



Refined and tested blueprints for stewardship assemblages

Deliverable 5.1



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Table of content

1. Introduction.....	3
1.1 Background FLOW	3
1.2 Research Question we are addressing	4
1.3 Methodology for this report.....	4
1.4 What are we looking for? Refining the target concept	5
2. The FLOW Youth Empowering Human-Water Mutual Care Assemblages.....	9
2.1 YWMCA 1: Experiential Mutual Learning Arenas.....	12
2.2 YWMCA 2: Multispecies Institutional & Legal Frameworks	17
2.3 YWMCA 3 Water Appreciating Cultural Practices	21
2.4 YWMCA 4 Cross Boundary Water Alliances	31
2.5 YWMCA 5 Water Caring Economy.....	38
2.6 YWMCA 6 Collective Water Restoration Action.....	45
3. Conclusions & Recommendations.....	49
4. Annex: Survey Results	51
5. Literature	52

1. Introduction

1.1 Background FLOW

The FLOW project¹ was designed and planned to better understand both the present relationships between younger generations and water ecologies and the future relationships with water that younger generations envision and would like to build towards. In re-centering the role of European youth in addressing the central goals of the European Mission *Restore our Oceans and Waterways by 2030* (i.e. Mission Ocean), the FLOW project has conducted research that directly engages with young people from across seven different biogeographic water regions of the continent.

This research has included a number of activities, each considering important aspects of how young people (18 – 30 years old) form psychological, physical, and social relationships with water systems and how these relationships inform younger generations ‘images of the future’ for water ecosystems. These activities align with FLOW’s interdisciplinary workshops, as highlighted in the 'Catalogue of Images of the Future,' where storytelling and experiential methods allowed youth to envision actionable, reflexive stewardship clusters. Additionally, the FLOW project has undertaken work to help better understand the different modes of social interaction that young people value and respect as they work towards achieving sustainable water futures. In this document we present findings related to both outcomes. In section 2 we will introduce the concept of the “Youth Empowering Human-Water Mutual Care Assemblage (YWMCA)” – and the archetypal forms of these assemblages that can help organise thinking about how these proactive groups are composed, the resources and capacities they utilise, and the goals that motivate the assemblage to action. Across the FLOW project, we have encountered a broad diversity of water-focused ideas and projects, in which young people are involved and that are motivating other European youth to engage with local, national, regional and European peers in pursuit of improving water ecosystem health. The assemblages presented here are organised according to common themes and action areas that these many different projects outlined.

These archetypal assemblages are accompanied by a series of blueprints to empower organisers, activists, students, blue economy workers, industrial leaders, artists, entrepreneurs, administrators, public servants, and other actors initiate and foster (the development of) one or more Youth Empowering Human-Water Mutual Care Assemblages in the contexts that matter to them. This document uses examples from each phase of FLOW to substantiate both the archetypal assemblages and the blueprints on how to build or foster them. The blueprints outline how a group might approach the creation of an assemblage or strengthen existing assemblages– who to include, what resources and finances to muster, and how different actor motivations can be brought together to help create preferable water futures. By mapping the parts and relationships between different components of assemblages that have been identified across the FLOW project using the blueprint, actors can help local, regional, and international water projects build new human-water connections and move the needle on key water restoration and protection issues.

This deliverable aims to enhance understanding and support the dissemination and scaling of initiatives. The blueprints for the YWMCA are intended for two key groups. First, it addresses public authorities, research organizations, and blue economy actors who wish to strengthen their connections with and engagement of younger generations. They can adapt the blueprints to their specific contexts and enact them, fostering a stronger engagement with young generations. The blueprints can serve as an

¹ www.flowhorizon.eu

inspiration towards a future-oriented approach. Second, it provides reflection, inspiration and insights for young activists, leaders, and innovators working on water-related issues.

1.2 Research questions shaping Assemblage Blueprints

This report on social blueprints for the creation of Youth Empowering Human Water Care Assemblages is intended to help communities create their own local organisations for the restoration, appreciation and protection of water ecosystems or foster and strengthen existing initiatives.

The research questions driving the production of the blueprints include:

- What do younger generations of Europeans seek in water-focussed initiatives to feel empowered to act for water in their local communities?
- How do younger generations desire to interact with other social actors like governments, established NGOs, businesses, and social institutions?
- Who do younger generations view as key partners in creating water focused action groups? What types of resources do youth identify as necessary for the support of the water-focused organisations they want to be a part of?

In analysing the research results gathered across the FLOW project, including the co-created prototype blueprints for specific local and regional assemblages, this report presents generalised social interaction blueprints for different species of water-focused organisations. Each of these generalised social interaction blueprints provides answers to the above questions while providing guidelines that can foster the development of diverse water-care assemblages and empower existing assemblages.

1.3 Methodology for this report

Our findings are based on the four key research steps of FLOW:

- inFLOW Lens (WP1) – Components of the inFLOW lens (D1.1, D1.4) has shaped the definition of the assemblages and has informed the understanding of the assemblage's constituent elements.
- Foresight Study Mixed Media Corpus (WP2) – The analysis of the mixed media corpus (D2.1, D2.2) has helped better understand the way that future-oriented hopes and fears might be addressed by different archetypal assemblages. This analysis included horizon scanning and weak signals analysis, which revealed emerging cultural trends shaping human-water relations.
- Pioneering Initiative Interviews (WP3) – Pioneering initiatives were influential in seeding the assemblages (D3.3), informing the different types of assemblages that were possible and working towards both shared and unique missions.
- Experiential Workshops (WP4) – In workshops within each of the FLOW biogeographic regions, youth participants created a rich collection of products with respect to aspirational future human-water relationships, particularly in the 'declaration' 'message in a bottle' activities (D4.1, D4.4).
- Co-Creation Event & participants survey (WP5) – The co-creation event provided working examples of how social interaction blueprints could be produced in short time and with heterogeneous working groups. Participant reflections on the social interaction blueprints collected in the survey helped to shape the assemblage templates and identify initial best production practices presented in this document (D5.1).

Finally, we received and integrated feedback we received from key user groups in a blueprint refinement workshop on November 18th, 2024.

1.4 What are we looking for? Refining the conceptual foundation for assemblages

The FLOW project was designed and planned to better understand both the present relationships between younger generations and water ecologies and the future relationships younger generations would like to build towards. We were starting the journey with a roughly defined notion of “stewardship assemblages” for the desirable future human-water configurations we were aiming to set up. In the course of the project this initial understanding was refined through both conceptual and empirical work.

With (Briassoulis 2019, p. 425) we define assemblages as “the coming or fitting together of diverse, heterogeneous, material and human components into dynamic, provisional, decomposable, but irreducible wholes to serve a purpose, and creating agency”.

The inFLOW lens (Priebe et al. 2023a) emphasises the inclusion of different perspectives of human-water relations. This includes:

- Recognition of more-than human perspectives i.e. focus on noticing and listening to the worlds of “different beings co-dwelling on Earth, including and surpassing human societies” (de Souza Júnior, 2021, p. 1).²
- Caring practices where people seek to meet the needs of another human or non-human entity regardless of the benefits this has for oneself and that make living better in interdependence (Jax et al. 2018), maintaining and repairing the world so that humans and nonhumans can live in it in a complex life-sustaining web (La Bellacasa 2017; Krzywoszynska 2019).
- Recognition of power structures highlighted in critical theories (Bennett et al. 2018).

The inFLOW lens and FLOW encyclopaedia (Mashiur et al. 2023) further distinguish (based on Ives et al., 2018), five **dimensions of connectedness with water**:

- Material – consumptions and use of materials from water.
- Experiential – direct interactions with water.
- Cognitive – knowledge about water.
- Emotional – feelings about water.
- Philosophical – reflecting on values of water and on how humans should interact with water

Our research on the approaches of the pioneering initiatives and the motivations of the participating young people (van den Born et al. 2024b) concluded that there are multiple pathways to connectedness to water and to action for water. We emphasised that different approaches based on different dimensions of connectedness speak to different people, for instance focussing on experiences (experiential connectedness) or on intellectual interests (cognitive and reflective connectedness). Therefore, we concluded that it is important to **promote a broad variety of framings and approaches** (e.g. art, more-than-human perspectives, travel, tradition etc.) **for the initiatives instead of one-size-fits-all kind of approaches** (van den Born et al. 2024b, p. 60). Such a variety is key to attract the attention and **ensure the collaboration of people from different socio-economic and cultural backgrounds**.

Adopting van den Born's "visions of nature" concept we further distinguished four categories of human-nature relationships (van den Born 2008; van Born et al. 2001; Mashiur et al. 2023):

² Cf D3.3 p. 12

- **Human as master over nature:** Anthropocentric view dominated by ideas of control (e.g. humans use and fix the aquatic ecosystem).
- **Human as steward of nature:** Anthropocentric view dominated by ideas of responsibility (e.g. humans have a responsibility towards aquatic ecosystems, other species and future generations).
- **Human as partner with nature:** Eco-centric view dominated by ideas of equality (e.g. humans possess rights, so we also need rights for nature)
- **Human as participant in nature:** Eco-centric view dominated by ideas of oneness and interdependence (e.g. humans are part of nature, not only physically but also their identities)

Based on the FLOW findings we argued that especially the framing of “**human as participant in nature**” holds potential to strengthen connectedness with water in young people. This approach views humans as part of an interconnected ecosystem, where emotions and direct experiences with water play a central role. This was also reflected in our findings in the Foresight Horizon Scanning (Priebe et al. 2024a) which revealed signals for change in all these categories.

Moreover, as discussed in depth in FLOW Deliverable 3.3 (van den Born et al. 2024b) we have embraced the inclusion of **relational values** that emphasise the qualities of the relationship between human and nature in addition to intrinsic and instrumental values that focus on the value of nature in itself (intrinsic) and the value of its use (instrumental).

In its investigation of young peoples’ motivations to act for nature FLOW has built on the insights of Self Determination Theory (Deci and Ryan 1985; Ryan and Deci 2000) which suggests that people are more motivated to act for something if they are self-determined or autonomously motivated. This requires that people have the competence to perform actions, have meaningful relations with others and feel autonomous in their actions. (Ganzevoort and van den Born 2023) show that in the context of action of nature, this relatedness with others can be broadened to relatedness with nature. Also among young people (18-30), previous research demonstrated that the basic psychological needs can be met in their action for nature and that young people also seek ways of satisfying those needs by their action for nature (van Heel et al. 2023).

Accordingly, we concluded that **attention should be paid to fulfil the basic psychological needs, autonomy, relatedness and competence, in order for young people to be motivated in their action for water.** Our study also highlights the important **role of peers for keeping up hope.** Finding peers is crucial for motivation to (locally) act for nature and water. Despite being aware of being in their own bubble, it helps to gain trust that other people and governments are also willing to act. In order to not only cope with the world’s problems in an emotion- and problem-focussed way, leading to low subjective well-being and inaction, but also having the chance to find your way towards a **meaning focussed coping strategy** (Ojala 2012; Chawla 2020) leading to trust, collaboration and meaningful action, we should create the most beneficial conditions to keep this **constructive hope** in reach for young people. More insight is needed in these strategies and how it relates to the news avoidance we found. **Research is needed on what exactly contributes to keeping hope, however, one thing we know from our study is the importance of finding peers.** Initiatives such as studied in our FLOW project can play this role and are therefore of vital importance. Also **to be visible and to be found** for those young people who are already connected to water and nature as well as for those who are interested in other domains (e.g. art, philosophy) and became connected to water via their participation in the initiatives.

Finally, the research revealed the crucial role of peers and young people’s need for social interaction with people from their own age. In addition, however our study stressed the importance of **inter-**

generational communities and highlighted the broad variety in how young people relate to the older generations. Belonging to an inter-generational community, provides the opportunity to meaningful interactions and mutual learning, creating intergenerational perspectives and a broader horizon.

Based on these refinements we have adopted a terminology to describe the configurations we are looking to sketch in this final flow deliverable that embraces also eco-centric views, more than human perspectives and relational values in particular caring practices and invites recognition of power relationships.

The “**Youth Empowering Human-Water Mutual Care Assemblages**” (in the following just Assemblages or YWMCAAs) are **configurations of diverse elements that empower young people to set up and join mutually caring cooperations with other human and more-than-human actors around aquatic ecosystems that maximise the flourishing capacities of all its entities. Such configurations should inspire constructive hope and meet young peoples’ need for competence, relatedness and autonomy as a basis for self-determined action. They should focus on enabling peer to peer interaction but also include intergenerational learning with older generations. They should deepen connectedness between young people and nature across all its diverse dimensions.**

A variety of different such configurations should be available to attract people from different socio-economic and cultural backgrounds.

The specific actors and goals for fulfilling these missions will vary based on the context in which an assemblage is created, but the general outline of such assemblages can be traced to multiple products from the FLOW research findings.

For the purposes of this report, we have used a terminology to help describe the composition of an assemblage and how its constituent components work together towards particular goals. The assemblages presented are written as generic archetypes – seeds for change - and we present the terminology used to describe them (in **bold** below) as part of the foundation for the creation of new social interactions towards the fulfilment of Mission Ocean.

Within assemblages, **actors** can be understood as entities that have various agencies (capacities to act). To better align some elements of the blueprints with the human-water interconnectedness that underpins this research, we have decided to list human, and other-than-human actors separately for the blueprints. **Human actors** encompass different demographic categories (e.g. young people), different types of institutions (e.g. NGOs, businesses, governments, schools, etc.), different scales of organisations (e.g. local, regional, or national governments, or international organisations), and other types of categorisations (e.g. legal workers, public administrators, teachers, etc.). Similarly, **other-than-human actors** presents a broad range of meaning in the blueprints including types of organisms (e.g. fish or plankton), species, particular ecosystems (e.g. coastal coral), or entire bodies of water (e.g. the Baltic Sea).

To a reasonable extent, we have also included the **relationships** between the different actors involved in the social interaction blueprint. There was great diversity in the detailed information offered in the blueprints used to create these assemblages. This has made it challenging to accurately describe all assemblage relationships outlined in the co-creation event and other FLOW project activities.

Some of the relationships within the assemblages revolve around the distribution of different types of **resources** (e.g. material, cognitive, fiscal, etc.) and **capacities** (expert knowledge, skills, abilities, etc.). The bulk of each assemblage blueprint will focus on describing the relationships between different actors and resources and capacities.

However, in order to recognise the intentions of the assemblages, in so far as they have been articulated or implied, we include two other assemblage components: motivations and goals. **Motivations** in most assemblages are expressed as human intentions with respect to human water connections – a point that could be contentious – but is reflective of the data gathered on desired social interactions. **Goals** are often articulated as an expected product of the assemblage – a result pursued by cultivated actor

relationships that rely on shared or complementary motivations in deciding the best uses for resources and capacities.

To sum up, in characterising **Youth Empowering Human-Water Mutual Care Assemblages** the following questions provided guidance:

- Who are the human and more-than-human actors involved?
- What are the relationships between those actors?
- In which power structures are they entangled?
- How is agency (capacity to act) generated and distributed within the assemblages?
- What caring practices are used to maximise the flourishing of each other's capacities?
- What are the capacities and resources the actors bring into the assemblage and that they grow through the assemblage?
- What motivation drives their action?
- How are young people empowered to set up or join the configurations?

2. The FLOW Youth Empowering Human-Water Mutual Care Assemblages

In total we identified six YWMCA's:

- Experiential Mutual Learning Arenas
- Multispecies Institutional and Legal Frameworks
- Cultures of Water Appreciation
- Nourishment Networks to Empower
- Water Caring Economies
- Collective Water Restoration/Rehabilitation

These assemblages are designed to address both the socio-emotional and cognitive dimensions of water connectedness, as described in the 'Currents of the Present' section of the FLOW Catalogue of Images of the Future (D4.4), where participants emphasised context-specific relationships with water bodies. Furthermore, the assemblages are not viewed as mutually exclusive, acknowledging that their activities or mission elements may support one another in productive ways. This means that multiple projects can work towards fulfilling a single assemblage mission AND a single project can work toward the goals of more than one archetypal assemblage.

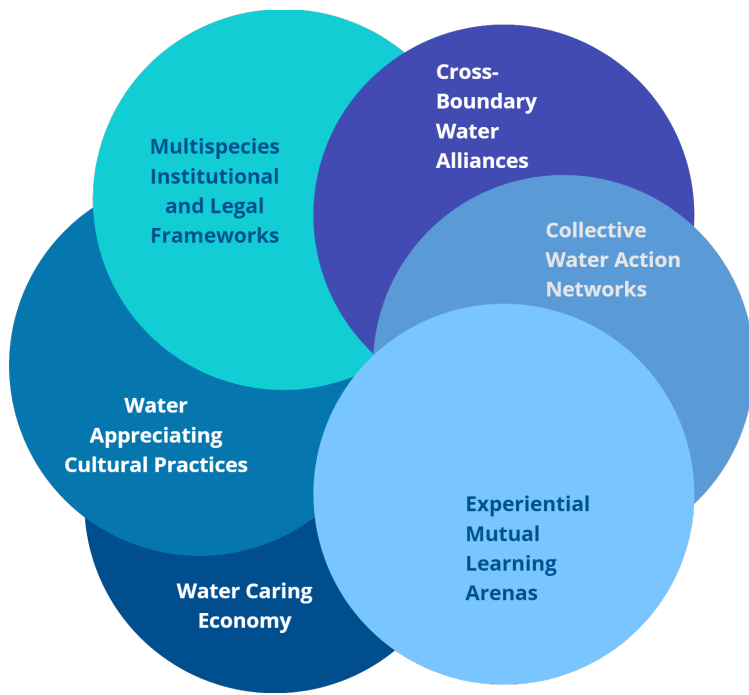


Figure 1: Interplay of FLOW Youth Water Mutual Care Assemblages. All Assemblages share overlapping parts, but each focuses actions towards different general goals.

In the following paragraphs we will sketch each assemblage along the guiding questions outlined above.

Experiential Mutual Learning Arenas

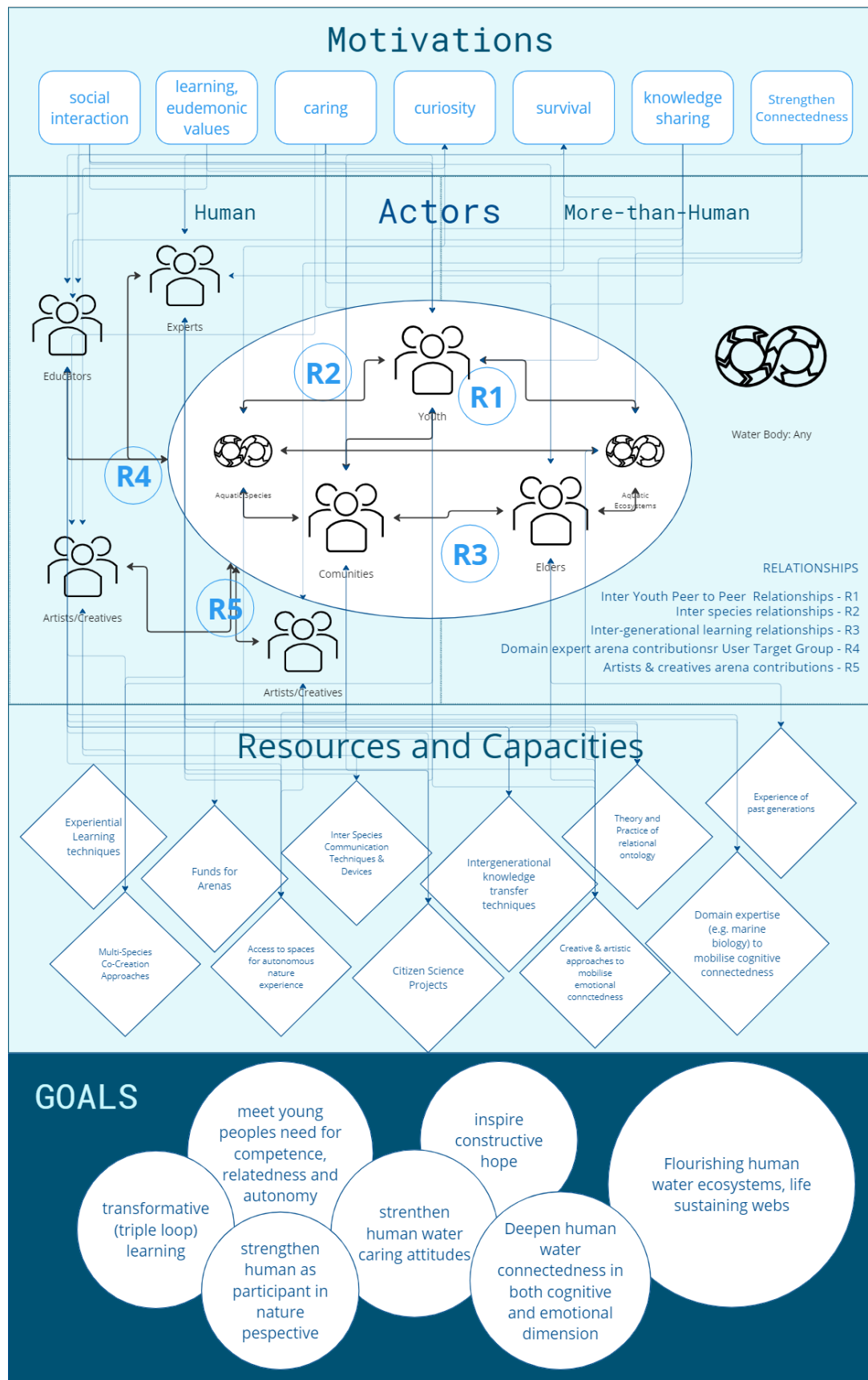


Figure 2: Experiential Mutual Learning Arenas – Assemblage Blueprint Template

2.1 YWMCA 1: Experiential Mutual Learning Arenas

Experiential Mutual Learning Arenas are multi-species spaces where human and more-than-human entities are deeply engaged in multi-sensory mutual learning experiences. The assemblages can be composed of multiple human stakeholder groups and encourage learning along a spectrum of informal/formalised curricula. These are spaces wherein humans can immerse themselves within vibrant ecosystems for semi-structured learning through interaction and observation.

Who are the human and more-than-human actors involved?

In the centre of the arena, we find young people in close interaction with all types of aquatic ecosystems and species. The interaction is also fuelled by people from older generations who feed in their knowledge and experience. Experts in various domains as well as artists and creatives contribute to enabling the interaction, while respecting the self-determination of the young people.

What are the relationships between those actors? In which power structures are they entangled? How is agency (capacity to act) generated and distributed within the assemblage?

Human and more-than-human actors are continuously negotiating and generating agency through their modes of interaction. The relationships are sensitive to power relationships in the sense that they continuously reflect on them. Agency generation is dependent on the type of activities conducted by the assemblage but is likely to include on the human side both creation of experience-based knowledge and constructive hope as a basis for confident self-determined action. More-than-human entities gain agency within the human realm through being recognised as an active learning partner rather than a passive object of study.

What are the dimensions of connectedness addressed?

The YWMCA primarily addresses the experiential dimensions of connectedness through direct interactions with water. At the same time, however, a wealth of knowledge and feelings about aquatic ecosystems is generated in the process so the cognitive and emotional dimension are addressed as well. Finally, such configurations have the potential to inspire deep reflection on worldviews and core assumptions (triple loop learning) and thereby to transform human-nature relationships (Tschakert and Dietrich 2010, p. 203; van den Born et al. 2024b) thus addressing the philosophical dimension of connectedness.

What caring practices are used to maximise the flourishing of each other's capacities?

The main element of caring is mutual learning to deepen understanding of each other's connectedness, and reinforce the understanding that humans are participants in nature. In this way care attitudes may be augmented and transformed through learning experiences and care practices can also be understood.

What are the capacities and resources the actors bring into the assemblage and that they grow through the assemblage?

- Inter-species communication techniques & devices
- Experiential learning techniques
- Theory and practice of relational ontology
- Multi-Species Justice Systems

- Intergenerational knowledge transfer techniques, experience of past generations
- Access to spaces for autonomous nature experience, funds to set up the arenas
- Multi-Species Co-Creation Approaches, Citizen Science Projects
- Domain expertise (e.g. marine biology) to mobilise cognitive connectedness
- Creative & artistic approaches to mobilise emotional connectedness

What motivation drives their action?

Young people are motivated mainly by the chance for meaningful social interaction, curiosity, desire for learning and fulfilling life (eudemonic values). Elders are also motivated by the desire for sharing the knowledge they have gained through experience and from their ancestors. The motivation of more-than-humans can only be speculated on in order to avoid anthropomorphism. Aspects of their motivation could be curiosity, learning, joy, and desire to flourish in more sustainable relations with human beings.

What FLOW results is it based on?

The value of experiential learning relationships for maximising flourishing aquatic ecosystems and human-water relations was underpinned by FLOW research components in several respects:

The literature review and knowledge integration documentation (Borit et al. 2023) and the research on the pioneering initiatives (van den Born et al. 2024b) revealed that:

- By fulfilling deep psychological needs of young people for connectedness, relatedness and competence, self-determined rewarding learning experiences reinforce engagement for nature.
- Such configurations have the potential to inspire deep reflection on worldviews and core assumptions (triple loop learning) and thereby to transform human-nature relationships (Tschakert and Dietrich 2010, p. 203; van den Born et al. 2024b).
- Participant in Nature: This approach views humans as part of an interconnected ecosystem, where emotions and direct experiences with water play a central role.
- Connectedness with nature and water is vital for action for nature (Zylstra et al. 2014).
- Autonomous nature experiences in childhood are vital to foster this connectedness (van den Born et al. 2018) but are in more and more restricted danger because of urbanization, social media, inaccessibility of nature etc. Therefore, it is of utmost importance that children now and in the future have access and the possibilities to play in and with water and nature on their own and with friends, building place attachment and connectedness.

In the analysis of the bioregions conducted by FLOW, it emerged that especially for the Mediterranean Sea region, raising awareness, building and increasing Ocean Literacy by the involvement of communities, citizens, teachers to empower “sea actions” is a crucial step towards restoration. Developing better understanding for how the sea functions on an ecosystem level instead of a species level would enable systems perspective for a resilient and healthy sea (Borit et al. 2023, p. 12).

Several concepts of the “FLOW Encyclopaedia” (Mashiur et al. 2023) highlight aspects within such configurations such as citizen science, co-creation, inclusion principle, and relational values.

WP2 Foresight Study (Priebe et al. 2024a) highlighted several “signals of change” pointing towards such mutual learning configurations and counted them among the hopeful signs of change. One prominent example is the Oscar rewarded documentary “My Octopus Teacher” (Priebe et al. 2024a, p. 36 ff).

Among the pioneering initiatives investigated by FLOW several have incorporated aspects of this YWMCA. In particular the pioneering initiative “Classroom under Sails” (van den Born et al. 2024b, p. 35 ff) falls into this category. Classroom under Sails is an educational project on a sailing ship that embraces and experiments with experiential learning concepts. Onboard, around 30 pupils of the 10th grade (around the age of 16) together with a small group of educators join a professional sailing crew and embark on a six-month long journey. The sailing ship *Thor Heyerdahl*, on which Classroom under Sails takes place, is operated by a non-profit association. Activities connected to the project include experiential school classes, nautical lessons, ship watches, shore leaves, clean-ups, scientific experiments, and ship handovers. The



project meets educational requirements and is recognized as a school visit abroad. The lessons onboard include various subjects, internships, and scientific work. The project aims to strengthen pupils' independence, initiative, and sense of responsibility. The Friedrich-Alexander-Universität Erlangen-Nürnberg studies the project to gain evidence-based findings for the improvement of teaching and learning processes.

Experiential Workshop results from across multiple biogeographic regions (Sorkuncuk et al. 2024) highlighted the need for the development of educational programs or curriculum to raise awareness about water's role in human systems, the importance of water ecosystem health, and some of the issues concerning water-based pollution, habitat destruction, loss of biodiversity. In many of the ‘message in a bottle’ responses, learning experiences that took place at specific water sites – including coasts, rivers, as well as important infrastructure like water treatment plants, dams, reservoirs, etc. – became an integrated component of official education programs. Themes regarding awareness raising and education to deepen appreciation for water bodies were also components of many of the ‘Declarations’.

Finally, within the WP5 Co-Creation Event several of the visionary engagement activities developed by the young people emphasised such two-way human nature learning experiences examples are “Surfing with Poseidon” where surfing youngsters interact with nature through the Ocean God Poseidon and “Youth Eco Cruise™” where humans are guided by young people to learn about water ecosystems through direct conversation with fish. The “Experiential Futures Workshops” (Priebe et al. 2023b) that were developed and tested by FLOW, are themselves a prime example of experiential mutual learning arenas.

Example Blueprint Specifications:

Youth Eco Cruise™

The Youth Eco Cruise™ invites young people to join a sailing cruise where they are exposed to issues of waste, biodiversity and fishing and create social media content raising awareness on these issues together with local experts. An example of content produced could be an interview with fish on their experience with human waste. The goal is to reduce the environmental harm from tourism, in particular waste from cruise ships, and to raise awareness of waste issues on land.

During the final presentations of the Co-creation event, a digital survey was conducted to collect attendee feedback on the social interaction blueprints that were developed. We provide a selection of those comments here to demonstrate how some of the social interaction ideas were received.

Comments from Survey on Youth Eco Cruise	
Usefulness	Inspiration
• “There's already a program similar to this in my region! And it's changed my life and the lives of many friends I know. We are now much more aware of waste issues, and we can explain these issues in detail to people we talk to. The awareness of waste at sea from a boat has changed how I think of waste in my daily life on land. • “... Perhaps the Youth Eco Cruise could stand out by being entirely created by young people...” • “Immersive experience and reproducible for schools, a lot to do with prospective: love it !”	• “Experiencing water can help with a better relationship with water bodies” • “I feel like trips always have a long-lasting impact.” • “... I like how it encourages eco-travelling rather than not travelling at all...I believe one of the key things that the ecological crisis forces us to do is to develop a sort of sensitiveness and tuning towards other beings...” • “The more the projects invest in young people, the more they are likely to give back.”

Table 1 - Responses from participant survey gathered on Youth Eco Cruise social interaction blueprint

Surfing With Poseidon

This government-funded awareness raising campaign is collaborating with influencers and other persons with influence in the public and youth to inspire responsibility among tourists who come to visit the Mediterranean countries who suffer under overtourism. The campaign is leveraging behavioural insights and working with famous people to create awareness-raising content that can be presented to tourists e.g. via the airplane screens. E.g. in the spot 'Surfing with Poseidon' Poseidon urges surfers to be mindful of nature. The goal is to reduce the massive environmental impacts of tourism in the Mediterranean Island and coastal regions. The campaign could be scaled up gradually by collaborating with more and more actors from civil society and companies.

Experiential Futures workshop

The Experiential Futures workshop can be utilised in the early phases of any assemblage creation activities or could precede such activities. This workshop, which is flexible to contextual differences, gives groups a process through which fundamental questions outlining an assemblage – who is involved, what resources are required, what motivations toward action already exist etcetera – are approached, and already empower groups towards actions and build constructive hope.

Multispecies Institutional & Legal Frameworks

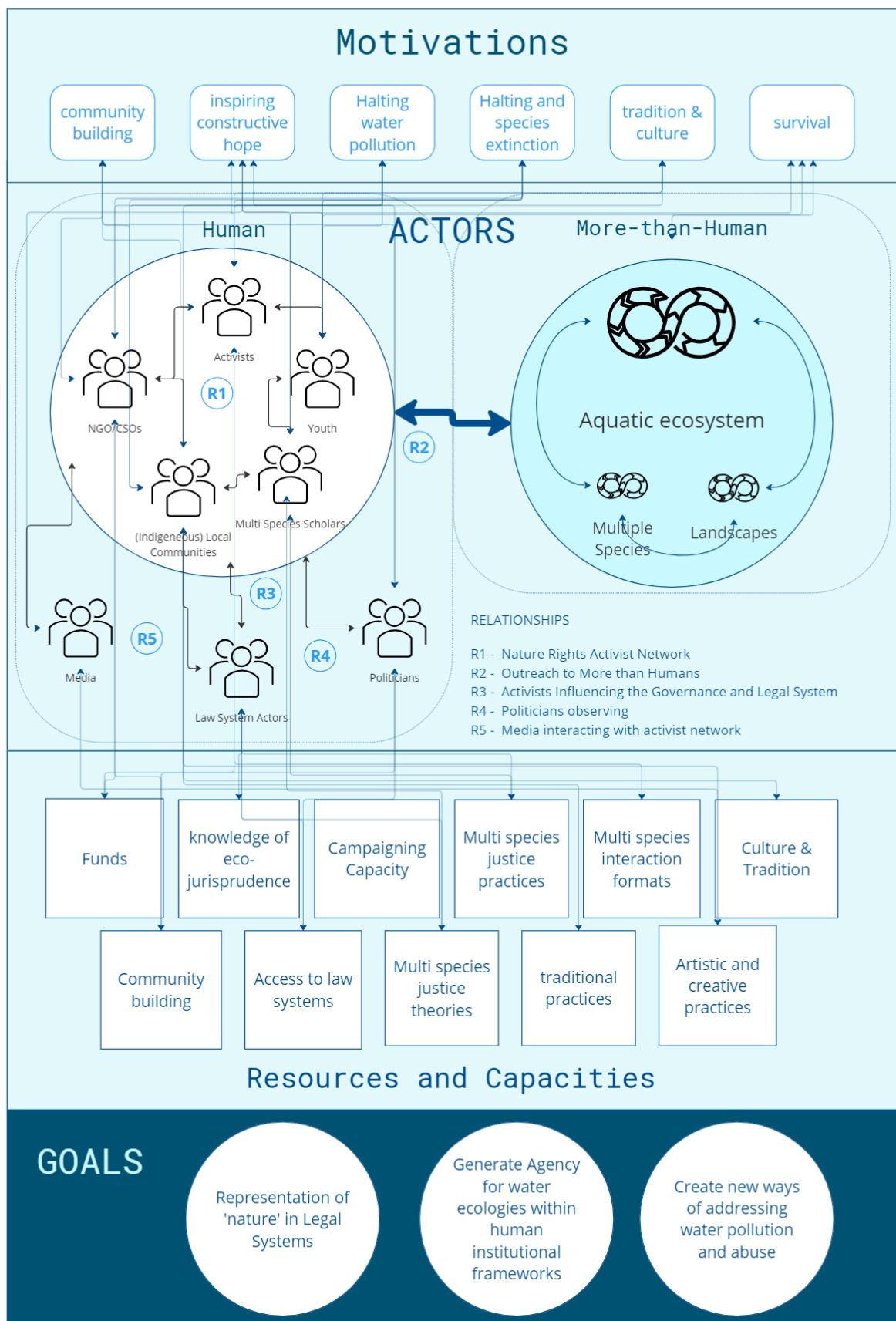


Figure 2- Multi-Species Institutional and Legal Frameworks Assemblage Blueprint Template

2.2 YWMCA 2: Multispecies Institutional & Legal Frameworks

Multispecies Institutional & Legal Frameworks are formal legal or governance structures that create new types of agency and recognition for water ecologies and aquatic animals within current social institutions and legal frameworks. This includes recognition of legal rights of aquatic ecosystems such as a river or a sea as well as assignment of personhood to aquatic animals. It also includes practices enacting such rights (without necessarily formal recognition) and theories underpinning the development of such context such as multi-species justice theory. Another key element are “attentive listening” practices for fostering connection, imagination, and representation for as a basis for being able to speak for aquatic ecosystems and water animals.

Who are the human and more-than-human actors involved? What are the relationships between those actors? What caring practices are used to maximise the flourishing of each other’s capacities?

In these networks local activists, among them young people, cooperate with NGOs and multi-species justice scholars to develop concepts and practices for multispecies institutional frameworks that provide a voice for more than human water entities within human legal frameworks. This is often preceded and complemented by intense efforts to actively and attentively listen to waterbodies and its myriads of inhabitants to be able to speak for them in the human realm. The caring attitudes are not only directed to water bodies and species but also to future generations of humans who are enabled to live in a better relationship with aquatic ecosystems.

In which power structures are they entangled?

Water bodies command huge power over humans in manifold ways. Apart from providing for humanity’s shared need for clean potable water on a daily basis, water bodies directly impact human livelihoods e.g. through flooding or receding, providing for aquatic foods, and as transport for trade. At the same time, humans have long been exercising power over water bodies e.g. by altering their course, limiting their reach, using them as resource, introducing pollutants and eradicating species. In a way this YWMCA can be seen as an attempt for mediating between those two powerful forces to facilitate mutually beneficial interaction rather than destructive modes.

Power asymmetries between the human actors involved should also be recognised in these assemblages in particular between local and traditional practices on the one hand and professional and academic approaches on the other.

How is agency (capacity to act) generated and distributed within the assemblage?

Within law-based governments, personhood rights and similar fundamental allowances provide an official standing of an entity before the courts, including precedence. Institutional recognition (e.g. personhood rights) creates a direct agency for humans to act on behalf of water bodies. This could potentially lead to greater agency for water and aquatic ecosystems to act directly if dams, water infrastructure, or practices are deemed to be infractions on water systems’ rights. This dramatically shifts the power of decision-making with respect to futures for bodies of water and aquatic ecosystems. Thus more-than-human actors gain agency within human legal systems and institutions but exercising that agency will still require human interlocutors. At the same time the deepening of connectedness with nature and rewarding collaboration with likeminded peers strengthens constructive hope and

thereby agency for all actors involved. The continuous attentive listening exercise may also lead to more balanced distribution of agency among the human actors.

What are the dimensions of connectedness addressed?

The YWMCA primarily starts from the philosophical dimension of connectedness by questioning dominant values and practices of human water interaction. The preceding intense listening practices contribute to deepening experiential connectedness through direct interaction with water and strengthening of emotional ties. In the first place this applies to the participants of the activities but in the long run after establishment of representation practices to wider society as more and more people may get used to the idea of water bodies and landscapes as holders of rights and personhood. This would have major implications for human activities such as planning and architecture.

What are the capacities and resources the actors bring into the assemblage and that they grow through the assemblage?

- Multi species justice practices, knowledge of eco-jurisprudence
- Traditional MSJ practices & cultures
- Artistic and creative practices
- Access to and knowledge of law systems
- Multi species interaction attentive listening skills/ practices
- Campaigning capacities
- Funds for the activities

What motivation drives their action?

- Create benefit for human and non-human life and secure the well-being of future generations.
- Meaningful action, rewarding experiences
- Social interaction

What FLOW results is it based on?

WP1 inFLOW Lens (Priebe et al. 2023a) and encyclopaedia (Mashiur et al. 2023) stress several concepts that are important in this YWMCA. This includes:

More-Than-Human Perspectives refers to the worlds of the “different beings co-dwelling on Earth, including and surpassing human societies” (Souza Junior 2021, p. 1). Within a system that tends to focus on human experiences and benefits, taking a more-than-human perspective makes other species and systems than humans more visible and allows for (better) acknowledgement and representation of their perspectives. Such perspectives can for example be useful in guiding nature conservation practices (Lorimer 2012). In including more than-human perspectives, different methodological approaches are applied that focus on noticing and listening to more-than-humans and their worlds (Dowling et al. 2016)

A closely related concept from the FLOW encyclopaedia is **Multi-Species Justice** (MSJ) which seeks to understand the types of relationships humans ought to cultivate with more-than-human beings so as to produce just outcomes (Celermajer et al. 2020; Celermajer et al. 2021; van Dooren et al. 2016). At the core of MSJ is a justice theory that recognizes rights of non-human nature (“more than humans”).

Key aspects of MSJ are:

- Relational ontologies: in MSJ understanding all beings are entangled in “thick relational webs” or “ecological arrays” and therefore equally entitled to justice and dignity.
- Recognition: MSJ recognizes the multiplicity of different types of being, in their own terms. Misrecognition and disrespect are seen as the reasons for maldistribution of rights. This entails radically rethinking the subject of justice: human and non-human animals, species, microbiomes, ecosystems, oceans, and rivers – and the relations among and across them – are all seen as subjects of justice. All ecosystems merit capabilities-based conception of flourishing i.e. the right to actualize their capabilities and follow their life projects.
- Consequently, multispecies injustice comprises all the human interruptions of the functioning of this broad array of relations. If human practices create conditions that undermine the integrity of ecological systems, and harm their basic functioning, those practices should be considered unjust status injuries.
- Non- anthropomorphism: MSJ emphasises sensitivity to how different beings experience the world and recognises the limits of our capacity to understand.
- Modes of immersion: to enact MSJ humans need to strive to do better at knowing and understanding others and cultivate “arts of attentiveness”. These are modes of both paying attention to others and crafting meaningful response. Approaches range from researching communication systems of non-humans such as plants, recognizing alternative ways of knowing about non-human systems e.g. embodied knowledge, theory-based practices like sympathetic imagining or intimacy through art practices.
- Decolonization: MSJ recognizes indigenous knowledge as critical intellectual resource but at the same time refrains from its appropriation.
- Transformative Orientation: MSJ is aware of the risk that minor changes (e.g. personhood for some human like animals) obstruct larger transformation and aims to avoid such a lock-in.

Other related concepts from the FLOW encyclopaedia (Mashiur et al. 2023) are “Partner with Nature”, “Participant in Nature” which were discussed above and the notion of “Water Ontologies”.

In the D1.4 Framework paper (Borit et al. 2023) we encounter the character of Nils the Dolphin in, who has been assigned personhood rights in (footnote 114, p.26).

The WP2 Foresight Study (Priebe et al. 2024a) highlights the Legal Rights of Rivers p. 28 and the Maastricht Principles on the Human Rights of Future Generations p. 19 as institutional innovations in line with this YWMCA.

Within the WP3 Field research (van den Born et al. 2024b) two pioneering initiatives are advocating Nature Rights institutional innovation:

The **Embassy of the North Sea** (Ambassade van de Noordzee) actively listens to and engages with the perspectives of plants, animals, microbes, and individuals in the North Sea region. It was founded in 2018 in The Hague, building on the experiences of the 2015 Parliament of Things program, where representation of non-human entities had been a focal point. Building on the belief that the sea possesses an intrinsic value, the Embassy of the North Sea aims to create a political arena for sea emancipation by fostering connection, imagination, and representation. A route to 2030 was sketched with the goal to be able to represent the North Sea democratically. In charting a course towards 2030, their initial focus is on learning to attentively listen to the sea before progressing to articulate a meaningful dialogue with it. The start-up phase, focused on two questions: “How can the North Sea be best represented?” and “How can our relationship with the North Sea be enhanced, for the benefit of

human and non-human life, and the well-being of future generations?”. After this ‘listening to’ phase, they are currently starting the phase where they learn to speak for the North Sea and increase its representation in politics and society. Ultimately, the Embassy aspires to negotiate on behalf of the North Sea and the myriad forms of life it encompasses.

Parlement de Loire is a fluid collective of public and private organizations and people, working and living around France's longest river, many of them from the young generations. Their objective is to raise awareness of the issues surrounding the river and the different ways in which humans and rivers can dialogue, experiment, and build community. From 2019 onwards, the network has experimented with new approaches to landscape planning, urban development and human-nature stewardship through political, scientific and artistic interventions. The intellectual inspiration of the network's activity stems from the works of Bruno Latour and Phillipe Descola who have been directly engaged in many of the network's activities. Note that in the collective's language it is "Loire" and not "the Loire", leaving out the adjective to personify the river, value it differently, more equally. A detailed summary of the philosophical foundation, objectives and motivations of the collective are described in a book by Camille de Toledo that was published because of the auditions of the Parlement de Loire (Toledo 2021).

During the Experiential Futures workshop series, one activity was specifically designed to facilitate the consideration of bodies of water from a legal rights perspective. During the “Voices from the Waters” portion of the workshop, participants were asked to consider what kinds of systematic protections might be developed for a body of water and provided some references and resources to help them conceive of their own ‘Declarations’. The reference materials included links to the “Eco Jurisprudence Monitor” for and specific Declarations that were already published, including:

- *France Citizen Declaration of the Rights of the Tet River*
- *Corsica France Declaration of the rights of the Tavignanu River*
- *Poland Citizen Draft Law on the Rights and Legal Personality of the Oder River*

During the WP5 Co-Creation Event many social interaction blueprints were developed that fit within the Multispecies institution and Legal framework assemblage. For example, the approach of the “Embassy of the North Sea” was further developed and mapped according to actors, motivations, capacities, and multi-stage goals.

Example Blueprint Specifications:

Embassy of the North Sea

Federation of environmental NGOs around the North Sea with a special youth exchange programme. It aims to give a voice to the North Sea by bringing together local communities and environmental groups through youth exchange networks and moving exhibitions. We have included some attendee comments that were submitted through the live survey system during the presentation of the Embassy of the North Sea project, demonstrating how peers perceived utility and inspiration in the project.

Comments from Survey on Embassy of the North Sea	
Usefulness	Inspiration
• “An exchange program would be wonderful for my community. It would help us know that we are not alone, and we would be exposed to	• “It would definitely let young people know that there is a future for their interests. They would meet people working in careers that

interesting solutions that other regions have come up with.” • “Knowing how and why others interact with nature and defend its entities is always a positive experience.” • “Interesting programme, probably nice for young professionals as well.”	involve ocean issues every day. This is so essential for the future of the workforce.” • “It will increase their interest, confidence and help them get things done by having the support of a network of NGOs.” • “I believe it would only be inspiring a restricted portion of population already very privileged.”
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Table 2 - Responses from participant survey gathered on Embassy of the North Sea social interaction blueprint

Water Appreciating Cultural Practices

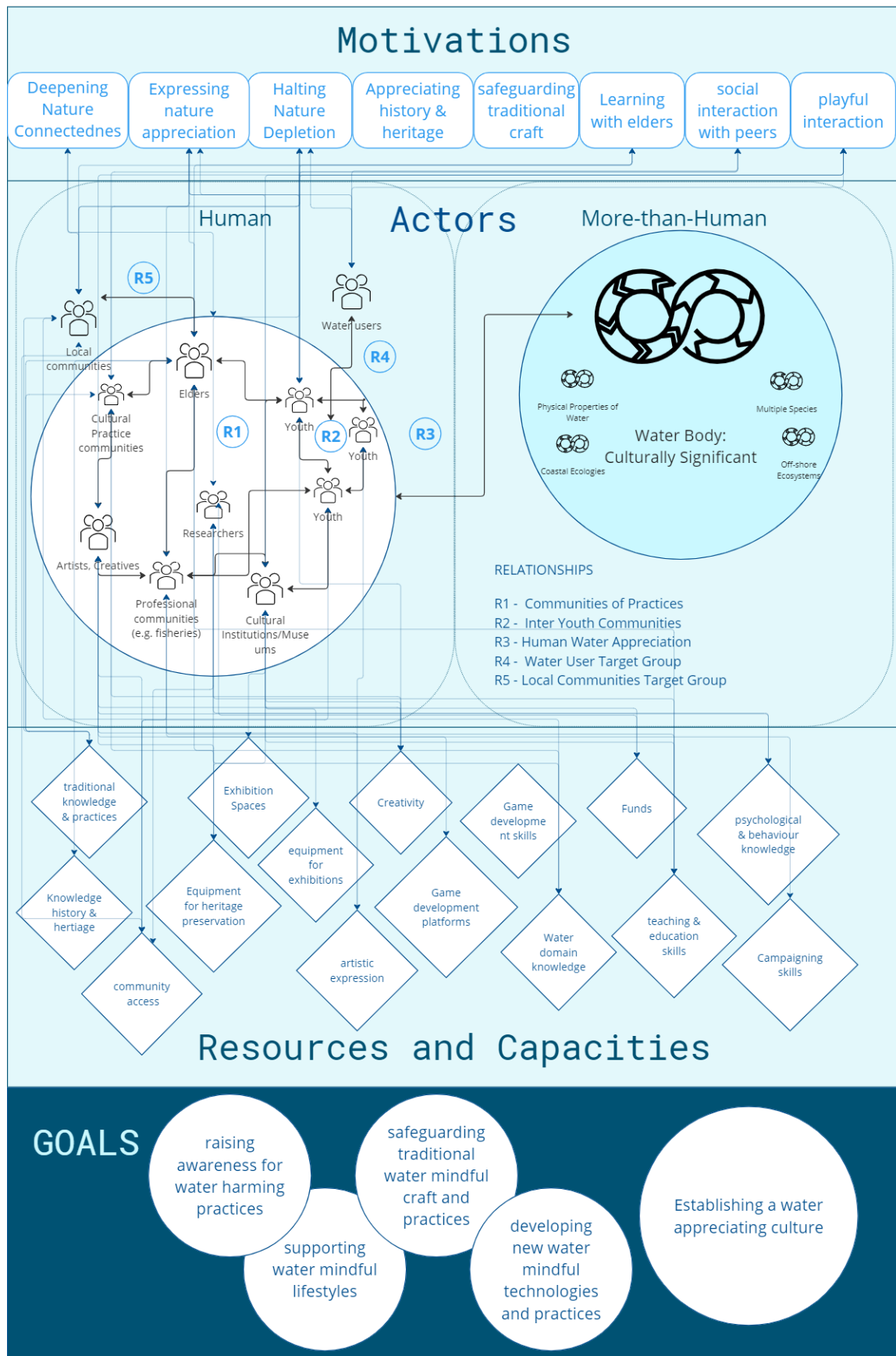


Figure 3 Water Appreciating Cultural Practices Assemblage Blueprint Template

2.3 YWMCA 3: Water Appreciating Cultural Practices

These are cultural practices, community ‘institutions’, rituals, games, artistic expressions, collective performance, etc. that serve to appreciate one or more of the different ways that water contributes to human flourishing. Some aspects of appreciation include fostering a sense of water system scale and reach, acknowledging phenomena that elicit feeling of humility and connectedness. Others raise awareness of the devastating impact of human production and consumption practices on water ecosystems often by using novel youth driven communication practices.

Who are the human and more-than-human actors involved?

These are communities that come together to safeguard, develop or promote certain water appreciating practices. These can be highly diverse. Some form around traditional crafts and cultural heritage. Others around new forms of appreciating water in daily lifestyles often mediated by gaming platforms. Intergenerational knowledge exchange plays an important role in most of the configurations.

Accordingly, all kinds of human actors can potentially be involved in these assemblages. In some groups people with knowledge of traditional practices, often from the older generations, play an important role. Others, especially those making use of the latest social media-based communication techniques and gaming approaches, are largely driven and populated by young people. Major contributions are made by scholars in domains such as in history and culture, water consumption practices, water saving technologies as well as by professionals and entrepreneurs immersed in water interaction such as e.g. fishing or tourism. Cultural institutions such as museums, galleries and theatres play an important role to preserve and curate the practices while all types of artists are contributing by generating and sharing novel approaches.

Game creators and interaction designers working with media experts may provide support in shaping or inventing new cultural practices that encourage youth engagement, or actively involve youth in the production processes. Additionally, YWMCA activists, water users and consumers, and local communities will enter or encourage these assemblages when addressed by the activities.

What are the relationships between those actors? In which power structures are they entangled?

Many heritage practices are entrenched with power structures e.g. colonialism, racism and gender bias. Also lifestyles and especially water use are subject to gender roles and cultural divisions (Borit et al. 2023, p. 16 ff.). Moreover, many of the professional communities such as fishing and tourism power relations are extremely asymmetric, large companies dominate several domains and some groups such as migrant workers are badly exploited. All these tensions and asymmetries need to be recognized and dealt with, taking care not to re-enact unjust power structures and making an effort to include marginalized and vulnerable groups.

Required resources depend on the community’s water appreciating practices, material needs, and skills to enact their cultural practices (both old and new). These can include spatial resources like exhibition spaces or public areas and technical resources like digital platforms for games, communication, and other activities.

How is agency (capacity to act) generated and distributed within the assemblage?

The cultural practices are directed at strengthening agency for the people adopting them (e.g. local communities to preserve their own traditional practices or water users achieving transparency over their water use). Some practices such as e.g. water appreciating rituals may also direct agency towards

water ecologies, by encouraging the type of ‘close attention’ that are also valued in other assemblage types (e.g. Multispecies Institutions and legal Frameworks).

What caring practices are used to maximise the flourishing of each other’s capacities?

The human communities of practices develop an attitude of appreciation, respect and deep connectedness towards water bodies and its inhabitants through the conduct of water-centred cultural practices. Those practices that promote participation and inclusion lead to all manner of social exchange – for example, the sharing of emotional connectedness with water that strengthens when shared with others, or the sharing of skills and perspectives when engaged with building a digital experience.

What are the dimensions of connectedness addressed?

There can be many **material** and **experiential** connections that are fostered through cultural practices like the production of collaborative arts or performances. For certain digital games, the material and experiential components are augmented with **cognitive** connectedness – for example Drop for Drop utilises the experience of objects (buying, walking past, etc) as an avenue for providing knowledge (cognitive) about embedded water. Acknowledging the **emotional** aspect of arts and cultural productions, such practices extend emotional connections to water. Lastly, examining cultural practices and reflecting on what they are able to ‘do’ and the ways they shift consideration of water and its role in society, could lend itself to developing or deepening **philosophical connections**.

What are the capacities and resources the actors bring into the assemblage and that they grow through the assemblage?

- Creative acts focused on developing novel water connections
- Bounty of cultural expressions and representations linking water to practices
- Enriching the interpretive lens through which water can be read
- Intersections of Aquatic, Art and Activism
- Reifying fundamental human dependence on water
- Shifting cultural behaviour through developing new modes of water appreciation

What motivation drives their action?

Young people are motivated to interact with new water focused cultural practices that are reflective of their daily life practices including the use of personal mobile devices, social media, and using digital platforms for building community connections. There is also a motivation to bring waters’ ‘invisible’ traces in consumer products and services and in routine socio-cultural behaviours to the forefront of people’s conscious consideration. Motivations are also drawn from the will to strengthen personal and collective emotional connections to water, through new types of interactions with, or expressions through embedded water. Extending the reach and influence of knowledge about water issues (scarcity, industrial use practices, waste) also drives youth to spread awareness to their peers and intergenerationally through new appreciation practices.

What is it based on?

This assemblage draws from insights gathered from across the project, as both personal and community practices of appreciation and cultural expressions were present across generations, biogeographic regions and cultural differences. Elements of the literature review, knowledge integration (Borit et al.

2023) and research on the pioneering initiatives (van den Born et al. 2024b) shape the broader conceptual context in which this assemblage might be activated:

- Biophilia – a love of natural living systems – is an active component of many water centric cultural practices and rituals (van den Born et al. 2024a), including the extent to which a water sources propagate living systems beyond water’s more recognizable boundaries (e.g. shores, river banks).
- Ecological Grief – Solastalgia and climate anxiety are forms of what is more generally known as ecological grief (Albrecht 2019). Attempts to channel these emotional states into social and environmental actions can be a form of collective coping practices (Ojala 2012; Ojala and Bengtsson 2019), though their efficacy is still under debate (Comtesse et al. 2021).
- Social-Ecological Systems – Cultural practices are expressive of eudemonic values (van den Born et al. 2018) and thus can strengthen socio-cultural justifications for acting to preserve and support natural systems.
- Images of Nature – Developing and nurturing a shared image of the natural world as a part of a social or cultural ontology can reinforce connections to nature that are essential for action taking. Cultural practices of appreciation can help form and reinforce those shared images particularly as a remedy for dislocation from nature (Louv 2013; Soga and Gaston 2016).
- Visions of Nature – These are tightly coupled to the above Images of Nature, but are coupled with a future-oriented perspective (Groot et al. 2006) and thus can motivate cultural practices that appreciate natural systems for what they represent about a collectively held preferred future state (Polak and Boulding 1973; Pereira et al. 2020).
- Water ontologies – As articulated in the FLOW framework paper ontologies are multi-valent stretching across species, behaviours, values, and all five elements of the human-water connectedness. “It emphasizes looking at what is represented by the hyphen between humans and waters in the concept of human–water relations” (Borit et al. 2023).

Within the WP2 Foresight Study (Priebe et al. 2024a) two signals point into this direction:

Punishment (Priebe et al. 2024a, p. 11): Julius von Bismarck's Punishment series (2011-2012) involved him traveling to various locations in Switzerland, Brazil, and the United States to confront natural elements by whipping specific landscapes. Through photographs and films, he captured the simultaneous anger and meditative nature of this action. The landscapes depicted in Punishment evoke the romanticized imagery of craggy mountains, deep gorges, the sea, and mountain lakes. In these large-scale classical depictions of nature, we witness a young man vigorously whipping a small portion of the grand landscape until physical exhaustion. The artist and his whip appear insignificant compared to the powerful backdrop. The series was presented in recent exhibitions in France and Germany.



Figure 4 -Courtesy of the artist and Sies + Höke (Düsseldorf), Alexander Levy (Berlin), Marlborough Contemporary (London / New York) Julius von Bismarck "Punishment #7", 2011

Visjes [Fish] (Priebe et al. 2024a, p. 30): The book (Oomen 2022) is about the experiences of an author (Joost Oomen) as an artist in residence at the island Salina, one of the Aeolian Islands north of Sicily, Italy. During his stay, the author aims to write poems for fish and to captivate them with words. The residency took place during the Covid pandemic (May 2021). The partner with nature and the participant in nature are portrayed in the book. From the author's perspective, he tries to connect with fish on a partner/equal level as he tries to communicate with them through poetry. More-than-human perspectives are central to the protagonist's main quest of writing poetry for fish. The author assumes that fish can read and have an eye for poetry and a literary taste. Multiple forms of empathy are mentioned.

Among the WP3 Field research (van den Born et al. 2024b) the Coastal Culture Centre, Sesimbra, Portugal is especially promoting such water appreciating cultural practices:

The **Centre for Coastal Culture project (CCC)** is a collaboration between the Sesimbra Municipality, through the Sesimbra Maritime Museum (SMM), the Norwegian Maritime Museum, the Tromsø University Museum in Norway (which is part of UiT The Arctic University of Norway), and two local Portuguese artisanal fishers' associations (The Artisanal Fishers Association of the Center and South and the artisanal fish production cooperative ArtesanalPesca). The Centre for Coastal Culture is funded through the EEA Grants program for the period 2021-2024. In the Centre for Coastal Culture project, a program of shared activities is designed with the community around the maritime cultural heritage. The initiative is designed to involve the entire local community, regardless the age. However, the young generation is specifically targeted when designing the various activities related to cultural heritage, especially an exhibition. This exhibition, which will be displayed in Portugal (April 2024), Norway (June 2024), and online, is called "Living with the Ocean". More than 6600 young people are involved in this initiative.

CCC youth volunteers expressed a strong sense of attachment to the history and community of Sesimbra through learning about its maritime traditions and history. Initiatives to appreciate the material culture of Sesimbra's fishing history: involving youths in projects to preserve the art of boat-making, appreciating seafood, etc. Also, CCC motivates teenagers to engage with and learn from their elders in intergenerational knowledge transfer. Finally, the CCC represents collaborative networks of knowledge that send the message that despite the lack of structural incentives to study heritage and history, it is still possible to do so if there is the will. Initiatives such as the CCC build young people's capacity to think critically about the present through learning history. Moreover, the CCC's work reconnects people and industries toward older methods of working that were better adapted to the local environment."

The Experiential Futures workshops (WP4) included pre-workshop preparations by participants, specifically an interview with an older member of their family or another representative from an older generation. Participants were tasked with inquiring about the subject's personal reflections on how they could remember interacting with a local body of water from their childhood, and reflecting on how interactions with water may, or may not, have changed in comparison with the present. One theme that repeatedly emerged across biogeographic regions and specific communities was the cultural significance of local bodies of water – particularly as sites for celebration, relaxation, specific rituals (e.g. annual family gatherings), and other types of art and performance (e.g. concerts). These reports are evidence that this assemblage type may not be novel (other than in name), rather it is a long-standing social entity reflecting human-water connectedness.

Within the WP5 Co-Creation Event three blueprints were developed that fall into this category. *Drop the Drop*, and *Water wins. Do you?* and *Education on cruise ships*. It should be noted however that all three focus on youth led awareness raising campaigns and do not harness the cultural heritage elements of this YWMCA which are represented by the Sesimbra Centre for Coastal Culture project.

Example Blueprint Specifications:

Drop the Drop

The 'Drop the Drop' app-based game raises awareness of the users' daily life water footprint through playful interaction on daily life activities such as flushing the toilet underpinned by well-designed information displays. The goal is to tighten the connection between young people and water, raise awareness, initiate a change in lifestyle, inspire more environmental initiatives and enable a better integration of water topics in education. The game could be gradually rolled out to different levels of knowledge e.g. from domestic to industrial and public water usage. The target group is young people aged between 12 and 20.

Comments on Drop the Drop	
Usefulness	Inspiration
• "It is a good idea and I can see a range of age groups using an app like this. Both in schools but also my parents generation (50 - 60 y/o)... Maybe the game could also be converted into a board game or a hybrid sort of thing with smart phone + outdoors like pokemon go?"	• "Education about our daily water use inspires not only personal action, but real action to pressure decision-makers to reduce our country's water use. Small scale awareness increases pressure for big change. " • "It depends on when you implement the blueprint. If early, in schools for example, I think it will have a bigger impact "

• “I loved the idea of this innovative app. I think many young people in my region would be interested in this. Education for our age group is most effective as little pieces of information over time--through social media posts or apps like this one.”	
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Table 3 - Responses from participant survey gathered on Drop the Drop social interaction blueprint

Water Wins. Do you?

An interactive awareness video where people can choose their next action (e.g. where to dispose of their plastic bottle) and then see the consequences of their action. The video will be widely promoted in schools and universities.

Education on Cruise Ships

This idea centers around education and awareness raising on cruise ship tourism and construction, as well as the conversion of cruise ships to eco-cruise ships.

Cross-Boundary Water Alliances

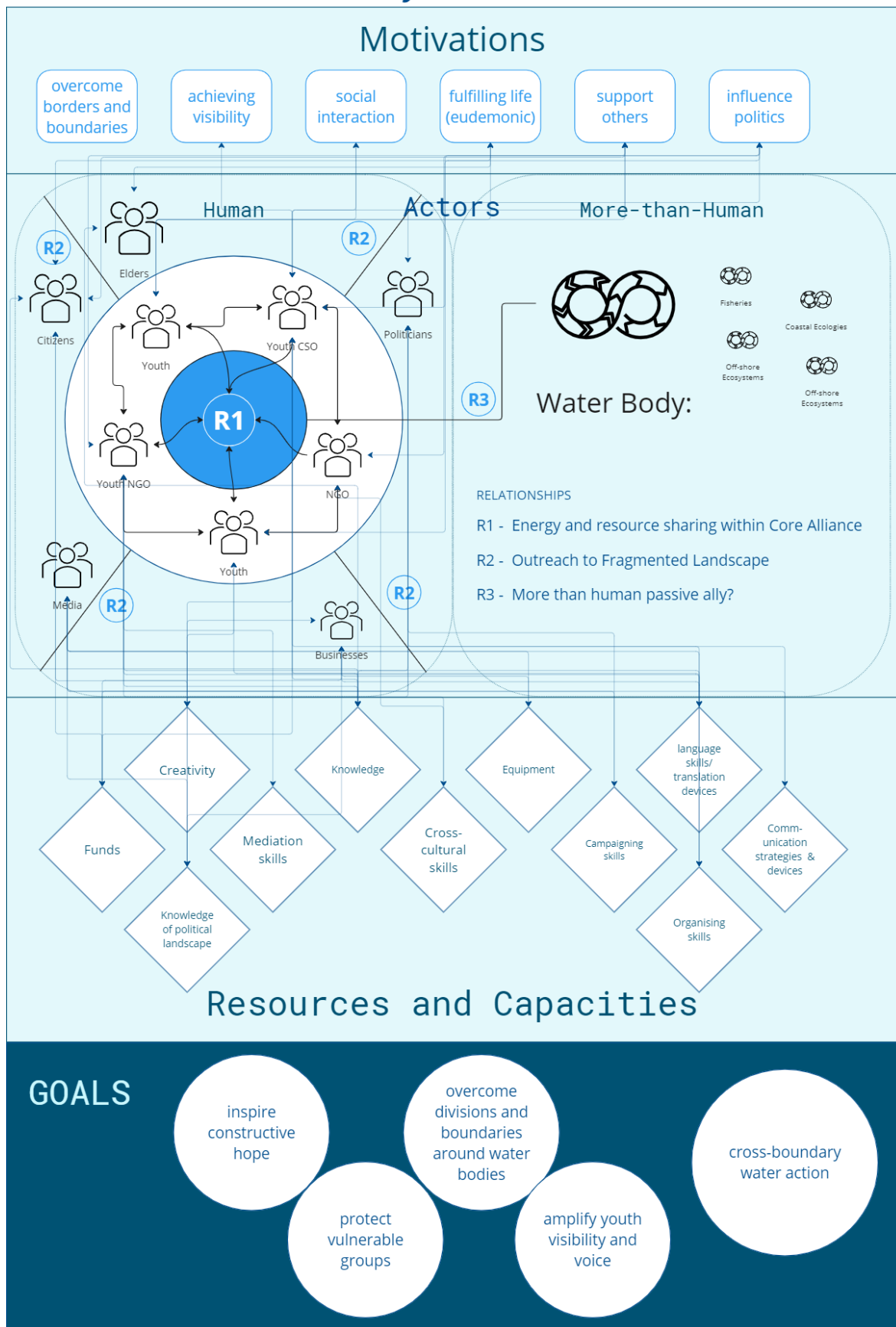


Figure 5- Cross Boundary Water Alliances Assemblage Blueprint Template

2.4 YWMCA 4 Cross Boundary Water Alliances

Networks of NGOs, CSOs and youth focused organisations around a certain body of water that share various types of social, epistemological, psychological, and other types of resources to support one another. These networks can provide energy and optimism to one another, reinforce collective actions across borders and recognise shared responsibilities and actionable ideas. The trans-boundary component of these assemblages signifies their ability to extend across geopolitical, cultural, linguistic, or other types of boundaries that might impede traditional organisations. These help to overcome isolation and resignation, inspiring hope and creating modes of actions that ‘make a difference.’

What are the dimensions of connectedness addressed?

The cross-boundary water alliances encourage material connectedness between humans and shared bodies of water. This material connection can be encouraged through different activities of groups within the alliance and can reinforce the cognitive connectedness to water bodies that alliance members build. Cognitive connections to water bodies extend beyond the localised interests as differently focused organisations build relationships of practice, resources, and motivation. Emotional connectedness can also be strengthened, particularly as similar emotional connections to water bodies are witnessed and shared via the alliances. Recognising that water, and many water bodies, already exist in a trans-boundary dynamic state, the alliances might reinforce this aspect of water – changing it from a thing of utility to an integral component of shared human existence.

Who are the human and more-than-human actors involved?

NGOs, CSOs and youth focused organisations that are present in communities interconnected by a body of water are the primary actors, each of course composed by its membership and affiliated actors. As the core of the alliances, these bodies decide how to engage with other human actors within their communities – various institutions, businesses, other CSOs, etc. As an assemblage the alliance acts as a various support network for emotional, communicative, and material resources for the community located entities.

The bodies of water around which these assemblages are organised can be rivers, lakes, seas, oceans or coastlines. Different community organisations may focus on a specific aspect of the water’s overall health and wellbeing – biodiversity, coastal ecologies, pollution reduction, rehabilitation, cultural practices, sustainable blue economy measures – or a combination of multiple aspects. The assemblage shares ideas for addressing these aspects amongst its actor entities, to enable multi-faceted actions in an effective and supported manner.

What are the relationships between those actors?

Coordinated action and mutual support (via resources, messaging, knowledge and network sharing) are some of the most important aspects of the relationships between the human organisations of which the alliance is composed. As for the people within those organisations, they may exhibit a broad variety of relationships to one another within the local organisation and then in an extended fashion through the cross-boundary alliances.

The Alliance shares a manifold relationship with the water(s) it is more formally organised around. At a very top level this a relationship of mutual care – recognising that the body of water is caring for human

societies in multiple ways and that human organisations can also act to care for the health of the water. The alliance also fosters relationships with the water body that might not be present in one community – such as learning about coastal care actions or habitat restoration in areas that cannot act directly on these issues but can lend support in other ways. In this manner, the narratives of different communities' relationships to the shared waterbody have a vehicle to travel and change the relationships of others within the alliance.

In which power structures are they entangled?

Alliances might be couched within a very large web of power structures, but this is also part of their motivation for formation – a larger entity can provide support for smaller component organisations by circumventing or providing leverage against existing power structures. Alliances do not have a standardised governance structure, making them inherently flexible to the needs of the members and less likely to clarify. There can be international, national, regional, and local power structures at play in any given situation for the alliance or its members, but these are not oppositional by default. Alliance members can help one another navigate and bring alternative powers to bear on water issues.

How is agency (capacity to act) generated and distributed within the assemblage?

The alliance formations are created to share capacities to act among their different members – expanding the reach of skills, knowledge, networks and other capacities from one location to another across the communities and organisations of the shared water body. The main agency of the alliance is the amplification and distribution of existing agencies. Knowledge and practice might be useful in agency development or generation, particularly in helping alliance members overcome challenges or obstacles that have been successfully addressed by other members. Emergent capacities may develop as the alliances grow, act, and learn.

What caring practices are used to maximise the flourishing of each other's capacities?

The sharing of resources and emotional support across the alliance is one of the primary functions of the assemblage – as members have a vested interest in the success of other members, given that they are also concerned with health of the same body of water. Other types of care practices might also be present – the development of rituals, habits, or other types of cultural practice, for instance – or could emerge as the alliance changes over time.

What are the capacities and resources the actors bring into the assemblage and that they grow through the assemblage?

Each of the member organisations (and individuals) within a cross-boundary alliance will bring a unique combination of capacities and resources that they have developed to address the water issues that they are facing. A few examples are specific bodies of knowledge, relationships to governments, media, or other social actor groups, and capacities to coordinate and manage across differences. These types of skills might be transferrable and learnable by others.

What motivation drives their action?

The alliance assemblage type can exhibit layered motivations. There are motivations by individuals to act on behalf of the water body issue(s) that are more critical to their local communities, locales, or nations. At the same time, the alliance encourages motivations to emerge that can more effectively embody the holistic concerns for the commonly protected water source. Fostering a sense of shared

responsibility across the alliance, and reinforcing the collective support for each member organisation, the alliances can create virtuous cycle of positive motivations.

How are young people empowered to set up or join the configurations?

Alliances of this type encourage youth empowerment via the open and accepting nature of the assemblage towards all types of locally and regionally organised initiatives. This aspect of the Alliance configuration enables youth to find support of all kinds available to them in pursuing the issues that are intrinsically motivating. More proactive alliance structures might be able to seek out and recruit additional local projects to join as nodes, bringing international connections, resources and capacities for action, camaraderie and visibility to initiatives.

What is it based on?

The Cross Boundary Water Alliance assemblage type emerges from findings across the FLOW project that demonstrate that the social context of addressing water issues is a key element in motivation of young people in action for nature (van Heel et al. 2023). This can include meeting and coordinating with peers both locally and internationally, learning about related activism through personal exchanges, visiting new locations with like-minded and motivated individuals from across Europe or beyond. Initial findings about this phenomenon were already disseminated in FLOW Policy Briefs (#3) and were evident in feedback received from experiential futures workshops and other FLOW events. The ability for social contexts to foster constructive hope through peer exchange and collaboration has been an initial project assumption that has been validated throughout the course of this project. As such, the alliance assemblage type stands to support communities actively seeking out these important social ties to peers and build lasting nature connections and spur further action.

The FLOW Encyclopaedia (Mashiur et al. 2023) mentions a number of concepts that are related to understanding the Cross Boundary Alliance assemblage forms, including:

- Acting for Nature – People’s engagement to all degrees of action for nature is crucial for environmental conservation and people who voluntarily act for nature are even considered “The foundation for nature conservation” (Sloane & Pröbstl-Haider, 2019, p.158).
- Citizen Science – The alliance assemblages would promote citizen science by helping shape connections and resource sharing opportunities between communities. Importantly, knowledge resources (data, localised knowledge, and expert scientists) can be an important mutual benefit for alliance members.
- Intergenerational Justice – There is also a component of intergenerational justice involved, as youth-led and focused alliances are future oriented, and view leaving a cleaner more abundant ocean as part of a responsibility to help future generations
- Youth Mobilization – The leading role of young people in organising actions for climate movements, or political reasons (Kuzio, 2006) has supported the growing body of evidence that young people are ready to work hard for change (Han & Ahn, 2020). Young people are especially important in fostering modes of support and learning through the “heads, hands, and heart” – recognising a multitude of modes of action and activity.

Several “signals of change” identified in WP2’s mixed media corpus of and its analysis also note the power and efficacy of Cross Boundary Alliances, notably the Fridays For Future movement for climate change more broadly, but also chapters of the Rewilding Europe movement focused on the Danube and Oder riverways. The Alliance assemblage might also be more playful in nature as viewed in the “merfolk” fin swimming clubs that are global in nature (though not necessarily organised around a

certain body of water), or they can evolve in response to institutions as demonstrated in the Maastricht Principles on the Human Rights of Future Generations which is very cross boundary and includes protections for nature and water bodies in general.

During the development of the “Declarations” within the Experiential Futures workshops, participants were asked to work in a cross-boundary fashion – bringing their unique perspectives and local backgrounds together towards the purpose of making more universal statements on the rights of their biogeographic regional water bodies (Sorkuncuk et al. 2024). Elements of this assemblage type can be recognised across all the completed declarations, though some artifacts from the Declaration development process could be mapped quite easily onto this assemblage blueprint.

Within the WP5 Co-Creation Event mainly one blueprint was developed that presents a well elaborated example of this category for the Baltic Sea region: “The Baltic Youth Council”. The Floody Buddy social-media movement and emergency information network might also be considered within the assemblage, though it is less focused on a singular water body, but instead organises around the information sphere regarding water related climate change disasters.

Example Blueprint Specifications:

The Baltic Sea Youth Council BSYC – Sea Us!

The Baltic Sea Youth Council BSYC fights for the voices of youth around the Baltic Sea region. In order to increase visibility, the council organises a boat parade where boats from all countries meet in the middle of the sea for a festival. The goal is to initiate conversations among the youth of the region and to foster active citizenship. In the long term, this could underpin a move towards collective multi-lateral decision-making. Scaling-up could be achieved through complementary social media campaigns and collaboration with other regions. The Baltic Sea youth Council group proposed a boat parade for youth to participate in as one example of a social interaction they would like to deploy.

Comments on Baltic Sea Youth Council (BSYC) – Boat Parade!	
Usefulness	Inspiration
• “I live in a coastal community but many young people have never been out to see the waters that affect them. Having a fun festival like this will expose young people to our local waters and to activists who can educate them on the importance of protecting it. “ • “Absolutely love this one : I know different associations that would be interested. With young ambassadors for water in the south we already talked about it and with Parisian associations that work a lot on governance, sailing associations... “	• “I think this idea could generate some emotional wake up calls because participants would literally be in the sea, in the very place where all the destruction that would be pointed to is happening.” • “Meeting other like-minded young people or seeing them through social media will likely inspire petitions and other useful actions.”

Table 4- Responses from participant survey gathered on Baltic Sea Youth Council (BSYC) Boat Parade social interaction blueprint

Floody Buddy

The social media campaign #FloodyBuddy is run through a network of young micro-influencers who are communicating with the public on flood-related topics. The goals are to combat and reduce

misinformation regarding extreme natural events caused by climate change, to provide easily accessible helpful information for affected people before and during flooding and thereby ultimately reduce harm to people and property. The campaign is complemented by an FAQ Booklet available to the public.

Water Caring Economy

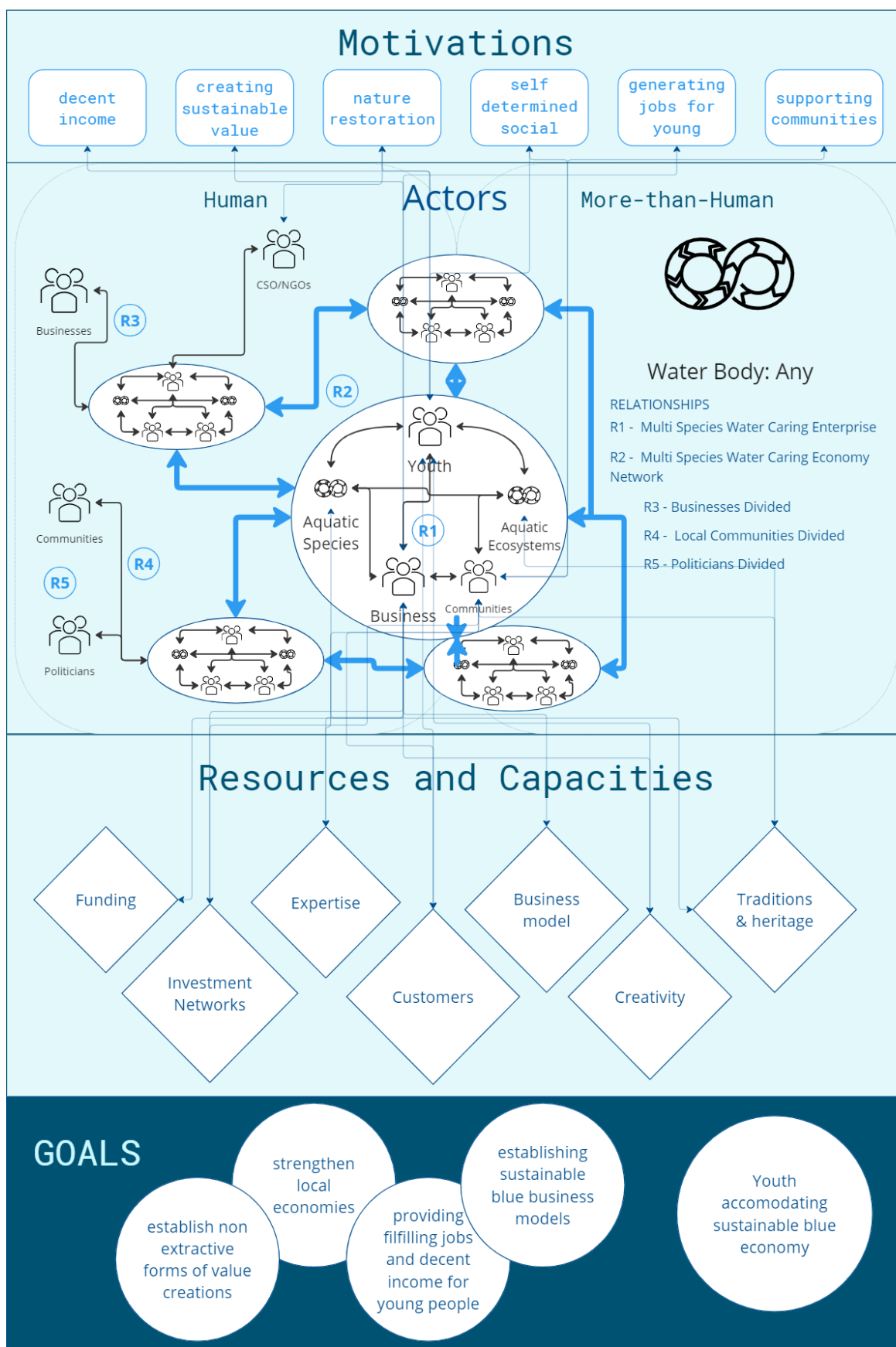


Figure 6 Water Caring Economy Assemblage Blueprint Template

2.5 YWMCA 5 Water Caring Economy

Blue economies that are open and accommodating for, and often led by, youth workers and entrepreneurs and focus on operations and activities that promote and reinforce mutually beneficial human-water relationships and non-extractive forms of value creation with aquatic ecosystems.

What are the dimensions of connectedness addressed?

The blue economy is often quite closely associated to different **material** aspects of water – food, energy, minerals, water itself in various forms. This assemblage type seeks to alter these material relationships by imbuing them with attitudes and actions that reflect greater care for the health of water ecologies. A caring blue economy can help reconfigure current activities to promote new practices that are mutually beneficial to economic actors and water systems. Working more closely with water, its plant and animal life, and the ecosystems that water supports, new young people working in the blue economy will gain valuable experientially informed perspectives on shaping healthier water systems.

A mutual exchange is expected within the caring blue economy, particularly between young people entrants to the labour pool and the workers who have worked in one or more of its seven sectors in the past. Sharpening the cognitive dimension of human-water connections through alliance exchanges and co-projects can have an important impact on other dimensions as well. The emotional dimension of human-water connectedness may be initially grown by the realisation that there are similar emotional relationships within diverse peer groups. Lastly, philosophical reflecting on values of water and on how humans should interact with water may adjust how economic value is culturally established and reflected in other areas of society.

Who are the human and more-than-human actors involved?

The current definition of the EU blue economy includes seven sectors that can be further divided into seventeen sub-sectors, employing approximately 3.6 million people. This assemblage looks for ways that these numbers can also be translated into meaningful care creation for European waters. The employment numbers of the blue economy do not accurately reflect the ways and means by which European lives are touched by the various uses and provisions of ocean, sea, and river waters. This assemblage looks to create new economic engines that highlight the act of ‘caring’ – defined in the FLOW encyclopedia as “both an attitude of concern (caring about), and a practice (caring for, e.g. clean-ups), where people meet the needs of another human or non-human entity regardless of benefits it has to them (Jax et al. 2018)”. This extends the more-than-human actor considerations quite extensively across the ecosystems impacted by the blue economy (e.g. biodiversity, coastal ecologies, fisheries, and many others). Additionally, by specifically targeting young people for new job opportunities the Water Caring Economy assemblages seek to shift the demographic distribution in many sectors or subsectors.

What are the relationships between those actors?

Human actors in the water caring economy would form multi-threaded relationships of care, encompassing both the cognitive/emotional ‘attitude’ and the practical acts of caring. Additionally, depending on the assemblage focus, they may also facilitate the formation of similar care relationships with customers, co-workers, clients, and other human actors. This relationship also reflects the care that human actors might receive from water bodies – the feelings of peace, clam, and reflection that are associated with proximity to water, or the emotional, cognitive connections formed with water ecologies and their constituent entities (affection for and attachment to plants and animals).

In which power structures are they entangled?

The economic power struggles are already very intense. Young people acting within the blue economy and arguing for the recognition and promotion of greater care in economic activities, will be entangled in the national, regional, and environmental concerns that already exist. These can include geopolitical concerns, for instance in the Black and Baltic seas within the context of the contemporary Ukraine conflict and the ongoing issues of migration and international protection across the Mediterranean. Such conditions may make arguments for more caring blue economic harder to consider on an equal footing.

There are also power structures already active within the current blue economy including highly consolidated sectors like shipping and certain portions of tourism and hospitality. These incumbent powers could be recruited to use their powers of scale to amplify caring attitudes and practices, or they could provide substantial resistance to change. Some communities are already vying with such power unbalances and could also provide support and strength for this assemblage type.

How is agency (capacity to act) generated and distributed within the assemblage?

For those aspects of the assemblage that are more focused on making current blue economic activities more caring centred and open to participation by young people, agency is created through employment opportunities that may not have previously existed. These opportunities allow for young generations to make viable living incomes while also directly participating in the transformation of the blue economy.

Entrepreneurs that are looking to start new care-centred blue economy activities will draw on the assemblage's abilities to provide various kinds of support for such initiatives (e.g. funding, knowledge, different types of skills and labour). As successful initiatives are tested and proven they may provide reciprocal support for other projects and share their business models across the assemblage.

What caring practices are used to maximise the flourishing of each other's capacities?

While the development of a caring blue economy is likely to have many different approaches, and thus diverse assemblages, there are a few caring practices that are likely to play an important role more generally. The communication and **development of relational values** (or a sense of them) is likely to be a key component of many projects and enables 'care' values to be realised and shared more widely. Indeed, of the projects already ideated for this assemblage type, we see focuses on creating entities that can be self-sufficient in the blue economy, but that centre on helping individuals establish new types of relational values to water bodies and ecologies.

What are the capacities and resources the actors bring into the assemblage and that they grow through the assemblage?

While there will undoubtedly be fiscal resources that will have to be circulated within the assemblage, and hopefully grown over time to support additional caring blue economy work, the more interesting capacities that the assemblage will share, and foster will focus on practices and attitudes of care. By developing new practices of care, innovative new activities will emerge and spread across and between assemblages. The caring attitudes that motivate many of the actors within the assemblage will also mutually support one another and will become more robust (overlapping with other assemblage types).

What motivation drives their action?

Actors within the Caring Blue economy will be driven by a mixture of motivations that strike a balance between stewardship and care for aquatic ecologies and business models that allow for care

motivations to find self-sustaining and effective modes of operating. As the blue economy is a critical aspect of European food, energy, and transportation, innovative care practices/models that can be sustainably scaled have the potential to transform human-water relationships across the continent.

How are young people empowered to set up or join the configurations?

The Water Caring Blue Economy assemblage is founded on the idea that more youth should be recruited into and given room and resources to flourish within the blue economy, and implies that young people will be actively pursued for membership or as founders of new companies. Young people are empowered through the recognition that their participation is essential for the futures of the blue economy, and as potential catalysts of transformation. They can be supported through direct employment or for specific targeted funding for start-ups led by young people.

What is it based on?

This assemblage is informed by a number of concepts that are defined within the Encyclopaedia of the inFLOW lens (Borit et al. 2023), particularly the concepts that broaden our understanding of 'care' and the caring actions to include both attitudes and practices that can offer mutual exchanges of beneficial treatments and foster new relational values (West et al. 2018). Deepening the connectedness of economic actors with the seas and waters includes both consumer perspectives (Nuojuua et al. 2022) and the perspectives of workers within those economic sectors (Ehl 2023). In so far as these assemblages work to transform the operations and value of the blue economy, they do so in a manner that seeks to deepen human-nature relationships and the sense of biophilia that can lead to more radical cultural shifts (Kahn 1999).

The Signals of Change research work conducted in WP2 presented some examples of media narratives and social groups that were organised in a manner that is reflected in the Water Caring Economy assemblage type (Priebe et al. 2024b). The No Mad documentary provides an interesting view into an ecotourism enterprise established to help confront illegal fishing and fishing practices that are detrimental to coral and coastal biodiversity. Other items in the mixed-media corpus are documentaries about harmful practices of water-based extractive economy (*Seaspiracy* signal, p14) that point toward the complexity and scale of some of the issues facing water health and would be examples of the types of media that demonstrate motivational information available to young people. The very popular videogame, *Dave the Diver*, might be the best example of an interactive media artifact that help players understand the working of the blue economy and enables players to make decisions that impact water ecosystem health. The game includes many opportunities to interact with both the water ecosystems and the human economic systems that incentivise fishing, material extraction, exploration, and other types of blue economy activity.



Figure 7 - Snapshot from Dave the Diver gameplay: Dave catches a fish (centre), while accomplishing sushi for in-game economy gain (left side).

From the WP3 field research (van den Born et al. 2024b) the main objective of the Centre for Coastal Culture project is “to boost the local economy, to promote sustainable fishing and the identity of fishing activity, to safeguard the traditional crafts such as wooden shipbuilding, to value the maritime cultural heritage, to implement new technologies for fish processing and to encourage the production of knowledge regarding the sea, through the creation of partnerships with Norwegian and local entities” (CCC Information brochure, 2022).

The Experiential Futures workshop activity titled ‘message in a bottle’ asked participants to write a letter to an individual who could facilitate the creation or implementation of a program that targeted increasing human-water connectedness in their local community. Programs that were tied to transforming aspects of the contemporary blue economy were presented in messages across all of the biogeographic regions. For example, popular river cruise companies along the Danube were viewed as key potential partners in helping water restoration efforts, whereas new types of eco-tourism were proposed in different communities across the Mediterranean through ‘messages’ penned to cruise ship companies, hotel operators, local governments, and other key actors.

Within the WP5 Co-Creation Event two blueprints were developed that fall into this category: *Black is the New Blue* and *Mar Menor Sustainable Tourism Vocational School*. These social interaction blueprints help to articulate how Water Caring Blue Economies entities might be organised.

Example Blueprint Specifications:

Black is the new Blue

An eco-voluntourism (mix tourism + volunteering) programme on the Romanian coast to promote blue economy activities and civic engagement. It uses different forms of engagement, such as kayak plastic collection competitions and re-use workshops. It creates links between volunteers from different places and local blue economy workers (e.g. fishermen).

Comments on Black is the New Blue

Usefulness	Inspiration
• “I participated in a similar program when I was younger, where we learned to dive and collect various types of data for researchers. We also engaged with the local community and culture ... This experience reinforced my decision to study marine biology, and I know it had a similar impact on some of the other volunteers. Important thing to consider is how much money young people have to pay to be able to participate. The one I participated in was very expensive so it can exclude young people who are not able to raise funds.” • “This project sounds like something I and many other young people would love. It combines useful work with pleasure.” • “Seems like a very realistic and active initiative.”	• “Glad to see the idea of reusing being put forward. I think recycling is overrated (and ultimately misunderstood) and more emphasis should be placed upon reusing, reducing, reconceptualizing and/or rejecting. Good that it encourages alternative activities, rather than removing humans from the area or just aesthetic contemplation.” • “Definitely a good option to have more volunteering experiences: if protection of species and avoiding polluting modes (plane) are considered, I think it would be even more inspiring.” • “Volunteering is one of the best ways to give young people expose to issues they may come to care passionately about.”

Table 5 - Responses from participant survey gathered on Black is the new Blue social interaction blueprint

Mar Menor Sustainable Tourism Vocational School

Creation of an independent environmental education school that teaches sustainable tourism management and practices, while connecting with the local community. Policy to create a professional workforce of ecotourism stewards that also generates income for young people to stay in the region.

Collective Water Action Networks

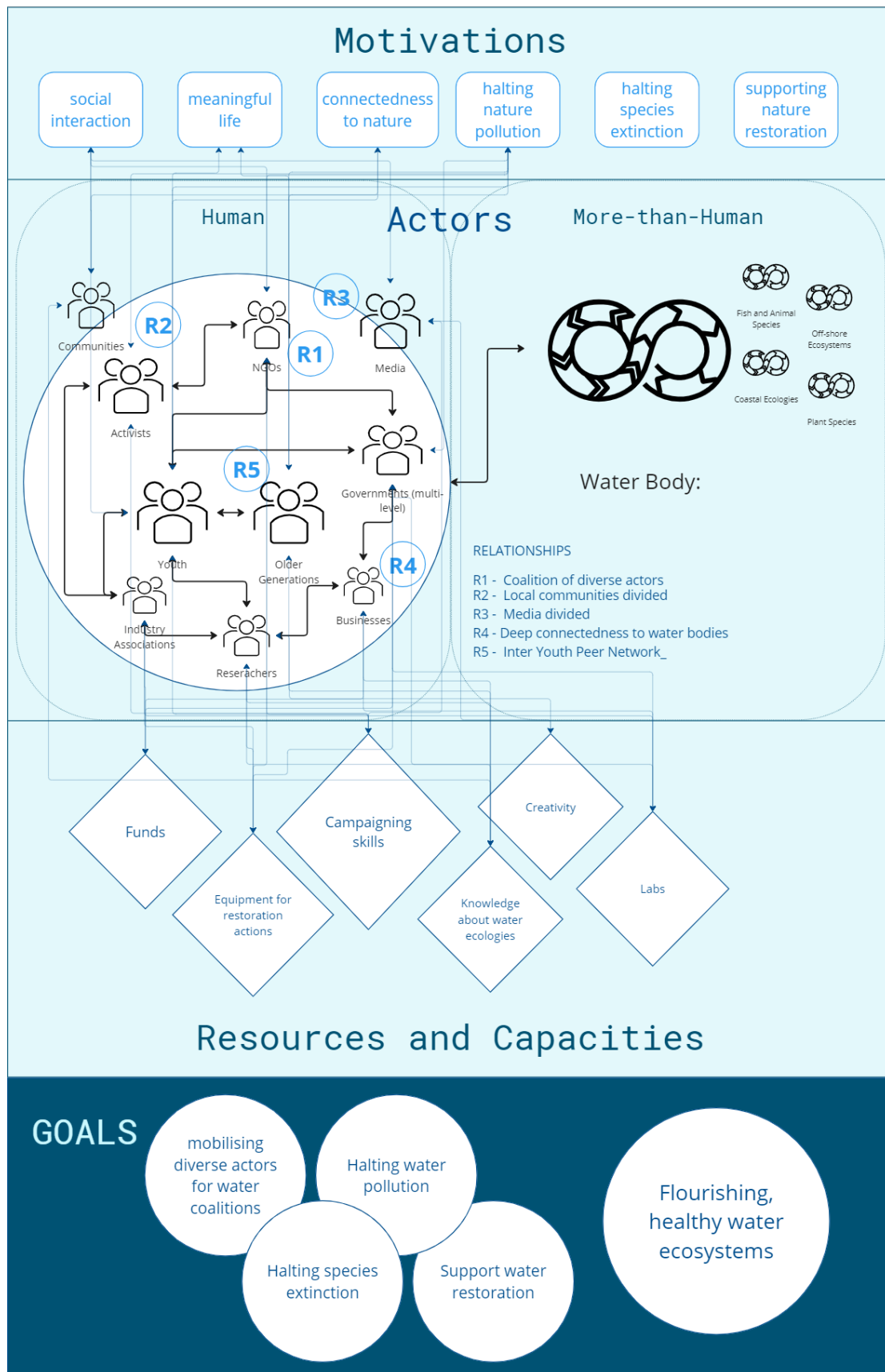


Figure 8 -Collective Water Restoration Action Assemblage Blueprint Template

2.6 YWMCA 6 Collective Water Restoration Action

Collective actions and advocacy towards removing pollutants from water ecologies and/or preventing pollution and halting species extinction. These can be hybrid actor groups with industrial, volunteer communities with multi-scale governance support.

Who are the human and more-than-human actors involved? What are the relationships between those actors?

The human actors in this assemblage can be drawn from all stakeholder groups. The laundry list of classifiers for who can be included is too long, and the ways they can contribute to collective water restoration even longer. This assemblage is flexible in its membership, but can be very focused on its goals, depending on the local conditions of the water systems to be restored. Those water systems and all the inhabitants of the associated ecologies are the more-than-human actors that are also involved, but they need not be passive receivers of human care. The more-than-human actors also have much to contribute to the collectives that undertake restoring and rehabilitating water ecosystems – sharing their experiences, behaviours, qualities, and reciprocal modes of care.

In which power structures are they entangled?

The human actors will be entangled with power structures that have helped degrade the water system being rehabilitated. This could be companies, organisations, specific activities or behaviours, with power arranged according to context and conditions of specific cases. However, they are also entangled with the power structures that emerge from heterogeneous collectives that form around a common cause. While the corporate, economic or governance power structures may or may not be active obstacles to the goals of the collective, the powers within and of the assemblage can be a new force in bringing human-nature connectedness to social governance.

How is agency (capacity to act) generated and distributed within the assemblages?

The assemblage, in part, generates its own agency via its existence – bringing together the various skills and efforts necessary to begin restorative actions. The heterogeneous nature of the collective helps ensure that assemblages have a spectrum of skills, knowledge, perspectives, and material resources at its disposal towards the task. Ensuring those capacities are organised and distributed as needed will also fall to the individual and collective efforts of the assemblage and its constituents.

What caring practices are used to maximise the flourishing of each other's capacities?

The act of restoration is a primary practice of care, though the specific actions will largely hang on the context and conditions of the assemblage. More importantly, perhaps, are the practices and attitudes of care that members of the assemblage reserve for one another and the collective as a whole. To maintain the integrity and energies of the assemblage throughout the work needed to tackle the restoration project, the member care for one another and for the ecosystems being treated will provide motivation, even when challenges emerge.

What are the capacities and resources the actors bring into the assemblage and that they grow through the assemblage?

While individual members will contain a broad variety of capacities, they will grow their abilities to use those capacities in concert with the rest of the collective. They will also grow their capacities to care for waterways and natural ecosystems beyond those of their immediate focus. Through other assemblages

like the cross-boundary alliances, there are opportunities for members to contribute to other collectives both directly and indirectly.

What motivation drives their action?

The identification of the need for restoration may be organically recognised, or part of a more structured project of water restoration. Motivation to action, however, will hang on the individuals' notice of both the problem and the collective as a real solution to completing the restorative project.

How are young people empowered to set up or join the configurations?

While there is nothing age specific in this assemblage, the FLOW project has confirmed that the social context and peer action networks are strong motivators for initial and continued participation. While motivation to join and work with the assemblage might primarily remain the water restoration goals, young people might also find support and empowerment generated between members of the collective and the social bonds that it encourages.

The biogeographical regions used as an organisational model for the FLOW project provide an important conceptual foundation for the Collective Water Restoration Action assemblage types. The framework paper identified multiple opportunities for such actions to be initiated in the Black Sea, Bay of Biscay, and Baltic Biogeographic regions (Borit et al. 2023). These assemblages can be organised around any aspect of the aquatic ecosystem (or others)³, and despite the assemblage's focus on restoration they also provide members with excellent opportunities to foster new relational values to ecosystems and their inhabitants (Knippenberg et al. 2018; Mattijssen et al. 2020). This assemblage type is most closely related to the original concept of the Stewardship Assemblages, because of the typically anthropocentric location of planned and organised action, but there are reasons to think that reciprocal exchanges can be derived, passing from nature back to human, through immersion and action within nature (Soga and Gaston 2018). These assemblages might also be composed of separate groups, working towards different but related goals within an ecosystem, who temporarily form larger groups, a process of emergence and re-individuation that can be continuous (McGinnis 2011).

The signals research identified a few examples of Collective Water Restoration Action assemblages, though we believe that there are more examples to be discovered across Europe (Priebe et al. 2024b). The ReGeneration 2030 project⁴ – funded by Nordic Youth in Sustainability – is one such group that could be categorised as such an assemblage though it lacks a single focused restoration project and instead coordinates efforts and youth actions across a number of initiatives. The ReWilding Europe⁵ network also serves as a model for organising these types of assemblages.

From the WP3 Field research (van den Born et al. 2024b) the IVN Clean the River initiative is a case in point. In collaboration with the North Sea Foundation and Plastic Soup Foundation, IVN Nature Education launched the Clean Rivers (Schone Rivieren) project. They started with the Clean Meuse in 2013 but covered all other large rivers in the Netherlands as well from 2017 onwards. The objective is to stop plastic pollution in Dutch rivers by 2030. Working with 1,100 citizen scientists, Clean Rivers systematically documents litter pollution in the Dutch river delta. Moreover, on an annual basis, 5,000 volunteers engage in riverbank clean-up efforts, simultaneously providing them with the opportunity to enjoy the natural beauty of the Dutch rivers. The biannual river waste research contributes to 1) public awareness of the waste problem, 2) influencing political decision-making, and 3) stimulating companies

³ <https://global-ecosystems.org/page/typology>

⁴ <https://www.regeneration2030.org/>

⁵ <https://rewildingeurope.com/>

to act against spillage. They provide a foundation to adopt preventive measures within the (current) legal framework and start a societal change from single use to reuse. These three levels of action are in short, the ambition of Clean Rivers. The voluntary clean-up only puts a sticking plaster on a wooden leg; to achieve clean rivers by 2030 the problem should be solved at its base. Therefore, all stakeholders (provinces, municipalities, water authorities, Rijkswaterstaat and society) have to be connected to do their part in preventing river pollution. Clean Rivers wants to help connect and support the stakeholders and with that realise their goal of clean rivers by 2030.

While many of the artifacts generated by participants in the Experiential Futures Workshops did focus on restoration and rehabilitation of water ways or bodies, this was often conjoined with government funding and support (Sorkuncuk et al. 2024). Across biogeographic regions, young people wrote ‘messages in a bottle’ that demonstrated the need for participation of local governments and businesses as crucial to the success of restoration and clean-up efforts, and as central parts of restoration focused assemblages.

During the WP5 Co-Creation Event, two social interaction blueprints were developed that could be categorised within the Collective Water Restoration assemblage type. One was conceived as centred around a particular body of water (International Structure of Water) and might also be classified as a Cross Boundary Alliance, except for the explicit mention of clean-up and restoration activities. The other, Free the Fish, was created as a mode of helping youth monitor and understand the fishing industry in an action-research model.

Example Blueprint Specifications:

Free the Fish

A network of young people who observe and monitor fishing practices. Awareness-raising activities are organised to educate consumers on issues related to unsustainable fishing practices.

Survey Comments on Free the fish	
Usefulness	Inspiration
• “I believe grassroots mobilisation is what works the best, currently <i>Bloom</i> is tackling a lot overfishing and wrong practices, but they are more linked to international plaidoyer and are not very much on ground. <i>Soulèvements de la terre</i> are to the contrary very much grassroots and would be very inspiring to link <i>Sea Shepherd</i>, <i>Soulèvements de la terre</i> and <i>Bloom</i> as best practices to launch a young initiative.”	• “Being active defenders is the best way to be in action while learning a lot. A lot of studies have shown that direct action is the most efficient way to feel legitimate.” • “I think it could be of interest for those of a more adventurous and combative spirit, reproducing a <i>Sea Shepherd</i> approach in fighting harmful practices at sea. But it's risky and that could deter many young people.”

Table 6 - Responses from participant survey gathered on Free the Fish social interaction blueprint

International Structure of Water

The International Structure of Water severs as an umbrella structure that enables the collaboration of different NGOs and research organisations related to ecology, sustainability and the future of water in

the Black Sea region. The goal is to foster safety and security, raise awareness, and inspire youth activism related to water issues and clean-up initiatives.

3. Conclusions & Recommendations

The FLOW project's diverse activities have revealed the strong commitment of young generations to addressing critical challenges within the Mission Ocean agenda, including the protection and restoration of Europe's aquatic ecosystems. Various artifacts that were generated through workshops and events focused on youth attendance provide evidence that European youth are eager to engage with the protection, rehabilitation, or restoration of Europe's main water bodies and inland water sources. Based on the refinements from our empirical work, we have adopted a terminology to describe the configurations we are looking to sketch in this final FLOW deliverable that embraces also eco-centric views, more than human perspectives and relational values in particular caring practices and invites recognition of power relationships.

The Youth Empowering Human-Water Mutual Care Assemblages (YWMCA) outlined in this report are an attempt to synthesize modes of action that are transportable across European biogeographic regions, without being too generalised so as to become superfluous. As shown in the previous sections, FLOW research results underpin all six YWMCA outlined in this report.

Each FLOW – YWMCA can therefore be seen as a promising route towards youth engagement for sustainable human-water ecosystems. Even more, the interaction of different YWMCA has the potential to become a transformative catalyst for broader system change that could draw more and more actors into sustainable patterns of human water interaction. We would therefore encourage actors all-over Europe wishing to support such a youth empowering and youth empowered sustainability transformation to use and build upon the six FLOW YWMCA as blueprints for action.

In doing so they will need to translate the respective assemblage to their specific context and situation. The concrete regional actions conducted by the pioneering initiatives that we investigated, and the ones proposed by our young participants in the co-creation event may provide inspiration for such local YWMCA instantiations. The diversity of the YWMCA provides entry points for actors from all corners of the human-water ecosystem ranging from youth activists to policy makers and entrepreneurs.

In order to maximise the impact of such activities we recommend keeping in mind the key overarching characteristics of YWMCA that emerged from the FLOW results. They indicated that successful YWMCA will:

- meet young peoples' need for competence, relatedness and autonomy as a basis for self-determined action;
- go beyond information campaigns and awareness raising and towards experiential mutual learning among peers to enable constructive hope and overcome despair and feeling of helplessness;
- include intergenerational learning with older generations;
- deepen connectedness between young people and nature across all its diverse dimensions (material, cognitive, emotional, philosophical), progressing from human-human to human nature connectedness;
- provide a variety of different such configurations to attract people from different socio-economic and cultural backgrounds.

There are some remaining questions regarding these assemblages that require further investigation:

- How do these conceptual social interaction blueprints translate into realised youth empowerment and activation?
- In developing the assemblage blueprints, many contextual sensitivities have been generalised and flagged for review in attempting to build the assemblages. Will European youth decipher this invitation to participate as a way to bring their own formative perspectives to bear on the assemblages?
- Are these assemblage blueprints sufficient grounds for shaping new emergent youth organisation? How can they be made into helpful social instruments? How might their potential efficacy be tracked and understood?
- While the assemblage templates provide a basic structure to describe water-focused civic actions, are they sufficient to help communities build social apparatuses that can help address their water concerns?
- How will these blueprints behave 'out in the wild'? How will people learn about them and how will the assemblage blueprints become transformed by citizens over time?

These questions can only be tackled through further empirical research and co-creation experiments. We do hope that FLOW will become a fountain of inspiration for such endeavours, though we recognise that this publication may offer benefits to a more select audience. While considerable research into the assemblages and how they can be improved is suggested, we see no reason why they might not provide some benefit to organisers, particularly younger generations, seeking to initiate or improve water-focused actions. Our intention in providing these to the public is that the assemblage blueprints may help any and all water-focused projects think about how they are, or might be, important parts of larger entities across their region, nation, the EU or even the world. The blueprints are provided as helpful general guidelines to help groups ensure that they are being inclusive and comprehensive in their consideration of partners, that they are prepared for the resource costs, and that they have a strong network of support.

4. Annex: Survey Results

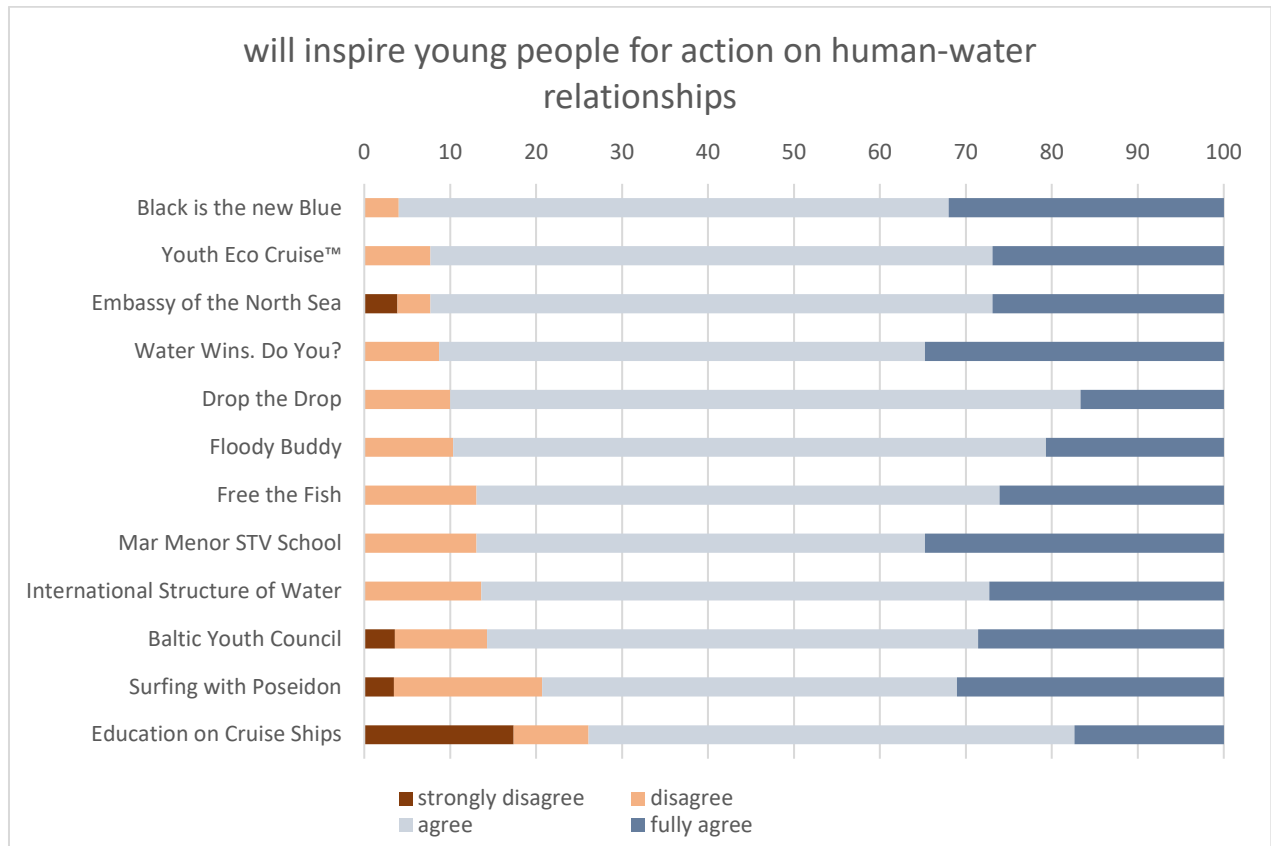


Figure 9: Assessment of inspirational potential for the blueprints draft from co-creation event (31 answers to the survey)

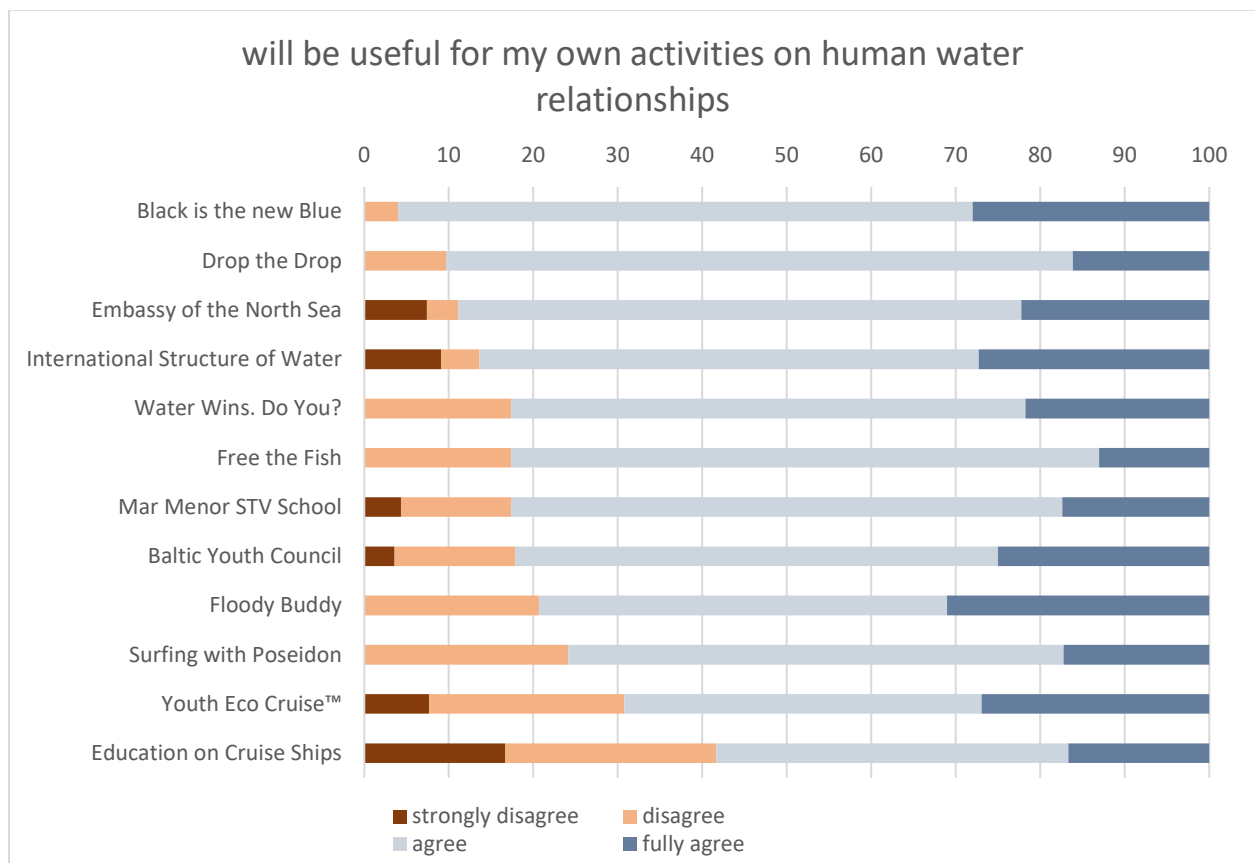


Figure 10: Assessment of usefulness for own water related activities for the blueprints draft from co-creation event (31 answers to the survey)

5. Literature

Albrecht, Glenn (2019): *Earth emotions. New words for a new world*. Ithaca: Cornell University Press. Available online at <https://www.jstor.org/stable/10.7591/j.ctvfc5563>.

Bennett, Nathan J.; Whitty, Tara S.; Finkbeiner, Elena; Pittman, Jeremy; Bassett, Hannah; Gelcich, Stefan; Allison, Edward H. (2018): *Environmental Stewardship: A Conceptual Review and Analytical Framework*. In *Environmental management* 61 (4), pp. 597–614. DOI: 10.1007/s00267-017-0993-2.

Borit, Melania; Mashiur, Zoheb; van den Born, Riyan J. G.; van Heel, Bernadette F.; Priebe, Max (2023): *Framework paper – WP1 Knowledge integration and inFLOW lens. The Many Worlds of FLOW*. FLOW Deliverable 1.4. Available online at <https://www.flowhorizon.eu/resources/>.

Briassoulis, Helen (2019): *Governance as multiplicity: the Assemblage Thinking perspective*. In *Policy Sci* 52 (3), pp. 419–450. DOI: 10.1007/s11077-018-09345-9.

Celermajer, Danielle; Chatterjee, Sria; Cochrane, Alasdair; Fishel, Stefanie; Neimanis, Astrida; O'Brien, Anne et al. (2020): *Justice Through a Multispecies Lens*. In *Contemp Polit Theory* 19 (3), pp. 475–512. DOI: 10.1057/s41296-020-00386-5.

Celermajer, Danielle; Schlosberg, David; Rickards, Lauren; Stewart-Harawira, Makere; Thaler, Mathias; Tschakert, Petra et al. (2021): *Multispecies justice: theories, challenges, and a research agenda for environmental politics*. In *Environmental Politics* 30 (1-2), pp. 119–140. DOI: 10.1080/09644016.2020.1827608.

- Chawla, Louise (2020): Childhood nature connection and constructive hope: A review of research on connecting with nature and coping with environmental loss. In *People and Nature* 2 (3), pp. 619–642. DOI: 10.1002/pan3.10128.
- Comtesse, Hannah; Ertl, Verena; Hengst, Sophie M. C.; Rosner, Rita; Smid, Geert E. (2021): Ecological Grief as a Response to Environmental Change: A Mental Health Risk or Functional Response? In *International journal of environmental research and public health* 18 (2). DOI: 10.3390/ijerph18020734.
- Deci, Edward L.; Ryan, Richard M. (1985): Conceptualizations of Intrinsic Motivation and Self-Determination. In Edward L. Deci, Richard M. Ryan (Eds.): *Intrinsic Motivation and Self-Determination in Human Behavior*. Boston, MA: Springer US, pp. 11–40.
- Dowling, Robyn; Lloyd, Kate; Suchet-Pearson, Sandra (2016): Qualitative methods II. ‘More-than-human’ methodologies and/in praxis. In *Progress in Human Geography* 41 (6), pp. 823–831. DOI: 10.1177/0309132516664439.
- Ehl, Tracey (2023): Water Stories: An exploration of human-water connectedness in Ontario and the implications for water sustainability.
- Ganzevoort, Wessel; van den Born, Riyan J. G. (2023): The everyday reality of nature volunteering: an empirical exploration of reasons to stay and reasons to quit. In *Journal of Environmental Planning and Management*, pp. 1–20. DOI: 10.1080/09640568.2023.2240953.
- Groot, Wouter T. de; van den Born, Riyan J. G.; Lenders, Rob H. J. (2006): Visions of nature. An introduction. In *Visions of nature. A scientific exploration of people’s implicit philosophies regarding nature in Germany, the Netherlands and the United Kingdom*, pp. 7–18.
- Jax, Kurt; Calestani, Melania; Chan, Kai M. A.; Eser, Uta; Keune, Hans; Muraca, Barbara et al. (2018): Caring for nature matters: a relational approach for understanding nature’s contributions to human well-being. In *Current Opinion in Environmental Sustainability* 35, pp. 22–29. DOI: 10.1016/J.COSUST.2018.10.009.
- Kahn, J. P.H. (1999): *The human relationship with nature: Development and culture*: The MIT Press.
- Knippenberg, Luuk; Groot, Wouter T. de; van den Born, Riyan Jg; Knights, Paul; Muraca, Barbara (2018): Relational value, partnership, eudaimonia: A review. In *Current Opinion in Environmental Sustainability* 35, pp. 39–45.
- Krzywoszynska, Anna (2019): Caring for soil life in the Anthropocene: The role of attentiveness in more-than-human ethics. In *Trans Inst British Geog* 44 (4), pp. 661–675. DOI: 10.1111/TRAN.12293.
- La Bellacasa, Maria Puig de (2017): *Matters of Care. Speculative Ethics in More than Human Worlds*: University of Minnesota Press. Available online at <http://www.jstor.org/stable/10.5749/j.ctt1mmfspt>.
- Lorimer, Jamie (2012): Multinatural geographies for the Anthropocene. In *Progress in Human Geography* 36 (5), pp. 593–612. DOI: 10.1177/0309132511435352.
- Louv, Richard (2013): *Last Child in the Woods. Saving our Children from Nature-Deficit Disorder*. Revised and updated. New York: Atlantic Books Ltd.
- Mashiur, Zoheb; Borit, Melania; van den Born, Riyan J. G.; van Heel, Bernadette F.; Jónás, Krisztina; Priebe, Max et al. (2023): D1.1 Open Access Transdisciplinary Dataset. FLOW Encyclopædia. Available online at <https://www.flowhorizon.eu/wp-content/uploads/2024/01/D1.1-Open-Access-Transdisciplinary-Dataset.-FLOW-Encyclopaedia.pdf>.

Mattijssen, Thomas J. M.; Ganzevoort, Wessel; van den Born, Riyan J. G.; Arts, Bas J. M.; Breman, Bas C.; Buijs, Arjen E. et al. (2020): Relational values of nature: leverage points for nature policy in Europe. In *Ecosystems and People* 16 (1), pp. 402–410.

McGinnis, Michael D. (2011): Networks of Adjacent Action Situations in Polycentric Governance. In *Policy Studies Journal* 39 (1), pp. 51–78. DOI: 10.1111/j.1541-0072.2010.00396.x.

Nuojua, Sohvi; Pahl, Sabine; Thompson, Richard (2022): Ocean connectedness and consumer responses to single-use packaging. In *Journal of Environmental Psychology* 81, p. 101814.

Ojala, Maria (2012): Regulating worry, promoting hope: How do children, adolescents, and young adults cope with climate change? In *International journal of environmental and science education* 7, pp. 537–561.

Ojala, Maria; Bengtsson, Hans (2019): Young People’s Coping Strategies Concerning Climate Change: Relations to Perceived Communication With Parents and Friends and Proenvironmental Behavior. In *Environment and Behavior* 51 (8), pp. 907–935. DOI: 10.1177/0013916518763894.

Oomen, Joost (2022): *Visjes. Een avontuur op Salina*. Amsterdam: Em. Querido's Uitgeverij BV.

Pereira, Laura M.; Davies, Kathryn K.; Belder, Eefje den; Ferrier, Simon; Karlsson-Vinkhuyzen, Sylvia; Kim, HyeJin et al. (2020): Developing multiscale and integrative nature–people scenarios using the Nature Futures Framework. In *People and Nature* 2 (4), pp. 1172–1195.

Polak, Fred; Boulding, Elise (1973): *The image of the future*.

Priebe, Max; Reitmaier, Sabine; Lehn, Benjamin (2023a): inFLOW lens: Report on the development of the transdisciplinary lens. FLOW Deliverable 1.2. Available online at <https://www.flowhorizon.eu/sources/>.

Priebe, Max; Rosa, Aaron; Reitmaier, Sabine; Borit, Melania; Mashiur, Zoheb; van den Born, Riyan J. G.; van Heel, Bernadette F. (2024a): FLOW Deliverable 2.3 Working Paper. Foresight Study on Human-Water Relations and the young generation’s expectation.

Priebe, Max; Rosa, Aaron; Reitmaier, Sabine; Lehn, Benjamin (2023b): FLOW Deliverable 2.2 Prototypes for the experiential futures workshops.

Priebe, Max; Rosa, Aaron; Reitmaier, Sabine; Lehn, Benjamin; Borit, Melania; Mashiur, Zoheb et al. (2024b): FLOW Deliverable 2.1 Mixed-Media Research Corpus. A short-list of cultural sources for horizon scanning on human-waters relations. FLOW project (Deliverable 2.1).

Ryan, R. M.; Deci, E. L. (2000): Intrinsic and Extrinsic Motivations: Classic Definitions and New Directions. In *Contemporary educational psychology* 25 (1), pp. 54–67. DOI: 10.1006/CEPS.1999.1020.

Soga, Masashi; Gaston, Kevin J. (2016): Extinction of experience: the loss of human–nature interactions. In *Frontiers in Ecol & Environ* 14 (2), pp. 94–101. DOI: 10.1002/fee.1225.

Soga, Masashi; Gaston, Kevin J. (2018): Shifting baseline syndrome: causes, consequences, and implications. In *Frontiers in Ecol & Environ* 16 (4), pp. 222–230. DOI: 10.1002/fee.1794.

Sorkuncuk, Furkan; van Heel, Bernadette F.; van den Born, Riyan J. G.; Dedu, Constantin; Priebe, Max; Rosa, Aaron B. et al. (2024): Catalogue of Images of the Future. Human-water relations: young Europeans' stories that invite us to protect and cherish water, for all living beings, and generations yet unborn. FLOW Deliverable 5.1. FLOW; Volunteurope. Brussels (D5.1).

Souza Junior, Carlos Roberto Bernades de (2021): MORE-THAN-HUMAN CULTURAL GEOGRAPHIES TOWARDS CO-DWELLING ON EARTH. In *Mercator - Revista de Geografia da UFC* 20, pp. 1–10. Available online at <https://www.redalyc.org/articulo.oa?id=273665153007>.

- Toledo, Camille de (2021): *Le fleuve qui voulait écrire: Les auditions du parlement de Loire.*: LLL.
- Tschakert, Petra; Dietrich, Kathleen Ann (2010): Anticipatory Learning for Climate Change Adaptation and Resilience. In *Ecology and Society* 15 (2). Available online at <http://www.jstor.org/stable/26268129>.
- van Born, Riyan J.G. den; Lenders, Rob H.J.; Groot, Wouter T. de; Huijsman, Ellen (2001): The new biophilia: an exploration of visions of nature in Western countries. In *Envir. Conserv.* 28 (1), pp. 65–75. DOI: 10.1017/S0376892901000066.
- van den Born, Riyan J. G.; Calderón Moya-Méndez, Natalia; Groot, Mirjam de; Duong, Ngoc T. B.; Ganzevoort, Wessel; van Heel, Bernadette F. et al. (2024a): Testing the Biophilia Hypothesis Through the Human and Nature Scale on Four Continents. In *Ecopsychology*.
- van den Born, Riyan J.G. (2008): Rethinking Nature: Public Visions in the Netherlands. In *Environmental Values* 17 (1), pp. 83–109. DOI: 10.3197/096327108X271969.
- van den Born, Riyan J.G.; Arts, B.; Admiraal, J.; Beringer, A.; Knights, P.; Molinario, E. et al. (2018): The missing pillar: Eudemonic values in the justification of nature conservation. In *Journal of Environmental Planning and Management* 61 (5-6), pp. 841–856. DOI: 10.1080/09640568.2017.1342612.
- van den Born, Riyan J.G.; van Heel, bernadette; Lauwers, Noah; Borit, Melania; Mashiur, Zoheb; Priebe, Max (2024b): D3.3 Summary Report. Available online at <https://www.flowhorizon.eu/wp-content/uploads/2024/06/D3.3-Summary-Report-.pdf>.
- van Dooren, Thom; Kirksey, Eben; Münster, Ursula (2016): Multispecies Studies. In *Environmental Humanities* 8 (1), pp. 1–23. DOI: 10.1215/22011919-3527695.
- van Heel, Bernadette F.; van den Born, Riyan J. G.; Aarts, Noelle (2023): Heroes for nature: understanding childhood nature experiences in motivating action for nature. In *Journal of Environmental Planning and Management*, pp. 1–20. DOI: 10.1080/09640568.2023.2281875.
- West, Simon; Haider, L. Jamila; Masterson, Vanessa; Enqvist, Johan P.; Svedin, Uno; Tengö, Maria (2018): Stewardship, care and relational values. In *Current Opinion in Environmental Sustainability* 35, pp. 30–38.
- Zylstra, Matthew J.; Knight, Andrew T.; Esler, Karen J.; Le Grange, Lesley L. L. (2014): Connectedness as a Core Conservation Concern: An Interdisciplinary Review of Theory and a Call for Practice. In *Springer Science Reviews* 2 (1-2), pp. 119–143. DOI: 10.1007/s40362-014-0021-3.