



ZERO POLLUTION ADRIATIC

Abstract

This residency seeks to develop innovative tools and ideas for dealing with water pollution and the tourism & hospitality industry's footprint.

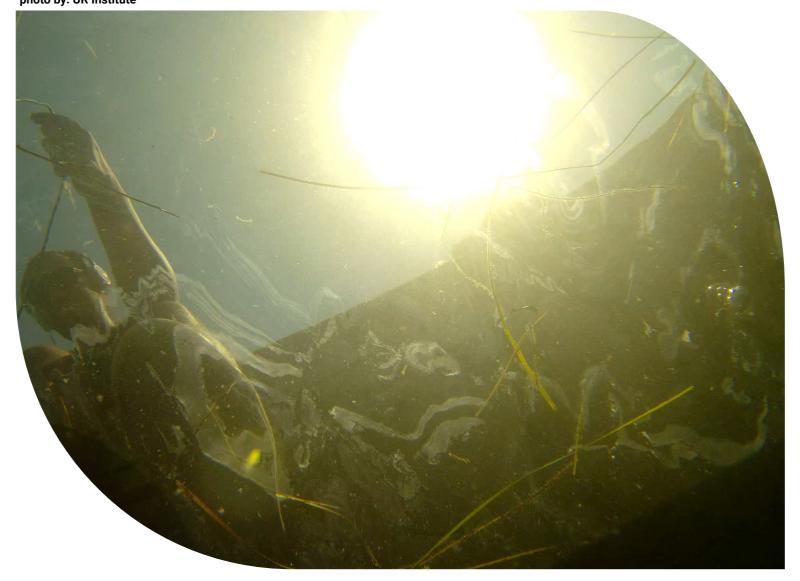
Keywords

Sea, sustainable tourism, hybrid art, new technologies, ecological engineering/biotechnology, tourism & hospitality industry footprint, new digital tools (IoT, Big Data, Cognitive computing)

Description of the regional challenge

For some time, Croatia has been faced with the problem of large quantities of liquid and solid waste from the tourism and hospitality industry. For example, waste water from restaurants, cruise ships and boats ends up in marine waters, without proper liquid waste processing. Since the release of liquid waste occurs underwater, it mostly goes unnoticed, and so becomes neglected as a problem. These practices are threatening the quality of the Adriatic Sea's coastal waters and affecting the environment (microorganisms, animal and plant life) and human health - which are all connected through the food chain. Many cities and islands are struggling with the absence of effective, universal solutions to these problems, which are also difficult to overcome individually. Can a STARTS collaboration lay a path of creative disruption and the foundations for sustainable change towards a systemic approach to waste water and marine management? Can art be a generative driving force in improving marine management, enabling new sustainable practices that promote the preservation and remediation of clean (marine) water and the restoration of a rich water biodiversity?

photo by: UR Institute



HOSTED BY: UR INSTITUTE

REGION: DUBROVNIK. CROATIA / CROATIAN AND SLOVENIAN COASTAL AREA OF THE ADRIATIC SEA

Region information

The focus of the call is the Croatian and Slovenian coastal region of the Adriatic Sea - and specifically the cities whose economy is based on unsustainable mass tourism, which produces a negative impact on marine waters and their biodiversity. The countries with coasts on the Adriatic are Albania, Bosnia and Herzegovina, Croatia, Italy, Montenegro and Slovenia. The Adriatic contains over 1,300 islands, mostly located along the Croatian part of its eastern coast. This coastline is Croatia's most popular tourist region by far, receiving around 11 million tourists a year who over-utilise most of the local water bodies, leading to a massive release of waste into marine waters.

How is the mission S+T+ARTS driven?

The project seeks a truly integrative approach to innovation, beyond the compartmentalisation of art and science & technology, and within a unified S+T+ARTS framework. UR Institute offers a platform for mutual, collaborative and DIWO (do-it-with-others) opportunities for sharing knowledge, and mutual development. We ask: can we use science & digital technology related intermedia/new media art to go beyond merely building awareness towards the hands-on development of concrete, applicable ideas?

- City of Dubrovnik Association of Technical Culture (HR)
- Dubrovnik-Neretva County Association of Technical Culture (HR)
- Association of Innovators of Dubrovnik-Neretva County (HR)
- The City of Dubrovnik (Administrative Department for Education Sports, Social Welfare and Civil Society) (HR)
- Nature Reserve Island Lokrum (HR)
- ARL Art Workshop Lazareti (HR)
- Konteiner: Bureau of Contemporary Art Praxis (HR)
- Ars Electronica Linz GmbH (AT)
- Dubrovnik Water Supply (HR)
- PiNA: Association for Culture and Education (SI)





CISTERNS KNDW

Abstract

Inefficient water services and fragmented supply strategies result in low quality, high energyconsumption and unsteady water supplies. Water management efficiency could be achieved through an imaginative bridging of ancient and future technologies coupled with community engagement.

Kevwords

drinking water services, water use efficiency, integrated water management, GIS mapping technology

Description of the regional challengeThe Greek island of Sifnos does not have sufficient water supplies to meet demand, and relies on the use of water tankers for maintaining water supply, and on plastic bottles for safe drinking water – at considerable cost. The projected cumulative cost of drinking water supply for the period 2041-2050 is estimated at between 0.9-1.3% of GDP (Bank of Greece, 2011). Efficient water resource management requires a full knowledge of existing water resources. However, given that wells, natural water sources and boreholes are private and remain undeclared, official maps are lacking. A mix of measurement data, data research and existing local knowledge is of critical importance for designing a truly integrated water resource management. Can we spark community-driven solutions through the use of GIS mapping, data-driven technology and the re-incorporation of cisterns built in conditions that promote a sustainable and affordable design of water management? Cisterns were the traditional way in which, for centuries, people collected water in the Mediterranean. They also embody the organic way in which humans deal with nature and the way in which communities manage a common good. Values such as good health, clean water, affordable energy and responsible consumption are only some of the SDGs that we address in this Sifnos Challenge.

photo by: Amalia Zepou



HOSTED BY: OHI PEZOUME / URBAN DIG PROJECT

REGION: SIFNOS ISLAND, GREEK CYCLADIC ISLANDS IN THE SOUTH EASTERN **AEGEAN REGION**

Region information

Sifnos is a Greek Cycladic island in the south eastern Aegean. Its size is 73,942 km2. It is typical of the 33 other islands of the Cyclades. Greece has around 6.000 islands, 117 of which are inhabited and which share many common features with the wider Mediterranean world.

Sifnos is rural and has 7 villages and 5 settlements near the sea. The main villages are Apollonia, the capital, Artemonas and Kastro.

How is the mission S+T+ARTS driven?

We are looking for artists/collectives able to unpack the multifaceted relationship between the island's inhabitants and water scarcity. Cisterns are a perfect symbol of the built-in wisdom of traditional practices: the principles of collectivity and sharing are embedded in their resilience. Having supported an inclusive and fair ecosystem in practice, cisterns have symbolically acquired a universal dimension. Art ought to generate a vision of their future. We expect the STARTS4Water residency to catalyse community participation in the exploration of mapping and datadriven technology, and to become a driver towards new uses of available resources and traditional techniques in order to reduce water stress.

- Department of Water Resources and Environmental Engineering, National Technical University of Athens
- Environmental Association of the Municipality of Sifnos, Greece
- Global Water Partnerships Mediterranean
- Water Supply and Sewage Company (EYDAP) S.A.)
- Department of World Cultures, Benaki Museum, **Athens**
- Water Directorate of Decentralised Administration





HOSTED BY: LUCA SCHOOL OF ARTS IN COLLABORATION WITH GLUON

REGION: FLANDERS, BELGIUM

Description of the regional challenge

The condition of our waters teaches us much about our health in general. Every year, the residues of 1500 tons of active pharmaceutical ingredients end up in our water supply chain, leaving their marks on our oceans, rivers and lakes, as well as all of their living organisms. Are we sufficiently aware of the environmental impacts of the pharmaceutical industry today? Pharmaceuticals are essential for human and animal health. However, the presence of their residues in freshwater systems is increasingly recognised as a contaminant of growing concern to environmental and human health. For example: psychiatric drugs alter fish behaviour; the overuse of antibiotics is linked to antimicrobial resistance, itself a global health crisis; when feminised, fish and amphibians become more vulnerable to predators and develop abnormalities in their organs and reproduction. How can we overturn this system and develop a holistic approach that cares not only for humans, but also for the aquatic ecosystem as a whole?

Region information

Belgium is a major pharma valley in Europe. While the country represents only 2.2% of the EU's population, it lays claim to 12.5% of pharmaceutical investments made in the EU. As the number 1 in pharmaceutical R&D investments per inhabitant, Belgium wants to tackle the presence of pharmaceuticals in freshwater and terrestrial ecosystems.

How is the mission S+T+ARTS driven?

A highly collaborative residency bringing together diverse stakeholders with expertise in wastewater treatment, digital technology, health care, biodiversity, environmental engineering, environmental chemistry and aquatic ecology, working towards the design of new measures to reduce pollution and to encompass the entire life cycle of biodegradable "greener pharmaceuticals". As an artist, you will take an active role in questioning existing systems and boosting awareness around this challenge through a tangible artwork or an innovative application, product or service that contributes to a pollution-free environment. The results of the residency will be shown at S+T+ARTS partner Bozar - Center for Fine Arts (Brussels, BE) in Fall 2022.

Residency support network

- Pollet Water Group
- Inopsys
- Vlakwa (Flemish Knowledge Center for Water)
- Capture UGhent
- North Sea Port
- Surplace

PHARMACEUTICAL POLLUTION

Abstract

This residency designs and imagines new measures that work towards more a sensible use and disposal of pharmaceuticals, the development of greener manufacturing and better wastewater treatment.

KeywordsPharmaceutical wastewater treatment, safe reuse, marine and river pollution, antibiotics contamination, restoration of water-related ecosystems









WATER CAPITALISM

Abstract

The purpose of this residency is to design a model of aquatic ownership based on trust, transparency and accountability.

Keywords

water scarcity, the commodification of water, blockchain, nature cultures, social equity

Description of the regional challenge

Water is arguably the most precious resource on Earth. Yet the way in which we value and manage it is often extremely poor, and has triggered exponential increases in water pollution, the depletion of fish stocks and the threat of extinction for certain species. There is growing awareness that more sustainable water management is necessary and that governments, companies, farmers and citizens need to radically shift their attitudes. Such a shift must be based on the true value of water, something which is far broader than mere descriptions of its utilitarian value based on cost-benefit analysis. Thus humanistic, moral, emotional, aesthetic and ethical values should also be taken into account. "How much do we value a walk along the river, the possibility of diving into its clean waters or the chance to play an active role in safeguarding biodiversity?" The value of water is difficult to quantify because different stakeholders conceptualise and describe its values differently. What if we allowed people to buy and sell water rights? Could capitalism be a viable solution? We see the residency as a catalyst for Target 6.5: Implement integrated water resources management and Target 6.b: Support stakeholder participation.



REGION: FLANDERS, BELGIUM

Region information

Flanders is a water-stressed region where the balance between water management, rural development, and urbanisation is under strain. As a result of global warming, Flanders is experiencing more extreme weather conditions such as heavy rain showers, greater volumes of water in a single event and more flooding. At the same time, these are accompanied by dry periods with an increased danger of water shortages. This has earned it a position in the "high water stress" category on a list that maps water shortage regions worldwide.

How is the mission S+T+ARTS driven?

A highly collaborative residency combining expertise in water management, philosophy, blockchain technology etc., working towards a more sustainable, inclusive and value driven water management. This collaboration will lead to a speculative and explorative artwork and/or a functional prototype for the water industry. The results of the residency will be shown at S+T+ARTS partner Bozar - Center for Fine Arts (Brussels, BE) in Fall 2022.

- Farys & De Watergroep
- Vlakwa (Flanders Knowledge Center For Water)
- Smappee (ICT company)
- Snowball (Cleantech hub)
- Timelab
- North Sea Port









HOSTED BY: CITTADELLARTE— FONDAZIONE PISTOLETTO, BIELLA, ITALY

REGION: NORTH-WESTERN ITALY, THE WESTERN ALPS AND WESTERN PO VALLEY

Description of the regional challenge

In the area between the western Alps and the western Po Valley, in glaciers, snowfields and mountain springs, important rivers such as the Po, Tanaro, Ticino, Dora Baltea, Bormida, Agogna and Sesia, among others, have their source. While they are fundamental to human life, at the same time, they are perceived of and used as resources for domestic and industrial applications and for agricultural production.

If observed closely, rivers are the very definition of real ecosystems: they are in fact composed of different and articulated materials and are based on a complex and at the same time fragile environmental balance between human experience, vegetation and local fauna

The challenge that we invite artists to tackle through the STARTS residency is to analyse the links that human beings establish with fluvial systems both in relation to the consumption and exploitation of this water resource and the impact that human activities have on this water ecosystem.

Region information

The region of the western Alps and western Po Valley is predominantly rural. The territory is divided into mountains and rural areas with dwindling populations, hill areas that transition between the rural and urban, and highly urbanised plains. There is an important presence of rivers and streams which rise in glaciers, snowfields and Alpine springs.

How is the mission S+T+ARTS driven?

We are looking for artists who are able to interact with experts from different disciplines, and who are disposed to actively listen to the needs, questions and ideas arising from both society and science and digital technology. In addition, they will be able to translate the ideas and processes circulating within the scientific sector into artistic projects which impact society, inspiring, promoting or continuing processes of positive transformation.

Residency support network

- CNR: IMATI Institute: Enrico Magenes Institute for Applied Mathematics and Information Technology (Genoa)
- CNR: ISAC Institute: Institute of Atmospheric and Climate Sciences (Turin)
- CNR: STIIMA Institute: Institute of Intelligent Industrial Systems and Technologies for Advanced Manufacturing (Biella)
- University of Turin, Department of Earth Sciences
- Polytechnic of Turin, Department of Environment, Land and Infrastructure Engineering
- Polytechnic of Turin, Department of Territorial Sciences, Planning and Policies
- Cordar, Biella. Aqueduct, Sewage and Purification Management

REBUILDING RELATIONSHIPS WITH FLUVIAL SYSTEMS EXPLORING PEOPLE'S RELATIONSHIPS WITH RIVERS AND STREAMS

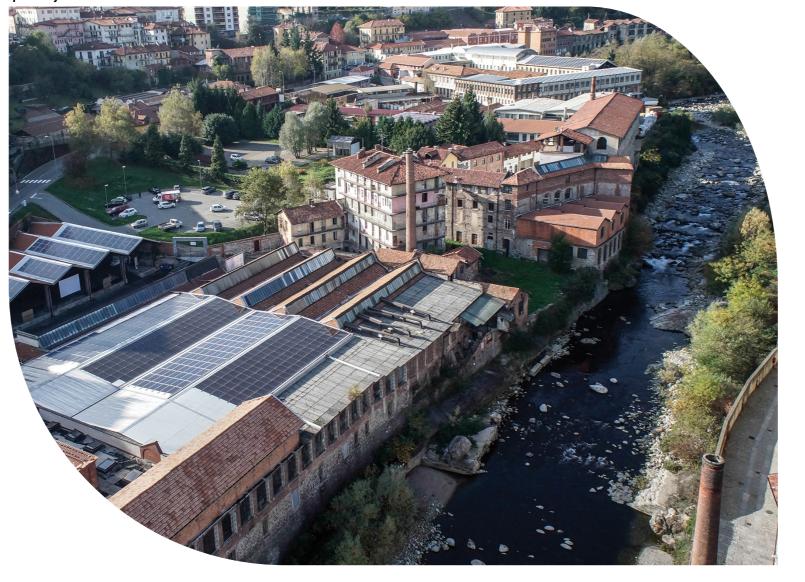
Abstract

In this residency, we invite artists to approach rivers as ecosystems marked by a precarious balance between resources and consumption. Further, the concepts of common good and shared use, when applied to rivers, open the possibility of defining new forms of relations between uses, protection and enhancement. We invite artists to use digital technologies such A. I., sensors, data collection, infographics, augmented reality.

Keywords

common good, resources, consumption, community, climate change impact











HOSTED BY: CITTADELLARTE-FONDAZIONE PISTOLETTO, BIELLA, ITALY

REGION: NORTH-WESTERN ITALY, THE WESTERN ALPS AND WESTERN PO VALLEY

Description of the regional challenge

In the area between the western Alps and the western Po Valley, in glaciers, snowfields and mountain springs, important rivers such as the Po, Tanaro, Ticino, Dora Baltea, Bormida, Agogna and Sesia, among others, have their source. These fluvial systems are an essential component of the natural ecosystem and fundamental for human life.

The artist's challenge in developing the project consists in reading, interpreting and sharing the signals that the fluvial systems in this region produce about the fragility of the environment and transformations due to climate change. Is it possible to conceive of fluvial systems as sentinels of climate change and the vulnerability of territory, both of these amplified by human action?

Region information

The region of the western Alps and western Po Valley is predominantly rural. The territory is divided into mountains, roughly 50%, rural areas with dwindling populations, hills 26%, transitional areas between the rural and urban and highly urbanised plains, 24%. There is an important presence of rivers and streams which rise in glaciers, snowfields and Alpine springs.

How is the mission S+T+ARTS driven?

We are looking for artists who are able to interact with experts from different disciplines, and who are disposed to actively listen to the needs, questions and ideas arising from both society and science and digital technology. In addition, they will be able to translate the ideas and processes circulating within the scientific sector into artistic projects which impact society, inspiring, promoting or continuing processes of positive transformation.

Residency support network

- CNR: IMATI Institute: Enrico Magenes Institute for Applied Mathematics and Information Technology (Genoa)
- CNR: ISAC Institute: Institute of Atmospheric and Climate Sciences (Turin)
- CNR: STIIMA Institute: Institute of Intelligent Industrial Systems and Technologies for Advanced Manufacturing (Biella)
- University of Turin, Department of Earth Sciences
- Polytechnic of Turin, Department of Environment, Land and Infrastructure Engineering
- Polytechnic of Turin, Department of Territorial Sciences, Planning and Policies
- Cordar, Biella. Aqueduct, Sewage and Purification Management

REBUILDING RELATIONSHIPS WITH FLUVIAL SYSTEMS FLUVIAL SYSTEMS AS INDICATORS OF CLIMATE CHANGE AND ITS IMPACT

Abstract

We invite artists to develop a project using digital technology (such A. I., sensors, data collection, mathematical modeling of fluvial processes, infographics and augmented reality), that seeks to reflect on how we can anticipate and adapt to the new conditions brought about by extreme events and the resource depletion caused by climate change, whether ongoing or inevitable in the near future.

Keywords

Fluvial system as a whole: glaciers, snowfields, springs, streams, rivers, outlets











HOSTED BY: V2_, LAB FOR THE UNSTABLE MEDIA

REGION: PORT OF ROTTERDAM THE NEDERLANDS

Description of the regional challenge

Port of Rotterdam is an unexpected haven for marine species. The large port's industrial complex has both a positive and a negative impact on the marine habitat's natural biodiversity.

It offers many places in which to shelter: shallow banks, quiet basins and deep thoroughfares. In the port, sweet and saltwater meet. It is also the only place in the Netherlands in which fish can migrate inland from the sea without encountering barriers. Yet it also encompasses some of the busiest shipping lanes in Europe, which bring about the problems of sound pollution and oil spills, amongst other things.

Region information

Port of Rotterdam is located in the middle of the Rhine-Meuse-Scheldt Delta and measures 105 square kilometres. The main waterway is the Nieuwe Waterweg (New Waterway), a large canal completed in 1872 that connects the Rhine and Meuse rivers to the North Sea.

Port of Rotterdam consists of the city centre's historic harbour area, including Delfshaven; the Maashaven/Rijnhaven/Feijenoord complex; the harbours around Nieuw-Mathenesse, Waalhaven, Vondelingenplaat, Eemhaven, Botlek and Europoort; and the reclaimed Maasvlakte area, which projects into the North Sea.

How is the mission S+T+ARTS driven?

The project will contribute to the sustainable management of Port of Rotterdam's marine ecosystem.

It will focus on the potential opportunities offered up by eDNA determination, fish tagging technology, insitu underwater sound measurement, data collection and information design, autonomous underwater vehicles (AUVs) etc. It will do so in order to analyse DNA-traces, gather data about fish movements, study underwater life and involve residents of the area directly.

The project aims to transform everyday thinking about the port area and the ways in which to conserve and sustainably use its marine ecosystem.

Organisations relevant to the challenge

- The World Port Days Organisation
- Resilient Rotterdam
- Social Impact Fonds Rotterdam
- CityLab010: Innovation Hub
- The Maritime Museum of Rotterdam
- Witteveen en Bos Engineering and Consultancy

BIODIVERSITY IN PORT OF ROTTERDAM

Abstract

Port of Rotterdam, the largest in Europe, is a national icon. Yet there is very little awareness of the port's capacity to shelter, nurture and harbour marine life, and of the need to sustain and expand its marine ecosystem.

This residency focuses on cultivating sustainable interaction between a man made port and the marine life within it.

Keywords

port, environment, marine, ecosystem, sustainability, biodiversity, resilient development, eDNA determination, fish tagging technology, artificial reef construction, in-situ underwater sound measurement, data collection and information design







HOSTED BY: V2_, LAB FOR THE **UNSTABLE MEDIA**

REGION: PORT OF ROTTERDAM THE NEDERLANDS

Description of the regional challengeMany would describe the Netherlands as a waterland.
And yet, surprisingly, the most pressing water-related problem that the country is currently facing may be drought.

In fact, for the Veluwe area specifically, drought is a growing problem. Groundwater fluctuations over the next ten years will probably not be very different from those of the past thirty years, but a rising number of tourists, higher temperatures and a longer growing season will increase the pressure on Veluwe's water system.

Region information

The Veluwe area is a high-lying, forest-rich area in the province of Gelderland. It features many different landscapes that include woodland, heath, small lakes and Europe's largest sand drifts.

The Veluwe covers approximately 1,000 km². The region is enclosed between the lissel river, IJsselmeer lake, the Lower Rhine and the Guelders Valley. Royal Estate Het Loo is located near Apeldoorn, and its 10,400 hectares make it the largest estate in the Netherlands. The Hoge Veluwe National Park is located in the southwest of the Veluwe and spans 5.400 hectares.

Within its forested area, there are only a few villages -approximately 13,900 people live in this area of 912 km². Thus the area, with only 15 inhabitants per km², is exceptionally sparsely populated by Dutch standards.

How is the mission S+T+ARTS driven?

The project encourages interest in rainwater - in its retention, storage and use - in such a way that the rights and interests of both people and nature are respected. This requires investment in adequate infrastructure, drought monitoring, data collection and information design, in collaboration with regional water authorities and other organisations. Protecting and restoring water-related ecosystems is also essential.

Organisations relevant to the challenge

- Greenport Gelderland (GG):
- Visit Veluwe
- De Hoge Veluwe National Park
- Platform Nature-inclusieve Agriculture Gelderland Witteveenen en Bos
- The Dutch Water Museum

DROUGHT IN WATERLAND

Abstract

The Veluwe area can be seen as a sandbox in which water retention is low. The purpose of this residency is to develop resilient strategies for rainwater retention and groundwater use in order to achieve a better balance between human activities and the natural environment in this area.

Keywords

groundwater depletion, drought, ecosystem restoration, safe and affordable drinking water, water retention, sandbox, drought monitoring, data collection and information design, bioretention planting, agroforestry, food forestry.







HOSTED BY: TBA 2I-ACADEMY

REGION: VENETIAN LAGOON,

SOLUTIONS FOR THE

Abstract

This residency explores nature-based solutions for the regeneration of the Venetian Lagoon.

THE FUTURE OF

HIGH WATERS

VENETIAN LAGOON

NATURE-BASED

Keywords

salt marsh and wetlands restoration, ecosystem regeneration, carbon capture processes, community outreach, digital technology



Description of the regional challenge

How can art and technology help us understand How can art and technology help us understand Venice's future relationship with the water that surrounds and permeates it? Exploring nature-based solutions for salt marsh restoration and ecosystem regeneration, this challenge investigates solutions for climate change, rising sea level mitigation and natural carbon capture and storage in the lagoon. Current water management practices have proven unsustainable in terms of the city's carbon metabolism. In the spirit of the UN's Sustainable Development Goal 14: Life Below Water, the challenge strives to promote the reintroduction of sustainable strives to promote the reintroduction of sustainable practices, community-led initiatives and artistic research, exploring the possibilities of bringing nature-based and technological approaches into a shared space of coexistence and collaboration.

Region information

The Venetian Lagoon is the largest wetland in the Mediterranean Basin, consisting of approximately 8% land and 92% water and wetland.

How is the mission S+T+ARTS driven?

This challenge strengthens collaborative practices between art and science to develop more creative and sustainable ways of engaging with the Venetian Lagoon's local environment.

The Future of High Waters explores the hydrodynamics of the Venetian Lagoon. Supported by artistic, scientific, and technological inquiry into nature-based solutions, it investigates how technology can be harnessed as a collaborator rather proposed as a solution.

- Ca' Foscari Al
- Regional UNESCO Bureau for Science and Culture
- Ellen MacArthur Foundation
- We Are Here Venice
- Venice Sustainability Innovation Accelerator









HOSTED BY: TBA 2I-ACADEMY

VENETIAN LAGOON,

REGION:

How can art and technology help us explore Venice's future relationship with the water that surrounds and future relationship with the water that surrounds and permeates it? What solutions can geo-engineering offer, not only to datasets but also to the understanding of the porous borders between solid and fluid, land and sea? How can practitioners bridge art and science through meaningful integration of technology in order to co-imagine solutions for a viable future? As exemplified by the controversial MOSE project, the conditions that surround water management in the lagoon have changed dramatically. Although human intervention into marine ecosystems is far from a new phenomenon, its intensity and scale require new phenomenon, its intensity and scale require careful examination - as echoed by the UN's SDG 14: Life Below Water.

Description of the regional challenge

Region information

The Venetian Lagoon is the largest wetland in the Mediterranean Basin, consisting of approximately 8% land and 92% water and wetland.

How is the mission S+T+ARTS driven?

This challenge investigates the possibilities of a meaningful integration of art, science, and technology to imagine solutions for a viable future of water management in the Venetian Lagoon.

The Future of High Waters explores the hydrodynamics of the Venetian lagoon. Supported by artistic, scientific, and technological inquiry into geoengineering solutions, it investigates how technology can be harnessed as a collaborator rather than proposed as a solution.

Residency support network

- Ca' Foscari Al
- Regional UNESCO Bureau for Science and Culture in Europe
- Ellen MacArthur Foundation
- We Are Here Venice
- Venice Sustainability Innovation Accelerator

THE FUTURE OF **HIGH WATERS GEO-ENGINEERING SOLUTIONS FOR THE VENETIAN LAGOON**

Abstract

This residency explores geo-engineering's potential in relation to the challenges of water management in the Venetian Lagoon.

Kevwords

salt marsh and wetlands restoration, ecosystem regeneration, carbon capture processes, community outreach, digital technology, geoengineering

Photo: Territorial Agency: Oceans in Transformation, 2020. Installation view at Ocean Space, Venice. Commissioned by TBA21-Academy. Photo by Enrico Fiorese.







