

**S + T + ARTS**  
SCIENCE + TECHNOLOGY + ARTS



# S+T+ARTS4WATER II CHALLENGE CATALOGUE

May 2024



**S + T + ARTS**

The project is funded by the European Union under the Grant Agreement No 02629312. This publication (Open Call - Challenges catalogue) reflects the views only of the author, and the European Commission cannot be held responsible for any use which may be made of the information contained therein.



Oliver Chathor  
Bhola Aho Clark  
Dublin City University



# SUMMARY

## CHALLENGES

<b><u>CHALLENGE #1</u></b>	Wind And Waves. Deep Tech and Deep Sea	-----	<b>1</b>
<b><u>CHALLENGE #2</u></b>	Port Perceptions. Port Infrastructures and the Better City	-----	<b>4</b>
<b><u>CHALLENGE #3</u></b>	Sea and Symbiosis. Reimagining shared Habitats	-----	<b>7</b>
<b><u>CHALLENGE #4</u></b>	Seeking Ecological Solidarity. La Ciotat's and the Calanques National Park	-----	<b>10</b>
<b><u>CHALLENGE #5</u></b>	Tracing Oil. Uncovering Forgotten Spaces	-----	<b>13</b>
<b><u>CHALLENGE #6</u></b>	Cisterns meet Modern Tech. Circular Water Systems as Convivial Tool.	-----	<b>16</b>
<b><u>CHALLENGE #7</u></b>	Keeping Heterotopia Afloat. Experiments in Modal Shift	-----	<b>19</b>
<b><u>CHALLENGE #8</u></b>	S+T+ARTS Scheldt Valley. Cross-Cultural Collaborations with and for Water	-----	<b>22</b>
<b><u>CHALLENGE #9</u></b>	Coastal Culture and Science at Sea. Performing a Bridge to the Symbiocene	-----	<b>25</b>
<b><u>CHALLENGE #10</u></b>	Resilience on the Waterfront. Pioneering Ports and beyond	-----	<b>27</b>
<b><u>CHALLENGE #11</u></b>	Transforming Danube. From Living Spaces to Livable Spaces	-----	<b>30</b>
<b><u>CHALLENGE #12</u></b>	Rivers and their Dwelling Communities. Re-inventing the Bonds	-----	<b>33</b>
<b><u>CHALLENGE #13</u></b>	Fluvial Rights. Po River's Biodiversity, Climate Change and Pollution	-----	<b>36</b>
<b><u>CHALLENGE #14</u></b>	Indigenous and Non-Indigenous Organisms in Koper Bay. The Future of Coexistence	-----	<b>39</b>
<b><u>CHALLENGE #15</u></b>	Art from the Depths. The Marine Sediment Challenge	-----	<b>42</b>
<b><u>CHALLENGE #16</u></b>	Venice Lagoon. Investigating Liminal Spaces through Technodiversity	-----	<b>45</b>
<b><u>CHALLENGE #17</u></b>	Metabolisms. Conviviality in the Wetlands of Venice	-----	<b>48</b>
<b><u>CHALLENGE #18</u></b>	Allied Governance. From the Venice Lagoon and its Citizens to the Ports	-----	<b>51</b>
<b><u>CHALLENGE #19</u></b>	Mimicking nature. Human-made vortices for urban water regeneration	-----	<b>55</b>
<b><u>CHALLENGE #20</u></b>	Harboring Cargo Flows in Transition. Material flows' impact on Port Ecosystems	-----	<b>57</b>



## Challenge #1

# WIND AND WAVES. DEEP TECH AND DEEP SEA

(c) Aiofe Considine

### COUNTRY

Ireland

### RESIDENCY HOSTING INSTITUTION

ADAPT Research Centre / BETA Festival

### KEYWORDS

Immersive tech , Deep tech,  
AI, Wind energy

### RELATED INNOVATION AREAS

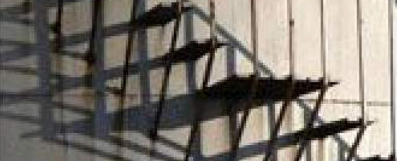
Energy transition, Systems thinking,  
Sustainability , Data Visualization

## PROBLEM STATEMENT OF LOCAL CHALLENGE

As Ireland accelerates its transition to sustainable energy, offshore wind emerges as a critical component of its renewable energy portfolio. However, the realisation of this vision hinges on the capacity and capabilities of our ports. With limited deep-water facilities currently available, there is an urgent need for infrastructural investment to upgrade existing ports and develop new ones. This challenge presents an opportunity to not only drive forward the renewable energy agenda embracing new technologies but also to revitalise and reinvent port communities and catalyse cultural agency and critical reflection to create mutual synergies.

## DESCRIPTION

As Northern Ireland's largest port, Belfast Port serves as a linchpin for regional development, driving growth, investment, and opportunity across diverse sectors. From the import and export of goods to the cruise industry and renewable energy initiatives, Belfast Port remains at the forefront of fostering prosperity and connectivity for the communities it serves. However, there is a need for infrastructural investment as the island of Ireland has limited deep water ports and these need to be upgraded to facilitate offshore wind construction. This residency seeks to explore the challenges faced in developing and maintaining wind energy farms offshore and creating green infrastructures for the future of ports.



What untapped potential lies within the intersections of art, technology, and sustainability, and how can we harness this synergy to redefine Belfast Port's role in the 21st century? Can we reimagine Belfast Port as a living laboratory for experimentation and innovation, where artists, scientists, entrepreneurs, and communities come together to co-create green solutions for a sustainable future? How might we leverage the power of storytelling, immersive experiences, and multimedia platforms to deepen public awareness and appreciation for the significance of Belfast Port and its impact on local and global economies?

The residency welcomes proposals that embrace the past of Belfast port while looking to the future – we are seeking artists who can work collaboratively engaging with multiple local stakeholders and communities and utilise e.g. immersive technology in their storytelling.

## RESIDENCY CHARACTERISTICS

### INFO ON THE REGION

This residency period between September 2024 and May 2025 will be facilitated by Beta Festival, an annual art and technology event in Ireland, inaugurated in 2023 and co-founded by The Digital Hub with a five-year commitment. The host institution will be the ADAPT Research Centre, the festival's research partner, having previously collaborated on projects such as the [Ethics Studio in the 2023 festival](#). The festival's founder has a history of collaboration with ADAPT Research, including [the BIAS exhibition](#). The primary contacts for artists during their residency will be the Beta Festival director and ADAPT Research Public Engagement Team.

Artists are required to attend workshops, activities, and conduct field research during the residency period, with travel expenses included in their budget plans. They must produce a prototype or artwork for presentation locally in Summer 2025 as part of the S+T+ARTS4WaterII programme, and for a final presentation at Beta Festival in November 2025, showcasing all three Ireland-based residencies. The residency format will be hybrid, with in-person attendance of at least one month, to be arranged in segments, plus additional online engagement.



## ADDITIONAL INFORMATION

Artists will have ongoing involvement with an interdisciplinary Local Expert Group (LEG), , that will interact with the artists to anchor the residency at local level and enrich the artists' knowledge on the topic of the residency. Beta Festival will facilitate communication with the port of Belfast and arrange meetings with local partners including Digital Art Studios Belfast and the Maritime Belfast Trust.

Artists will receive support in the form of:

- Funding
- Expertise through partners and experts including ADAPT Research Centre, Belfast Harbour, Digital Arts Studios Belfast, Queens University, the Irish Maritime Development Office and Maritime Belfast trust
- Access to technology
- Curatorial support from Beta Festival

The artist will be expected to:

- Deliver a creative output (exhibit / performance / publication / workshop)
- Facilitate 2 local artist masterclasses
- Facilitate 2 local community workshops
- Spend minimum 1 month in Ireland between October 2024 and November 2025 (timeline to be agreed once artist is appointed)
- Partake in Beta Festival in November 2025
- Regular engagement with Beta Festival and ADAPT Research Centre
- Partake in ADAPT Research Centre Education & Public Engagement Activity
- Other opportunities to be discussed with artist as they arise

## USEFUL LINKS

<https://www.belfast-harbour.co.uk/port/>

<https://www.adaptcentre.ie/>

[www.Betafestival.ie](http://www.Betafestival.ie)

<https://www.qub.ac.uk/>

<https://www.digitalartsstudios.com/>

<https://www.maritimebelfast.com/>



## Challenge #2

## PORT PERCEPTIONS. PORT INFRASTRUCTURES AND THE BETTER CITY

(c) Ros Kavanagh, Dublin Port, Dublin Ships by Ciona Harmeey

### COUNTRY

Ireland

### RESIDENCY HOSTING INSTITUTION

ADAPT Research Centre / BETA Festival

### KEYWORDS

port city interface , human centred design, systems thinking

### RELATED INNOVATION AREAS

future cities, infrastructure  
smart cities, artificial intelligence, data design

## PROBLEM STATEMENT OF LOCAL CHALLENGE

Dublin port faces dual challenges of urbanisation and gentrification, exacerbated by the pressing housing crisis, while also adapting to the post-Brexit geopolitical landscape. However, the port is integral in facilitating trade, tourism, and cultural integration within Dublin city. How can exposing the complexities of port logistics enable us to better understand our city and its future?

## DESCRIPTION

Rapid urbanisation and gentrification in Dublin have heightened land demand, particularly around Dublin Port, straining the balance between operations and city development. Land scarcity compounds congestion and limits expansion, worsened by the housing crisis, as well as post-Brexit landscape creating geopolitical shifts impacting trade, regulations, and stability, crucial as Ireland's main trade hub with Europe. Navigating these changes demands strategic planning to balance port needs with urban development goals, which is vital for sustainable growth and community prosperity.

Through this residency, artists are called to reflect on the following driven questions: How can exploring and exposing the inner working of the port enable the public to better understand the networks and infrastructures facilitating our daily lives? How can we better understand how our impacts on land have an impact on water? What can we learn from enhanced understanding and synergies?



How do our challenges in allocation of shrinking resources connect – and how can we ensure that technologies become an asset in solving them, not an aspect of aggravation? How can artistic interventions and research-based practices serve as catalysts for stimulating dialogue and debate around the ethical, cultural, and political dimensions of port development and its impact on society? This residency will be supported by researchers and access to technology through ADAPT - the world-leading Science Foundation Ireland Research Centre for AI-Driven Digital Content Technology – who have specific research expertise in AI, Content Analytics, Machine Translation, Personalisation, Multimodal Interaction, Human-Computer Interaction and Data Management. The residency will also be connected and supported by the Irish Maritime Development office.

Beta Festival critically engages with technologies' impact on society through creativity, experimentation and debate. We invite proposals that make visible the invisible mechanics and infrastructures of ports and waterways highlighting the importance of port-city interfacing. Interdisciplinarity, consideration of the geopolitical landscape and research-based practice is integral to the project.

## RESIDENCY CHARACTERISTICS

### INFO ON THE REGION

This residency period between September 2024 and May 2025 will be facilitated by Beta Festival, an annual art and technology event in Ireland, inaugurated in 2023 and co-founded by The Digital Hub with a five-year commitment. The host institution will be the ADAPT Research Centre, the festival's research partner, having previously collaborated on projects such as the Ethics Studio in the 2023 festival. The festival's founder has a history of collaboration with ADAPT Research, including the BIAS exhibition. The primary contacts for artists during their residency will be the Beta Festival director and ADAPT Research Public Engagement Team.

Artists are required to attend workshops, activities, and conduct field research during the residency period, with travel expenses included in their budget plans. They must produce a prototype or artwork for presentation locally in Summer 2025 as part of the S+T+ARTS4WaterII programme, and for a final presentation at Beta Festival in November 2025, showcasing all three Ireland-based residencies. The residency format will be hybrid, with in-person attendance of at least one month, to be arranged in segments, plus additional online engagement.



## ADDITIONAL INFORMATION

Artists will have ongoing involvement with an interdisciplinary Local Expert Group (LEG), that will interact with the artists to anchor the residency at local level and enrich the artists' knowledge on the topic of the residency. Beta Festival will facilitate communication with the port of Dublin and arrange meetings with local partners including Waterways Ireland and Smart City, Dublin City Council.

Artists will receive support in the form of:

- Funding
- Expertise through partners and experts including ADAPT Research Centre, Dublin Port, Waterways Ireland, Smart City at Dublin City Council, Irish Maritime Development Office and the Marine Institute
- Access to technology
- Curatorial support from Beta Festival

The artist will be expected to:

- Deliver a creative output (exhibit / performance / publication / workshop)
- Facilitate 2 local artist masterclasses
- Facilitate 2 local community workshops
- Spend minimum 1 month in Ireland between October 2024 and November 2025 (timeline to be agreed once artist is appointed)
- Partake in Beta Festival in November 2025
- Regular engagement with Beta Festival and ADAPT Research Centre
- Partake in ADAPT Research Centre Education & Public Engagement Activity
- Other opportunities to be discussed with artist as they arise

## USEFUL LINKS

<https://www.adaptcentre.ie/>  
<https://www.Betafestival.ie>  
<https://www.dublinport.ie/>  
[www.thedigitalhub.com](http://www.thedigitalhub.com)  
<https://www.imdo.ie/>  
<https://smartdublin.ie/>  
<https://www.waterwaysireland.org/>



## Challenge #3

# SEA AND SYMBIOSIS. REIMAGINING SHARED HABITATS

(c) Nikolas Ryan

### COUNTRY

Ireland

### RESIDENCY HOSTING INSTITUTION

ADAPT Research Centre / BETA Festival

### KEYWORDS

AI, data, tides, dredging, harbour

### RELATED INNOVATION AREAS

symbiocene, reclaimed land, artificial habitats

## PROBLEM STATEMENT OF LOCAL CHALLENGE

The purpose of this residency and challenge is to imagine ways to support the development of a new and extended Port of Galway to enable the port to better serve the people and businesses of Galway while expanding its role in the transition to renewable energy.

## DESCRIPTION

Galway, a historic port city on the West Coast of Ireland, faces a pivotal moment in its evolution. The current limitations of the port, constrained by tidal conditions and vessel capacity, hinder its potential as a hub for trade, tourism economic growth and as a key enabler to the transition to renewable energy. To overcome these challenges, the port is embarking on a transformative journey to expand its capabilities to better enable it to deliver port services to the community and businesses in its region. This involves the relocation and extension of port facilities which will enable larger vessels and 24-hour access and enable the port to enhance its service offering to the onshore wind market and, in time, support windfarm energy offshore as well as an overall green transition.

Through this residency, artists are called to reflect on the following questions: What role can interdisciplinary collaboration play in tackling the complex challenges of port expansion? How does building the capacity of the port enhance the capacity for culture anchored in sustainability? How can we consider a symbiotic approach to development? And what can the tides teach us about being time tied? We seek proposals for art science projects which highlight and address the dual imperative of enhancing the Port of Galway infrastructure while considering a community centred symbiotic approach to sustainable growth.

This residency will be supported by researchers and access to technology through ADAPT - the world-leading Science Foundation Ireland Research Centre for AI-Driven Digital Content Technology – who have specific research expertise in AI, Content Analytics, Machine Translation, Personalisation, Multimodal Interaction, Human-Computer Interaction and Data Management, as well as researchers from the University of Galway. The residency will also be connected and supported by the Irish Maritime Development office who is responsible for national dedicated development, promotional and marketing for the shipping and shipping services sector in Ireland.

Beta Festival critically engages with technologies' impact on society through creativity, experimentation and debate. We invite proposals from artists with research-based practices that have experience in art science projects to visualise, document and map new ways to symbiotically co-exist.

## RESIDENCY CHARACTERISTICS

### INFO ON THE REGION

This residency period between September 2024 and May 2025 will be facilitated by Beta Festival, an annual art and technology event in Ireland, inaugurated in 2023 and co-founded by The Digital Hub with a five-year commitment. The host institution will be the ADAPT Research Centre, the festival's research partner, having previously collaborated on projects such as the [Ethics Studio in the 2023 festival](#). The festival's founder has a history of collaboration with ADAPT Research, including [the BIAS exhibition](#). The primary contacts for artists during their residency will be the Beta Festival director and ADAPT Research Public Engagement Team.

The residency format will be hybrid, with in-person attendance of at least one month, to be arranged in segments, plus additional online engagement. Artists will have ongoing involvement with an interdisciplinary Local Expert Group (LEG), that will interact with the artists to anchor the residency at local level and enrich the artists' knowledge on the topic of the residency. Beta Festival will facilitate communication with the port of Galway and arrange meetings with local partners including Galway Culture Company.



## ADDITIONAL INFORMATION

Artists will receive support in the form of:

- Funding
- Expertise through partners and experts including ADAPT Research Centre, Port of Galway, Galway Culture Company and the Irish Maritime Development Office
- Access to technology
- Curatorial support from Beta Festival

The artist will be expected to:

- Deliver a creative output (exhibit / performance / publication / workshop)
- Facilitate 2 local artist masterclasses
- Facilitate 2 local community workshops
- Spend minimum 1 month in Ireland between October 2024 and November 2025 (timeline to be agreed once artist is appointed)
- Partake in Beta Festival in November 2025
- Regular engagement with Beta Festival and ADAPT Research Centre
- Partake in ADAPT Research Centre Education & Public Engagement Activity
- Other opportunities to be discussed with artist as they arise

## USEFUL LINKS

<https://www.adaptcentre.ie/>

[www.Betafestival.ie](http://www.Betafestival.ie)

<https://galwayculturecompany.ie/>

<https://theportofgalway.ie/>

<https://www.imdo.ie/>

<https://www.marine.ie/>

## Challenge #4

# SEEKING ECOLOGICAL SOLIDARITY. LA CIOTAT'S AND THE CALANQUES NATIONAL PARK

(c) Franck Gérard, Aux Frontières II

### COUNTRY

France

### RESIDENCY HOSTING INSTITUTION

Camargo Foundation

### KEYWORDS

Ecological solidarity,  
Anthropic impacts,  
Resources, Interdependence

### RELATED INNOVATION AREAS

Economic (blue) development, Interface, Deep  
Time

## PROBLEM STATEMENT OF LOCAL CHALLENGE

This residency reflects on the present and future coexistence of a fast-changing, historical and industrial port cluster and Mediterranean protected coastal ecosystems. It initiates a dialogue between local ports and cities' authorities, a national park, sea users, marine scientists and local ecological communities to evolve out of a territorialised understanding of water bodies, to work collectively towards ecological solidarity.

## DESCRIPTION

The Camargo Foundation sits amidst the Calanques, a blend of terrestrial, marine, and archipelagic spaces where urban ports meet protected natural spaces. Since the late 18th century, the Calanques have been altered by industrial exploitation, geoengineering and extractivism, damaging ecological communities. Up until today, this toxic legacy continues to affect coastal life. Established in 2012, the Calanques National Park protects the threatened ecosystems. Spanning over 80 kilometers of coastline, it is Europe's sole peri-urban and the Mediterranean's only continental park. The park draws 3 million visitors yearly. With 93% marine areas, it boasts the region's largest no-fishing zones, covering 10% of its 43,462-hectare marine core. On sea, the park's eastern border runs up against La Ciotat harbors, once a shipbuilding hub, now a mix of economically significant activities (fishing, sailing, yacht refitting).



Set in a present that interweaves distant pasts and futures, the residency addresses issues related to environmental mutations from the perspective of deep time. The residency at Camargo asks how ecological solidarity could be achieved between a historic, industrial port region and a protected coastal area. It looks at the interactions taking place at the interface of a port cluster and preserved marine ecosystems. Against this background and through the residency support outlined we expect artists to develop a project beyond mere concept or techno-utopia, experimenting with ecocritical practices through direct marine engagement and to incorporate diverse stakeholders' perspectives to reflect the complexity of issues and offer future prospects. Expected results could e.g. include 1) Presenting either a functional prototype, speculation(s), or gesture(s) showcasing ecological innovation beyond techno-utopia. 2) Enabling communities to disseminate relevant knowledge.

## RESIDENCY CHARACTERISTICS

### INFO ON THE REGION

During their residency the artist will be hosted at the Camargo Foundation, an international residency space located in Cassis, in the South of France. The Camargo Foundation is dedicated to supporting transdisciplinary experimentation, research, and creation. While in Cassis, the artist will be accommodated at Camargo in one of the 12 fully equipped apartments of the foundation. They will be able to access a shared study area (the library) and an individual working space according to their needs (artist studio, technical cabin, music studio).

During their residency, the artist will be expected to engage with the region, going beyond a conceptual approach, to experiment with practices informed through direct, sensitive and continuous contact with local ecosystems and communities. To support this residency, the Camargo Foundation renews its longtime partnerships with regional institutions and affiliated researchers (Calanques National Park, Pythéas Institute), research laboratories, local communities, and marine biologists, public & port authorities (La Ciotat's Environmental Observatory, La Ciotat City Council). Camargo's regional and local partners will support the artist-in-residences' research, sharing resources, as well as their internal and external networks. Access to the National Park's sensitive areas will be granted to the artist, as well as field visits on land or at sea. Depending on the Park house's availability in La Ciotat (Michel Simon house), the resident could use it as a working space if needed.

## ADDITIONAL INFORMATION

We expect the artist to be present on site for at least 4 full months (scheduled within the official residency period running between September 2024 and end of June 2025) according to the artist's needs and availability and respecting the outlined attendance requirements. The attendance of the artist is requested during: (i) a physical meeting at the Camargo Foundation with a Local Expert Group in October 2024 and possible participation in Camargo's Fall Open Studio at this occasion, (ii) 2 to 3 educational workshops in La Ciotat (Fall 2024, Spring 2025), (iii) a public presentation at La Ciotat's Institut Universitaire de Technologie (IUT) with LEG member and oceanographer Sandrine Ruitton (date to be determined), (iv) a participation in the 2-days long public programme Rencontres Sur/Sous l'Horizon (meeting at/under the horizon) at the Camargo Foundation in June 2025 (dates to be determined), (v) a public presentation of final proposal at the occasion of the Calanques National Park's annual festival L'Automne des Calanques in fall 2025 (date to be determined), public presentations with local partners on several occasions during the residency (to be determined). Works could potentially be featured at Ars Electronica 2025, the UN Ocean Conference a/o the Love Tomorrow Conference. The artist is invited to join the 4WATERII summer school in Croatia (for which travel costs are being granted).

This challenge is supported by a Local Expert Group made of oceanographers from the Marine Institute of Oceanology and the Pythéas Institute, marine archeologists and coastal and marine guard monitors from the Calanques National Park, as well as marine anthropologists from the National Museum of Natural History.

**Jury day:** The jury day will take place between 15th and 19th July and might take place online. The jury day will offer the possibility for a project pitch by the three short-listed artists.

## USEFUL LINKS

- [Charter of the Calanques National Park](#)
- [Pollution history in the Calanques](#)
- [Paysages Productifs, Nicolas Floc'h & Camargo Foundation](#)
- [Unmapping Soils](#)
- [Pythéas Institute](#)
- [Mediterranean Institute of Oceanology](#)





## Challenge #5

# TRACING OIL. UNCOVERING FORGOTTEN SPACES

### COUNTRY

Croatia

### RESIDENCY HOSTING INSTITUTION

Drugo More

### KEYWORDS

Oil , Port, Ecosystem

### RELATED INNOVATION AREAS

Sedimentation, Erosion

## PROBLEM STATEMENT OF LOCAL CHALLENGE

The residency invites an artist to explore the development of an innovative approach to research and presentation of traces of human activity in the port area specifically designated to transportation and servicing the oil industry. There is specific interest in highlighting the impact of such developments on the configuration of the coast as well as the composition of seabed sediment and sea. Can artists help to further responsibility and final resolution of forgotten infrastructures and the leakages and erosions that seem invisible?

## DESCRIPTION

Oil found in the sea due to human activities is usually associated with tanker disasters and wartime actions. However, most oil found in the sea is there due to regular operations of the oil industry. Equipment malfunctions and human errors are the cause of continuous oil leaks from wells, refineries, and tankers. The longer such facilities exist in our environment, the greater the probability of oil leakage that leaves traces even after these facilities cease operation. These traces are visible in industrial facilities, breakwaters, and ports that are still in use or being transformed or abandoned, but also in less visible changes in soil composition and seabed, and sea chemistry, which significantly determine living conditions for marine flora and fauna.



The intersection of science, technology, and art can help us understand what happens in the space where the oil industry meets the sea to advance our understanding of these processes and act accordingly.

## RESIDENCY CHARACTERISTICS

### INFO ON THE REGION

In the marine environment of Rijeka, the oil industry has maintained a presence since the 1880s, prompting the establishment of a petroleum port in the city centre during that era. This port was fully abandoned in 2008, while the tanker terminal, along with most oil processing operations had been relocated outside the city centre since the 1960s. Over these nearly 150 years, significant advancements in technology have occurred, enhancing safety measures. However, the fundamental processes of oil import, processing, and export of derivatives have remained consistent. Notably, our societal perspective on oil has evolved, evident in the increased focus on safety protocols and the shift of production away from public view into what could be termed 'forgotten' spaces.

During the residency, spanning from September 2024 to May 2025, participants will have possibilities to collaborate with experts across various disciplines, supported by Drugo more, a non-profit cultural organisation active in production of visual and new media arts and the Port of Rijeka Authority, a non-profit state institution for governance and development of port area in Rijeka, throughout the research and production phases. Unique dissemination opportunities are offered through the channels of S+T+ARTS4WATERII.

We are seeking artists or designers with experience in interdisciplinary projects. The anticipated outcome is exhibition-ready artwork, to be showcased in Rijeka and potentially be featured at Ars Electronica 2025, the UN Ocean Conference a/o the Love Tomorrow Conference. The artist is further invited to the 4WATERII summer school taking place in Croatia (for which travel costs are being granted).



**ADDITIONAL  
INFORMATION**

**Jury day:** The jury day will take place between 15th and 19th July and might take place online. The jury day will offer the possibility for a project pitch by the three short-listed artists.

**USEFUL LINKS**

<https://www.portauthority.hr/en/>

<https://lukarijeka.hr/en/home/>

<https://drugo-more.hr/en/made-in-sea-sources/>



## Challenge #6

# CISTERNS MEET MODERN TECH. CIRCULAR WATER SYSTEMS AS CONVIVAL TOOL

### COUNTRY

Croatia

### RESIDENCY HOSTING INSTITUTION

Drugo More

### KEYWORDS

Climate Crisis, Sustainability  
Hydrological Cycles

### RELATED INNOVATION AREAS

Rain Water Collection, Convivial Tools

## PROBLEM STATEMENT OF LOCAL CHALLENGE

The goal of the residency is to develop a convivial tool, a prototype for a small-scale water collecting and distribution system using traditional (cistern) and modern technology coupled with community engagement on the island of Vis, considering the local context: a Mediterranean climate, affected both by climate crisis and overtourism straining the natural water supplies.

## DESCRIPTION

The island of Vis is one of the farthest inhabited islands of Croatia, about 50 km away from the mainland. It is one of the rare Adriatic islands with its own natural sources of drinking water from natural spring water reservoirs. However, due to global tourism and further urbanization of the island, these sources and the future of water supply are in danger. Already now during summers and high season, there can be water rationing. At the same time, climate crisis and continuous heatwaves are forcing the local population to again deploy traditional methods of collecting rainwater (through dry stone walling) that were used for centuries and ever since the island was colonized by the ancient Greeks some 2,400 years ago.



The Island School of Autonomy (ISSA), a place for imagining, experimenting and cultivating forms of knowledge production, based on the island Vis already started by reconstructing old water tanks and using traditional methods and now wants to combine it with modern technologies (like cloud collectors, solar water pumps, open source technology) in order to build a sustainable water supply system that works with natural water cycles used also in other environments faced with similar challenges.

## RESIDENCY CHARACTERISTICS

### INFO ON THE REGION

The climate on the island is typically Mediterranean. The island has a rich history, ranging from the colonization of the Illyrians to the Greeks and Romans. What distinguishes Vis is also its geological past. The Vis Archipelago consists partially of the oldest rocks in the Adriatic Sea, dating back around 220 million years. During that time there was an active volcano deep beneath the surface and this rich geological past created the fertile ground for the precious water reservoirs on the remote island. In 2003, the WWF declared the Vis archipelago, one of the last ten “paradise oases of the Mediterranean”. This open sea island is the area with the largest concentration of nature monuments in Croatia, resulting that in 2019 UNESCO’s World Network of Geoparks proclaims the Vis Archipelago a Geopark.

During the residency (from September 2024 to end of May 2025), participants will have direct access to experts across various disciplines, supported and facilitated by Drugo more and The Island School of Autonomy (ISSA), who will enrich the production throughout the research and production phases. We are seeking artists, engineers, constructors and innovators to explore and build a prototype of e.g. a sustainable water circulation system, a "convivial tool" (that could be understood, controlled and modified by the ones who are using it), on island Vis. The anticipated outcome is exhibition-ready artwork, to be showcased in Vis and Rijeka and potentially featured at Ars Electronica 2025, the UN Ocean Conference a/o the Love Tomorrow Conference. The artist is further invited to the 4WATERII summer school taking place in Croatia (for which travel costs are being granted).



### ADDITIONAL INFORMATION

**Jury day:** The jury day will take place between 15th and 19th July and might take place online. The jury day will offer the possibility for a project pitch by the three short-listed artists.

### USEFUL LINKS

[www.drugo-more.hr](http://www.drugo-more.hr)  
<https://issa-school.org>  
<https://issa-school.org/journal/water-collection/>  
<https://archive.org/details/illich-conviviality>



## Challenge #7

# KEEPING HETEROTOPIA AFLOAT. EXPERIMENTS IN MODAL SHIFT

### COUNTRY

Belgium

### RESIDENCY HOSTING INSTITUTION

GLUON

### KEYWORDS

Modal Shift, Waterways  
Brussels Canal, Scheldt, Port  
of Brussels

### RELATED INNOVATION AREAS

Sustainable transport, Solar Power, Water  
Recycling, River transport

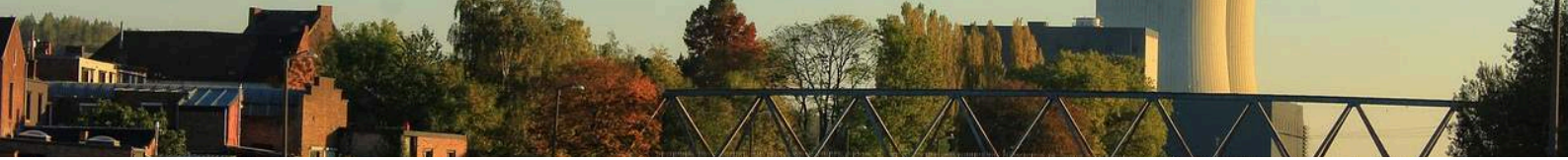
## PROBLEM STATEMENT OF LOCAL CHALLENGE

Artists are called to envision and create collaborative works along the canal of Brussels and across the Flemish waterways, playfully and engagingly inspiring cultural transformations of transport away from car-on-land onto the waterways. Stimulate community encounters to raise awareness for sustainability actions and systemic changes regarding waterways and port areas. On how many levels could a creative 'canal of change' have positive ecological and socio-cultural impact?

## DESCRIPTION

The Brussels Port, situated within the City of Brussels in the Brussels-Capital Region 120 kilometers away from the coastline accommodates ships and convoys of up to 9,000 tonnes and serves as a vital hub for regional connectivity across 14 km of canal. By the Brussels-Scheldt Maritime Canal, even ocean-faring vessels can access the outer port, while the Brussels-Charleroi Canal ensures transit to Wallonia.

Through several projects the Flemish waterway authorities, the port and the city of Brussels as well as other local and international partners are aiming at an expansion of sustainable transport per water to reduce transport on roads. These Modal Shift processes are often slow-paced and difficult to implement due to a variety of technical, economical and industrial reasons. One underestimated problem here is how societal and cultural norms favor traditional modes of transportation.



We are looking for artists to open up the imagination on the power, beauty and importance of modal shift for more sustainable and livable futures. Artists could experiment with different approaches to sculpture and architecture, sustainable or circular materials and making, bio kinetic art, smart tech and waste removal, solar and other renewable energies, organic farming, natural water filtering, alternative and experimental takes on transport by water, or explore the newest technologies (such as VR, AR, XR) with communities in the canal area in a way that is relevant to the theme of modal shift.

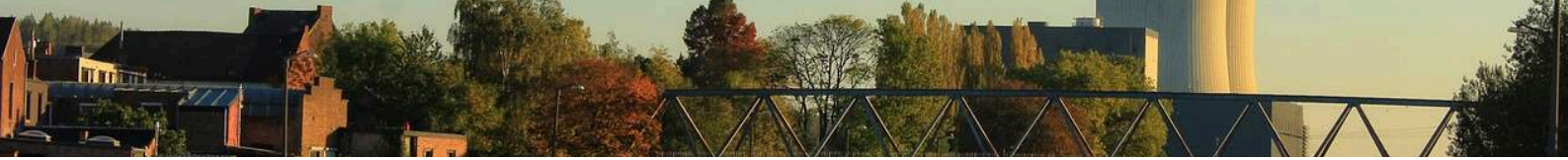
## RESIDENCY CHARACTERISTICS

### INFO ON THE REGION

S+T+ARTS4WATERII endorses the ESPO Green Guide Ports Towards a Green Future and to the UN SDGs 6,13 and 14. This 6 to 9-month residency, running from Sep 2024 to May 2025, fosters interdisciplinary collaboration in artistic research. It connects the artist to a group of experts relevant to the outlined topic and the proposed project of the artist in particular. Facilitated by GLUON, Brussels' hub for artistic research at the nexus of science and tech, 4 to 6 half-day meetings allow artists to exchange ideas with experts and specialists, guided by our trained innovation catalyst. Biweekly mentoring sessions further support artists' development.

For this residency we facilitate support with different experts from e.g. the Flemish waterway authorities and port of Brussels and involve the artist in unique dissemination opportunities through different channels. Additional expert members will be added to the group based on the requirements regarding the proposed project and skillset of the artist.

We seek artists experienced in collaborative research, with a background in e.g. science, technology, or (participatory) performance, sculpture, intermedia, circular design, activism etc. Expected outcomes should integrate with Brussel's canal area and/or the waterway and could potentially be shown at Ars Electronica 2025, the UN Ocean Conference a/o the Love Tomorrow Conference. Participants are also invited to attend the S+T+ARTS4WATERII summer school in Croatia (travel costs granted), and co-host educational labs on one occasion.



## ADDITIONAL INFORMATION

**Jury day:** The jury day will take place between 15th and 19th July and might take place online. The jury day will offer the possibility for a project pitch by the three short-listed artists.

## USEFUL LINKS

<https://multimodaal.vlaanderen/modal-shift-vs-modal-split/>  
<https://www.vlaamsewaterweg.be>  
<https://www.port.brussels/en>  
<https://www.espo.be/media/ESPO%20Green%20Guide%202021%20-%20FINAL.pdf> [https://sdgs.un.org\\_](https://sdgs.un.org_)



## Challenge #8

# S+T+ARTS SCHELDT VALLEY. CROSS-CULTURAL COLLABORATIONS WITH AND FOR WATER

### COUNTRY

Belgium

### RESIDENCY HOSTING INSTITUTION

GLUON

### KEYWORDS

In Situ, Performance, Open Air  
Rituals and Myths, Cultural  
traditions, River

### RELATED INNOVATION AREAS

Water management, Science and Sound Waves,  
Experimental Music, XR

## PROBLEM STATEMENT OF LOCAL CHALLENGE

We are inviting a curious and multi-faceted artist, interested in interweaving different cultural lines of thought and (art) practices in the Scheldt Valley National Park. Negotiate our relationship to science, nature and water, as well as to arts as sacred and related, equally providing spiritually meaningful and revealing experiences which in themselves can be aesthetic and transformative, as our relationship with the world defines the values with which we encounter it.

## DESCRIPTION

The beautiful Valley around the river Scheldt engaging 24 communities between the cities of Oudenaarde and Antwerp and passing Ghent was announced a National Park only half a year ago. The Flemish-Dutch Scheldt Delta, which the Valley is a major part of, was nominated as UNESCO Geopark. A recognition reserved for areas of unique international geological significance. The area hence holds unique value to engage different publics to the beauty and relevance of clean water – and the (scientific) efforts which sustain it.



Supported by the Arts Council Korea (ARKO) Brussels' artistic research hub GLUON offers a 9-months residency in Belgium that facilitates a production through guided exchange and mentoring with environmentalists, experts and scientists in bio and water management such as VITO, Vlakwa, Blue Bridge and Ghent University, as well as the initiative Drinkable Rivers. The residency further connects the artist to relevant cultural producers, who can familiarize the artist with the area. Cooperating with Festival STROOM, a young annual nomadic music open air event about sustainability and climate, the artist can present their work on site in summer 2025. Artists from all disciplines (installation, music, intermedia, design, sculpture, performance, visual arts, game design, sound engineering etc.) developing a collaborative work for the area can apply. A vision for engagement with the river with a view on overall enhancement of water sustainability or science literacy is needed. Making meaningful links to relevant angles from non-European cultures is encouraged.

## **RESIDENCY CHARACTERISTICS**

### **INFO ON THE REGION**

A collaborative approach ensures a deeper connection to local issues. The artist could e.g. utilize the natural landscape and waterways of the Scheldt Valley as canvas for site-specific installations or performances raising awareness about water conservation. Artworks could be made from sustainable materials or incorporate elements that highlight the fragile beauty of the ecosystem. Workshops and activities could engage locals and festival visitors in water sustainability themes. Multimedia projects such as documentaries, mixed reality exhibitions, or digital art installations that document the interconnectedness of water, ecosystems, and human activities in the area are possible too. Finally exploring the cultural significance of water in e.g. Asian and Belgian contexts through artistic expression could involve creating artworks that reflect on shared experiences of water stewardship, cultural rituals involving water, or traditional knowledge systems related to water conservation.



## ADDITIONAL INFORMATION

GLUON's facilities and connections offers expertise on new technologies. Further support will be facilitated based on the individual proposals, background, interests, and needs.

During the 9-months residency the artist needs to be present in Belgium at least intermittently for field research during the period of January to July 2025. Accommodation in Belgium for a maximum of 6 months can be covered. Travel budget needs to be assigned within the budget. The artist needs to present the work during the UN Ocean Conference beginning of June 2025 in Nice (France) and from 20. June at STROOM Festival in West Flanders, Belgium. It might further be featured at Ars Electronica 2025 a/o the Love Tomorrow Conference. The artist is also invited to the 4WATERII summer school in Croatia (travel costs granted).

**Jury day:** The jury day will take place between 15th and 19th July and might take place online. The jury day will offer the possibility for a project pitch by the three short-listed artists.

## USEFUL LINKS

[Gluon Art&Reserach](#)

[Korean Arts Council, ARKO](#)

<https://www.festivalstroom.be/en/>

<https://www.rivierparkscheldevallei.be>

<https://vito.be/en>

[Vlakwa](#)

[VOKA](#)

[Bluebridge: https://ostendsciencepark.be/what-we-do-2/](https://ostendsciencepark.be/what-we-do-2/)

[Blue Cluster](#)

[Drinkable Rivers](#)

## Challenge #9

# COASTAL CULTURE AND SCIENCE AT SEA. PERFORMING A BRIDGE TO THE SYMBIOCENE

### COUNTRY

Belgium

### RESIDENCY HOSTING INSTITUTION

GLUON

### KEYWORDS

Biodiversity, Local Participation, In Situ, EU mission charter

### RELATED INNOVATION AREAS

Circularity, Interactive Art, Biology and Marine Sciences, Water sustainability

## PROBLEM STATEMENT OF LOCAL CHALLENGE

An artist is invited to engage with the coastal area of the West Flemish city Ostend, creating collaborative synergies between its sea & water research centres, local (fishery) communities, and the public of the open-air Performance Art Festival Theater aan Zee with an eye on performative futurologist interactions, which transcend the human centred approach, that tends to reduce water in all its natural richness to merely a resource of resources.

## DESCRIPTION

The port of Ostend, is located in the city of Ostend, within the West Flanders province of the Flemish Region in Belgium. The port of Ostend is unique in Belgium as it is the only port nestled in the touristically buzzing coastal area amidst sandy beaches and wide boulevards, with a rich tradition of fishery that is still alive but undergoing significant changes, just as is the life below water. Additionally, Ostend's port area is a key science hub fostering blue economy innovation, distinguished by its focus on marine research and sustainable practices around circularity, sustainable water-management and bioengineering and has a lively cultural scene, with Theater aan Zee being one of Belgium's most unique and most loved on-site performance art festivals.





A residency for an artist motivated to develop an in-situ performance (theatre/dance/music/opera/public intervention/hybrid space/sound work), around themes of coastal and water sustainability research and biodiversity from a more than human-focused perspective, creating playful, inspiring and aesthetically intriguing future scenarios imagining alternatives combining circular living and a rediscovery of the nourishing interdependence between people, biotopes, elements and organisms. Translating water research into an engaging performance a/o interactions in situ, together with Ostend's cultural scene and local (fishery) communities. We seek to encourage everyone through experiments in performative futurology to actively preserve the ocean and waters for generations to come.

## RESIDENCY CHARACTERISTICS

### INFO ON THE REGION

This 9-month residency, running from Sep 2024 to May 2025, to reconsider our relationship with the marine and freshwater ecosystems of the North Sea, fosters interdisciplinary collaboration in artistic research. It provides access to experts and resources from Ostend's cultural sector, as well as maritime and water sustainability research, all situated in the coastal area near the port. Facilitated by GLUON Brussels, 4 to 6 half-day meetings allow artists to exchange ideas with experts, guided by a trained innovation catalyst. Biweekly mentoring sessions further support artists' development.

Affiliated with Bluebridge, the residency involves not only Ostend's Bluegrowth research group (part of Ghent University), the inter-facultair consortium Marine@UGent, and the Blue Cluster, driving innovation in the Blue Economy. Also connected is the project's main coordinator VITO's Water Climate Hub: a research division in sustainable water management developing climate resilience for Flanders' water intensive sectors. Cultural partners include Theater aan Zee, and 0.666 creative, social and inclusive workspace for circular economy, which can provide the artist with a residency workspace in the area, circular materials and connections to different local coastal communities.



## ADDITIONAL INFORMATION

We seek artists experienced in collaborative research, with a background in science, technology, or (participatory) performance, intermedia, circular and futurologist design etc. Outcomes should integrate with the TAZ Festival (Jul/Aug 2025) and might potentially be shown at Ars Electronica, the UN Ocean Conference a/o the Love Tomorrow Conference. Participants will also be invited to attend the 4WATERII summer school in Croatia (travel costs granted), and co-host educational labs on one occasion.

**Jury day:** The jury day will take place between 15th and 19th July and might take place online. The jury day will offer the possibility for a project pitch by the three short-listed artists.

## USEFUL LINKS

VITO Water Climate Hub:

<https://www.linkedin.com/company/waterclimatehub/about/>

<https://bluegrowthlab.ugent.be/>

<https://theateraanzee.be/en>

<https://web.o666.be>

<https://gluon.be/category/art-and-research/>

Blue Balance project:

<https://www.bluecluster.be/projects/blue-balance>

Marine@UGent: <https://www.marineatugent.be/welcome-marineugent>

<https://symbioscene.com/invitation-to-the-symbiocene/>

Blue Cluster's project SUMES

Research-project on the relation between human health and the sea: [https://bluegrowthlab.ugent.be/\\_\\_\\_trashed/](https://bluegrowthlab.ugent.be/___trashed/)



## Challenge #10

# RESILIENCE ON THE WATERFRONT. PIONEERING PORTS AND BEYOND

courtesy of the artist Claudius Schulze (c) <https://fids-openresearchlab.org>, Kummer & Herrman, Claudius Schulze

### COUNTRY

Belgium

### RESIDENCY HOSTING INSTITUTION

GLUON

### KEYWORDS

Sea level rise, invasive species, biodiversity, ecocentrism, interspecies ethics

### RELATED INNOVATION AREAS

pollution and water quality

## PROBLEM STATEMENT OF LOCAL CHALLENGE

The goal is to explore the economical, residential and natural eco-systems surrounding the port. Water is not only a crucial resource for different industries, but also an important source for life in and around the Scheldt. The exploration aims to reflect perspectives that go beyond human-centred views and that can create artistic expressions engaging different communities influencing the future water management of Europe's second largest port.

## DESCRIPTION

The Port of Antwerp-Bruges, situated in Flanders, Belgium, serves as the city's primary maritime gateway. Located mainly within the province of Antwerp and partly in East Flanders, it is Europe's second-largest seaport, positioned at the upper reaches of the Scheldt river's tidal estuary.

As a global economic artery the port, the city and the interlinked partners face urgencies in governing its numerous water challenges. Water quality and pollution, sediment management, the loss of biodiversity and disruption of aquatic habitats, sea level rise and flood rise, water resource management and ballast water management contributing to the spread of invasive species.



Endorsed by the Worldwide Network of Port Cities AIVP and supported by 4WATERII coordinator Vito as well as Brussel's hub for artistic research GLUON, an artist can explore concrete water challenges around the Antwerp area, engaging with biotopes, experts and engineers to add reflection and depth to the water management challenges.

Future port developments can adopt ecocentric planning approaches, involve diverse stakeholders, and prioritise biodiversity conservation, sustainable practices, and ethics of care. This shift of values emphasises the interconnectedness and intrinsic value of non-human entities within port ecosystems. Artist can highlight new perspectives highlighting value shifts that otherwise might remain absent. In collaboration with different players in the port she can engage communities through artistic interventions and contribute to public education and environmental stewardship.

## RESIDENCY CHARACTERISTICS

### INFO ON THE REGION

This 9-month residency, running from Sep 2024 to May 2025, is facilitated by an Innovation Catalyst trained in interdisciplinary artistic research by GLUON, Brussels' hub for artistic research at the nexus of science and tech. It provides access to experts and resources from Antwerp's and Brussels' cultural sector, port-projects, water research and related industry. Facilitated by GLUON Brussels, 4 to 6 half-day meetings with the expert group allow artists to exchange ideas with different stakeholders. Biweekly mentoring sessions further support artists' development. GLUON can also provide access to new technology expertise and hardware such as VR.

The artist should be present in Belgium at least intermittently for 6 months in total spread over the durations of the residency.

Artist can come from any artistic background and are expected to produce tangible results in the form of installations, performances, or other artistic output. The work should connect clearly to the complexity of sustainability challenges within port city contexts and broaden understanding and sensibilisation in the general public and industries through artistic translation, experimentation and expression of recent scientific economic and industrial developments.





## ADDITIONAL INFORMATION

Expected outcomes will be shown at intermediate showcases at partnering organisations in the province of Antwerp and the Love Tomorrow Conference at Tomorrowland Festival. It could also potentially be shown at Ars Electronica and the UN Ocean Conference. The artist is invited to attend the 4WATERII summer school in Croatia (travel costs are granted), and co-host educational labs on one occasion.

**Jury day:** The jury day will take place between 15th and 19th July and might take place online. The jury day will offer the possibility for a project pitch by the three short-listed artists.

## USEFUL LINKS

<https://www.portofantwerpbruges.com/en/news/resilient-waterfront>

<https://pioneers-ports.eu/portfolio-item/vito/>

<https://pioneers-ports.eu>

<https://www.aivp.org/en/>



## Challenge #11

# TRANSFORMING DANUBE. FROM LIVING SPACES TO LIVABLE SPACES

(c) Daniel Pelz

### COUNTRY

Austria

### RESIDENCY HOSTING INSTITUTION

Klima Biennale Wien

### KEYWORDS

Mediation,  
Inter-species dialogue,  
Meta-eco systems, Re-  
naturation, Taxonomy

### RELATED INNOVATION AREAS

Biodiversity, Ecosystem services, Re-naturation,  
Transformed river networks

## PROBLEM STATEMENT OF LOCAL CHALLENGE

Making use of the natural disposition of rivers and their advantages is tightly connected to the development of human settlements and constitutes one of the oldest interventions in ecosystems. The Danube and its complex network of tributaries have been and still are crucial for economic, social and cultural development along its banks. Years of regulation and commercial use have resulted in warming water temperatures and run-of-the-river power plants and degraded riverscapes have left their mark on the river's course and its resilient yet fragile ecosystems, leaving aquatic life in a vulnerable place. What can and should a habitat do for its inhabitants? What can be learned from the coping mechanisms of ecosystems in reaction to human interventions in aquatic habitats?

## DESCRIPTION

Since the beginning of the industrial age, the character of the interventions in riverscapes has changed dramatically. Especially the high level of fragmentation of riverbeds by hydropower plants, dams and other engineered constructions and the agricultural use of riverscapes reshapes the way ecosystems in and around rivers work. An interdisciplinary team of experts and researchers headed by the Institute of Hydrobiology and Aquatic Ecosystem Management (IHG) of the BOKU University Vienna is working on the matter of so-called Industrialized River Landscapes and is the main expert partner for this residency hosted by Klima Biennale Wien.



Academic experts are trying to find links between the ongoing damage caused by river regulation and the potential of learning from the aquatic organisms adapting to these changes. They look at the Danube River system as a “meta-ecosystem” and use research methods ranging from observing the life cycle of an individual fish to producing cartography and data models of the whole river system and migratory patterns.

The project will lead to new findings and, ultimately, to new terminologies. These will become the base for future investigation into the topic and shape the semantic reality of tomorrow. Much like species are adapting to changing living conditions, inevitably, language becomes a matter of negotiation.

The Residency aims at exploring new ways of learning from ecosystems that undergo human-made changes and finding ways to convey them to the public, entangling scientific and artistic languages and ensuring their translatability. The main goal being to speculate and ultimately create new sensibilities, new responsibilities and new realities.

## RESIDENCY CHARACTERISTICS

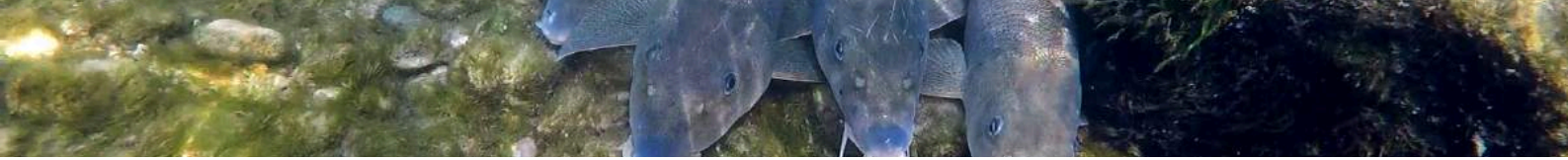
### INFO ON THE REGION

During the residency, the artist will be supported by a Local Expert Group (LEG) consisting of researchers, a science journalist and a curator as well as other yet to be determined members, which are to be selected based on the chosen artistic proposal (e.g. industry representatives, NGOs and other local initiatives).

### ADDITIONAL INFORMATION

To kick-off the residency, in September/October 2024, the LEG and especially BOKU’s IHG Institute will offer the artist the opportunity to immerse themselves in its research, accompanying experts on field trips and getting to know their methods of work. One or more sites/areas suited to the implementation of the proposal and specify the topic and area of intervention of the artist within the institute’s research field will be selected.

A public showcase of the process and a final presentation of the outcome are planned in February and June 2025, respectively.



## ADDITIONAL INFORMATION

The minimum stay in Vienna and at the research sites should be three months in total. The artist must travel to the region to attend meetings, conduct field research, and present their development and outcomes at the previously detailed three events in person. Travel costs should be included in the planned budget.

The artistic project will be presented in an exhibition of the Klima Biennale Wien, the city of Vienna's new festival for art and environment, in 2026. Therefore, the artist is also required to be available for the installation period and opening of the Klima Biennale in late March and early April of 2026. The works might potentially be featured at Ars Electronica 2025, the UN Ocean Conference a/o the Love Tomorrow Conference.

Based on the principles of care, transdisciplinary approaches and sustainability, the Biennale offers a framework for exchange on concrete alternatives for our shared future.

**Jury day:** Jury day will be held digitally on 17th July 2024 (the jury day will offer the possibility for a project pitch by the three short-listed artists.)

## USEFUL LINKS

[Klima Biennale Wien](#)  
[Institute of Hydrobiology and Aquatic Ecosystem Management \(IHG\)::Department of Water, Atmosphere and Environment \(WAU\)::BOKU](#)  
[Description of the conceptual approach and the three research fields::BOKU](#)  
[Industrialized Riverine Landscapes](#)  
[Fragmented Rivers](#)  
[Lost biodiversity in flowing waters](#)



## Challenge #12

# RIVERS AND THEIR DWELLING COMMUNITIES. RE-INVENTING THE BONDS

(c) I.W.A Gminer

### COUNTRY

Austria

### RESIDENCY HOSTING INSTITUTION

Klima Biennale Wien

### KEYWORDS

River restoration, Re-naturation, Ecosystem, Riverways, Citizen Science, Co-creation, Solidarity

### RELATED INNOVATION AREAS

Connectivity, Trade, Hydro power, River transport, Nature-based solutions

## PROBLEM STATEMENT OF LOCAL CHALLENGE

For centuries, the Danube has been a crucial element in human, economic, social and cultural development along its banks. Human interventions and commercial use have drastically impacted its resilient yet fragile ecosystems. Many of these changes lie under the water's surface and stay invisible to most people, making it hard for non-experts to grasp this dramatic development unless a major natural disasters take place. This makes it difficult to communicate the urgency of helping rivers as ecosystems thrive and the importance of research and action fields such as re-naturalization, analysis of water stream behavior and observation of the underwater ecosystems to the broader public.

How can we challenge the public's perception of regionality and incorporate the necessity of joining forces of all kinds of stakeholders, from researchers, citizens, local communities and industrial entities alike?

## DESCRIPTION

The Danube plays a role in urban environments, agriculture, industry and as an important navigable waterway. Bearing witness to this, it transports 17 tons of microplastic per year and suspended substances containing hormones, chemicals and pesticides. The Danube riverbed currently finds itself one meter below the level of 60 years ago.



This results in a lower level of underground water reservoirs and makes surrounding floodplains more prone to drying up. Due to sediment discontinuity coastal erosion of up to 24 m per year occurs. Only 10 % of the 2600 km length are in equilibrium, the rest is either eroding or showing sedimentation.

The residency aims to challenge the role of the public and policies in comprehending their responsibility for the ecological networks around them and to develop new ways to empower and of handing agency to citizens in regard to precious natural resources in a collaborative process.

## RESIDENCY CHARACTERISTICS

### INFO ON THE REGION

From the glacier in Austria and its roots in Germany to the Black Sea, the Danube River is subject to a great number of measures and interventions aiming at restoring the river to a more natural state. These aim to preserve natural habitats, prevent natural disasters and create new opportunities for local communities and economical undertakings. The success of these measures is linked to the successful exchange with and involvement of the public sphere around the river.

Hosted by Klima Biennale Wien, the artist will get the chance to work closely linked to the Danube4all Project, led by BOKU (Universität für Bodenkultur) Vienna's Institute of Hydraulic Engineering and River Research (IWA) in collaboration with 48 partnering entities. They will develop ideas around this endangered riverscape that is closely intertwined with the everyday lives of the communities that live close to it.

During the residency, the artist will be supported by a Local Expert Group (LEG) consisting of researchers, a science journalist and a curator as well as other yet to be determined members, which are to be selected based on the chosen artistic proposal (e.g. industry representatives, NGOs and other local initiatives).



## ADDITIONAL INFORMATION

To kick-off the residency, in September 2024, BOKU's IWA will offer the artist the opportunity to immerse into their fields of research as a point of departure, joining experts in the newly built River Lab. The artist will learn about the (in)visible changes the Danube ecological and economical system faces. One or more sites/areas suited to the implementation of the proposal and specify the topic and site/area of intervention will be selected. A public showcase of the process and a final presentation of the outcome are planned in February and June 2025, respectively.

The artist must travel to the region to attend meetings and events/conduct field research at least three times during the fellowship and spend three months in Vienna and at the international research sites. Travel costs should be included in the planned budget.

The artistic project will be presented in an exhibition of the Klima Biennale Wien, the city of Vienna's new festival for art and environment, in 2026. Therefore, the artist is also required to be available for the installation period and opening of the Klima Biennale in late March and early April of 2026. The works might potentially be featured at Ars Electronica 2025, the UN Ocean Conference a/o the Love Tomorrow Conference.

Based on the principles of care, transdisciplinary approaches and sustainability, the Biennale offers a framework for exchange on concrete alternatives for our shared future. The artist is also invited to join the 4WATERII summer school in Croatia (for which travel costs are being granted).

**Jury day:** The jury day will be held digitally on 18th July 2024. (The jury day will offer the possibility for a project pitch by the three short-listed artists.)

## USEFUL LINKS

[Klima Biennale Wien](#)  
[Institute of Hydraulic Engineering and River Research \(IWA\)::Department of Water, Atmosphere and Environment \(WAU\)::BOKU](#)  
[DANUBE4all](#)

## Challenge #13

# FLUVIAL RIGHTS. PO RIVER'S BIODIVERSITY, CLIMATE CHANGE AND POLLUTION

### COUNTRY

Italy

### RESIDENCY HOSTING INSTITUTION

OGR Torino

### KEYWORDS

Fluvial ecosystem,  
Collaborative citizenship

### RELATED INNOVATION AREAS

Biodiversity, social infrastructure

## PROBLEM STATEMENT OF LOCAL CHALLENGE

The Po river plays a vital role in terms of space in the city of Turin, although it is marginal in the town's infrastructural, social, economic and biodiversity actions. How can the Po River become a part of Turin, and how can the population sensibilise and the river's waters be healed and cleaned to favour species that thrive in it?

## DESCRIPTION

Turin, chief town of Piedmont (Italy), is crossed by the Po River, the most considerable flowing body of water on the peninsula, which in its Piemontese section crosses two UNESCO biospheres (Monviso and Collina Po), examples of virtuous coexistence of human and non-human species. Although it is a significant source of biodiversity with great potential as a social infrastructure, the river is considered by Turin more an obstacle than a resource.

The investigation of this residency focuses on the river from its sources springing from Mount Monviso – which are increasingly dry in summer due to the gradual disappearance of the glaciers supplying it – until its urban section in Turin where the interference of industries can also be studied.





The challenge will also entail working with the local inhabitants, collecting and documenting the stories and water relations of the groups who live in the mountain areas and have decided to face the challenge of maintaining communities in the high lands.

These two interests are contextualised in the broader climate emergency leading to melting of Alpine snow and rain scarcity. The residency will consider phytotechnologies as a tool for solutions and a hybrid approach which can combine the river's social and ecological dimensions.

How can the river become a core point of perceived value for the city? How can its healing provide positive effects on communities?

## RESIDENCY CHARACTERISTICS

### INFO ON THE REGION

OGR is an international hub combining a focus on contemporary art and performance with an interest in developing new technologies through innovation and acceleration programs. We are looking for a resident capable of constructing dialogues with a varied parterre of local communities and regional entities.

The selected artist should be able to create connections and collaborative practices between those institutional environments and the local communities. The residency will be strongly connected to the territory and to aspects of water management science. The artist will participate in several residency periods in Piedmont: in Oстана with our partner VisoaViso, visiting the Po sources – and in Turin exploring the relations between the city and the river.

The artist is expected to attend activities and conduct field research in dialogue with our Local Expert Group (Orti Generali, Alpstream, Hydroaid, VisoaViso, Fondazione Santagata) and the communities they work with daily. These encounters will provide a basis to produce the artistic outcome that will have a main presentation in OGR and two satellite showcases in Orti Generali and VisoaViso.



## ADDITIONAL INFORMATION

We are open to any kind of artistic expression capable of combining an interest for low-tech phytotechnologies with an attention to the specifics of the territory and its populations.

Works could also potentially be featured at Ars Electronica 2025, the UN Ocean Conference a/o the Love Tomorrow Conference.

Travel expenses should be considered as part of the budget plan that will be presented. However, the artist is invited to join the summer school in Croatia, for which the travel costs are being granted.

The jury day will take place between 15th and 19th July and might take place online. The jury day will offer the possibility for a project pitch by the three short-listed artists.

## USEFUL LINKS

[OGR Torino](#)

[Orti Generali](#)

[Alpstream Research Center](#)

[VisoAViso](#)

[Monviso Natural Park](#)

[Fondazione Santagata](#)

[Hydroaid](#)

## Challenge #14

# INDIGENOUS AND NON-INDIGENOUS ORGANISMS IN KOPER BAY. THE FUTURE OF COEXISTENCE

### COUNTRY

Slovenia

### RESIDENCY HOSTING INSTITUTION

PiNA

### KEYWORDS

indigenous and non-indigenous organisms, Koper Bay, coexistence

### RELATED INNOVATION AREAS

ballast water discharges, biodiversity, ecological balance

## PROBLEM STATEMENT OF LOCAL CHALLENGE

Seek strategies to ensure interspecies equity and sustainable coexistence between indigenous and non-indigenous organisms in the Koper Bay, that address the ecological disturbance caused by non-indigenous species introduced by ballast water discharges from ships. The solutions should promote biodiversity, ecological balance, and ethical consideration for all species.

## DESCRIPTION

The Bay of Koper, located at the crossroads of sea routes, is a hub of global trade and a centre for ecological concerns, illustrating the intricate dance between economic development and environmental protection. The bay's underwater ecosystems, which are rich in biodiversity, face various challenges in coexisting with the port's activities, particularly due to the constant movement of seawater caused by shipping traffic and the inflow and discharge of ballast water from international vessels. This introduces non-native species into the local marine environment, disrupting the ecological balance and threatening the survival of native aquatic life.



The anthropocentric perception of nature, which traditionally prioritizes human needs over ecological concerns, exacerbates these ecological challenges. Introducing the principle of interspecies equity in this context requires a radical rethinking of our interactions with the marine environment. It requires innovative practices that recognize the rights and interests of all species and ensure their fair consideration in decisions affecting their habitats.

Addressing the dual challenge of maintaining port operations while reducing its environmental footprint requires a multi-faceted approach. In addition, promoting a cultural shift towards a more ecocentric worldview can increase community support for conservation efforts and pave the way for a more sustainable coexistence of people, native and non-native species. The balance that Koper Bay achieves in these complex waters will serve as a guidepost for ports around the world striving to reconcile economic ambition with the imperative of environmental responsibility.

## RESIDENCY CHARACTERISTICS

### INFO ON THE REGION

A 9-month residency (September 2024 to May 2025) promotes interdisciplinary collaboration in the port environment between the scientific research at the National Institute of Biology - Marine Biology Station Piran (NIB - MBS) and artistic research at PiNA's art & science lab HEKA.

HEKA, a laboratory at the interface of science, art and business, is based on the concept of so-called »citizen science«. It is the first space of its kind in Istria. It deals with research into the impact of humans on the marine ecosystem, biomaterials and spatial sound reproduction.

During the residency, the artists will be supported by various tools (underwater drone with camera, hydrophones, GoPro camera with underwater equipment, microscopes, Magic Leap AR, Oculus Proll), data resources and facilities (HEKA lab, KUBER Spatial Audio Unit), provided by PiNA and the researchers of NIB-MBS. Throughout the residency, meetings will be held to allow artists to exchange ideas with experts under the guidance of an innovation catalyst (PiNA).



## ADDITIONAL INFORMATION

Especially artists with experience in collaborative research, with a background in science, contemporary art, architecture, technology, biology, ecology, design, etc. will thrive in this context.

The expected results should be innovative pilot projects that will be integrated into the IZIS 2025 festival, an annual contemporary art international festival produced by PiNA and possibly shown at Ars Electronica 2025, the UN Ocean Conference a/o the Love Tomorrow Conference. Participants can also attend the 4WATERII summer school in Croatia for which the travel costs are being granted (all other travel should be estimated as part of the budget).

**Jury day:** The jury day will take place between 15th and 19th July and might take place online. The jury day will offer the possibility for a project pitch by the three short-listed artists.

## USEFUL LINKS

<https://www.nib.si/mbp/en/>

<https://festival-izis.org/en/>

<https://www.mcruk.si/>

<https://www.youtube.com/watch?v=BjTkm5CkEqs&t=2s>

<https://www.youtube.com/watch?v=fRLa2FgunR4>

## Challenge #15

## ART FROM THE DEPTHS. THE MARINE SEDIMENT CHALLENGE

### COUNTRY

Slovenia

### RESIDENCY HOSTING INSTITUTION

PiNA

### KEYWORDS

marine sediment, nature's services, interspecies justice  
Koper Bay, intermedia art

### RELATED INNOVATION AREAS

marine habitats, ecology,  
marine sciences

## PROBLEM STATEMENT OF LOCAL CHALLENGE

Artists are invited to explore the opportunities arising from the large quantities of marine sediment continuously generated by port activities. This challenge focuses on minimizing the ecological impact, exploring the potential reuse of the sediment and considering the dynamic marine habitats affected by navigation, resuspension and dredging activities.

## DESCRIPTION

In cooperation with the Research Center for Sustainable development of the Port of Koper and the National Institute of Biology - Marine Biology Station Piran (NIB - MBS), artists are invited to participate in a unique project in which they will explore innovative ways to manage the large amounts of marine sediments that are continuously dragged up by port activities. The focus of this initiative is on minimizing the ecological impact and exploring potential reuse options, particularly about the dynamic marine habitats affected by navigation and dredging activities.



S+T+ARTS4WATERII reflects the ongoing efforts of the Port of Koper, the only port in Slovenia and the largest port in the Koper Bay and the northern Adriatic, which has invested significantly in expanding its capacity. The challenges related to the management of marine sediment resulting from the dredging and deepening of basins and fairways are recognised in the National Maritime Spatial Plan (MSP). Innovative solutions are being sought, including test transfer of marine sediment using new technologies, for which the company is obtaining necessary permits.

The residency offers artists the opportunity to explore the themes of seawater and sustainability in the port alongside marine science. The programme is designed to encourage artists to explore the practical applications of marine sediment and incorporate the potential reuse of the material to create valuable works that raise awareness of these issues. It is expected that the final results of the residency will make an important contribution to the discourse on environmental protection and sustainable port operations.

## RESIDENCY CHARACTERISTICS

### INFO ON THE REGION

A 9-month residency (September 2024 to May 2025) promotes interdisciplinary collaboration between scientific research at the Department of Sustainable Development in the Port of Koper and the National Institute of Biology - Marine Biology Station Piran (NIB - MBS) in combination with artistic research at PiNA's art and science laboratory HEKA. During the residency, the artists will be supported by various tools (underwater drone with camera, hydrophones, GOpro camera with underwater equipment, microscopes, Magic Leap AR, Oculus Proll), data resources and facilities (HEKA lab, KUBER Spatial Audio Unit), provided by PiNA and the institutions mentioned. Throughout the residency, meetings will be held to allow artists to exchange ideas with experts under the guidance of an innovation catalyst (PiNA).

Especially artists with experience in collaborative research, with a background in science, contemporary art, architecture, technology, biology, ecology, design, etc. will thrive in this context.



## ADDITIONAL INFORMATION

The expected results should be innovative pilot projects that will be integrated into the IZIS 2025 festival, an annual contemporary art international festival, produced by PiNA and possibly shown at Ars Electronica 2025, the UN Ocean Conference a/o the Love Tomorrow Conference. Participants can also attend the 4WATERII summer school in Croatia, for which the travel costs are being granted (all other travel costs should be estimated as part of the budget).

**Jury day:** The jury day will take place between 15th and 19th July and might take place online. The jury day will offer the possibility for a project pitch by the three short-listed artists.

## USEFUL LINKS

<https://www.luka-kp.si/en/company/sustainable-development/environmental-friendly-policy/>

<https://www.luka-kp.si/en/investors/annual-reports/chrome-extension://efaidnbmnnnibpcajpcgglefindmkaj/>

[https://dokumentipis.mop.gov.si/javno/veljavni/PPP2192/1/English/MSP\\_Slovenia.pdf](https://dokumentipis.mop.gov.si/javno/veljavni/PPP2192/1/English/MSP_Slovenia.pdf)

<https://www.nib.si/mbp/en/>

<https://festival-izis.org/en/>

<https://www.mcruk.si/>



## Challenge #16

# VENICE LAGOON. INVESTIGATING LIMINAL SPACES THROUGH TECHNO DIVERSITY

(c) Amin Linke, *Prospecting Ocean*, 2018

### COUNTRY

Italy / Spain

### RESIDENCY HOSTING INSTITUTION

TBA21-Academy

### KEYWORDS

liminal spaces, radical futurism, more-than-human underwater ecosystems investigative aesthetics

### RELATED INNOVATION AREAS

port infrastructures, eco-social crisis

## PROBLEM STATEMENT OF LOCAL CHALLENGE

The Venice Lagoon faces significant challenges related to its liminal spaces, particularly port areas and their infrastructure, such as environmental degradation that affects water quality and marine habitats. Technodiversity encourages the development of alternative technologies that respect cultural and biological diversity. How can speculative practices reimagine the future of these spaces?

## DESCRIPTION

Venice embodies an interdependency of nature and humans shaped by political decisions and technological advancement that turned the Venice Lagoon into a cyborg. Ports represent the liminal spaces of global shipping and trade and act as the gatekeepers of planetary logistics. As digital technologies have expanded human imagination and at the same time accelerated their own homogenization, how can technodiversity be used as a strategy against technological colonialism, as a tool for critical investigation, narrativization, and re-imagination of the hidden layers of complex systems?



We invite creative practitioners to search for the ghosts and hidden layers within maritime infrastructures and their relation to the more-than-human ecosystems. Community engagement and interdisciplinary collaboration are integral to the proposed project: we encourage applicants to consider how their projects might interact with communities, policymakers, and other stakeholders to envision the long-term impact of their work on the sustainable futures of the lagoon.

The residency expects that artists have previous knowledge of the particular technology they plan to implement within their project. Artists will be supported in accessing further knowledge through our network of partners.

## RESIDENCY CHARACTERISTICS

### INFO ON THE REGION

We welcome proposals with a situated understanding of Venice and its ecosystem from an interspecies perspective, approaching aquatic ecosystems through artistic and practice-based research with nurturing visions of fair and sustainable futures. We encourage proposals that deploy technologies with ecocritical approaches towards technodiversity.

Artists will receive support in the form of knowledge, tools, and data resources provided by TBA21–Academy and the LEGs (including members from [KDM](#), German Marine Research, Ca'Foscari University, CNR-ISMAR, Onassis Foundation, Venice International University). Some may include ETT Solutions' data sources and frameworks like [EMODnet Physics](#), [EMODnet Chemistry](#), [Blue-Cloud 2026](#), and [others](#).

The artist is expected to deliver a creative outcome to be presented at the Festival hosted in June 2025 at Ocean Space as part of the S+T+ARTS4WaterII consortium program.

Selected artists are required to engage with the physical and digital ecosystems of the Venice Lagoon and [Ocean-Archive.org](#) (including [ocean comm/uni/ty](#) and [OCEAN / UNI](#)). This includes a minimum of two months stay in Venice between October 2024 and February 2025. In October and February, the artists will be required to spend two weeks meeting other artists and researching local contexts.



## ADDITIONAL INFORMATION

The artist will regularly engage with the TBA21 team, undertake mentoring by the digital team, and participate in educational activities in collaboration with the [Ocean Space](#) educational team, S+T+ARTS Academy events, as well as other opportunities that may arise from the consortium activities. Works might potentially be featured at Ars Electronica 2025, the UN Ocean Conference a/o the Love Tomorrow Conference. The artist is further invited to the 4WATERII summer school in Croatia.

**Jury day:** 17th July 2024. The jury day will offer the possibility for a project pitch by the three short-listed artists.

## USEFUL LINKS

[Territorial Agency, Oceans in Transformation \(2020-2021\)](#)  
[Becoming Fresh & Salty Drops \(of Water\)](#). Ocean Space, Venice, June 2022. S+T+ARTS4Water I showcase event.  
[Ocean Archive](#)  
[KDM, German Marine Research Consortium](#)  
[ETT Solutions](#)

## Challenge #17

# METABOLISMS. CONVIVIALITY IN THE WETLANDS OF VENICE

(c) Sonia Levy, *We Marry You O Sea, A Sign of True and Perpetual Dominion*, 2023

### COUNTRY

Italy / Spain

### RESIDENCY HOSTING INSTITUTION

TBA21-Academy

### KEYWORDS

metabolism, reciprocity, conviviality, energy matter

### RELATED INNOVATION AREAS

bio hacking, open-source synthetic alternatives, AI enhanced food


## PROBLEM STATEMENT OF LOCAL CHALLENGE

Ports intervene in the processes of food production and distribution, the crafts of cooking and eating, and waste management, as integral elements of the metabolism of the Venice Lagoon. Whether the exchanges happen consciously or by chance, food registers the interdependencies between human bodies and the planetary state. Observing its convivial conversations may inspire notions of interspecies alliances and cooperation.

## DESCRIPTION

The activity of ports has an essential influence on our everyday meals. For centuries, its intense activities indicated trade routes and portrayed economic positions. Nowadays, the sustainability of port activities reveals the interdependencies between human bodies and the planetary body at large. The crucial role of food for life provides a unique scope to interrogate the metabolic cycles on which the food supply depends.





Observing ports as metabolic bodies able to process the arrival of new species and ingredients can enhance interspecies alliances. Salt built a golden economy for the Venetian Republic as the primary traded good, enhancing the process of circularity that continues today. For example, the arrival of the Atlantic blue crab through ballast water has influenced the ecosystem, raising ecological concerns as well as troubling conversations about “invasive species.” What if conviviality occurs prior to human interactions at a table? What if the engrained aspects of sharing a meal, the joy, the enhancing sense of taste and smell, may reintroduce modes of encounters centring cooperation all along the way: in the waters, in the ports, and at the table?

TBA21–Academy focuses on knowledge production through open access and ethical principles of open-source culture. We invite practitioners to engage with bacteria and fermentation, biohacking, material science, synthetic alternatives, and AI-enhanced food biotechnology.

## RESIDENCY CHARACTERISTICS

### INFO ON THE REGION

We welcome proposals with a situated understanding of Venice and its ecosystem from an interspecies perspective, approaching aquatic ecosystems through artistic and practice-based research with nurturing visions of fair and sustainable futures. We encourage proposals that deploy technologies with ecocritical approaches towards technodiversity.

Artists will receive support in the form of knowledge, tools, and data resources provided by TBA21–Academy and the LEGs (including members from [KDM](#), German Marine Research, Ca'Foscari University, CNR-ISMAR, Onassis Foundation, Venice International University). Some may include ETT Solutions' data sources and frameworks like [EMODnet Physics](#), [EMODnet Chemistry](#), [Blue-Cloud 2026](#), and [others](#).

Selected artists are required to engage with the physical and digital ecosystems of the Venice Lagoon and [Ocean-Archive.org](#) (including [ocean comm/uni/ty](#) and [OCEAN / UNI](#)). This includes a minimum of two months stay in Venice between October 2024 and February 2025. In October and February, the artists will be required to spend two weeks meeting other artists and researching local contexts.



## ADDITIONAL INFORMATION

The artist is expected to deliver a creative outcome to be presented at the Festival hosted in June 2025 at Ocean Space as part of the S+T+ARTS4WaterII consortium program.

The artist will regularly engage with the TBA21 team, undertake mentoring by the digital team, and participate in educational activities in collaboration with the [Ocean Space](#) educational team, S+T+ARTS Academy events, as well as other opportunities that may arise from the consortium activities. Works might potentially be featured at Ars Electronica 2025, the UN Ocean Conference a/o the Love Tomorrow Conference. The artist is further invited to the 4WATERII summer school in Croatia.

**Jury day:** 17th July 2024. The jury day will offer the possibility for a project pitch by the three short-listed artists.

## USEFUL LINKS

[TBA21–Academy; Convivial Tables \(2022–ongoing\)](#)

[Fishing Fly research and Fishing Fly publication](#)

[Becoming Fresh & Salty Drops \(of Water\)](#). Ocean Space, Venice, June 2022. S+T+ARTS4Water I showcase event.

[TBA21–Academy; Ocean-Archive.org](#)

[KDM, German Marine Research Consortium](#)

[ETT Solutions](#)

## Challenge #18

# ALLIED GOVERNANCE. FROM THE VENICE LAGOON AND ITS CITIZENS TO THE PORTS

(c) Arianna Ferraretto

### COUNTRY

taly / Spain

### RESIDENCY HOSTING INSTITUTION

TBA21-Academy

### KEYWORDS

citizenship, multiple agencies, traditional orders, decentralization

### RELATED INNOVATION AREAS

governances: rights of nature, rights of more-than-human, rights of animals, future of oceans

## PROBLEM STATEMENT OF LOCAL CHALLENGE

Ports are places of socio-cultural exchange. Yet, over the past decades, the processes of containerization and logistical integration have isolated them from citizen governance bodies. Imagining the future of the ocean requires cooperation between *more-than-human* life, the citizens, and the economic activities on the shores. Technological forms of decentralization can endorse a new alliance of governance based on reciprocity.

## DESCRIPTION

In recent years, plans for the preservation of water ecosystems have mobilized various governance pathways to consider the ecosystem's own agency, multiplicity, and entanglements. These strategies include revisiting cosmological visions and ancestral knowledge, animal conservation frameworks, and the notion of the rights of nature—the Mar Menor in Spain being the first case in Europe. Even within the dispute in the field of law of the best approach to deploy an inherited liberal system, these efforts aspire to create a framework that respects more-than-human life and understands that a sustainable future is not thinkable without targeting ecological justice as well.



The historic governance of Venice's canals reveals key principles of a traditional understanding of water agency. Current research and activist movements in the region are reviving historical social and legal orders that constitute respectful and caring cooperation, as well as exploring the possibilities of the newly gained subjecthood cases in Europe. How can we extend these effects to broader society?

TBA21–Academy focuses on knowledge production through open access and ethical principles of open-source culture. We invite practitioners to challenge the adaptations of synthetic media (GPTs, NPCs, and deep fakes), the transformative power of technologies based on distributed ledger (smart contract, DAO), or the idea of immersive storytelling (LARP and performative embodiment).

It is expected that artists have previous knowledge of the particular technology they plan to implement within their project. Artists will be supported in accessing further knowledge through our network of partners.

## RESIDENCY CHARACTERISTICS

### INFO ON THE REGION

We welcome proposals with a situated understanding of Venice and its ecosystem from an interspecies perspective, approaching aquatic ecosystems through artistic and practice-based research with nurturing visions of fair and sustainable futures. We encourage proposals that deploy technologies with ecocritical approaches towards technodiversity.

Artists will receive support in the form of knowledge, tools, and data resources provided by TBA21–Academy and the LEGs (including members from [KDM](#), German Marine Research, Ca'Foscari University, CNR-ISMAR, Onassis Foundation, Venice International University). Some may include ETT Solutions' data sources and frameworks like [EMODnet Physics](#), [EMODnet Chemistry](#), [Blue-Cloud 2026](#), and [others](#).

Selected artists are required to engage with the physical and digital ecosystems of the Venice Lagoon and [Ocean-Archive.org](#) (including [ocean comm/uni/ty](#) and [OCEAN / UNI](#)). This includes a minimum of two months stay in Venice between October 2024 and February 2025. In October and February, the artists will be required to spend two weeks meeting other artists and researching local contexts.





## ADDITIONAL INFORMATION

The artist is expected to deliver a creative outcome to be presented at the Festival hosted in June 2025 at Ocean Space as part of the S+T+ARTS4WaterII consortium program.

The artist will regularly engage with the TBA21 team, undertake mentoring by the digital team, and participate in educational activities in collaboration with the [Ocean Space](#) educational team, S+T+ARTS Academy events, as well as other opportunities that may arise from the consortium activities. Works might potentially be featured at Ars Electronica 2025, the UN Ocean Conference a/o the Love Tomorrow Conference. The artist is further invited to the 4WATERII summer school in Croatia.

**Jury day:** 17th July 2024. The jury day will offer the possibility for a project pitch by the three short-listed artists.

## USEFUL LINKS

Rights of Nature on the Venice Lagoon and its basin, TBA21 – Academy;

[Becoming Fresh & Salty Drops \(of Water\)](#). Ocean Space, Venice, June 2022. S+T+ARTS4Water I

[Ocean-Archive.org](#)

[KDM, German Marine Research Consortium](#)

[ETT Solutions](#)



Challenge #19

**MIMICKING NATURE. HUMAN-MADE  
VORTICES FOR URBAN WATER  
REGENERATION**

**COUNTRY**

Netherlands

**RESIDENCY HOSTING INSTITUTION**

WAAG

**KEYWORDS**

regeneration, Water physics  
hydrodynamics, citizen  
science, Open innovation

**RELATED INNOVATION AREAS**

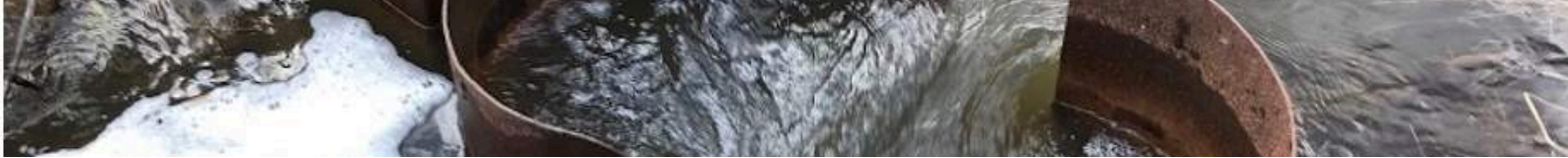
Water oxygenation, Vortex, Urban intervention,  
water literacy

**PROBLEM STATEMENT OF LOCAL CHALLENGE**

In nature, rivers regenerate, but urban rivers face challenges: limited space, abundant pollution, including plastics and chemicals like PFAS. Urban water quality is threatened due to contamination, exacerbated by population growth and climate change. Oxygenation and micropollutants pose health risks, demanding innovative management and treatment. Artists are invited to engage citizens in solutions through artistic research and open innovation.

**DESCRIPTION**

Water, the most abundant liquid on Earth, possesses numerous intriguing physical properties that are not fully understood. It exhibits around 75 anomalies, contributing to its complex behavior. Water naturally flows in perpetual vortex motions, preventing stagnation in rivers and streams. These vortices offer innovative solutions in water oxygenation and quality improvement.



However, human-made environments often lack sufficient space for water regeneration, making oxygenation energy-intensive. The Schauberger vortex principle optimizes oxygen intake, enhancing water quality and supporting life. Despite its potential, the science of vortices is not widely accessible. Our aim is to promote inclusive conversations and open innovation in science and technology, engaging communities in finding solutions to water-related challenges through artistic interventions and research. Through this approach, we can address complex water issues using advanced technologies, making science more accessible and exciting for all.

## RESIDENCY CHARACTERISTICS

### INFO ON THE REGION

Natural water vortices, generated by complex processes like cavitation and gas mixing, offer energy-efficient solutions for power generation and water treatment. Utilizing these swirls, especially in hyperbolic shapes, for aeration purposes has gained traction due to their energy-saving potential. Scientists study these phenomena to develop innovative water treatment methods.

The primary residency site for research and artwork is River de Dommel, affected by agricultural and industrial activities causing pollution. Wetsus, in collaboration with Pythagoras Kepler System (PKS) and Waterschap de Dommel, supports artists with data-rich knowledge and interactive sessions, both live and online. The scientific team assists artists in exploring vortex complexities, including water oxygenation and electrical plasma discharge treatment. The residency is facilitated by Waag Future Lab, a social design and maker organization with nearly 30 years of experience in the domain of cultural and societal implications of technologies, will provide creative support to strengthen various aspects of artists' research, collaborative and production process.

Artists are expected to e.g. create a resilient artwork referencing the Schauberger vortex principle for the Dommel river in Eindhoven. The artwork can be placed in the small river de Dommel in Eindhoven. It is advised to withstand fluctuations in water level and flow velocity and urban challenges such as vandalism and theft. The work could also elucidate the philosophy, science, and technology underpinning the treatment processes in a compelling and immersive manner.



## ADDITIONAL INFORMATION

During the 9-month residency period, we expect at least one month of (intermittent) site visits and facetime with key stakeholders, which will be facilitated by Waag Future Lab. Further attendance and reasonable availability are expected for knowledge exchange, capacity building, dissemination and communication activities (interviews, presentations, short films, S+T+ARTS4WATERII RSC activities, etc.). Works might potentially be featured at Ars Electronica 2025, the UN Ocean Conference a/o the Love Tomorrow Conference. The artist is further invited to the 4WATERII summer school in Croatia.

**Jury day:** The jury day will take place between 15th and 19th July and will be conducted online. The jury day will offer the possibility for a project pitch by the three short-listed artists.

## USEFUL LINKS

[Amsterdam Port Energy Cooperative](#)  
[Sustainable Port](#)  
[On Smart Grids](#)  
[Culture and sustainable energy](#)  
[New Energy Democracy](#)  
[Grid Orchestration a bottom-up ecosystem](#)



## Challenge #20

## HARBORING CARGO FLOWS IN TRANSITION



(c) Port of Amsterdam

### COUNTRY

Netherlands

### RESIDENCY HOSTING INSTITUTION

WAAG

### KEYWORDS

ecocultures, mapping,  
physical internet  
speculative design, circularity

### RELATED INNOVATION AREAS

future cargo and material flows, biobased  
industry, mapping, sustainable cargo routes

## PROBLEM STATEMENT OF LOCAL CHALLENGE

How do changing material flows impact sustainability of the port as an ecosystem?

The Port of Amsterdam is a crucial hub for managing cargo flows, the movement of goods within a transportation network, but these flows are changing, transitioning away from fossil fuels, through feed-to-food in the Agri bulk sector, to increased levels of circularity and waste reduction. We invite artists to explore the relationship between material flows and oceans to offer viable future scenarios for sustainable cargo flows.

## DESCRIPTION

The cargo flow portfolio (CFP) of the Port of Amsterdam (PoA) is in transition. At present, the energy sources and the economic activities of the Port of Amsterdam heavily involve fossil fuel and animal feed industries. A likely transformation soon is imminent, driven by a combination of factors including climate challenges, exponential digital transitions, and shifts in global cargo flows. Through a layered ecocultural inquiry, we invite artists to envision how we can rebuild our economic responses and systems for global trade and transaction in the face of declining environmental, ecological and communal well-being. This challenge invites artists to explore such questions in the context and from the angle of cargo routes in our oceans, as 90% of the traded goods are carried across waves globally (OECD).



The Port of Amsterdam hosts this challenge with an interest in envisioning a responsible transition to become a carbon neutral maritime base encouraging artists to consider the city's position, trade relations, social fabric and local economy. The Port provides the local expert support related to cargo flows, material, mapping models and systems. Waag Future Lab is a public research and maker organization with nearly 30 years of experience in the domain of cultural and societal implications of technologies through explored through artistic and public research. Waag will provide creative and facilitating organisational support to strengthen various aspects of artists' research, collaborative and production process.

## RESIDENCY CHARACTERISTICS

### INFO ON THE REGION

Maritime shipping is a significant aspect of trade in the Netherlands, second only to air transport in volume. Port of Amsterdam aims for zero-carbon shipping by 2035, invites artists to reimagine cargo routes, systems, design, relationship to city and the oceanic ecologies. The challenge encourages an open inquiry to imagine ecologically embedded material flows, transitions in transported goods, their origins, port logistics, and how emerging material flows will alter cargo routing, port design, and maritime social ecology.

Such transitions are poised to impact not only the Port of Amsterdam but also its 50,000 direct and indirect workers, and the nearby residential communities. The port offers resources, including historical knowledge, access to personnel, cargo storage, material and transit facilities, various open data and reports, and guided tours. Expected results for instance are immersive, site specific and / or socially engaged art works experimenting with multisensory and immersive technologies to offer speculative environmental transitions and future sustainable cargo flows or other works that create new visions for port cities and ecological ocean routes.



## ADDITIONAL INFORMATION

During the 9-month residency period, we expect at least one month of (intermittent) site visits and facetime with key stakeholders, which will be facilitated by Waag Future Lab. Further attendance and reasonable availability are expected for knowledge exchange, capacity building, dissemination and communication activities (interviews, presentations, short films, S+T+ARTS4WATERII RSC activities, etc.). Works might potentially be featured at Ars Electronica 2025, the UN Ocean Conference a/o the Love Tomorrow Conference. The artist is further invited to the 4WATERII summer school in Croatia.

**Jury day:** The jury day will take place on July 15th and will be conducted online. The jury day will offer the possibility for a project pitch by the three short-listed artists.

## USEFUL LINKS

[Different Cargo Flows; Port of Amsterdam](#)

[Port Community Systems: Accelerating the Transition of Seaports toward the Physical Internet](#)

[Flows as Makers and Breakers of Port-Territory Metabolic Relations](#)

[Artist at Sea: Codes and Cargo](#)



# S + T + ARTS

SCIENCE + TECHNOLOGY + ARTS



*Best of luck to all artists...  
Please keep an eye on  
[www.starts.eu](http://www.starts.eu) for updates*

May 2024



Funded by  
the European Union

## S + T + ARTS

The project is funded by the European Union under the Grant Agreement No 02629312. This publication (Open Call - Challenges catalogue) reflects the views only of the author, and the European Commission cannot be held responsible for any use which may be made of the information contained therein.



Klima Biennale Wien



DCU  
Oliver Chatter  
Bhola Aho Clark  
Dublin City University