and multispecies assemblages living in the pilot area. Participants showed a great interest in this non-human world, which is often overlooked or invisible. During the meeting with the pilot team, I also emphasised that *Ocean Literacy* was not a part of the drops of the Genoa pilot, but a very important one, as I had to speak about marine biodiversity.

Stefania Toso: Although it wasn't a clear strategy at the beginning, I think it was quite clever to start with a focus on the *human* aspects of the project and then make a slow shift to aspects related to the *more-than-human*. At the very beginning of the participatory process, the focus was on collection of memories and stories from the inhabitants of Vernazzola and Sturla. It was about the human aspect: human relationships with the district and relationships between people. The shift occurred when we start to include *more-than-human* aspects in the process. The first moment was during the

Heritage Walk on the beach. Simona was one of the guides, so it was possible to show non-humans directly: ‘*Oh, you can see it, here’s the posidonia!*’. In the final step of the participatory process, the Human Library, we asked Simona to represent the sea. She was representing living beings other-than-human at a table, sitting with other humans. This was the most powerful moment. Unfortunately, we only had Simona to talk for non-humans. If we are going to use the Human Library tool again, we should have, I don't know, fifty-fifty: 50% “books” representing non-human and the other 50% of “books” talking about the human experience. In this way it would be more balanced. So, you have a table with four people sitting and talking and sharing, and you can have half non-human and half human interacting with each other. But it was a nice experiment. I mean, I think it worked because everyone chose Simona as a book to listen to - to experience the point of view of the non-human. We should also change the name of the tool to something like *The Living Beings Library*.

Roberta Palmieri: For us as a municipality, this was a new way of working. The fact that we were somewhat forced to include the more-than-human perspective because it was asked by the project introduced something new for us. This was very useful because we questioned ourselves: how can we integrate these more-than-human views?

Simona Bussotti: After the zoöp workshop, I had a clearer idea that ecologists interested in marine conservation usually speak about *ecosystem services*, because we have to convince humans that nature is important. But this is perhaps not always a good way to communicate. In this form, we always place humans at the centre, always more important than other living forms: we have to protect nature and to connect to nature because it is important for *us*. I perceived how important is to communicate about the value of biodiversity and ecosystem functioning because we are *inside* this functioning. Even if I talk, for example, about seagrasses and their importance for fisheries, I limit this kind of

communication about “nature”, speaking rather about functioning inside the whole system. I mention the Hawaiian phrase *aloha ‘āina* (*love of the land*) that is about having a sense of connection to all living things. One day, I hope that people of all ages living in seaside towns everywhere, not only in the pilot location, will be proud to cohabit with important algae associated with rocky reefs.



Fig 21: The image represents the red scorpionfish *Scorpaena scrofa*, drawn at the Speaker-led nursery school workshop at the Genoa pilot site of Sturla and Vernazzola. The workshop shared knowledge about local fish species with young children. Photo: Simona Bussotti, Genoa Speaker for the Living.

Stefania Toso: Oh, yeah, I absolutely agree with Simona. And if we have known from the very beginning about the presence of Simona [in the role of Speaker], we could have included more or even changed some tools that we used to better include the role of the Speaker for the Living. In the next project, consider the Ocean Ambassadors and the Speaker for the Living as a team that works together from the very beginning of the project! I think we were able to collaborate because we had the same goals. But it could have been very interesting for us to work with Simona before the process was already public and already designed. I mean, we are discussing with the municipality that maybe we can put the *non-human* approach in other projects and start to collaborate with biologists and sea experts from the very beginning, knowing that we have to relate to non-human/more-than-human representatives. What has been successful in the Vernazzola area is that people are gradually talking about the *more-than-human* perspective, since they were not used to it before...

Roberta Palmieri: It was quite difficult for us, as a municipality, to really understand the more-than-human and to integrate it in our process. We can propose another project to include this point of view, because we often do projects concerning, for example, the green transition. We have some rigid structures, and so we need to adapt. But we managed it, I think, a bit, thanks to the support of Stefania, Simona, and all the pilot team.

Simona Bussotti: For me, too, it was really positive to collaborate with Roberta and Stefania. It was the feeling to speak with someone that has the sensitivity to understand what we are doing. In this role, the Speaker is 'deemed legitimate' in advocating the belief that humans and nature are not separate. I think this concept was ultimately widely shared by all team members.

Stefania Toso: Speaking for the company I work for, which is a small private company, I think that this project has changed the way we design projects that aim to have an impact on the local communities. What I mean is that I think that from now on we will start thinking about the *non-human* aspects as we develop new proposals. It's a turning moment for us as a company specialized in writing cultural and development projects. So, thank you, Roberta, for having us on board!

10. Learnings in Doing Eco-Social Care

The project qualities of sustainable, aesthetic, inclusive and locally-grounded come together in *care*. Care is needed at all points in a regenerative project, from leadership within, to modelling a care-based practice as exemplar to others. The cascade of drops to ripples is predicated on a care that extends from the heart of the project to all beings who might be impacted, creating the conditions for greater appreciation, maintenance and renewal of

habitats and relations with other species. While not requiring the philosophical shift outlined in s3, the centring of care in practical terms is essential. In this section, the learning and the mechanisms of the project related to care are reviewed, including constraints and limitations.

10.1 The Three Linked Challenges

The BoS project's overriding challenge for the pilots was to embrace more-than-human philosophy, arts-based process and co-design methods together and all at once, working through institutions and in regions where all three involved a steep learning curve. It is testimony to the achievements of the pilot teams that all pilots found their way to meet these learnings in one form or another - the report indicates the range of creative ways that this was enacted. However, more support specifically for such a change-management challenge would be effective. The project form (and, more generally, projectification) affected individual work packages, congruence and attempts to offer more cohesive and context-sensitive approaches. For this reason, particularly, the transversal zoöp workshop stood out as a sense-making tool and a common reference point (see s6). In particular, it helped the pilot teams shift from species- and linear- thinking to something more systemic and ecological in structure. It will be interesting to learn if this shift sustains.

10.2 Organisational Impediments to Embracing the More-than-Human

Pilots identified a number of challenges that slowed or impeded implementation of their forming plans and which, if eliminated, could have led to greater impact.

Lack of Remuneration: Where unaffiliated Sea Forum members and Ocean Ambassadors acting as facilitators and artists were not paid for their work, there was often reduced commitment over time. This points to a need for better recognition and formalization of their contributions. Conversely, investing in creche facilities and other support at events and meetings enabled broader participation.

Time for Trust-Building: A rush to have results and the pressures of the reporting structures (reflecting the demands of the funding) often precluded sufficient time for building trust, potentially perpetuating existing power structures. Projects with deep community involvement require long-term engagement, as do those advocating new relations. It showed across pilots where an early and sincere commitment to bringing in diverse voices had informed the process. Further, there was limited resourcing for inter-pilot dialogue and so mutual learning was limited to several online meetings and occasional in-person gatherings. Trips between pilot sites and more dialogue across interest groups such as regenerative menus could have built more insight.

Communication Barriers: Complex academic or project terminology, high-level concepts and absence of translation into local community languages acted as barriers to engaging underrepresented communities and had to be addressed specifically by teams where this was overcome. Language used to differentiate roles within the project acted first as a barrier and subsequently as joint language that supported communication about function. More time and resources would have been needed for greater interaction between individual pilots and this would have benefitted the discovery and development of shared goals, language and achievements.

Power Imbalances and Conflicting Agendas: Tensions and hierarchy effects were observed between various stakeholders (e.g. artists, citizens, authorities), and the process of mediating and negotiating a multitude of agendas was crucial but difficult. While this is a part of all change management and collaboration, the steep learning curves and range of interested parties meant that work could only progress slowly and sometimes had to find new routes to meeting a goal.

Lack of Flexibility: The rigid project structures and pilot hierarchies sometimes clashed with the fluid nature of artistic process and community engagement, indicating a need for adaptable approaches and patient infrastructural and cultural work alongside more obvious impacts. This also related to time budgeted for mutual understanding vs delivery.

The Need for Early and Continuous Engagement: There was a recognized need to involve socially-engaged artists and community members earlier in the project design, rather than primarily in later implementation stages, to strengthen community connection and ensure outcomes aligned with local expectations. It was also felt that key structures would have been useful from the outset, such as bringing in an external Speaker for the Living immediately. The Malmö pilot, which had the role before the zoöp workshop instantiated it formally, benefited from this earlier overview with associated early work on ocean literacy.

Clear and Relevant Change Agendas: Where teams formed early to drive a change agenda, more impact is being felt now. Across the sites, the impacts are mostly in subtle policy shifts, increased ocean literacy and greater citizen engagement, but there has also been development in engagement methods. The new underwater park in Malmö and the *river as museum* initiative in Oeiras point to cultural infrastructure that had a reciprocal relationship with the change in mood and increased concern for marine areas, while curricular developments in Delta and Hamburg show how ideas can be embedded educationally. Apps in Genoa and Venice, and Labs across all sites, offer models for engagement as well as content particular to each pilot. That said, there was no single change that all pilots made or that manifested across all sites; pilot ambitions were very varied and do not allow for comparison or analysis of how factors such as populations, geography or economics played out.

Sustaining the Learning: As with many funded projects, questions of how to sustain/grow initiatives after the project's end are arising. The involvement of the local municipality and

other institutions was seen as key to this at inception. Lessons on organisations' need for, remit for and impacts of caring (e.g. by including non-human species), different modes of working (e.g. the Hamburg culinary school) and methods of engagement (e.g. Genoa's more-than-human library) have been taken up for further development and there is commitment to continuing the legacy and the relationships at all sites. However, structures such as the pilot-zoöp, Sea Forum and Ocean Ambassadors will have differing futures across the pilots, with some of these co-design/cascading tools having run their course for now and some a key to future collaboration. Participant organisations are working out how to evolve their learning in this rapidly-changing field.

In sum, locally-grounded co-design was used as a vital and evolving approach to foster inclusivity, integrate diverse knowledge and create impactful, locally resonant ideas to address ocean-related challenges. Its successful application, however, depended on addressing systemic issues of funding, time, communication and power dynamics. Notably, the zoöp workshop led to the mapping of potential conflicts of interest, which informed concrete operational decisions, pointed to degenerative relations (including those within local organisations) that could be managed through building supportive relations elsewhere and recognised the complex processes that must be tapped into to move from trivial sustainability concerns to actions that regenerate and changed relations.

10.3 The Value of Learning Material

As noted, readers are referred to the Compass material as part of BoS's output on sea-facing, eco-social and more-than-human change-making (see s4.2, above). This was general material to inspire more-than-human eco-social approaches to working with the sea in the pilots, used within and outside the project to explain BoS goals. The Compass materials underpinned exercises at a couple of public workshops attended by Ocean Ambassadors and others and supplemented online training meetings. The relevance of producing *more-than-human* training input for the pilots really landed when a second series of learning materials appeared with the zoöp drop, this time as part of an in-person learning process, where the materials were made to record the journey through a two-day exploration of context and connections. The value of the second set was increased by these in-person training sessions for whole pilot teams, working to contextualise the learning and ensure that people collaborated around it. (The evolution of the training materials to better express more-than-human relations is laid out in s6.) In such a philosophically complex project, both sets of materials were remarkably light-weight and accessible, but the lesson to take away is that the materials themselves do not stand alone and where teams came together for multiple days to work through the ideas, the resulting shifts to thinking relationally were more palpable.

Artists variously brought their own methods and approaches, though the degree to which these reached beyond their artefacts to affect the processes around them also differed,

especially where their engagement was limited to the period of a commission. Hamburg and Delta are examples where curricula were developed by cultural partners. Malmö, Venice and Lisbon incorporated learning from the project into university teaching materials, while the Genoa team created materials for schools.

10.4 The Importance of Speakers for the Living

Speakers for the Living have had a significant impact on pilots' work. This is evidenced throughout the accounts. Establishing a Speaker required sourcing the appropriate person, but then relied on a modest commitment in terms of time or money relative to outcome. Naming the role and following the zoöp guidance on what makes a good Speaker was clearly instrumental in this though experiences differed between pilots. Where Speakers came in later (and the zoöp workshops were staggered through a long summer in year two, so take-up points varied), pilot teams felt the benefit, noting that access to a Speaker earlier could have supported development of more-than-human activities and sensibilities. It was commented that Speakers picked for their characteristics beyond their professional role had the most impact.

Speakers advocated for non-human life and advised on detail of this for a specific area. Speakers supplied insights in the moment that valued the great range of life in their orbit and the different needs of species cohabiting. In advising, they operated with an intensely local focus and on a case-by-case basis to avoid generalisation and a sense of arbitrating from outside the system. This avoids judging the value of life more generally. It is an embodied role, alive to the needs of all life, not just as an adjunct to human wellbeing, but as a mission to regenerate and enhance the conditions for all life to thrive.

Speakers could themselves be transformed in role by the requirements of the job (see s8). Meeting with other Speakers and encountering the zoöp philosophy brought a growing sense of responsibility, not merely as scientists, but as engaged and passionate experts on care.

10.5 Sensitising Communities and Speakers

The work of sensitising people to the needs of the ocean was a major part of the project, encouraged in Ocean Ambassadors and featuring significantly in the second stage of the zoöp workshop, on *sensing and listening* (s6). These activities promoted a relational aesthetic response, where new understanding of interdependencies and love for coastal ecosystems could manifest. This aesthetic learning is key to understanding the need for changed relations – it can infuse a feeling of care across coastal communities. However, while it actively supported citizens' ocean advocacy skills and ambitions, it is complementary to the work of the Speakers, who represented the non-human species in decision-making in the pilots and had to balance an advocacy role with that of advisor. The Speakers held responsibility for considering the systemic nature of the more-than-human; concern

included for individual species and instances of species, but looked also at the many agencies playing across the wider context and helped to interpret these for the decision-makers.

Speakers need actionable ecological knowledge to use in supporting life and regenerating habitats, which is an understanding of interactions across an ecosystem. They can be called on to look at bringing greater life to a pond or advise on the best material for use in construction. Effective Speakers can move between care of individuals and a more systemic view, to represent a balance of needs. And they understand that humans too are within the system and part of a flow of deeply rooted relations and influences. The account above (s9) shows how Speakers also develop their practice.

This appreciation for the flow of life has been eroded across the world as societies move away from the land and water for livelihoods and sense of community. Urban cultures, even those that value *Life Below Water*, have lost access to that combination of aesthetic and informational understanding. Sensitising activities can alert people to this lack of knowledge and help them take a more relational approach, leading to advocacy for a particular set of species or concerns. It is an important prelude to the work of caring for and representing non-humans, so that existing binaries are not reproduced. More on the distinction between sensitising and representing can be found in Light (2024), which compares functions and techniques in participatory *more-than-human* practices.

10.6 The Opportunities that Art provides for Care

The work of the Ocean Ambassadors was central to unfolding care. Particularly in contexts where the artist and Ocean Ambassador roles were fused, such as Hamburg and Malmö, the processes for engagement were clear and reproducible, allowing for attention to context. This section features an example of care-taking and inspiring, drawn from the work of the *Land Art i Skåne* Collective, presented as an interview with Eileen Laurie, the Ocean Ambassador and artist who represented Malmö at the quarterly artists gathering in Rotterdam in June 2025 (see Box 5 and Fig 22).

Box 5: Account of doing more-than-human land art as part of the Ocean Ambassador scheme in Malmö.

The Ocean Ambassador Artist, Sweden

Making an Ocean Ambassador Cascade with Land Art

Eileen Laurie, independent artist and Ocean Ambassador

I work between nature and human, or more-than-human - that's my art space, whether I'm making prints, illustrations or comics, or working with some sort of participatory practice. The sea has been a big theme. I feel more at home in the sea than in the forest. So, how do humans interact with it? And how we can improve ocean literacy, not just for ourselves, but other people? What does it mean to be learning about the ocean? The community doesn't stop with the human world. We actually co-evolved with the rest of

the planet; we've actually increased biodiversity. We think that we're either above nature, or destroying nature, because we think we're separate from nature. Whereas we're part of it. We have a role to play. It's really obvious that we're living things, isn't it?

Even before we were selected, there was a chance to meet other potential ocean ambassadors. It was already participatory from the beginning: we were already meeting each other, getting a chance to talk and I actually met one of my collaborators during a matchmaking event. That's so cool. This project wasn't lectures or info dumping. It was opening a space. In our case, for land art workshops. Land art is a kind of shorthand for meditation, nature connection, art making and Swedish fika. Fika [coffee break] is important. It's a connection time as well, isn't it?

It's very much place-based. We had three spaces, all connected to the sea: the beach; the canal in the park, to emphasize how the canal is actually part of the sea and to remind people that the sea used to come right up to the castle. (Human intervention changed the depth of the sea to such an extent!) And the third place is the South Wharf Basin.

You start off by scouting: you go and look and see what's there. Are there twigs lying around? Are there stones? And things that are often overlooked. When we're gathering everything, everyone just puts everything onto a blanket. We don't pick living plants ... If you really want to use this colour, this flower, this berry, then build your land art around about it. And then it is the classic tools of visual art: line, shape, form, volume. And since we had sound art, we also had sound. And we would always start with some exercise, just to get to know each other. And some sort of meditation. Many people hadn't expected at all to be meditating or talking to other people.

We always start with what we call a check-in. At the beginning, it's quite light; it might just be saying your name, why you signed up. And the second part of the check-in is the meditation bit, between 5 and 10 minutes. You can be sitting down, or lying, or standing, but it's to really ground yourself, on the beach, or the grass, or the wooden deck, and to really become aware of the different senses, not just sight. And we would read that out, the meditation and people would relax and listen, and then they'd go off and use the materials we'd gathered.

For example, on the beach, we had this wonderful sea creature meditation where you close your eyes, imagine you're entering the sea, you change into a sea creature (which could be real or imaginary) and all the things you experience there, and then you come back to shore, and you're still that creature, and then you go and create that creature. And it would make mermaids, or whales, or jellyfish, or all kinds of things.

We have only moved indoors twice because it was -4° C one time, and the other time it was absolutely bucketing down with rain. But on both of those occasions, we were out for at least 20 minutes. And in those situations, we would bring lots of materials, objects with us, which is a bit sad, but the participants can choose from what's on the table - rather than cancel the whole thing.



Fig 22: Doing land art on the beach with found objects. Credit: Eileen Laurie.

Then we'd have what we always call *The Exhibition*. We always do that the same way. We have artists on one side, the audience on the other. The audience comments first. And it's not like 'I like it', 'I don't like it'. We try and guide it with questions like 'What can you see here?' or, 'What are your initial reactions?' And then the artist responds: 'I never thought about that.' or 'Yeah, you're right, it is.'

We do stress this is going to disappear, but we don't destroy it until they're all gone. And people take photographs, definitely. Because then that becomes the fact that it existed, doesn't it? Our thing is 'leave no trace', so the only thing that we ever changed in any of these workshops was that, if somebody used trash to make art, we cleared it up and put it in the bin. We document the artwork and the process, so you'll see lots of pictures of hands and feet or the back of people's heads, because even if we have permission to use their images, we'd rather not. And, at the end, we maybe have an evaluation question, which would often be something like 'Did anything surprise you?' 'Was there something you would have changed?', or 'What was the thing that you found most interesting? What are you taking with you from today?'.

There's only so much you can do in a couple of hours. I think people felt they'd interacted with the sea, or the park or, this harbour space, in a different way, and they'd done something that was fun, and they might have learned a few things about it. Often if they were Malmö residents, they knew more than we did, so there was definitely an exchange of, 'Oh, I used to work here', or 'I knew someone...'.

We wanted to work with different groups of different ages. We wanted to learn about the ocean ourselves and also impart that information and encourage people to learn more

themselves - to build up a community of interested people. And, at the end of the workshops, we would say to people: 'You're an ocean ambassador as well now. You can go off into the world'. Then they smiled. They stood a bit taller, smiled and had a spring on their step. They're mostly very pleased to be christened Ocean Ambassador.

I've learned to take time, to not pack too much in, to not be afraid that I don't know the history of Malmö. And I feel like I've just scratched the surface. I want to go deeper, I want to do longer workshops and courses where people come back and...I want to do things like making dyes and paints from plants, and then painting with them, and making old charcoal from burning willow twigs, like... really... continuing this. Yeah, we are nature.

11. Conclusion

This document is long, extended by the philosophical groundings of the project that contextualise the results to render them comprehensible. It shows the variety, depth and reach of the more-than-human, sea-facing theme. Both the sea and the *more-than-human* have newly become a focus for designing. The BoS project was ambitious in bringing these together and consequently produced demonstrators that broke ground, took risks and made change, though the processes that appeared cannot be integrated into a single method. And it is early to judge efficacy. Even where drops have become ripples and started waves (to use project parlance), there will be a long process of reversing generations of disregard and lack of care; this is just the beginning.

Linking eco-social, sea-facing and more-than-human concerns for this report shows the diversity of pilots' approaches. There are no orthodoxies in this space, so pilots were creating their own paths to engage citizen in the life of the sea and to varying commitment to the tenets of the more-than-human listed in s3.1. This variety reflects what is *local*, but it is the societal structures and politics of the areas involved (and the nebulous agent of local culture) that have mattered most, not the type of coast. Social forces were more important than physical geography. 'Sustainable environmental stewardship relies on emotional, ethical and cultural connections between people and place ...restoration is as much a cultural task as it is an ecological one.'⁴⁰ The five countries involved each approach life differently and cultural dynamics also operated at the level of the town or region. Even how *the coast* is understood was cultural. In the project overall, it was a broad zone with many forms of life to consider and care for. Work took place beside rivers, estuaries, deltas and

⁴⁰ <https://www.whfp.com/2025/10/22/tobar-an-dualchais-living-heritage-for-living-landscapes/>

lagoons as well as beaches and open sea. As the Malmö pilot put it, “The Ocean Starts Here”, where *here* may be a canal, a glass of water or a toilet.

Introducing regenerative practices and more-than-human philosophy goes beyond conventional *sustainable* approaches to managing change. And institutions involved in the project are accountable to residents and businesses for whom the blue economy – and a viable financial system more generally – is of critical importance. But this did not appear as a tension because all partners were alive to the need for urgent change. However, as the EU’s Corporate Sustainability Reporting Directive states, fewer than 40% of companies identify issues such as pollution, water scarcity and biodiversity loss as material to their business, despite the evident threats⁴¹. Expanding beyond willing partners is going to take the confidence gained in this exploratory phase, evidence of effective local change and seductive starting points for slower or more sceptical actors. It may be that what has inspired Sea Forums and Ocean Ambassadors will have to change form as it meets greater resistance.

That said, some of the more-than-human impacts that appeared have wider applicability than just coastal cities and their oceans. This points to the importance of taking a holistic view of life and the social, economic and ecological systems interacting to create threats and opportunities, regenerative and degenerative relations, life and death. In the final analysis, the ocean is not to be separated from all life and the care needed for survival and flourishing, despite the practical focus for this project.

But this draws attention to another element in considering the outcomes of the research. There is no way that the project could have remained meaningful in all its diverse contexts had there not been the addition of *locally-grounded* to complement the aesthetic, sustainable and inclusive themes taken from the New European Bauhaus. Abstraction here is not valuable. This need for grounding is not an adjunct to the *more-than-human* concerns of BoS; it is at the very heart. While planning and policy-setting may be becoming more challenging as conditions grow less stable, the work of responding to the condition of the land and waters round us and adjusting actions to promote life becomes more urgent. In some contexts, where water moves through many jurisdictions and countries’ borders interrupt coastal management, the *local* may involve a vast, multi-agent watercourse management system; in others, what is considered local may be half a kilometre of beach. But it is always a focus on the specific in time and place that allows judgments to be made that promote life, not as some abstract quality (which fast degenerates into dangerous or empty prioritising) but as engaged and embodied care by people interested in the detail of other beings’ existence. The global and local meet in these actions and it is one of the skills of the storytellers that infuse this project that they can bring both into view through their participatory processes.

⁴¹ <https://www.reuters.com/sustainability/land-use-biodiversity/burden-proof-has-flipped-why-is-nature-not-material-your-business-ecmii-2025-09-23/>

It is also clear that advocacy was a key part of this project and the combination of the Speaker for the Living to inspire and the Ocean Ambassadors to amplify and spread this inspiration was crucial to the pilots' successes, particularly with regard to meeting the tenet of more-than-human philosophy that is decentring exclusively human interests. Returning to the theme of changing meanings, connections and power, it takes work on all fronts to effect significant and needed transformation. The pilots worked out how meanings and connections could be impacted in their design work and are on their way to understanding how more-than-human power relations might manifest differently for their localities. If European cities are to rise to IPBES' challenge of inclusive and diverse visions that recognise the interdependence of people and ecosystems, guided by an ethics of care for all life, with transformation across views, structures and practices, then the demonstrator work here is just the beginning of resetting relations.

The Last Word

In acknowledging power relations, I give the last word to the sea. For the sea will have the last word...

References

- Yoko Akama, Ann Light, and Takahito Kamihira. (2020). Expanding Participation to Design with More-Than-Human Concerns. In *Proceedings of the 16th Participatory Design Conference 2020 - Participation(s) Otherwise - Volume 1* (PDC '20), 1–11. <https://doi.org/10.1145/3385010.3385016>
- Karen Barad (2007). *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning*. Duke University Press, Princeton, MA.
- Rosi Braidotti. (2010). The Posthuman Predicament. In Anneke Smelik (ed.) *The Scientific Imaginary in Visual Culture*. V&R unipress GmbH, Göttingen, 9783899717563.
- Bronwyn Cumbo and Rowena Potts. 2024. Our Water Stories: A four-part participatory film method to support children set the agenda for design. In *Proceedings of the Participatory Design Conference 2024: Full Papers - Volume 1* (PDC '24), ACM, New York, NY, USA, 63–74. <https://doi.org/10.1145/3666094.3666100>
- Kristy de Salas, Jennifer Louise Scott, Benjamin Schüz and Kimberley Norris (2022). The super wicked problem of ocean health: a socio-ecological and behavioural perspective. *Phil. Trans. R. Soc.* B37720210271. <https://doi.org/10.1098/rstb.2021.0271>
- Anders Emilsson. (2015). *Design in the space between stories: design for social innovation and sustainability—from responding to societal challenges to preparing for societal collapse*. PhD Thesis. Published by Malmö Högskola, Sweden. 78-91-7104-633-8. Available at: <https://mau.diva-portal.org/smash/get/diva2:1404330/FULLTEXT01.pdf>
- Donna J. Haraway. (2016). *Staying with the Trouble: Making Kin in the Chthulucene*. Duke University Press Books, Durham.
- Donna J. Haraway. (2003). *The Companion Species Manifesto: Dogs, People, and Significant Otherness*. University of Chicago Press: Chicago
- Lara Houston, Ann Light, and Cassie Thornton. (2022). The Richness of Designing for Eco-Social Change. In *LIMITS '22: Workshop on Computing within Limits*. ACM, New York.
- Sheila Jasanoff. (2010). A New Climate for Society. *Theory, Culture & Society*, 27(2-3), 233-253. <https://doi.org/10.1177/0263276409361497>
- Bruno Latour (2005) *Reassembling the Social: An Introduction to Actor-Network Theory*. Oxford University Press. 9780199256044.
- Ann Light (2024). More-than-Human Participatory Approaches for Design: Method and Function in Making Relations. In *Proceedings of the Participatory Design Conference 2024: Exploratory Papers and Workshops - Volume 2* (PDC '24), ACM, New York, NY, USA, 1–6. <https://doi.org/10.1145/3661455.3669862>

Ann Light, Jaz Hee-jeong Choi, Lara Houston, Andrea Botero. (2024). Enacting Entanglement: CreaTures, Socio-Technical Collaboration and Designing a Transformative Ethos. ECSCW'24 *Comput Supported Coop Work* (2024). <https://doi.org/10.1007/s10606-024-09497-8>

Andrew McGregor and Ashraful Alam (2022). More-than-human Development. In *The Routledge Handbook of Global Development*, Routledge.

Timothy Morton (2016). *Dark Ecology: For a Logic of Future Coexistence*. Columbia University Press.

Cristiano Pedroso-Roussado, Klaas Kuitenbrouwer, Vera Fearn, Mariana Pestana, Valentina Nisi, Ann Light and Nuno Nunes. (2025). Zoöp Futures: Towards an organisational framework for ecological cooperation between humans and more-than-humans. *Futures*: 169.

Maria Puig de la Bellacasa. (2019). Re-animating soils: Transforming human–soil affections through science, culture and community. *The Sociological Review*, 67(2), 391-407. <https://doi.org/10.1177/0038026119830601>

Miles Richardson. (2025). Modelling Nature Connectedness Within Environmental Systems: Human-Nature Relationships from 1800 to 2020 and Beyond. *Earth* 6(3), 82; <https://doi.org/10.3390/earth6030082>

Janet Read, Matthew Horton, Dan Fitton, John King, Gavin Sim, Julie Allen, Ioannis Doumanis, Tony Graham, Dongjie Xu, Michelle Tierney, Mark Lochrie, and Scott MacKenzie. (2024). Inclusive Child Engagement in HCI: Exploring Ocean Health with Schoolchildren. *Proceedings of the 23rd Annual ACM Interaction Design and Children Conference*. ACM, New York, NY, USA, 83–92. <https://doi.org/10.1145/3628516.3655750>

Anna Seravalli, Ann Light and Anders Emilsson (2023). The Co-Design Template. Available at: <https://mau.diva-portal.org/smash/get/diva2:1826944/FULLTEXT01.pdf>

Avantika Velho, Pedro M. Cruz, and Katia Zolotovskiy. (2025). Ocean Interactions: Exploring Marine Microbial Ecologies. Companion Publication of the 2025 ACM Designing Interactive Systems Conference. ACM, NY, USA, 157–162. <https://doi.org/10.1145/3715668.3736387>

Henriëtte Waal & Clemens Driessen (Eds.) (2025). *Water Works: Ecosocial Design*, Valiz, NL

Anne-Marie Willis. (2006). Ontological designing. *Design Philosophy Papers*, (2):1–11.

Daisy Yoo, Tilde Bekker, Peter Dalsgaard, Eva Eriksson, Simon Skov Foug, Christopher Frauenberger, Batya Friedman, Elisa Giaccardi, Anne-Marie Hansen, Ann Light, Elisabet M. Nilsson, Ron Wakkary, and Mikael Wiberg. (2023). More-Than-Human Perspectives and Values in Human-Computer Interaction. In *Extended Abstracts of the 2023 CHI Conference on Human Factors in Computing Systems (CHI EA '23)*. ACM, NY, USA, Article 516, 1–3. <https://doi.org/10.1145/3544549.3583174>.