



A PROJECT OF NON RESISTANCE

Venice 21<sup>st</sup> March 2100

Isabella Trabucco

*“You know how great your walls were,  
Venice, now you see their condition;  
For you don’t look to their upkeep,  
You will find yourself alone and without walls.”*

*- C. Sabbadino, Opinion o modo di salvar la laguna, 1549*

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## Contents

<b>Abstract</b>	<b>10</b>	<b>Documentary</b>	<b>96</b>
<b>Motivation</b>	<b>12</b>	Documentary as research	98
<b>Positioning</b>	<b>16</b>	Photo documentary	101
Problematization	18	Video documentary	110
Theoretical underpinning	19	The interviews	114
<i>Allegory of Prudence</i>	19	<i>Mario</i>	114
<i>Terraforming</i>	20	<i>Alizee</i>	115
<i>Modernity</i>	24	<i>Marco</i>	115
<i>Inland vs. Seaward</i>	26	<i>Simone</i>	116
<i>Sea level rise scenario 2100</i>	27	<i>Paolo</i>	117
Theoretical framework	28	<i>Sebastiano</i>	118
<b>Methodology</b>	<b>30</b>	<i>Claudia</i>	119
Conceptual framework	32	<i>Germana and Roberta</i>	120
Field of Action	34	Conclusions	122
Research question	36	<i>Venice is still alive</i>	122
Reference	37	<b>The project of non-resistance</b>	<b>126</b>
Methodological framework	38	Design strategy	128
<b>Monographs</b>	<b>40</b>	Phasing	130
Accumulation	42	<i>Water Infrastructure</i>	132
<i>Matter</i>	42	<i>Inlandseaward</i>	134
<i>Habitat</i>	46	Process of preparation	136
<i>Topos</i>	50	Process of Non-Resistance	140
<i>Geo-Politics</i>	54	Terraforming	144
Clearance	58	Non resistance	148
<i>Matter</i>	58	Pali di fondazione	154
<i>Habitat</i>	62	Terraforming as new foundation	160
<i>Topos</i>	64	Shape adaptation	170
<i>Geo-Politics</i>	66	Territorial foundation	174
<b>Intention</b>	<b>70</b>	<b>Conclusions</b>	<b>184</b>
Inlandseaward	76	Terraforming islands	186
Infrastructure for an Archipelago	78	Project deconstruction	194
<b>Inlandseaward</b>	<b>80</b>	<b>Reflection</b>	<b>200</b>
Design framework	82	Further research	202
Inland seaward morphology	84	<b>Bibliography</b>	<b>204</b>
RSL scenarios	92		

## ABSTRACT

Venice and its lagoon are a place where the imaginary and the legends of man and water are thriving. It is a place of profound history of cohabitation and victory, where time and movement have a different definition for people than in other parts of the world. It is the urban and landscape archetype of close co-existence between the domain of inland and seaward territories.

People, culture, and traditions always remembered and respected the legend of Venice and its creation, understanding the delicate boundaries and the frontiers of encounter between inland and seaward, preserving the reached balance between them and the population sustained on it.

Nevertheless, it is possible to notice that at a certain moment, the urge of becoming modern prevailed on the equilibrium between the two domains. The need for civil society and a global view on what cities should be, brought distance between inland and seaward while letting people forget the legend of Venice.

We could say that Venice always retaliated its own identity to itself and the rest of the world, modifying its description from maritime independent power, to artistic cradle of revolutionary ideas, to petrol-chemical industrial force, to mass-consumption product. Its definition came always from within, while now, with the approach of the climate crisis, for the first time Venice has to deal with powerful externalities which are going to consequently redefine the Venetian identity from the outside.

This research by design tries to remember the legend of Venice of co-existence and adaptation to its landscape, finding new possible anatomy based on the binding of Inland and seaward pressed by the climate crisis worst-case scenarios.

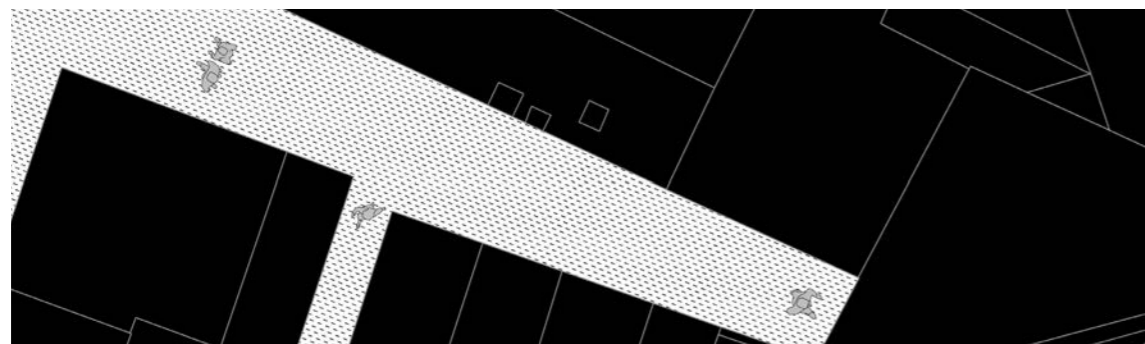
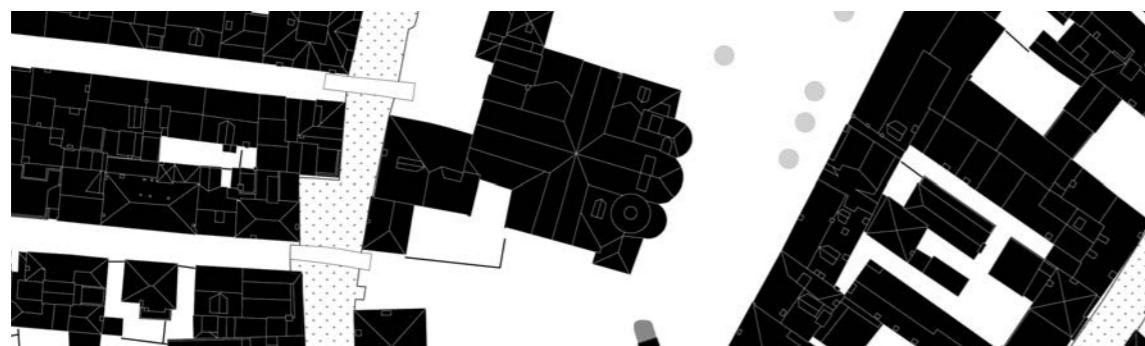
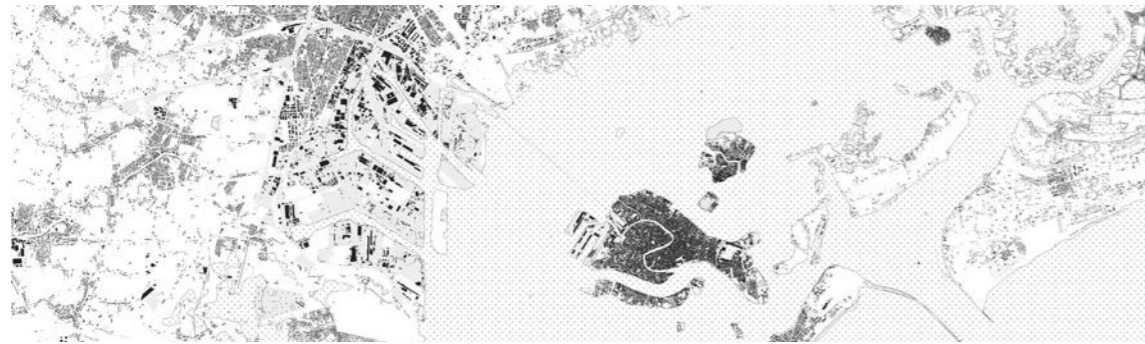
## MOTIVATION

I was born in Venice and after spending my childhood in Giudecca all my family moved out of the historical center, some of my relatives went to Mestre and some to Cavallino-Treporti. My grandparents moved away at the age of 60 years old because they believed that Venice was already lost; the city was not giving them space to live their retirement life and they felt pushed away by the lack of services, lack of attention, and mass tourism. I became a daily commuter to Venice since my childhood. It was not only because I studied at the Artistic High school but also because my social life and my interest were always connected to the city. I was obsessed with it, the smell, the views, and the atmosphere are what still make me feel this city is home. I feel Venetian at heart, but I also feel the need to escape from Venice. How is it possible that the city which was for centuries the safe escape for artists, writers, ideologists, because of its free, innovative, and open-minded nature, now is pushing its residents away? Young people like me are not finding possibilities and means for survival in Venice: they are forced to leave behind a city that needs them to stay alive.

I feel the passionate need of imagining and reshaping a territory which in the last decades was raped by consumerism, globalization, and accumulation, in the form of a place where people like me can finally go back to. I want to show my grandparents that Venice is still alive, and it can be a place for all kinds of people, not only the ones who were born there in the first place but for everybody who can love and respect the city and its natural context.

This thesis, this project is a revindication for me, my parents, my grandparents, my friends who went away like me, the ones who stayed, the bakery which would sell me *ambrogini* every morning, the newsstand where I got the weekly *Settimana Enigmistica*, the bookstore where I would roam around for hours and then leave with another Murakami novel, the *bacaro* which for me is the best even if everybody says it's only for older people, the cranky lady which would scream from the balcony because we were in her courtyard, the fruit seller who would always rip me off. It is a thesis of acceptance, without refusing hope.

This research is for all the people who love Venice and that like me, don't believe that Venice is dead. Venice is pulsating life, is the evergreen root of culture, initiative, art, and beauty. The future will eventually evolve into something that we probably cannot control, but the legend of this city will stay, in the people that make it.



The starting point for the research comes directly from personal experience. A problem that influenced my family's and my own life: displacement. Displacement is a phenomenon that occurs for example in highly gentrified areas, but as the quote highlights, there is a time frame before this forced action where people feel the pressure of the inevitable – as I call it, there is a sense of displacement. It is well known that the Venetian population decreased considerably in the last century because of various reasons: displacement is one of the most visible results of these dynamics, and it can be observed also through the scales with which we can locate the context of the project. Venice is a conglomerate of islands that were born having their independence: a church, a square, water access, connected, later on, creating an urban system, through hundreds of bridges. (Psarra, 2018) The island's ensemble is part of a bigger lagunar cluster of submersed and emersed marshlands, which in turn is part of a delta system, rivers, plains, mountain chains, and sea. It is therefore also a multiscale displacement, where the placement of a city needs to relate to various connected systems while being unique in its own urban and ecological definition.

“When a family sees the neighbourhood around it changing dramatically, when their friends are leaving the neighbourhood, when the stores they patronise are liquidating and new stores for other clientele are taking their places, and when changes in public facilities, in transportation patterns, and in support services all clearly are making the area less and less livable, then **the pressure of displacement** already is severe. Its actuality is only a matter of time. Families living under these circumstances may move as soon as they can, rather than **wait for the inevitable**; nonetheless they are displaced.”

-- Marcuse, P. (1985). *Gentrification, abandonment, and displacement*



## POSITIONING

Problematization  
Theoretical underpinning  
Theoretical framework



From: Tafuri, M. (1994). *La dignità dell'attimo - trascrizione multimediale di Le forme del tempo Venezia e la modernità*. publisher not identified.

Tiziano Vecellio, *Allegoria della Prudenza*, 1565, oil on canvas, London, National Gallery

## Problematization

We could consider Venice as an urbanized surface that had been consistently preserved in a state of the present, always protected from the ever-changing motions of society, culture, and environment. The (forced) interference of modernity, with the attempts to transform and adapt Venice in time to the various paradigm changes, brought various discrepancies on a social, economic, environmental, and spatial level.

We can observe these discrepancies if we associate the parameters of time and movement to the *inland* and *seaward* territories.

These two spatial domains are fundamentally separated by the speed of the movement and the flowing of time. Inland means fast road traffic, almost no obstruction from natural elements. Seaward is the movement defined by the tides and the slower pace of water transport.

Venice metropolitan area encloses both of these frontiers, bringing with it a deep sense of Displacement for the population. Thousands of inhabitants moved from the island to the mainland, and these people cannot be considered Venetians but also don't fit in the modern inland lifestyle. Modernity and with it its attempt to connect the historical island to a capitalist motion, to the never-stopping pace of globalization, created the sense of Displacement, people's feeling of 'never fitting in'.

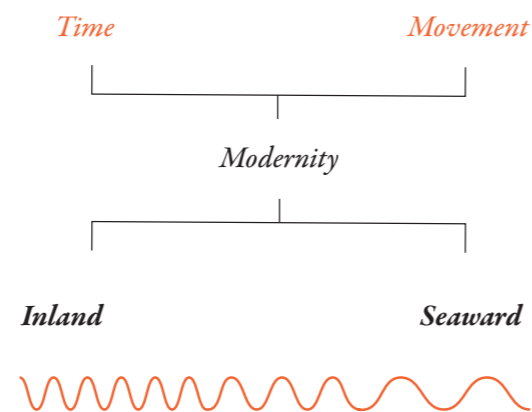
This research intends to understand the *sense of Displacement*, and so it is crucial to find where and how does this phenomenon appear in the social, cultural, economic, and spatial domain.

From the past to now we can say that Venice defined itself from within, being the *Serenissima* Republic, a Merchant colossus, an Industrial force, and lately a selling product for mass tourism. Now, Venice is at the mercy of looming externalities. The climate crisis and with it the sea level rise, is threatening in the next 100 years the survival of the whole Adriatic coast, because of it, Venice needs to find an answer looking towards the outside. The inundation projections following the IPCC report of 2021 show a peculiar situation though: Inland Venice is at deep risk, while Seaward Venice, being still affected, will not go through as radical changes. The sense of Displacement now becomes an absolute displacement of all the domains involved in space: the human and natural ecosystems are at stake.

It is therefore important to understand what is again the spatial, social, cultural, and economic implications of this nature caused displacement.

This research and design project aims finally to re-think Venice metropolitan area from a perspective of care. How can we from a place of displacement, re-invent the city and all its eco- and human systems towards a re-placement shift? Is it possible to make the Inland and Seaward frontiers meet once again and with its natural and organic exchange of time and movement?

To replace ourselves we need to be ready to let go, and to let go we need to first understand what is the identity of Venice, what are the trends and movements of the present, and finally understand the realistic implications of the future scenarios.



## Theoretical underpinning

### Allegory of Prudence

Manfredo Tafuri is going to be the guiding thread in the build-up of the theory for this thesis. His definition of Venice and its relationship with modernity and time is the starting point of the theoretical underpinning.

In Tafuri's lecture transcript about the time of Venice and modernity (1994), appears the allegory of Tiziano Vecellio's painting as a metaphor for the Venetian time. We can use this allegory to understand the research approach which brings the project forward.

The painting is called the *Allegory of Prudence* (*Allegoria Della Prudenza*), and it is a recurring iconographic symbology of time in the XVI century. The metaphor was also adopted by Aristotle and it can be found in the famous *conundrum of the Sphynx* of Edipous. The three-faced view of time and human life is therefore a fundamental emblem that Tafuri brings forward and associates it to the story of Venice. It is important to understand the description of Prudence that Tiziano brings in the painting, to acknowledge the abstraction that this research highlights in regards to Venice.

Prudence can be understood as the capacity of memory, intelligence and prediction; Dante writes about it:

**“Conviensi adunque essere prudente, cioè savio: e a ciò essere si richiede buona memoria delle vedute cose, e buona conoscenza delle presenti, e buona provvidenza delle future”**

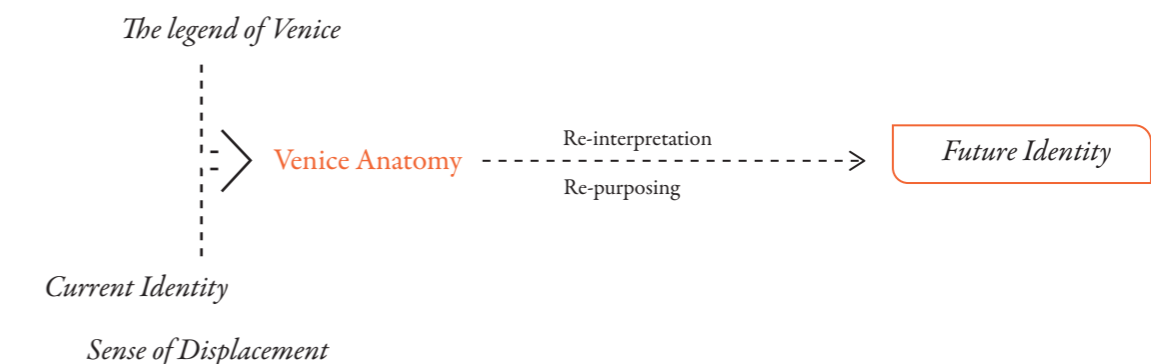
Convivio (IV, 27)

Indeed Tiziano adds a motto on the top of the painting: “EX PRAETERITO / PRAESENS PRVDENTER AGIT, NI FVTVRA(M) ACTIONE(M) DETVRPET” (Based on the past / the present prudently acts / so as not to spoil the future action).

We can therefore see the three faces of time or *tricipitium*: the elder, the adult, the youngster, with the wolf, the lion, and the dog. This symbol is present in the Venetian public space, its representation is printed on *Ca' Vendramin* in Santa Fosca and on *Ca' Trevisan-Cappello* in Canonica. Tafuri helps with further interpretation. The elder is always remembering, looking towards the origin, together with the wolf. The adult looks forward to the present, together with the courage of the lion he takes the decisions. The youngster looks at the future, with the dog, symbolizing loyalty: fidelity for the origin, the same origin that the elder is looking at, closing so the circularity of time. Tafuri explains to us that Venice is intrinsically bound to this metaphor, the city insists on keeping still the origin, with a fixed look towards a possible representation of the beginning and the loyalty of the dog which looks at the future, maybe loyalty to the will of the beginning?

In conclusion, this thesis aims to understand and design for a future scenario, while always having in mind the lesson of Tafuri and the *Allegory of Prudence*. Studying the legend of Venice, the past relationship between Inland and Seaward, the socio-economic changes, the input of modernity with its spatial implications, while hearing the movements of the present, the trends, and the agencies currently active. Being sensitive to the past and the present should unveil the Venetian Anatomy now moved by the social displacement, finally advising on how to reinterpret and repurpose this anatomy towards a future identity.

### Historical Identity



**“Utopia, although it is often associated to the exclusive character of the ideal, of belonging to the immaterial sphere, has instead generated important effects on reality, precisely as a place of production of the imaginary, in this case, space.”**

- Musolino, M. (2012). *L'utopia urbana: l'immaginario spaziale moderno e il sogno di una nuova società*.

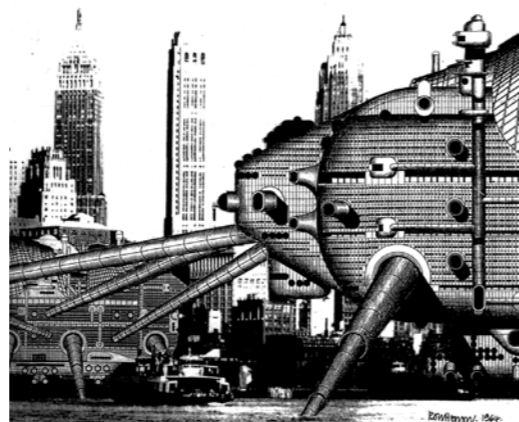
### Terraforming

The use of the term Terraforming was first associated with sci-fi novels and movies. It comes from fiction but also actual science. It refers to the possible altering of another planet or astronomic object mimicking Earth. It is the hypothetical modification of the atmosphere, temperature, surface topography, or ecology of a planet, moon, or other body to imitate the one of Earth, with the final goal of making that planet habitable by life as we know. (Oxford University Press, 2021)

Terraforming and Urbanism are therefore directly connected. As Urbanism takes care of the inhabitation of space, we could say that Terraforming is an approach to Urbanism.

It is also possible to notice that because of the fictional character that Terraforming carries, the concept of Utopia can be joined to it. Urbanism once again is intrinsically connected to Utopias too. The future temporal dimension where Urbanism acts, forces Utopian thinking to intervene in the design process. It is enough to think about the Walking City of Archigram (1964) or the various versions of cities drawn during the era of Futurism, which we can see a clear resemblance with some cities around

the globe such as Hong Kong or Dubai. For a Terraforming approach to Venice, I wouldn't affiliate therefore to a definition of Utopia as a hypothetical, never realizable, or unfeasible approach to the city, but I would rather describe it as a necessity for the city and duty of the designer. I would position the approach of Terraforming as the dream of an ontological manipulation of the city, motivated by the need for a change of the systems that create space.



Archigram, *The Walking City*, 1964

The use of Utopia doesn't come by chance in the context of Venice. Manfredo Tafuri brings forward the fact that Venice is a realized Utopia by definition. His quote illustrates indeed how this particular Terraforming and Utopic approach is already embedded in the sensitivity of the legend of Venice. Furthermore, it is possible to define the history of Venice through a timeline of Terraforming projects, which demonstrate how the manipulation of earth, topography, and atmosphere of the lagunar context, created radical changes in the socio-economic and spatial domain.

Three exemplary projects, explain this manipulation very clearly, introducing moreover the interference of Modernity. Alvise Cornaro's project in Bacino di San Marco (1567), Eugenio Miozzi's project of former Ponte Littorio now Ponte della Libertà (1933) and Ludovico Quaroni's Project of Progetto di concorso Cep per Barene di San Giuliano (1958), finalised by Antonio di Mambro (1991).

The first project, never realized, is an interesting example of Terraforming manipulation (as intention) of the lagoon. Cornaro was a Venetian literate who lived between the XV and XVI century. He was

involved in multiple projects of embanking rivers and lagoon borders in the Inland territory. His vision for Bacino San Marco, the most central water location in Venice, under the eyes of Palazzo Ducale and between the transit of all the population, was a radical public space proposal. He designed two artificial islands made from sediment redirection, one island as a public park with a big freshwater fountain and one island hosting a theatre. The project was a display of technological progress, being able to shift hydraulic processes and create new land in the lagoon, was for Cornaro a proud vision of a modern Venice.

*In the next page:*

*Alvise Cornaro's project in Bacino di San Marco (1567)*

*Eugenio Miozzi's project of former Ponte Littorio now Ponte della Libertà (1933)*

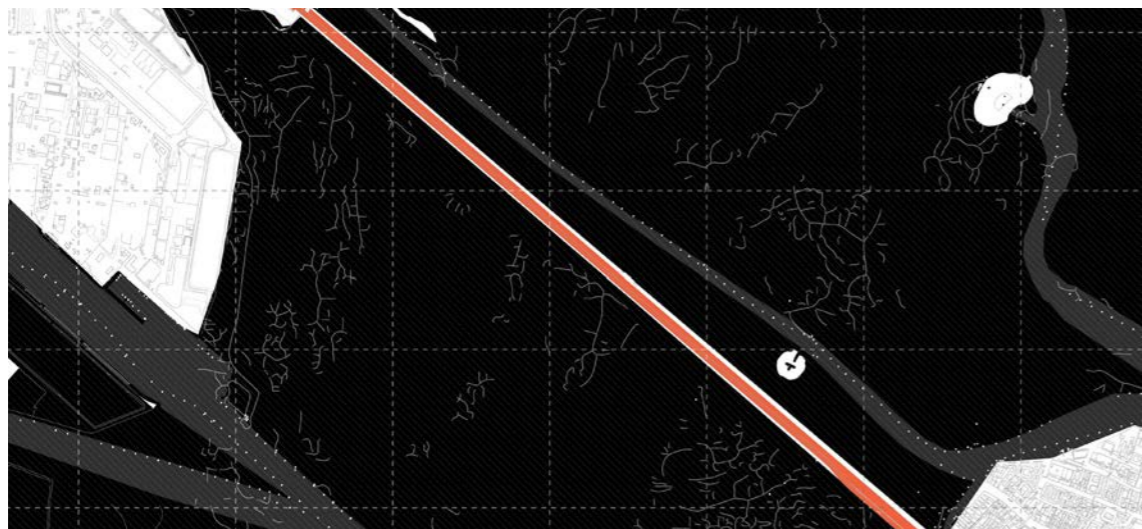
*Ludovico Quaroni's Project of Progetto di concorso Cep per Barene di San Giuliano (1958), Finalised by Antonio di Mambro (1991).*

**“Venezia città immortale, immacolata in quanto unica città che non nasce per un omicidio [...] nasce miracolosamente; è il miracolo realizzato, l'utopia realizzata, vergine imprevedibile quindi sicura, ma senza mura perché difesa dalle proprie acque. Miracolosa e unica dove l'impossibilità è realtà.”**

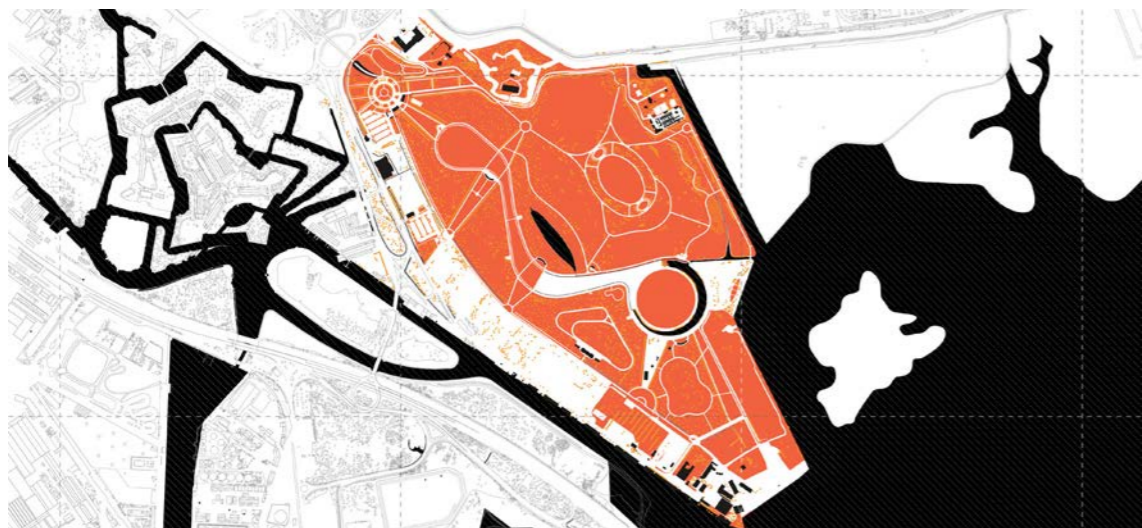
- Manfredo Tafuri, 1994, *Le forme del tempo: Venezia e la modernità*



Alvise Cornaro, Project of artificial island in Canl Grande



Ponte della Libertà



Parco San Giuliano

The second project is the car road addition to the bridge connecting Venice's historical island to Mestre and Marghera. In 1846 it was built under the Hapsburg empire, to erect the train line Venice-Milan, for the transport of goods. The project was already contested by the Venetians at the time, for them, the connection to the mainland and the rise of commerce would mean more unwanted movement in the island itself. In 1931 the engineer Eugenio Miozzi is appointed the task of designing and building the road addition to the train bridge. It was a move from the Venetian municipality, to revive the economy and the life of the historical city since already a lot of focus was brought to the industrial power of Marghera with its port and industries. In April 1933, at the inauguration, the prince and princess of Piemonte Umberto e Maria José are present together with Benito Mussolini. For the time it was a great work of engineering, which would reflect the modernization of the whole country; with its 4 km of length, it was the longest bridge in the world for some years. The fascist media described the event as the end of the era of isolation for Venice, while we can criticize the fact that this project forced the city to adapt to modernity and the movement of cars, without considering the contextual environment and the necessities of citizens.

In 1958 the Comitato di Coordinamento dell'edilizia popolare (Cep) (Social housing coordination committee) calls for a resanization and housing project in the area of San Giuliano, by the marshlands next to Ponte della Libertà. None of the submitted projects were actually finalized, but is important to highlight the proposal of Ludovico Quaroni, which also Tafuri cites in Ludovico Quaroni e lo sviluppo dell'architettura moderna in Italia (1964). Quaroni designs a satellite city by the lagoon, with a density of 250 inhabitants per hectare. The project is moved by modernist trends and it works as a clear base for the following and final project of Antonio di Mambro, with the semi-circular shapes and geometric layout. In 1990 the municipality calls again designers for the construction of a public park in San Giuliano. The Italian-American architect Antonio di Mambro, inspired by Quaroni first proposal, delineates the project by 1991. In 2004 the park is inaugurated officially. This project has been also contested greatly by the citizens of both Mestre and Venice, although it is an attempt to unify the public life of the Inland and Seaward society, it is also an effort to move away from the industrial era of Marghera and the port, adding to the city more nature and space for the inhabitants.



Ponte della libertà, 1850



Drawing for Cep, 1958, Ludovico Quaroni. Associazione archivio storico Olivetti, Fondo Quaroni Ludovico, Serie Progetti e corrispondenza, fasc. 418 - 431)

These three projects represent the attempts of Modernity, to infiltrate Venice and its lagoon. They can be considered Utopic and Terraforming approaches to Urbanism, being the product of radical idealistic thinking and goals. They were all moved by a view on technology and progress, and the fact that Venice should walk along with these tendencies. The theoretical framework is therefore useful also to illustrate a critique to this progressive approach, trying to understand what are the limits that it brought to the socio-economic, spatial, and environmental domain.

The second project is the car road addition to the bridge connecting Venice's historical island to

## Modernity

We understood with the help of Terraforming projects of the past that institutions and politics have intended to align Venice to the state of Modernity. To understand Modernity, we will side the discourse of Bruno Latour and its definition of Modernism and Non-Modernism to be found in *We have never been modern* (1993).

We intend Modernism as a uniform linear development that sharply separates Society and Nature, into two distinct specialized categories. Latour starts explaining this starting from the Politics and Science dichotomy, which is represented by Hobbes and Boyle. For Hobbes, Society is beyond us and we are free from Nature, while for Boyle, Nature is infinitely powerful. Coming from these two defined views, we can state two Modernist facts: 1. Nature is all-powerful but Modernism makes us free from Nature; 2. Modernism created a free society but society is all-powerful. Latour makes us understand that because of these facts, a separation exists and is needed to go through the act of purification and then understanding of both Politics and Science, but at the same time it is also not fully possible to understand them separately: Science is therefore by definition tainted by Politics.

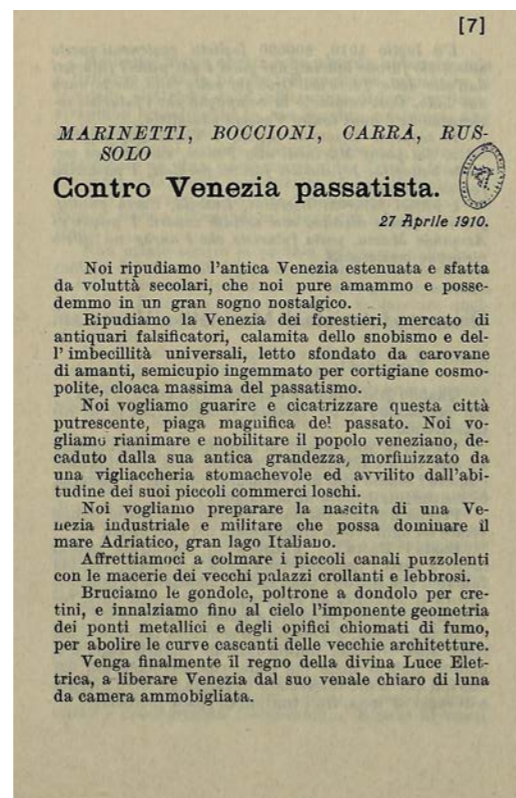
In conclusion, the main modernist giveaway is then that Nature and society can be separated.

The problem with this separation is that we lack a full understanding of anything because all things are hybrid by nature and cannot be defined by nature against society dichotomy.

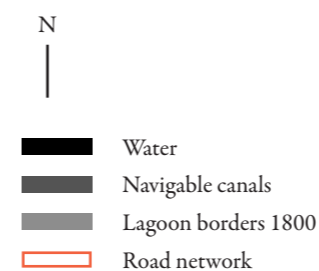
Latour also states that we should be rather Non-Modern. This means that we should accept the values of Modernism, Pre-Modernism, Anti-Modernism, and Post-Modernism, while never fully accepting the Modern Constitution that separates and specializes everything, but rather considering all the human and non-human objects as a hybrid of Society and Nature.

This discourse makes us reflect on how we should perceive Modernity in the context of Venice. The discussion on Modernity in Venice has always been present. Tafuri brings the example of the fight in the Senate in the XVI century for the project of San Marco's procuratie. The politicians are divided into two parties: the papisti or romanisti, the ones who are in favor of changing the procuratie, and the other party who could be seen as conservative, led by the doge Leonardo Donà. Tafuri describes Donà as the man that in that discussion was able to look at the future with the loyalty of the dog of the Tricipitium of Tiziano. He understood that he had to be loyal to the origin of the city, that change doesn't merely mean to switch outfits, but rather mutating

structures that would involve Venice with Europe. The Manifesto wrote by Marinetti (1910), further certifies that Venice has been pushed towards Modernity, with the power of engineering and technological actions, the historical legendary context and identity of the Forma Urbis has been neglected. The map on the next page, shows more visually how Modernity has been injected in the historical island, creating an urban paradox of contrast between what the city is and what the rest of the world wants. Tafuri states that Venice signs with institutional acts in 1610, its will to slowly die in the modern world. Venice signs its death refusing the dream of Leonardo Donà of opening up to the world mercantilism towards the Americas, and the opening up to Roman Catholicism. Tafuri makes us notice that is already possible to see the decline of Venice through the Canaletto paintings, which transform Venice into a mass tourism product al-



- Marinetti, F. T., Boccioni, U., Carrà, C., & Russolo, L. (1910). *Contro Venezia Passatista* [Manifesto].



## Inland vs. Seaward

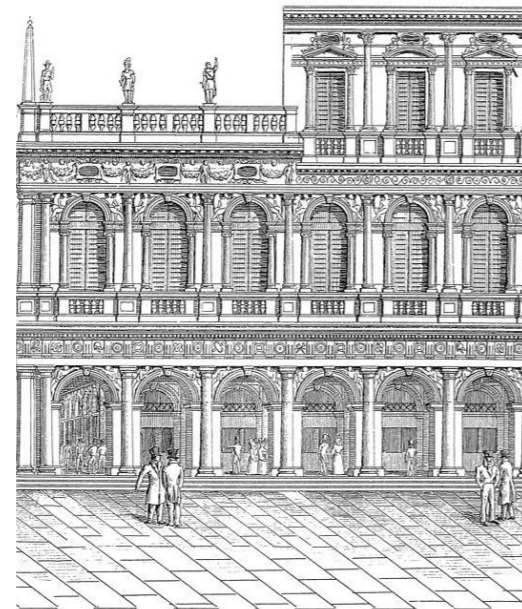
What is to notice though is that even though Venice is made on water and the primary urban network was based on water, nowadays water expresses a clear border between the historical island and the land (terra ferma) and a border between them and the natural landscape of the lagoon. (Psarra, 2018) This is not only a geographical border but also a societal and economic one. This crucial separation was vaguer back in time between the island and the lagoon, whereas water was the only way of movement for the inhabitants and the lagoon was part of the means for the sustainment of the population. (Cipriani, 2017) Through time water was rather a natural element to overcome, the lagoon a place of abandonment. How did this division become more clear? What are the spatial manipulations which enabled this phenomenon? Is it possible to reconnect the cause of this to the envisioning and realization of utopic Terraforming projects which changed radically the way of living in the city?

With the help of Tafuri's Venice and the Renaissance (1994), we can pin up the theoretical and historical understanding of the differences and contrasts between the Inland and Seaward domains.

It is possible to represent the Inland versus Seaward territories quarrel through two different men who lived Venice in the Renaissance: Alvise Cornaro and Cristoforo Sabbadino. We already described Cornaro's project for Bacino San Marco, it is furthermore important to notice how his view on Venice and its lagoon, embodies a vision of enlargement of borders towards the mainland. Cornaro in the XVI century led the projects of embankments of the lagoon and rivers in the Inland territories, he thought that the Republic should have invested more in the agricultural nature of the surroundings. His hydraulic theories regard mainly the land reclamation processes which he plans for the lagoon. Tafuri describes Cornaro as homo Faber: "victorious over nature and creator of reality"; his main goal was finding ways of mediating between the needs of the mainland and those of the lagoon.

Cristoforo Sabbadino on the other hand is big opposer of Alvise Cornaro plans for Bacino San Marco and embankments of the lagoon and rivers. Sabbadino brought forward and praised the idea of preservation of the "naturalness" of Venice. With this, he didn't want to keep the city untouched and unchanged, he rather envisioned a Venice which grows out of itself. He applauds in his writing the efforts of the first Venetians in preserving nature with art. For Sabbadino the function of technology should stress the work of Nature, it should not change it or disturb it. Now, it is interesting to

notice that his plans of 1590 for the Fondamente Nuove were supported by Leonardo Donà, the same doge who voted for a more conservative plan for Piazza San Marco's procuratie. These two characters, Cornaro and Sabbadino, embody still in the present the visible competition between Inland and Seaward. On one side, the idea that Inland should prevail, that the economic value that the land can bring is far too important to be left aside. The idea that the historical island of Venice is a place only to be seen and not to be lived, that the time where we needed to be protected by water from barbaric incursions is over. The inland perspective doesn't have to be only a renouncing of the lagoon and its nature, but an understanding of it as exhausted and finite. On the other side, the Seaward perspective is enhancing the lagoon and its way of living and habitation. Venice can still be a lively and vibrant place, a place where there is a deep acceptance of the conditions of the water and its requirements.



*Procuratie Nuove ora Palazzo Reale. Eastern part of the Procuratie Nuove at the south side of the Piazza San Marco (St Mark's Square), Scamozzi. Antonio Quadri - Scanned by Aristeas from Quadri/Moretti's book, published in 1987 by "Vianello Libri" (Ponzano/Treviso) and Ezio Tedeschi*

## Sea level rise scenario 2100

The most pressing issue coming towards the whole planet at the moment is the climate crisis. This thesis, to follow the Utopic Terraforming approach chooses the worst-case scenario illustrated by the IPCC report published in 2021. From the sea-level rise prediction maps and the simple observation of the sea bathymetry, we can see how this aspect of the crisis is one of the most urgent for Venice.

From the IPCC report, we consider therefore the scenario SSP5-8.5. This means in terms of global mean sea level change relative to the observation made from 1900, that the height predicted for 2100 with 83rd percentile is around 1m. This corresponds to a 5°C rise of the mean global surface temperature by 2100. The SSP5-8.5 scenario is defined by the uncontrolled gas emissions and pollution: it is the prediction in case of complete inaction on the climate crisis.

It is also to be considered that the Venice area is naturally subsiding. This process is controlled by long-term movements of tectonics and geodynamics and sedimentation. Subsidence in the Po plain and Venice is almost entirely controlled by the retreat and flexure of the Adriatic plate subducting underneath the Apennines. Therefore in the case of subsidence,

we shall also consider the worst-case scenario to be coherent with the choice made for the sea-level rise: a total decrease of the surface of 60 cm by 2100. (Zanchettin, et. al., 2021)

The natural geological formation of the Venetian lagoon is based on the balance between the eustatic rise and land subsidence: the key to the origin and evolution of the whole area.

In a lecture by Patassini (ILAUD, 2021) we can indeed hear that Venice, being an inhabited lagoon, is a place of natural and anthropic processes that take place cyclically in different periods and different amplitudes. The lagoon is in a sedimentation balance of deficit and surplus conditions that need to be regulated; if it wouldn't be regulated it would oscillate between two destinies: transforming into a swamp or becoming a sea bay. Maintenance for Venice is therefore the pro-active core action: it is an ongoing laboratory that had been stressed by port activities, mass tourism, and sea-level rise.

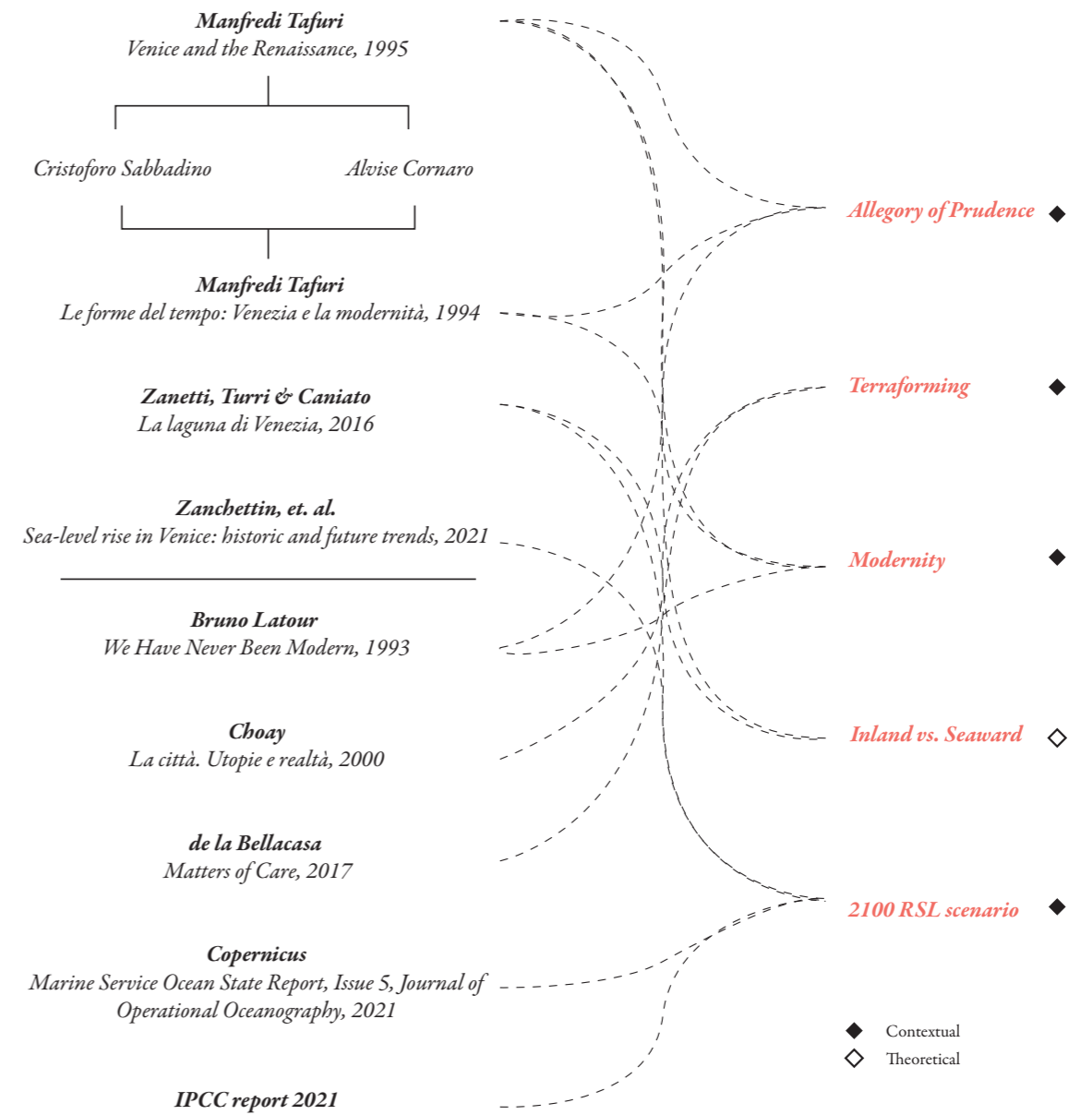
Understanding this lagunar balance, this research aims to discover what would happen if that maintenance would cease to exist, what would the lagoon look like? How would people live? How are all of these aspects evolving because of the SSP5-8.5 scenario?

**"When sea levels rise as rapidly as they have been, even a small increase can have devastating effects on coastal habitats farther inland, it can cause destructive erosion, wetland flooding, aquifer and agricultural soil contamination with salt, and lost habitat for fish, birds, and plants. [...] Already, flooding in low-lying coastal areas is forcing people to migrate to higher ground, and millions more are vulnerable from flood risk and other climate change effects. The prospect of higher coastal water levels threatens basic services such as Internet access, since much of the underlying communications infrastructure lies in the path of rising seas."**

*- Nunez, 2021, National Geographic*

## Theoretical framework

The theoretical framework scheme tries to bring together all the concepts brought in the underpinning. The main literature that was analyzed in the chapter is summarised and cited, showing then which arguments they support. The themes and the literature is divided into two categories: contextual and theoretical. The contextual literature is approaching the topics on the hand of the location itself, the theoretical one describes the topic only in general terms and is not site-specific.



## METHODOLOGY

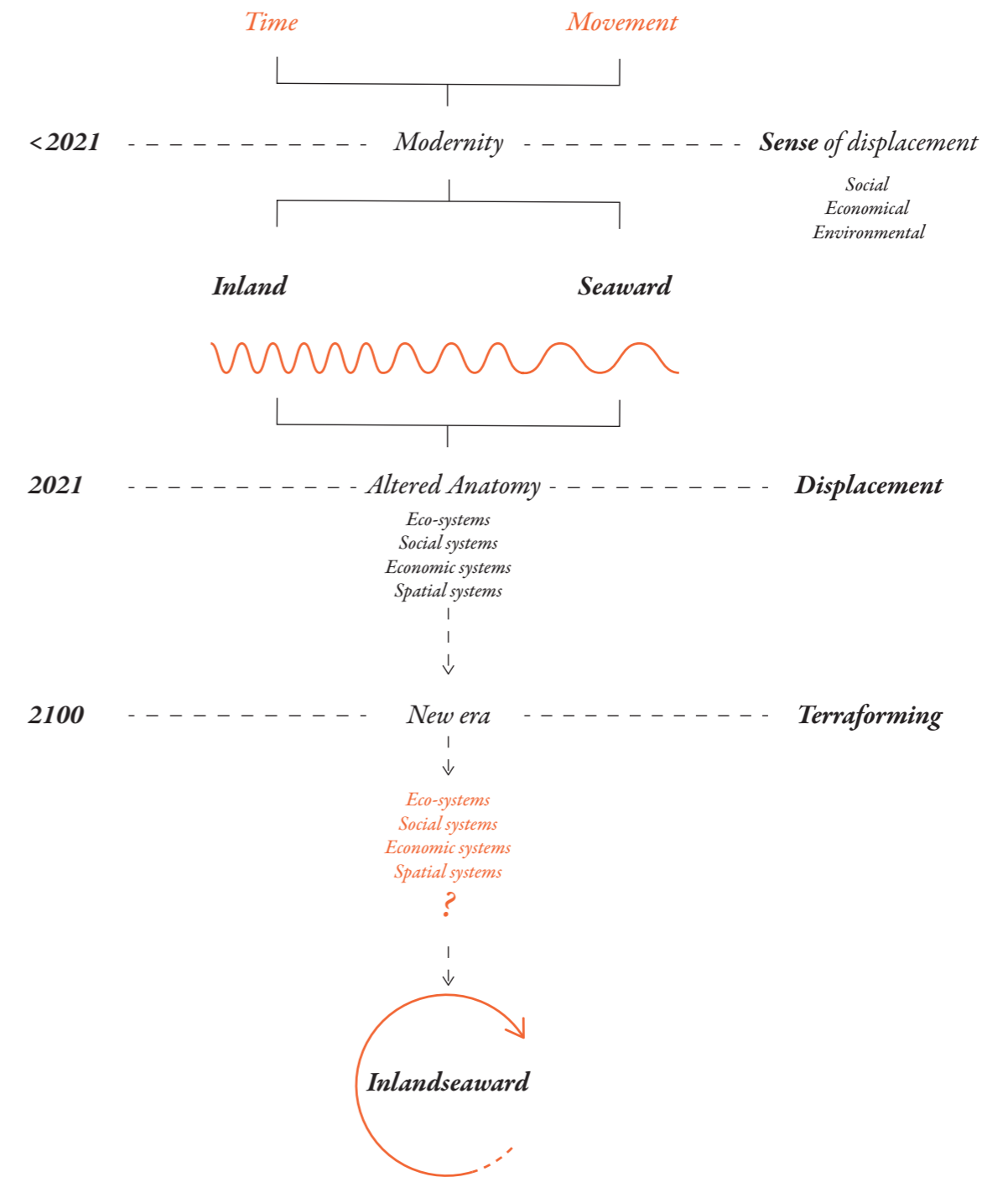
Conceptual framework  
Field of Action  
Research question  
Reference  
Methodological framework



## Conceptual framework

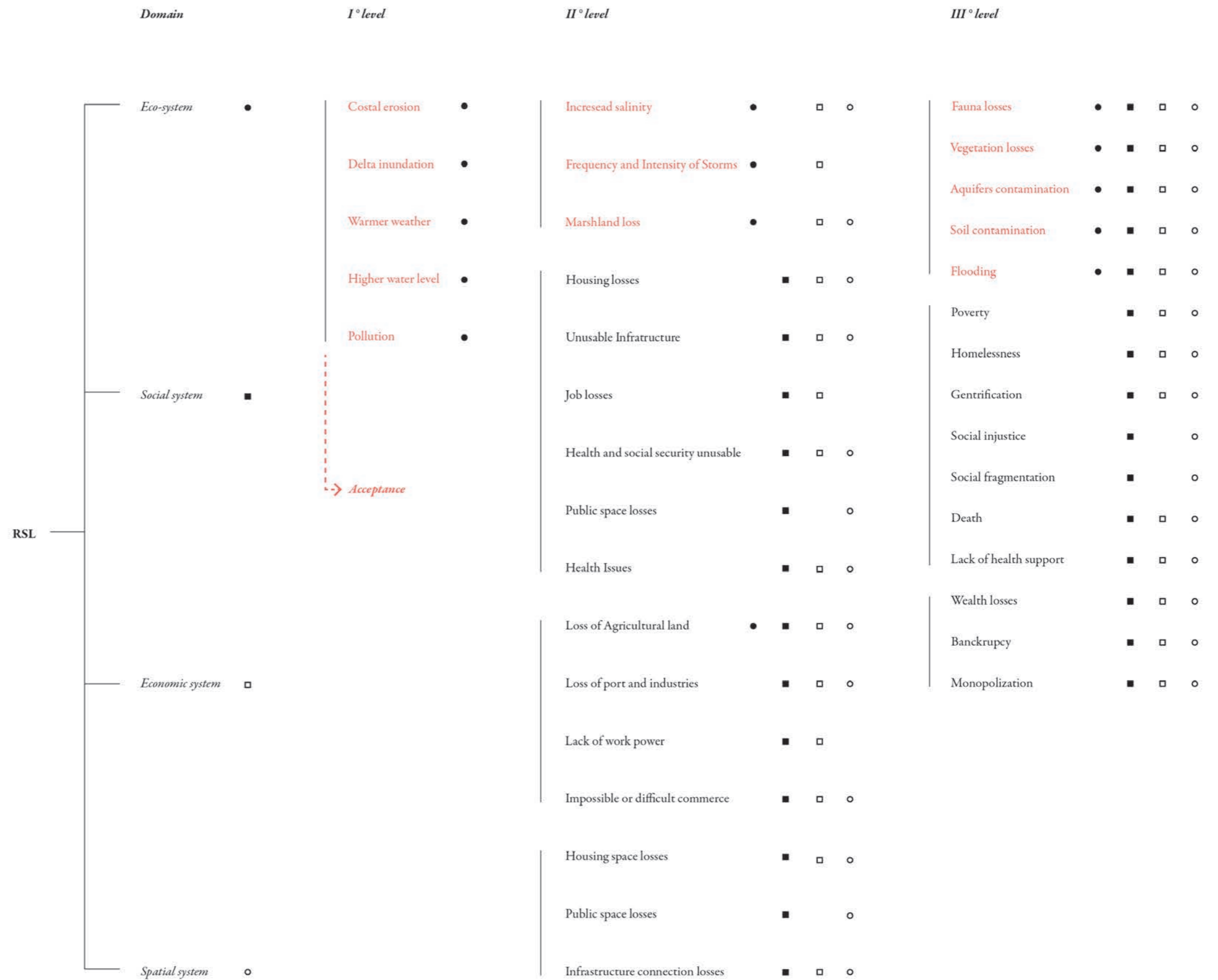
From the theoretical perspective, we were able to understand what is the Allegory of Prudence and how the cyclic view of Venetian time can help us understand the context of the city and its lagoon. The approach of Terraforming and Utopia, informs us further in the way this thesis would develop its Urbanism critique on Venice. Moreover, acknowledging how modernity was injected through time and projects in Venice, gives a clear overview on why Terraforming is a suitable approach and why Venice is considered a decadent city. Finally, the definition of the climate crisis scenario is the major starting point for the socio-economic, spatial, political, and environmental analysis.

The scheme which represents the conceptual framework illustrates what is the goal that this thesis pose. From the time and movement parameters of reading of the Inland and Seaward domains, we see how Modernity changed radically their relationship. This contrast created a sense of displacement which motivates this research at the beginning. It is highlighted indeed how the line of movement and time accelerate from Seaward to Inland, creating instabilities and conflicts. All of this results in the actual act of displacement because of the “unnatural” altered anatomy that Venice takes especially because of the climate crisis. The displacement takes form in the eco-, social, economic, spatial systems. 2100 Is the end goal of this thesis, where the action or non-action is going to be. This year represents a new era of Terraforming, where at last, Inland is not and Seaward anymore, but an interconnected gradient of land, nature, and inhabitation: Inlandseaward.



## Field of Action

For the considerate understanding of the context and all the systems related to it, coming from the conceptual framework, a scheme that defines causes and effects is drawn out. From the main problem stated earlier, the RSL, it is crucial to observe the consequences in the different domains of action: Eco-system, Social system, Economic system and Spatial system. Coming from a point of view of Non-Resistance, of acting with the understanding of the limitations surrounding the context, some of the effects of the RSL are simply accepted. These aspects are strictly connected to the eco-system, rising so a criticism to the over-engineered current approach on the Venetian lagoon. The remaining effects are all part of the field of action that the Terraforming project could tackle in the design. Surely, the different domains are interconnected, as for example 'job losses' are a critical effect for both the social as the economic system. In the scheme the relationships are shown by the different symbols: aspects which are connected to main domain are also strategically prioritized in the design.



## Research question

*What are the consequences of the climate crisis on the socio-economic, spatial and environmental Venetian domain?*

*How will the sea-level rise evolve in the lagunar context?*

In light of the imminent **climate crisis** and its consequent **sea-level rise**,

What is the altered anatomy of **non-resistance** of the Metropolitan city of Venice, supporting its reflection in the spatial, eco, social, economic systems through a **Terraforming** approach?

*What does Terraforming mean for Venice in 2100?*

*How is the new era going to be inhabited? How will people and their society evolve to the new Inland-seaward condition?*

*What should we keep? What should we let go?*

## Reference

Because of the posed questions, it is possible to see how this research and this project need to land on multiscalarity. All the systems involved in the sea-level rise scenario need to be taken into account. The inhabitation is going to change drastically in such a Utopic and Terraformed future, therefore radical thinking is crucial. The project of Studio Ossidiana is a good reference and starting point for the final result of this project is. The vision that the studio had was of imagining a water-filled harbor in Amsterdam, where 21 experimental islands were placed. These islands should reflect poetically the city's identity, being true to its nature and history. The project's manifesto is to shape a new type of public realm, a new place where new civic rituals may emerge.

As Studio Ossidiana does, this project tries to re-interpret the identity of Venice, trying to land it on a Utopic platform that criticizes the current maintenance methods of the lagoon and hopes to make the adaptability of the Venetian citizen re-emerge.



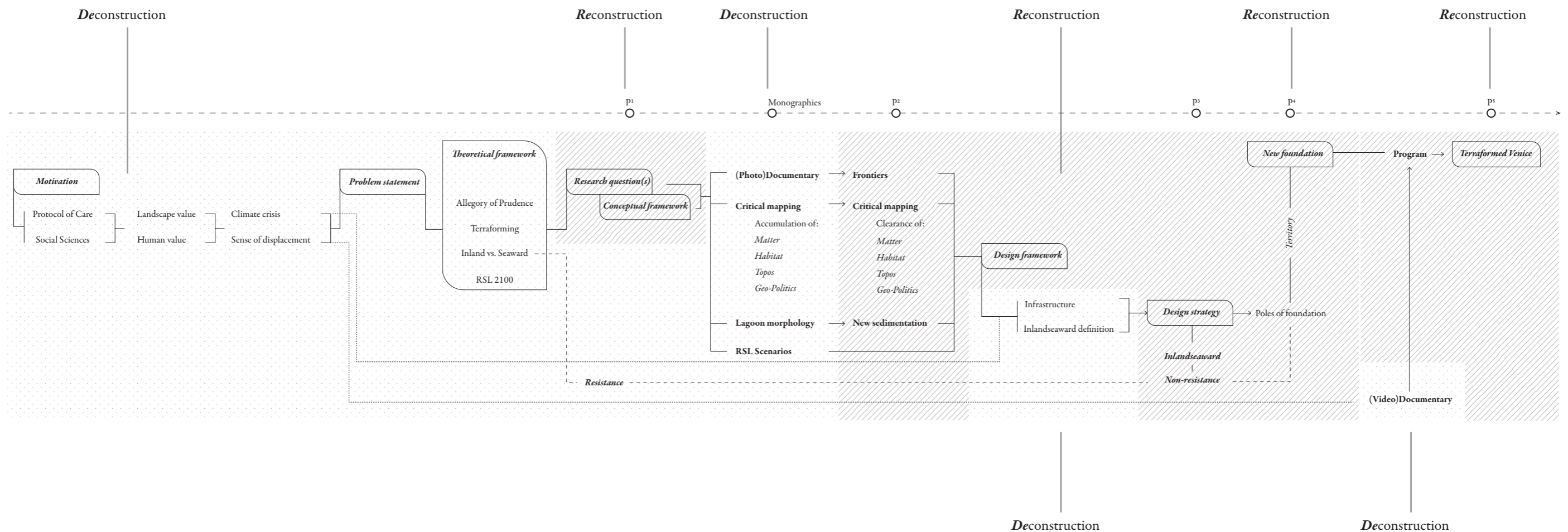
- SStudio Ossidiana. (2018). *Amsterdam Allegories*.



## Methodological framework

The scheme below is divided into phases of the research and on the line, the milestones are also defined. The motivation phase is enriched by the Intensive courses of the Protocol of Care and Social Sciences. The trajectory of these courses gave shape to the initial problem statement which helps the framing of the whole thesis. Individuating the problem statement it was possible to draw the theoretical framework, which helps in understanding and studying the context and the theoretical knowledge already available on the topic of the research. From the theory, the research questions were also enunciated. The conceptual framework could also be sketched because of the definition of the research topic and first design goals. The analysis phase gives different products as result. Part of the fieldwork is the Photo and Video Documentary backed up by the knowledge absorbed in the Social Sciences workshops. The literature review is still needed to define better the context and the problematization. Finally, critical mapping is drawn through the Mo-

nographies exercise, where the Inland vs. Seaward conflict is explored through the domains Matter, Habitat, Topos, and Geo-Politics. To conclude, the intentions that the thesis reaches in the final phase are explored through the understanding of the frontiers of Inland and Seaward, trying to make the first effort of unification of Inlandseaward with the act of Clearance. From all of this, should result in a first draft of the Design vision presented during the P2. What is crucial for the methodology is the fact that there is a constant juggling between the Deconstruction and Reconstruction phase. This aspect underlines the Research by Design method. Moreover is possible to see how the two main initial problems (Climate crisis and Sense of Displacement) are represented constantly through the De and Reconstruction actions. They guide the design in two directions: Improvement of landscape values and Social values.

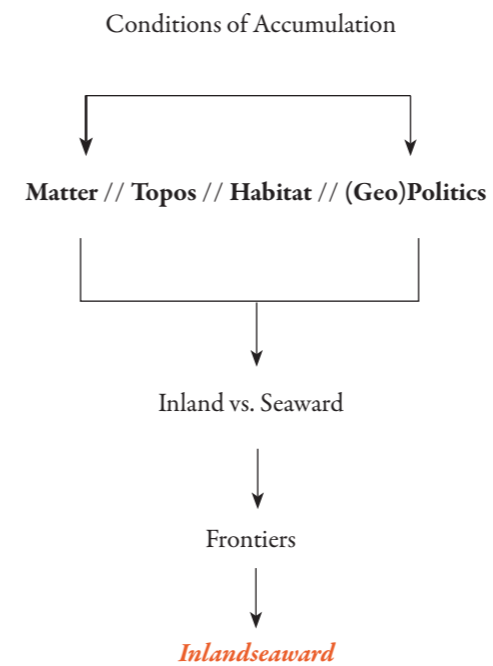


## MONOGRAPHS

Accumulation  
Clearance

Monographs are generally a specialized work of writing by or for a single author. We can think of those thick artist monographs, which contain the biography of the character and all of his/her works in polished and high-resolution prints. To understand the complexity of the contemporary urban constellation, traditional cartographic methods are not enough anymore. Because of this, with the studio Transitional Territories, we were asked to develop a monograph series on our research topic and its context. The Monographies are divided into two phases: de-construction and re-construction. The first part is a deconstruction on the hand of the landscapes of Accumulation in four different themes: Matter, Topos, Habitat, Geo-Politics. Matter is the domain of natural elements such as water, air, soil; Topos is where we can see Terraformed landscapes, the translations of the different systems in space and their fluxes; Habitat is entropy, is the way of living of the human and non-human objects; Geo-Politics is the domain of ownerships, displacement, and ethic of these landscapes of accumulation. From Accumulation we understand that there is a need for Clearance, which constitutes the phase of reconstruction: a push towards action. The four themes are explored through Composition, Alteration, and Limit.

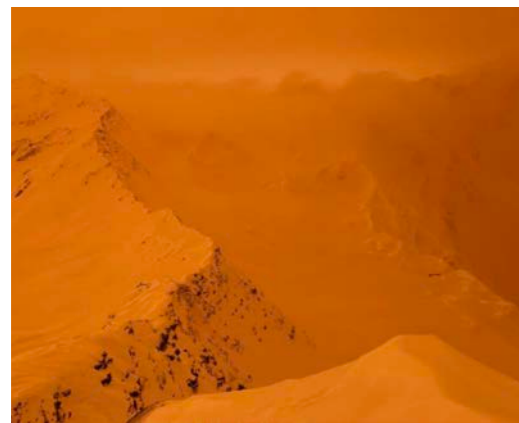
For the clearance section, the focus of the exploration goes to the discovery of frontiers of Inland vs. Seaward: places where either Inland or Seaward overcomes the other. Since the task is to make an action of clearance, the types of inputs given to the frontiers are of re-action and on-action. It is explored how current trends of spatial governance or social action could be taking place with visible RSL effects on the environment. Therefore re-actions are new ways of inhabiting the 2100 space without the need for physical addition or changes, it is a simple shift in behavior and inhabitation. On-action on the other hand is the tendency of drastically reinterpreting the space of 2100, while adding, moving, and reprogramming urban and architectural objects. The main goal of clearance is thus reconnecting Inland with Seaward, creating a unified frontier of Inlandseaward.



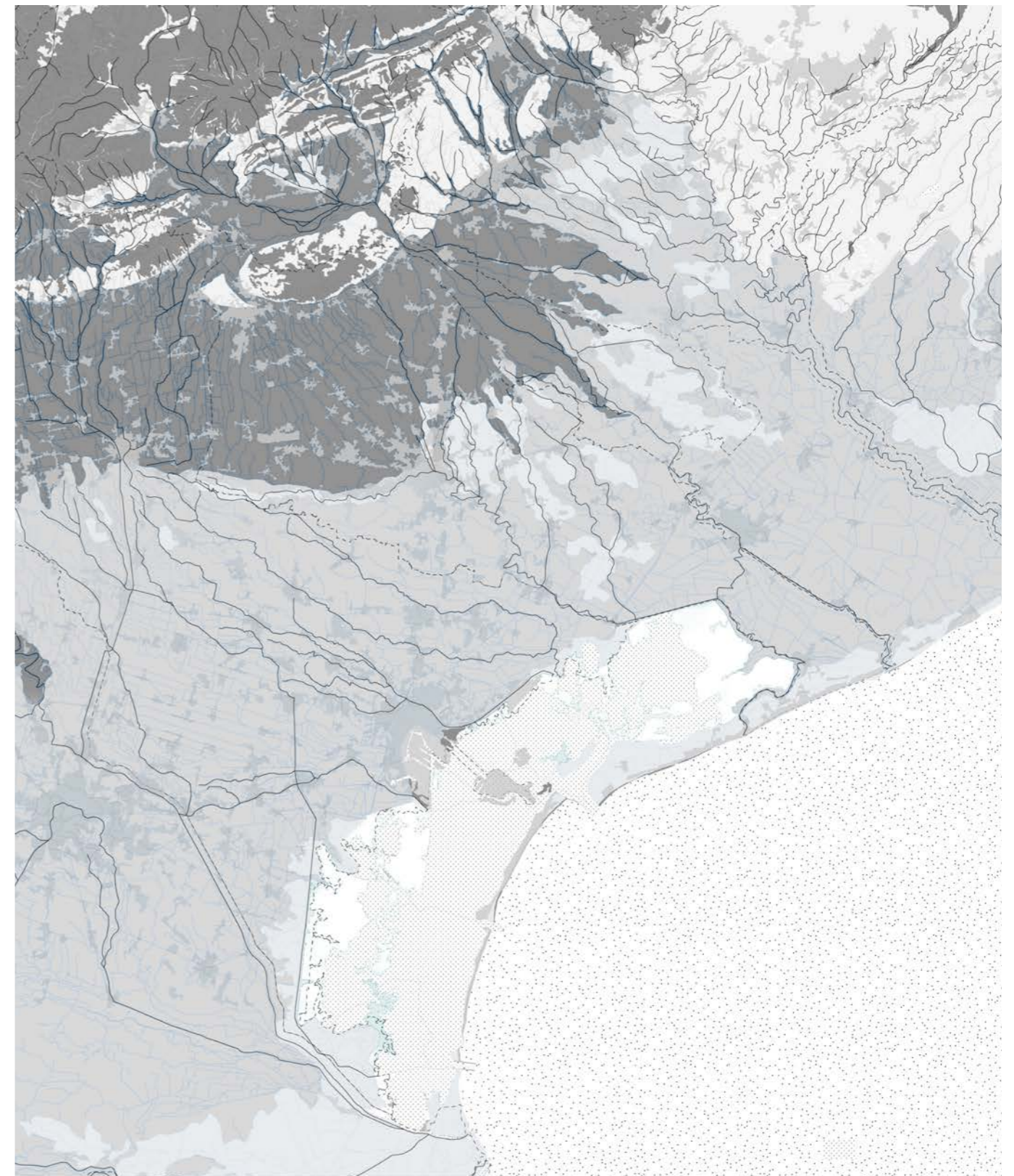
## Accumulation

### Matter

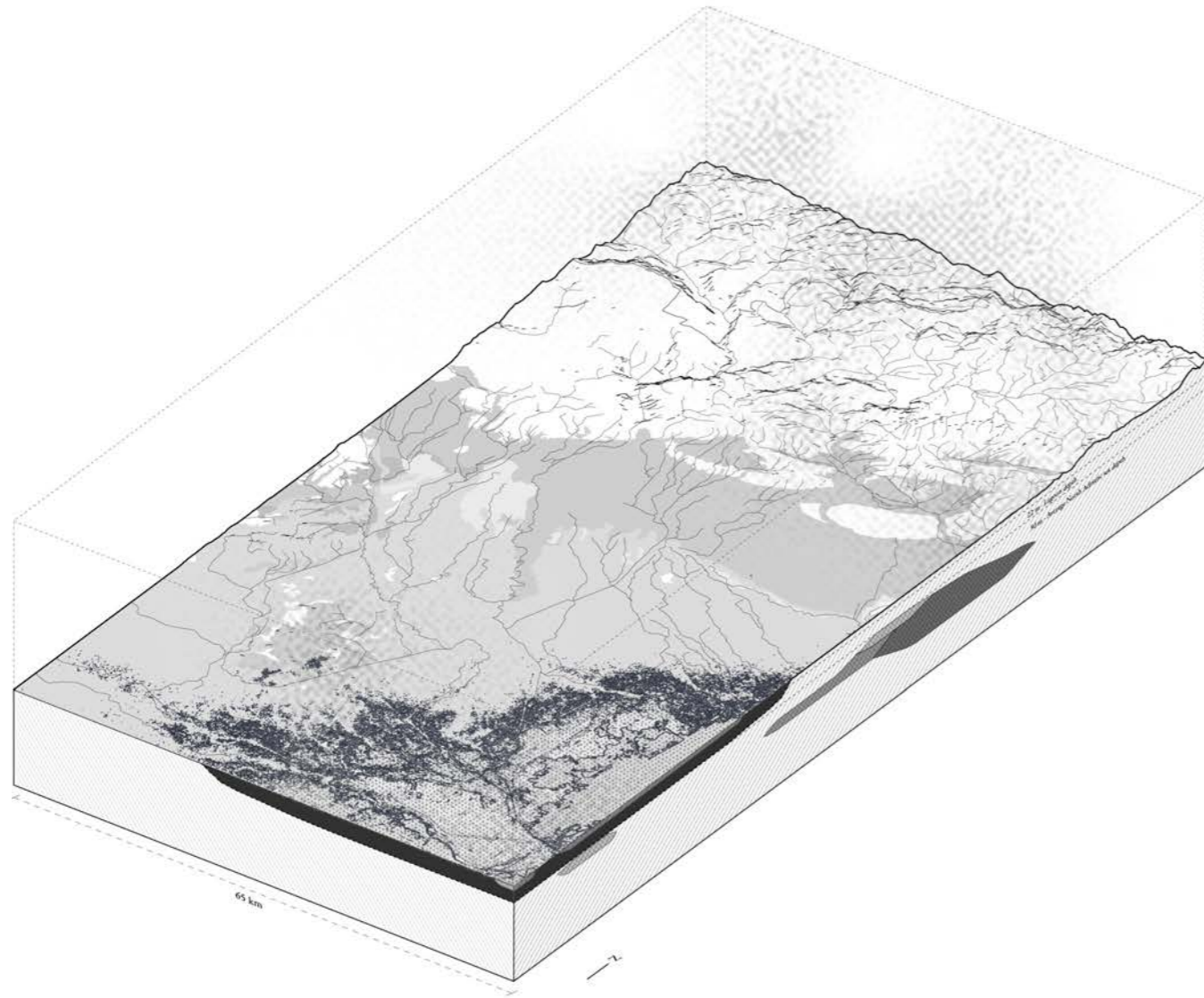
The element that was analyzed in this topic is water. The scale chosen is involving the whole river system from the Alps to the lagoon, to understand the complexity of the hydrological fluxes. In the composition, it is possible to notice the various rivers flowing directly into the lagoon and the ones which were redirected in previous centuries. The different types of water are also highlighted: the salty Adriatic seawater, the brackish one of the lagoon, the various underground freshwater aquifers which stand below the Po plain, and the mountainous chain. Next to the primary water network, also the secondary one is drawn, showing the maze of water that is connected to the lagoon landscape directly and indirectly. The Alteration adds up the new water layer coming out of the SSP5-8.5 scenario. We can observe in the transect, not only the surface structure of water but also the subsurface and the atmosphere. The sea-level rise projection shows us clearly how the underground aquifers would be greatly influenced. This means that salt-water would interfere with the natural ecosystem, causing problems for the vegetation beyond the lagoon itself and the agricultural production of the region. Because of the sea rise, also the atmosphere is affected, which shows up in the precipitation quantity and the wind speed towards the Alps resulting in storms like the one we saw last year. (Salvo, 2021) In the limit, it was calculated the surface affected by the overlay of sea-level rise. From the scheme is possible to see that unexpectedly the urbanized areas are the least affected, while the productive landscapes of agriculture and the aquifers are affected greatly.



*Tempesta di sabbia del Sahara sulle Alpi. Centro Meteo Emilia Romagna*

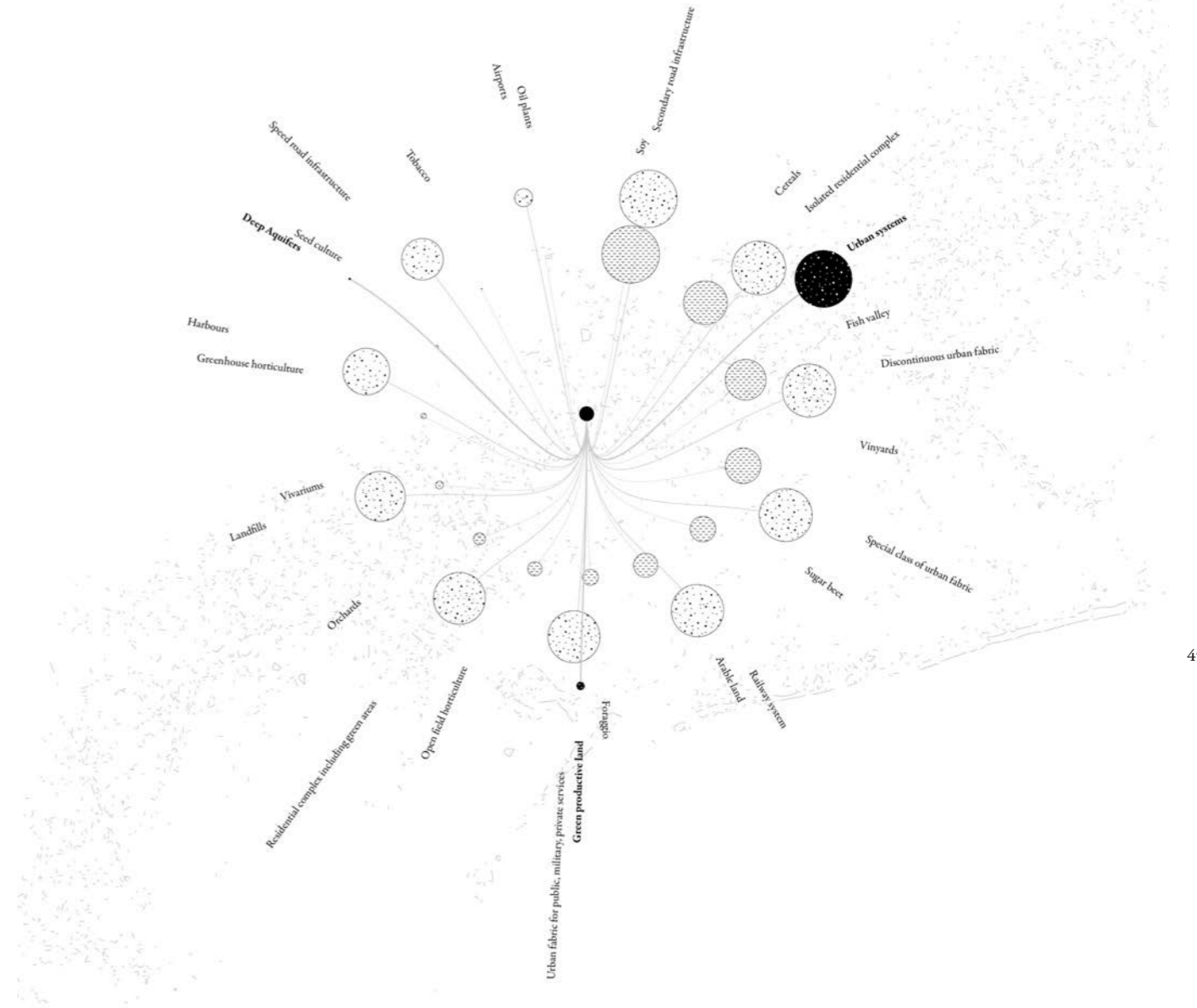


- Sea water
- Marsh water
- Artificial territories
- Forest territories and semi-natural
- Agricultural territories
- Wetlands
- Hydrological element
- Primary hydrological element
- Hydrological basin borders
- Aquifers depth
  - Moderately deep - 50-100 cm
  - Deep - 100-150 cm
  - Very deep - > 150 cm



- Atmosphere
  - Higher wind speed
- Surface
  - RSL +1m
  - RSL +1m outline
  - Primary hydrological element
  - Administrative borders
- Subsurface
  - Moderately deep - 50-100 cm
  - Deep - 100-150 cm
  - Very deep - >150 cm
  - Adriatic sea water
  - Lagoon water

Alteration



- Diameter: Surface affected by Sea Level Rise of +1 m by 2100
- Orientation: Percentage of affectedness on total surface
- Displacement: Percentage of affectedness on Primary class land use
- Land use data from ARPAV

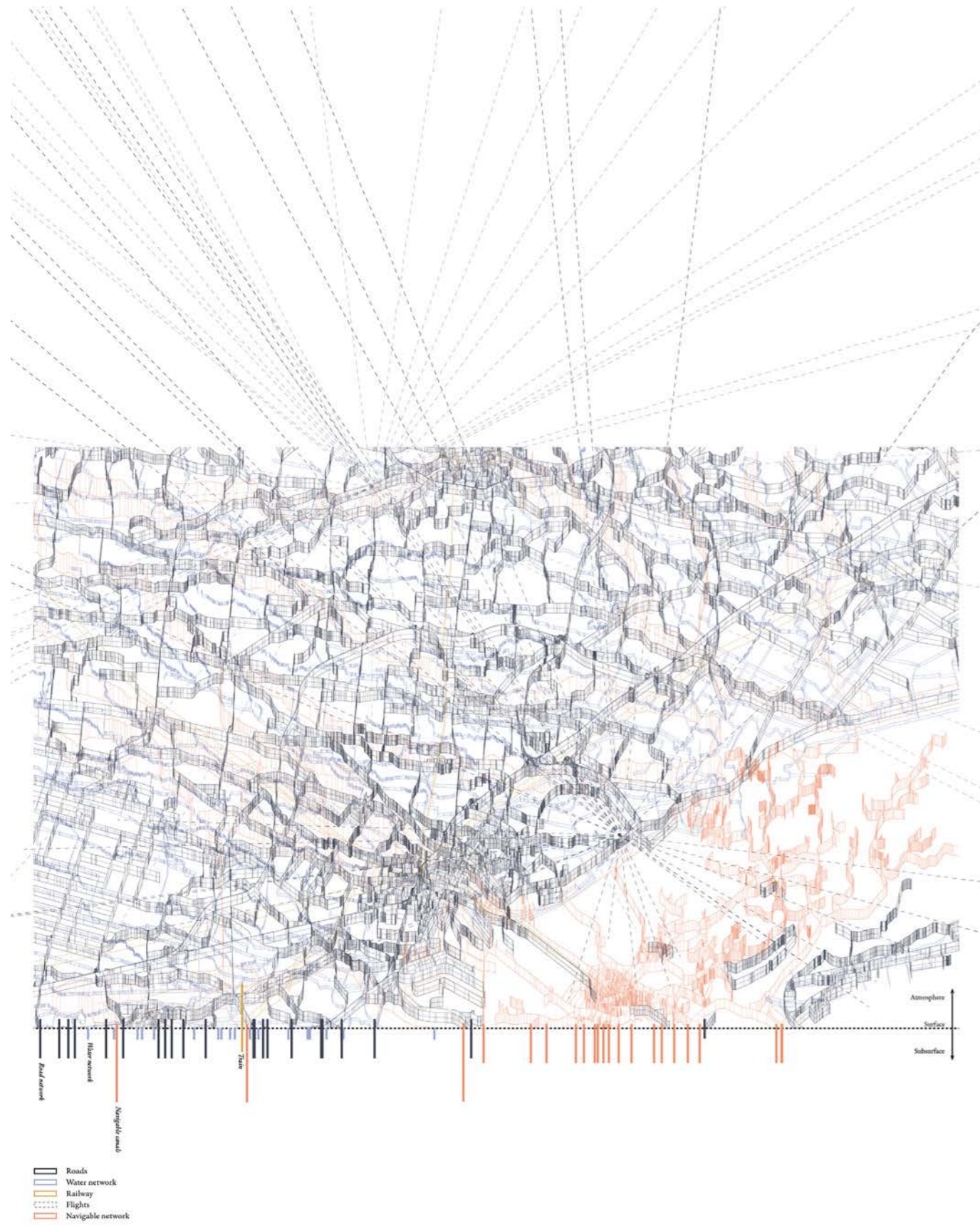
Limit

## Habitat

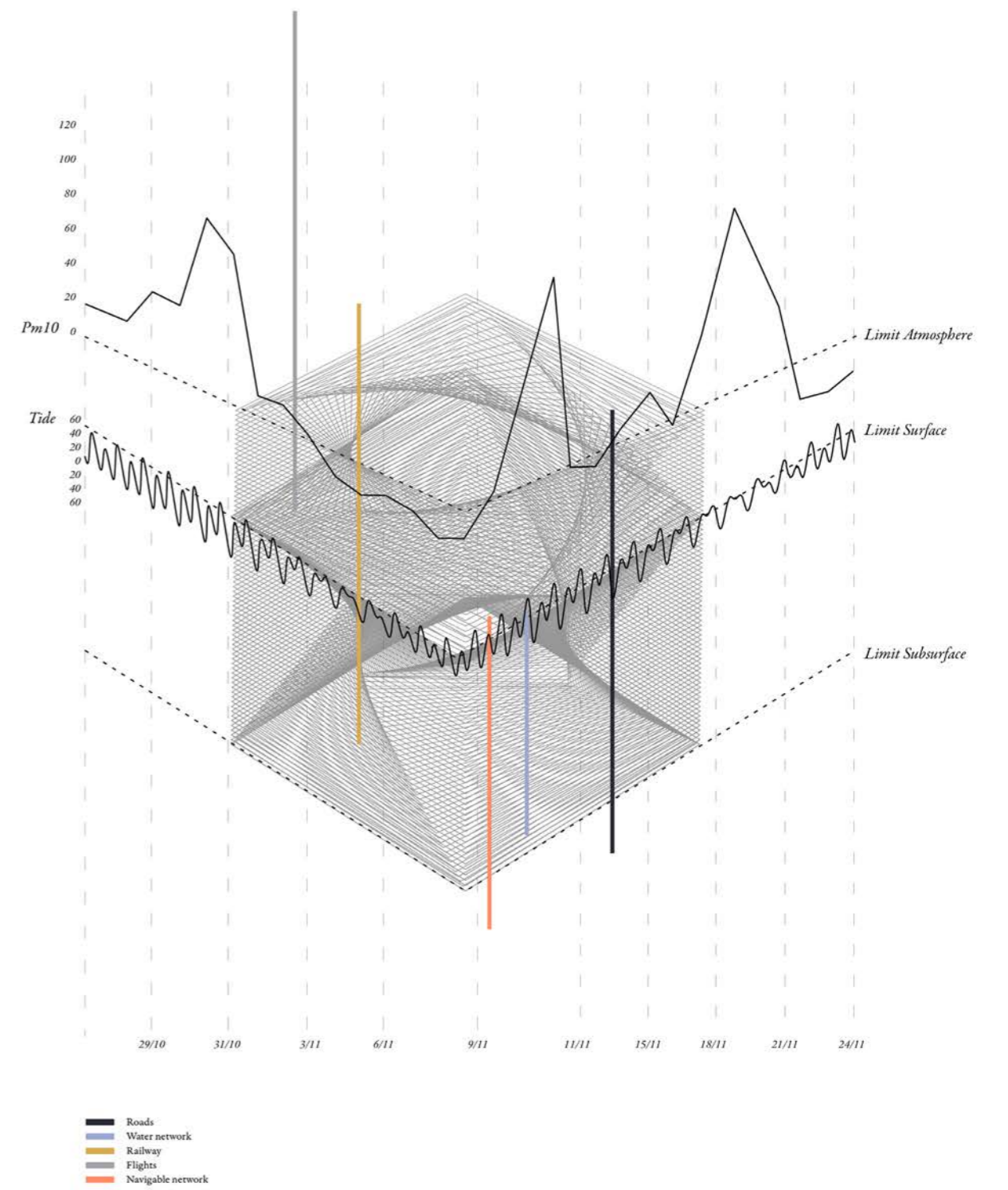
For the habitation theme, it was chosen to observe the metropolitan scale environment through the traces that infrastructure leaves. In the composition, all the infrastructure typologies (navigable network, primary and secondary roads, railway, and airlines) are represented in the same hierarchy, showing clearly the spatiality of infrastructure and its predilection for the Inland territory. In the Alteration, the lines of the infrastructure are divided into categories: roads, navigable routes, railway, water network, airlines. All of these typologies acquire a height corresponding to the influence that they enact in the surface, subsurface, and atmosphere. With the extrusion resulting from this action, we can observe the density of the infrastructure, seeing once again the winner of Inland over Seaward. The Limit brings all of these aspects together, showing the influence of the different typologies in the three expressions of space.







Alteration



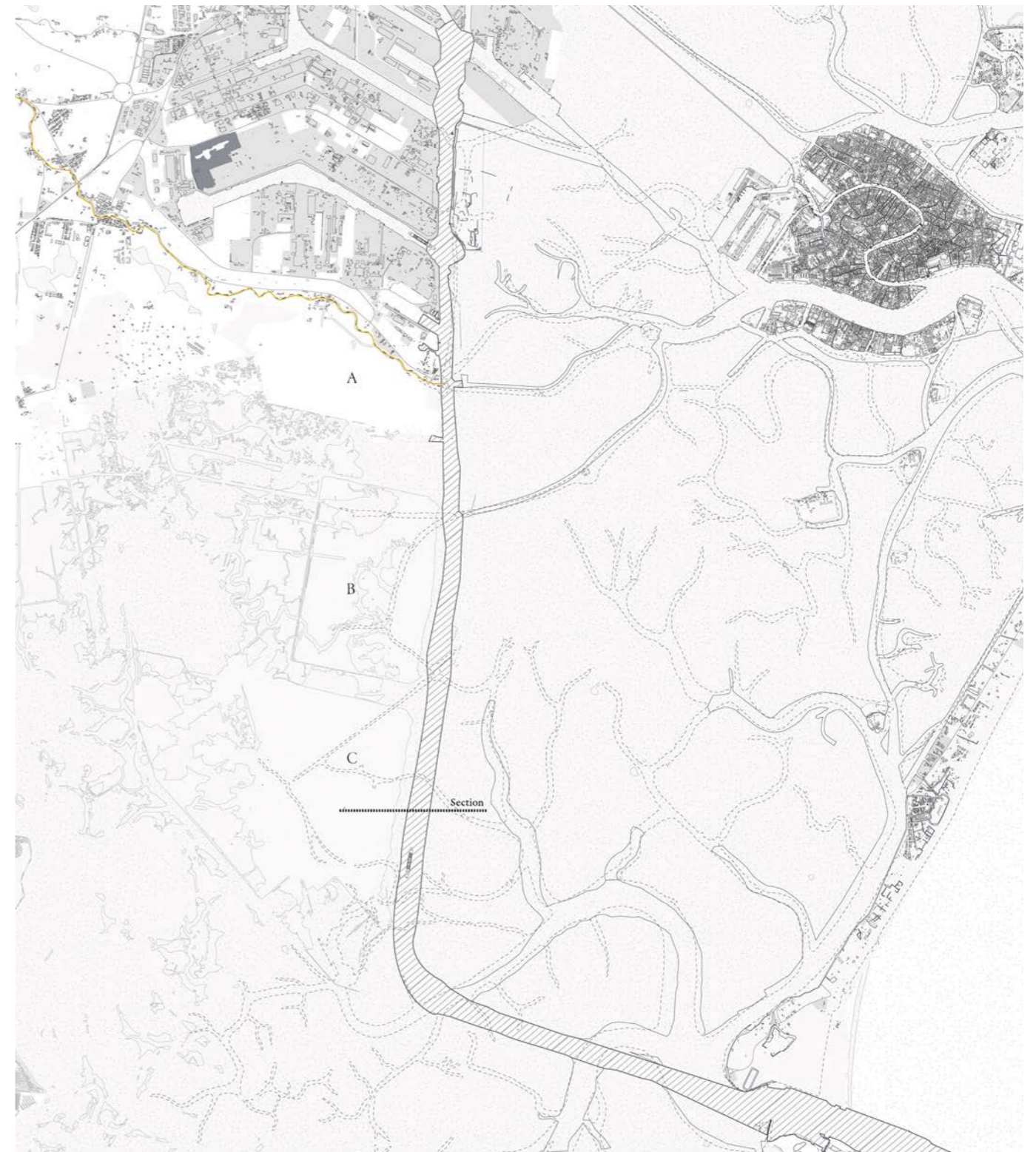
Data from: Centro previsioni maree and ISMRA

Limit

## Topos

For the Topos, Habitat, and Matter come together, showing the collateral effects of an interaction gone wrong between the two. In the Composition the Canale Malamocco-Marghera or Canale dei Petroli is represented. This canal is connecting the Adriatic sea with the commercial port of Marghera and it was dug to let the oil cargo boat into the lagoon. It was built between 1964 and 1968 and it was led by the Genio Civile and Opere Marittime institutions. It is for Italy the time of the economic explosion, which guided huge engineering projects such as the Vajont dam too. The canal is 15 km long, and it had at the beginning of a depth of 18 m. All the sedimentation that was coming out of the digging was used to reclaim lagoon territories south from the Fusina port. Like this three casse di colmata were created to build an annex of the port of Marghera. The casse are still recognizable today in the landscape, but because of the Acqua grande catastrophe of 1966, the works towards a new harbor were stopped. It is well understood that one of the causes of the flood of 1966 was indeed the digging of this canal. (Zanetti, et.al., 2016)

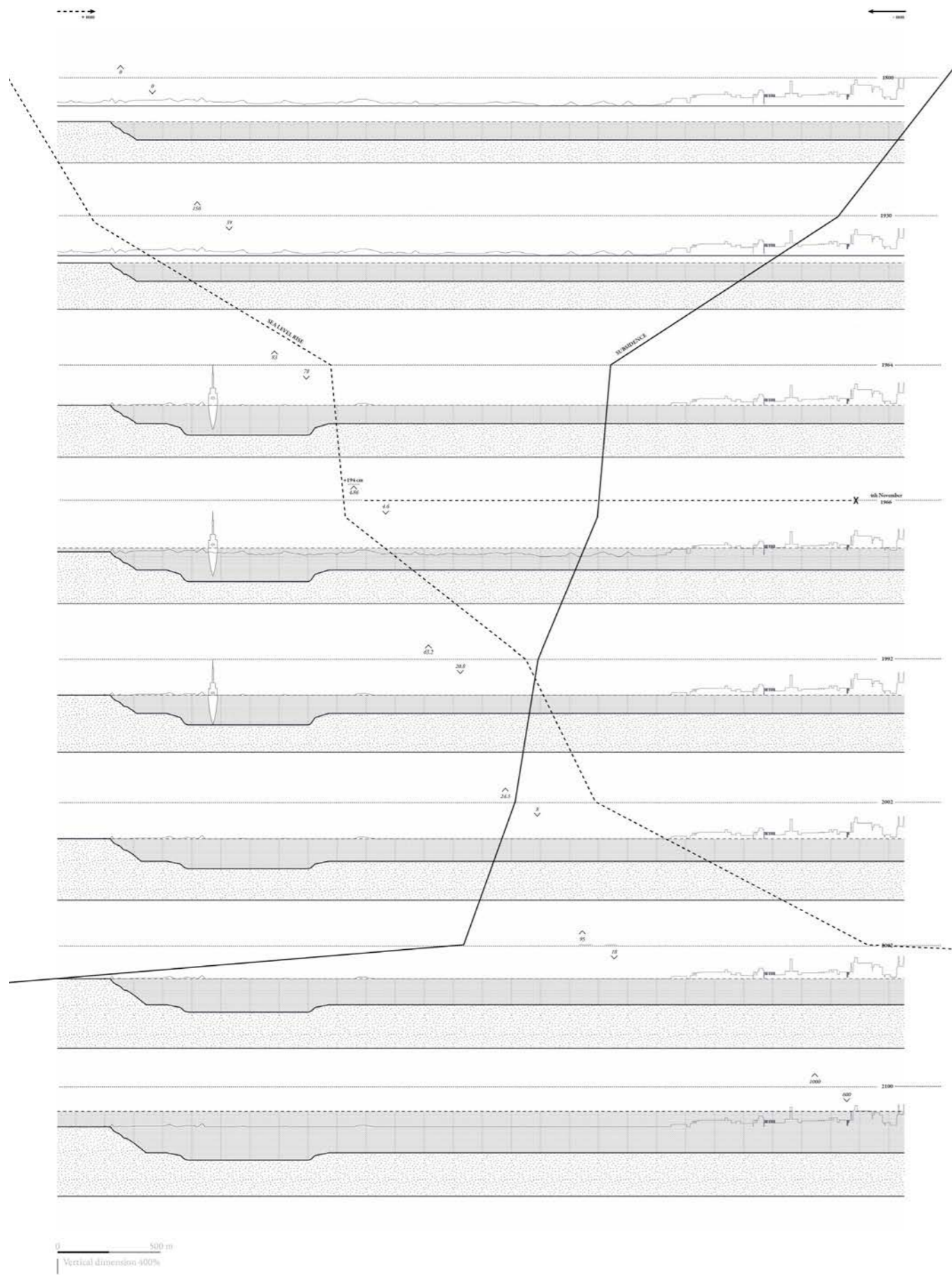
In the Alteration, it is demonstrated through sections over time, how indeed the canal affected the sea-level rise and the subsidence of the city. In the Limit, the simple but worrying graph of the sea-level rise is shown above a picture of the Acqua grande of 1966, showing how it is important to avoid the breaking point of the conflict between Inland and Seaward, Matter and Habitat.



0 1 2 km

N

- //// Canale dei petroli
- Areas below sea level
- Water
- Current Navigable canal
- Navigable canal - 1901 (Genio Civile)
- Reclaimed area "Cassa di colmata"
- Industrial area
- Built element
- Roads
- Brenta river



*Alteration*



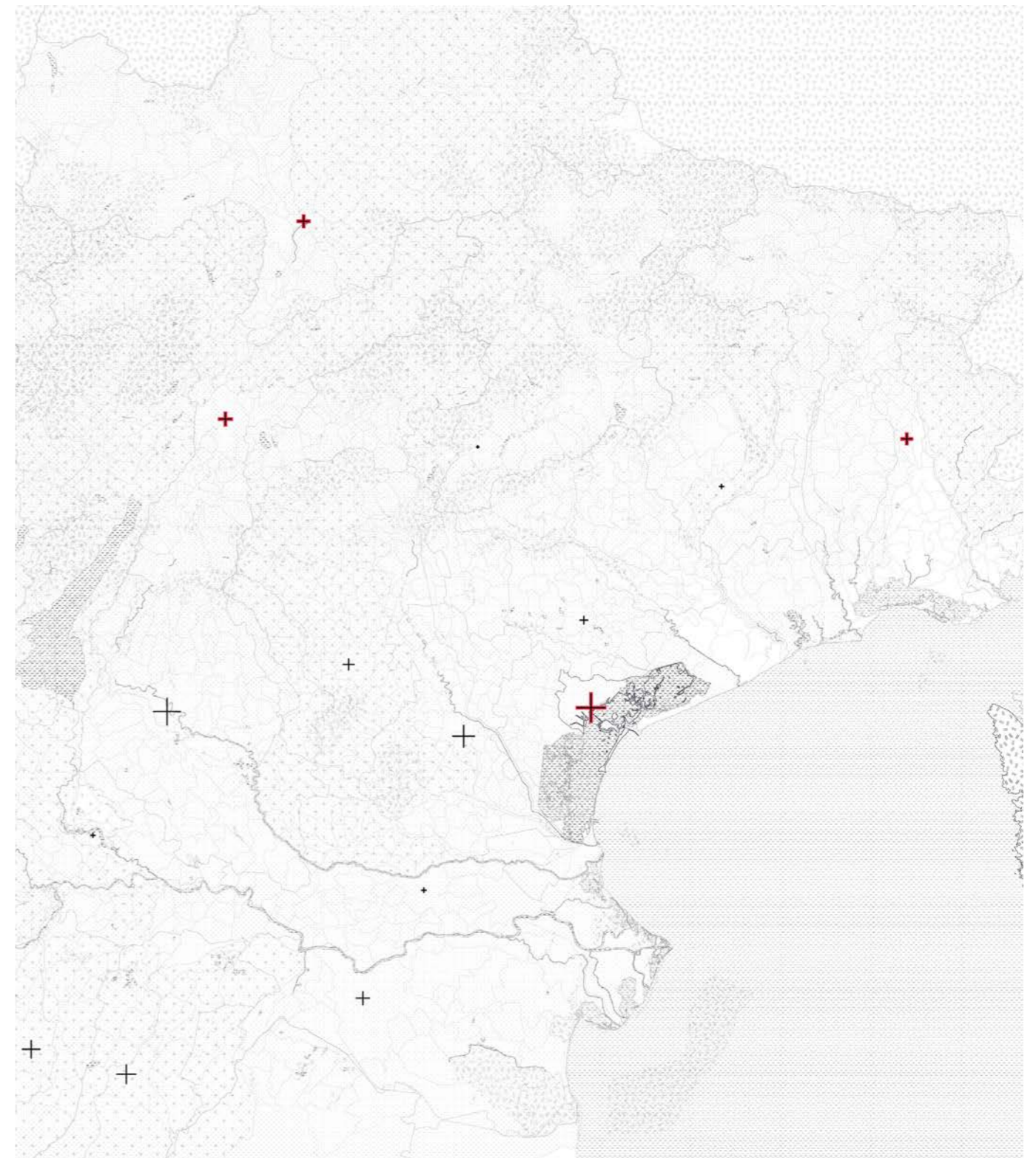
*Limit*

## Geo-Politics

In the Composition of the Geo-politics, the ownership and the power which acts on the interregional level is drawn out. The powers are grouped in: European, National, Regional, Municipal levels. Also, the main cities are represented, scaled based on their population. All the powers are drawn with a different pattern on transparent background, it is, therefore, interesting to notice how the patterns overlap greatly above the Venice lagoon. A lot of different institutions act on the same location, creating difficulties in understanding who takes care of what and how the civic agency should move around them. In the Alteration, all the powers are represented as they would be lithographic layers of the subsurface. The institutions which act on bigger territories such as the European Union are placed at the bottom, while their action space on the surface is more limited than the one of an institution that acts on a smaller territory.

In the Limit, the flow of money is represented. The different powers are enclosed in each other forming a sort of optical illusion. The investments coming from bigger stakeholders sometimes get lost in the maze of responsibilities, this is why the final expenses are less than the initial money sum.

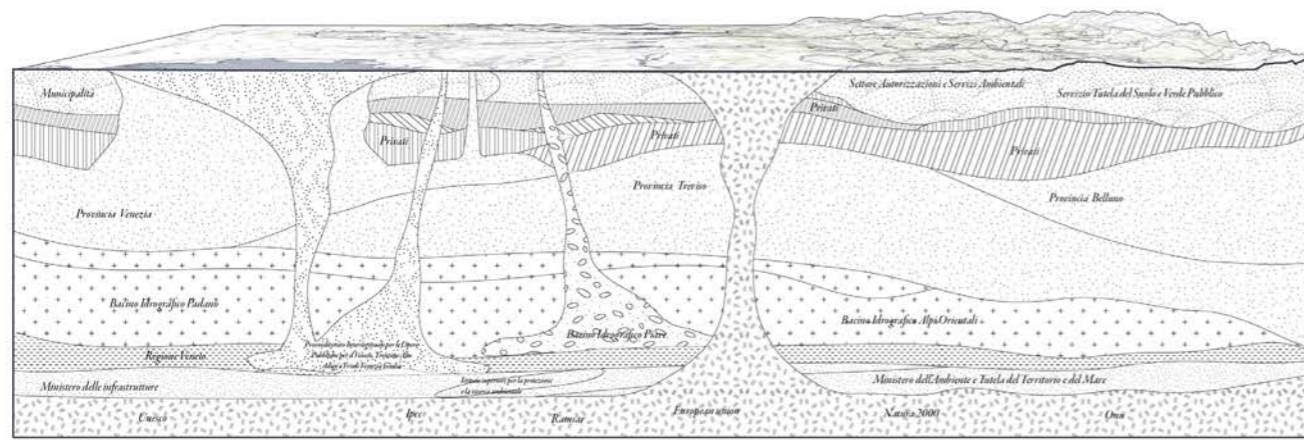
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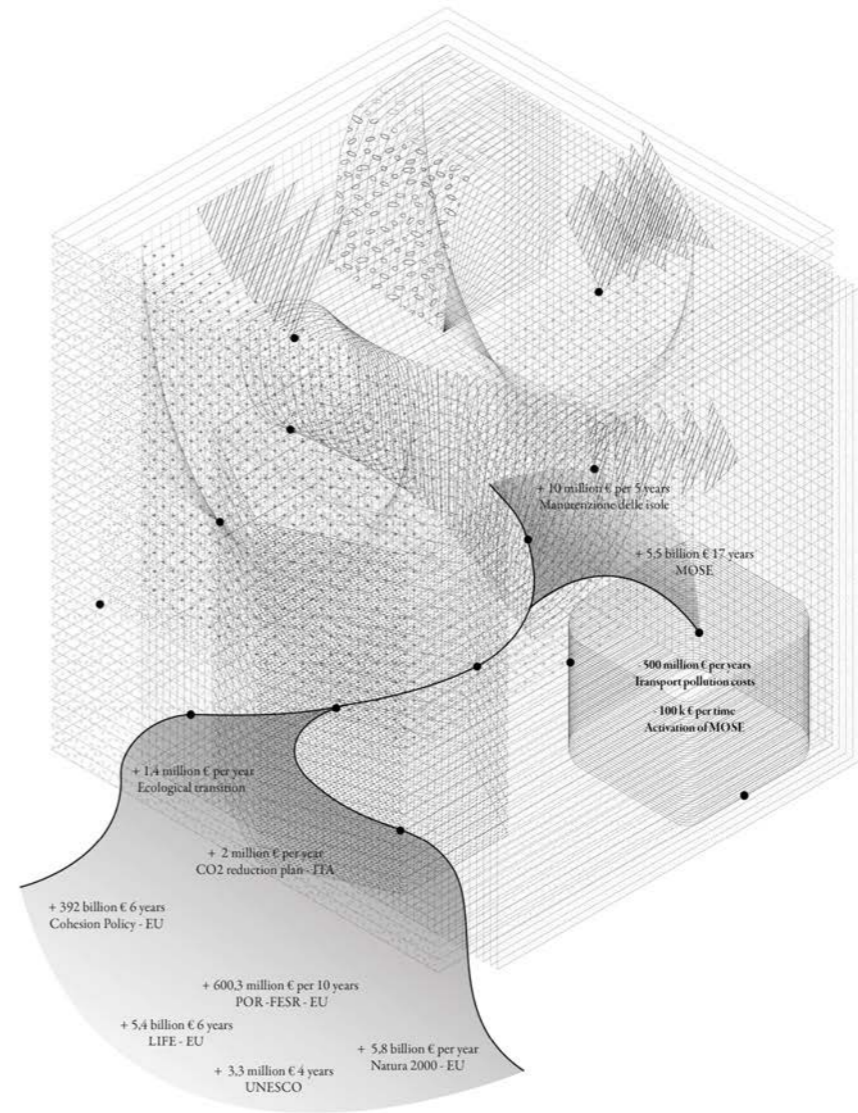


- Administration of ecological elements
- European level
  - National level
  - Regional level
  - Municipality
  - Hydrologicals basins
  - Region capital
  - Province
- Dimension based on population:  
Max 261'905 (Venecia) Min 34'742 (Gorizia)



- Administration of ecological elements
- World and Europe
  - Nation
  - Interregion
  - Region
  - Eco-Region
  - Province
  - Privates
  - Municipality
- General
- Natural territories
  - Water
  - Urbanized territories
  - Elements of water and ecological management
  - Protected natural territories

Alteration



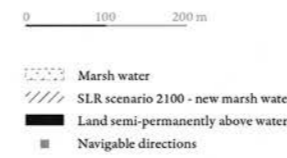
- World and Europe
- Nation
- Interregion
- Region
- Eco-Region
- Province
- Privates
- Municipality
- Investment flow
- Institutional junctions

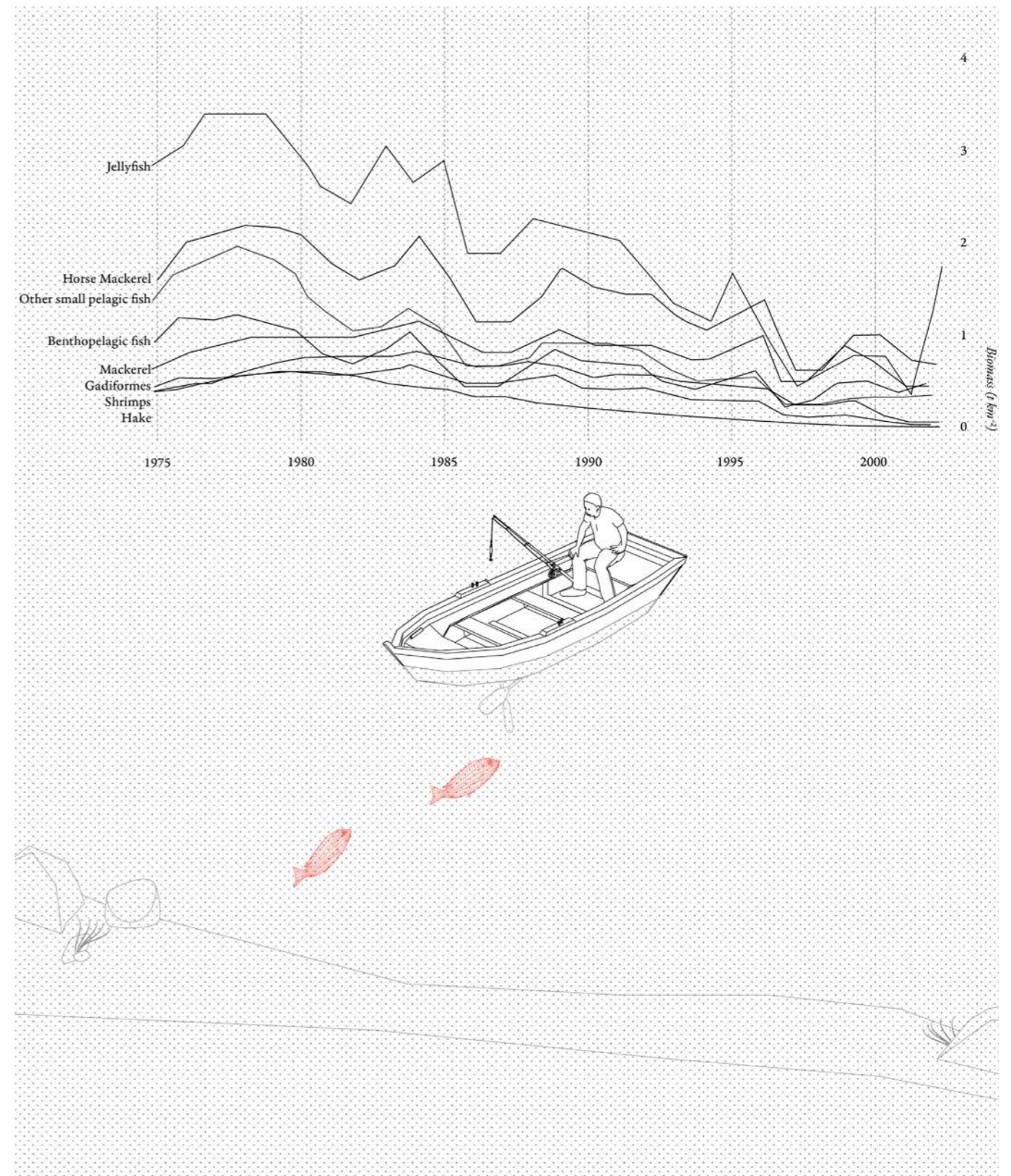
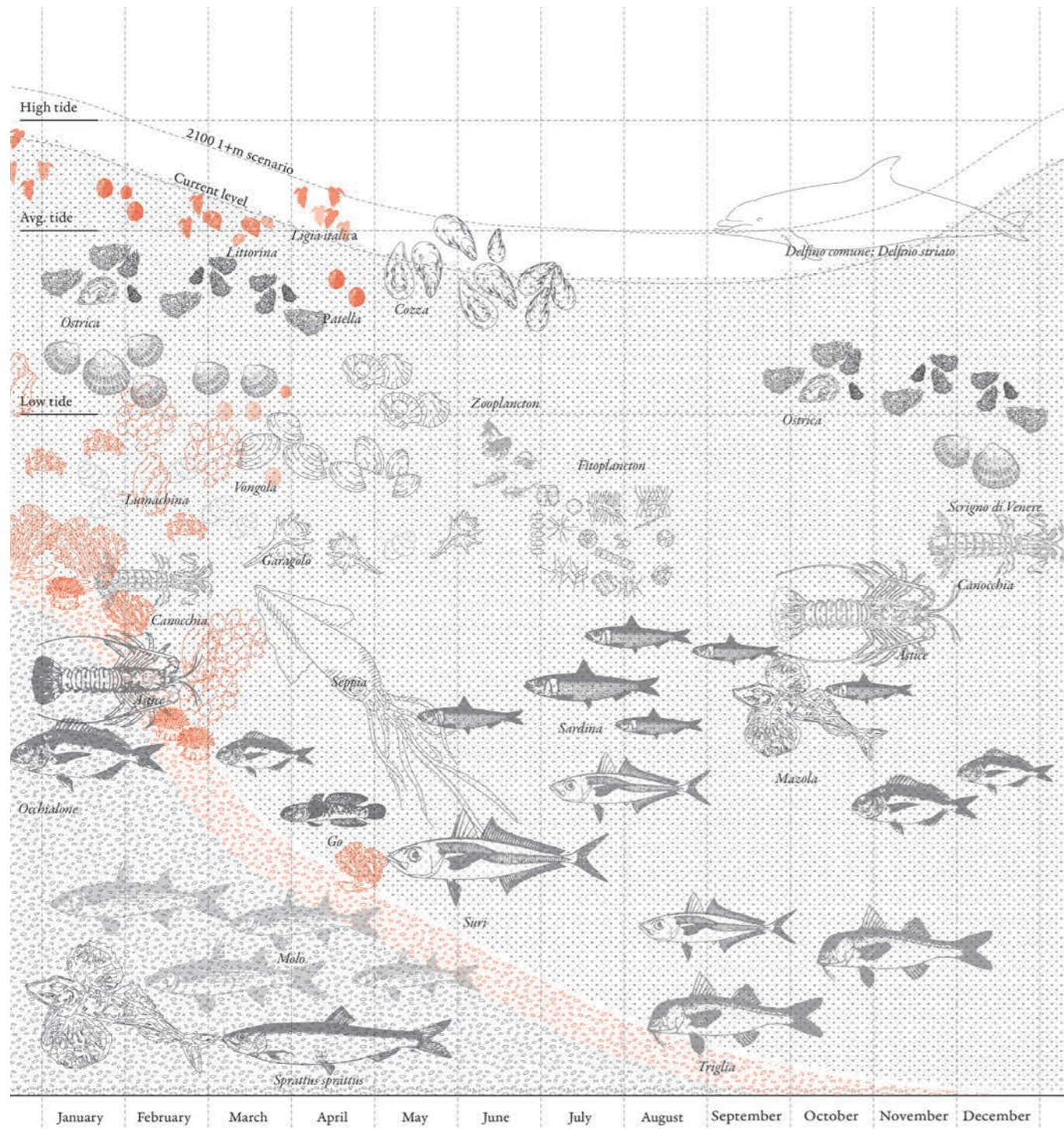
Limit

## Clearance

### Matter

The first approach of clearance on Matter is the one of re-action. For all the following drawings, the black surfaces are the ones that stand above the sea-level rise. The frontier that is analyzed here, is the one where Seaward overcomes Inland, where the water is the main inhabitant of the location. In the first composition, we observe how the marshland territories in the middle of the lagoon get slimmer and slimmer. We are reminded of the Lido di Venezia elongated shapes, where the main activity is the beach. Knowing that the border of the Adriatic sea is going to shift towards the lagoon itself, this metaphor with Lido is even more accurate. For Venetians, it is a tradition in the summer instead of going to beach locations like Lido or Jesolo, to get the boat and bathe in the lagoon. Because of the tide, every six hours appears the island of Bacan, below S.Erasmo island. Here, on the hottest day is possible to see a multitude of boats anchored to the side of the marshlands, while people sunbathe and swim in the lagoon. The map with the projection of the 2100 scenario, shows us how through the deeper fragmentation of the marshlands, other areas of the lagoon could become the island of Bacan an elongation of the Venetian public space. On the other hand, from the idyllic addition of space for public life, the penetration of the sea and the fragmentation of the barene brings with it negative consequences. Knowing that one of the biggest economical incomes of Venice is fishing, it is important to look at the predictions in terms of the fauna of the lagoon and the sea. Understanding that the marsh water will shrink and the lagoon bed will get lower because of the waves, the salinity, and the water warmth influences of the Adriatic and its height, we can suppose that a lot of animal species will be at risk. Especially the small lagoon animals which are specific to this area and provide for the culinary traditions of the city, the lowering of the bed and the higher salinity will be devastating. (Adoc Nazionale, 2017) The scheme showing the biomass trends from the year 1975 to 2000 shows even more clearly how the situation will probably evolve for the year 2100, creating great job losses and a decrease of general wealth for the whole region. (Coll, et.al., 2009)





Coll, M., Santojanni, A., Palomera, I., & Arneri, E. (2009).  
 Food-web changes in the Adriatic Sea over the last three decades. *Marine Ecology Progress Series*, 381, 17-37.

□ Biomass trends (t km<sup>-2</sup>) for 8 species as estimated from the calibrated model for the period 1978 to 2003

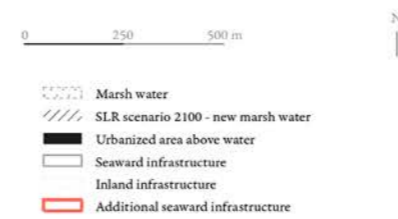
## Habitat

For this topic, on-action is taking place. This time the frontier is looking towards Seaward but the Inland domain is the one overcoming the other. Looking at the Inland attachment of the Ponte della Libertà and the S. Giuliano park, we can observe how the RSL and with it the infiltration of water and marshlands, creates a different urban landscape. New urban islands can be recognized, wherein between probable sediments can run through and new water flows. The action here is to understand that probably the infrastructure -and with it, the way of inhabiting space- needs to be reinterpreted. The intention is to accept and do not resist the RSL changes and effects on the landscape, hence letting the traditional primary water network run through the new islands. The continuous red lines represent the infrastructure additions where boats can navigate through; the dotted red lines show the existing water network to which the new one is laid upon. This action of clearance opens up further questions for the other domains too and the whole territorial planning of the lagoon region. What does it mean for the urban and ecological landscape to let the sediments create new in between marshlands? What would the section of the built environment look like? This on-action gives us an idea of what it would look like and what changes would be affecting the urban by unifying Inland and Seaward – in this case giving more space to seaward into inland-.

62



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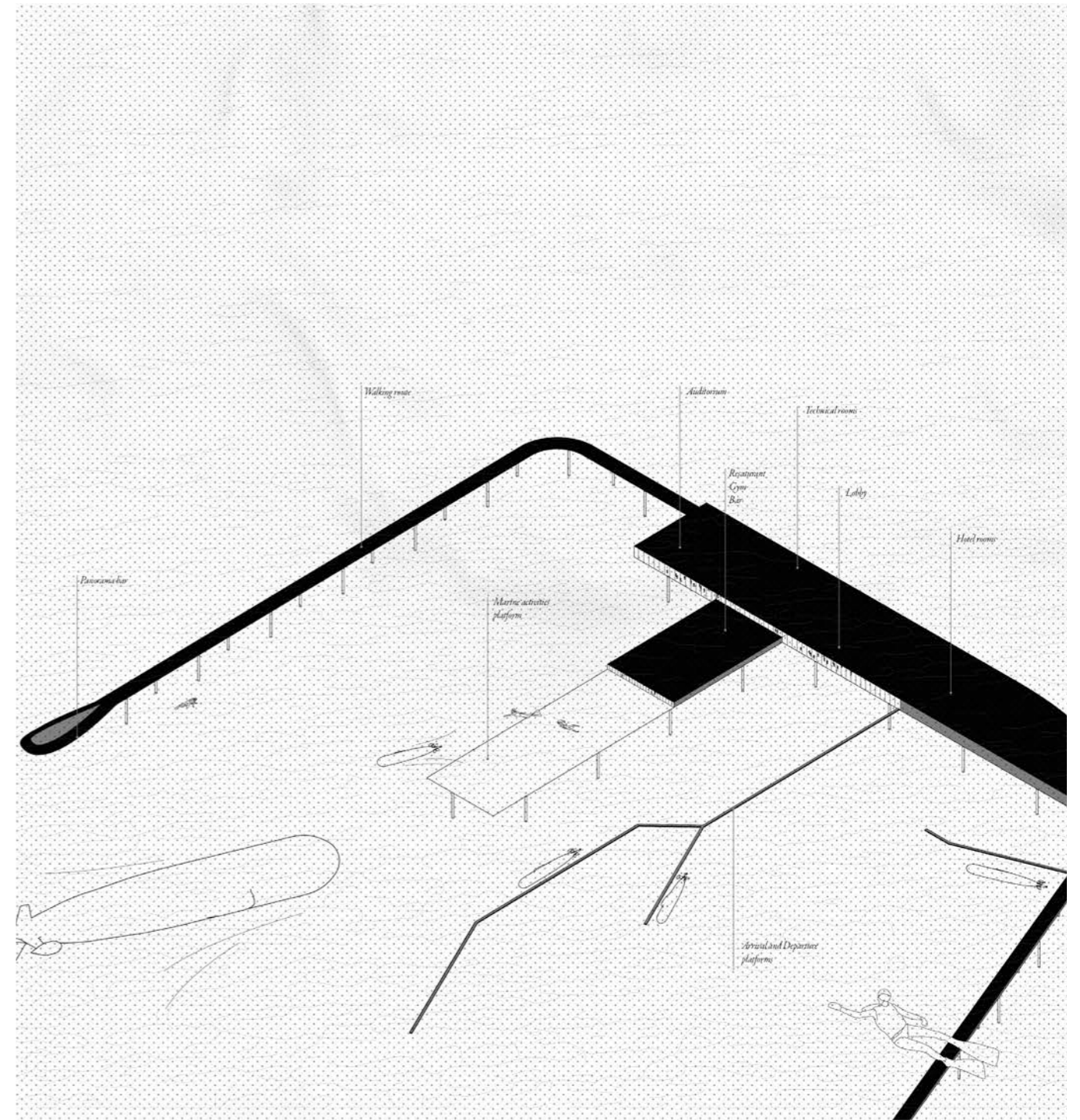




## Topos

This domain is also inspired by on-action. The clearance intentions is the one of reprogramming a Terraforming objects which was supposed to be built at the doors if the lagoon in the Adriatic. This project is an Off-Shore terminal which should be an additional stop for cargo boats (cruise ships were also taken as an option) directed towards Porto Marghera. Big cargo boats would stop here an other automated transport would bring the delivery to the lagoon port: limiting the traffic and the pollution in the lagoon water. (Seingim, 2016) With the scenario of 2100 RSL though, this project, if built, would become obsolete. The flooding of the Marghera port would limit the access and the production force; the sea-level itself, would make it hard to keep the Off-Shore terminal afloat. In a Dubai inspired manner, the terminal becomes a mass-tourism attraction. It could host an underwater hotel where wealthy clients could see the decadence of the Adriatic from their windows, brought down by electric submarines. People would come to do all kinds of underwater activities such as submersion or simply taking a panoramic walk in one of the unused terminal's piers.

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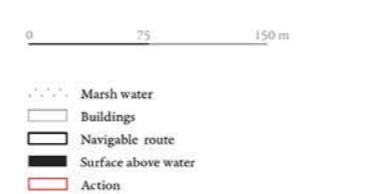
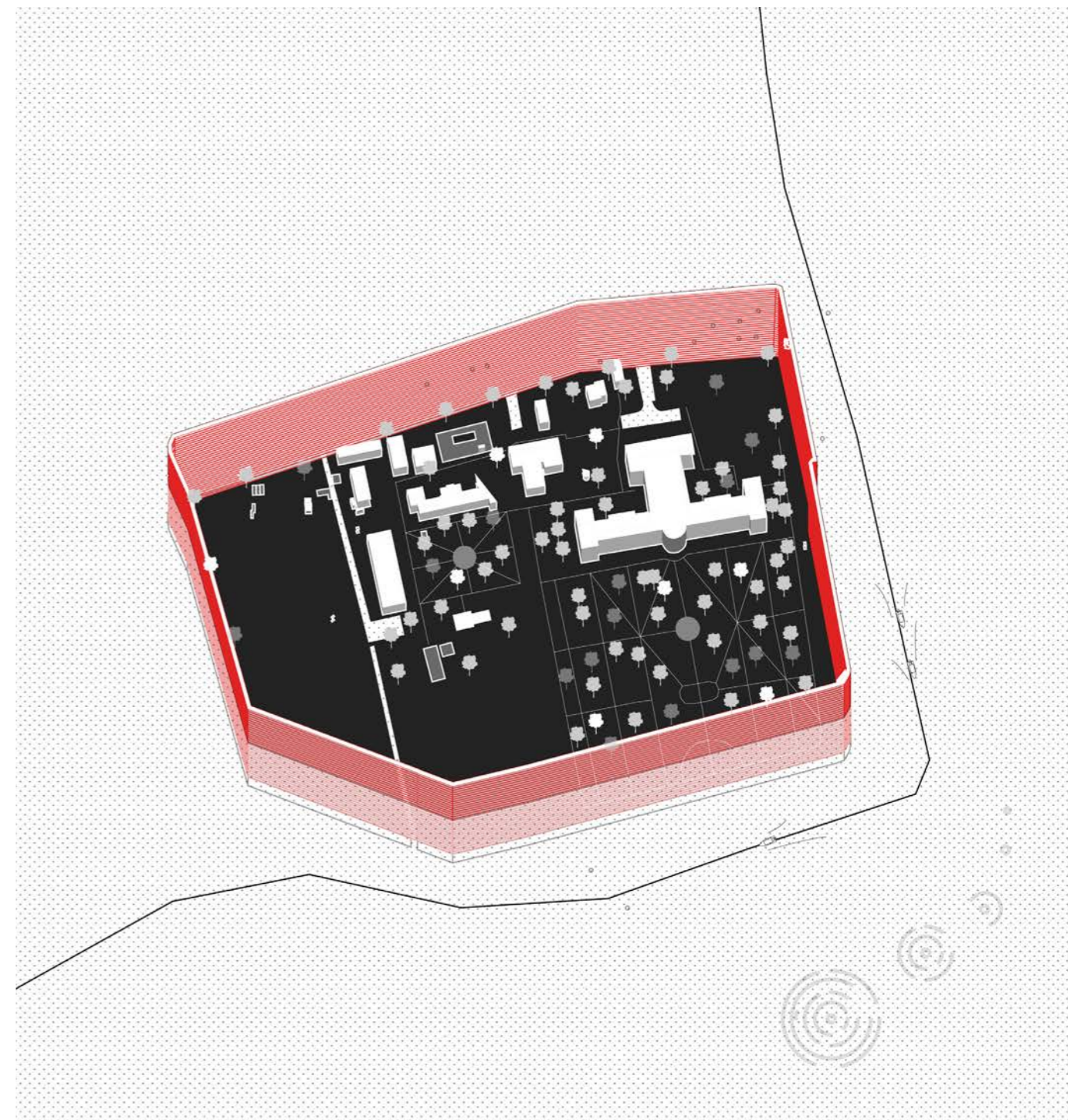
65

Marsh water  
Building protected from water

## Geo-Politics

For this topic, the island of Sacca Sessola is the starting point of reflection. Sacca, in Venetian, refers to an artificial island; indeed it was built with the surplus material of the construction of Santa Marta in 1860. At the beginning the island was used as depot for the oil industry, later it was converted for agricultural purposes. In 1936 a hospital was built and after some decades, in 1992, the municipality gives the island to a private research centre which converts it again for tourism, building an hotel. The hotel goes bankrupt in the late 90's and finally, in 2015 Marriott hotel group reopens the hotel which is at the moment the main activity on the island of Sacca Sessola. The island was built in the first place for private economical purposes, being one of the biggest island in the whole Venetian lagoon, later on, being in the hands of the municipality, it provided a fundamental purpose for the public life, project which unfortunately fails and gives turn to the private sector once again. This island right now is a mass-tourism product: another luxurious location for the perfect Venetian dream vacation. Once again, understanding the intention of non-resisting to the trends and impulses, both economic and environmental in this case, we can imagine that with the RSL scenario, Sacca Sessola will still host the Marriott hotel, and to survive, they would need to close off the island completely with high protecting wall. Now, we could imagine that a beautifully designed brick wall could give a more exclusive look to the private island, but we could also observe that another precious space would be taken away from Venetians and their environment.

On the territorial scale, it is possible to imagine how this radical on-action thinking, could have great consequences on the infrastructure apparatus. Sacca Sessola will not be one of few islands, but as it was highlighted in Habitat, the whole Inland territory could look like an Archipelago because of the RSL. A new network which is supported by the historical Venetian island's one, could let boats through Inland, reconnecting in a different way the frontiers. This though means not only new infrastructure for connection and movement of people and goods, it also reflects a need for a whole new spectrum of different infrastructure typologies. From the simple addition of boat's moorings, electricity network, maintenance of the infrastructure itself, reinterpretation of the ecological infrastructure and so on.

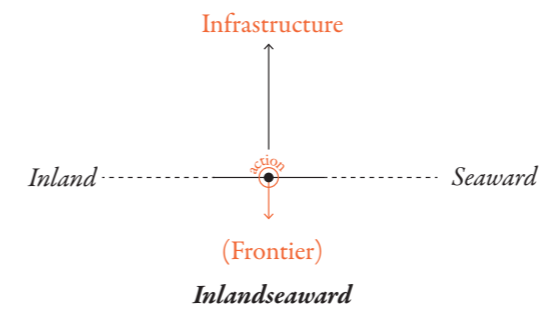




## INTENTION

Inlandseaward  
Infrastructure for an Archipelago

This section illustrates at the hand of the reflection on the landscapes of Accumulation and the action of Clearance on them, what are the starting points of the design project. Stating and defining the action of Non-Resistance, there are some important factors and domains which in this thesis should be analyzed and considered. The intention is the input that defines the first critique on the territorial scale, which will then advise the actions on a local nano or micro-scale of the project. The research therefore ends and the design starts in a Manifesto which fixes the vision on the territorial scale. Having this research though a connotate of research by design, the Manifesto is the in-between step, the reference milestone which helps the navigation between design and research and vice versa. Going back to the goal that was stated in the conceptual framework, currently, we could say that Inland is juxtaposed to Seaward, and what is desirable is to redefine the frontier in between these two domains, creating the Inlandseaward frontier. From the considerations done in Clearance, it becomes sure that Infrastructure is the key link between the territories, it can be the mode of connection and communication and it should be a crucial part of the design.



*Is this all that is lost?*



*Is this all that is gained?*



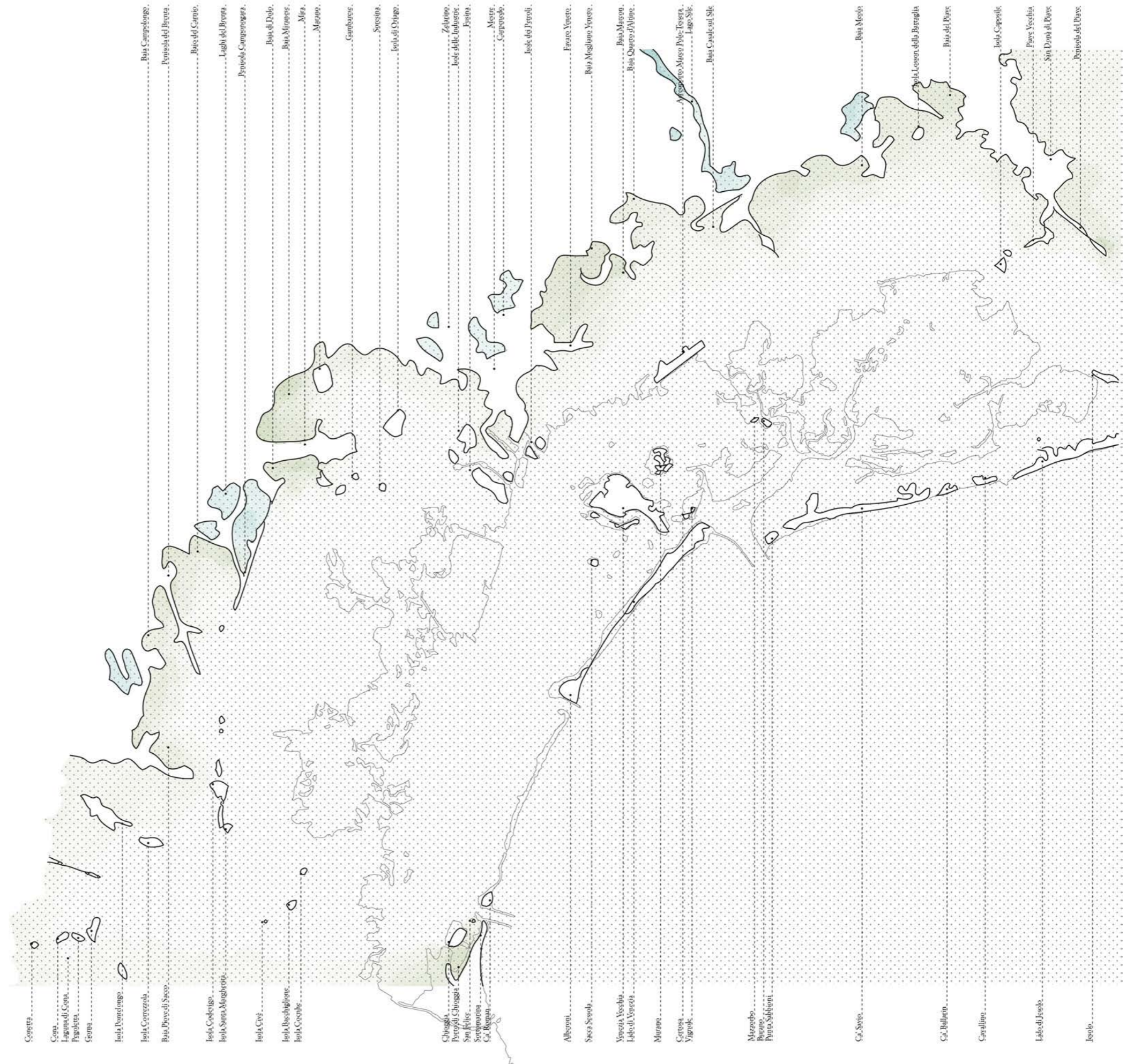
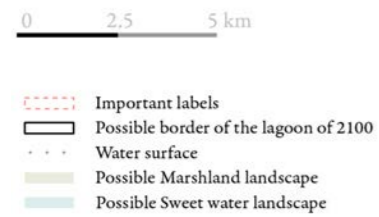
*From the point of view of Utopia and Terraforming, it is important to pose the right critical questions. In a scenario of RSL of 2100 so decisive in terms of a redefinition of space, there is a chance to be taken: a chance to reorganize and rethink the way that all the systems communicate with each other through their spatial reflection. The simple observation of these two maps which illustrate the RSL consequences of the IPCC scenario SP5-8.5 with a -60 cm subsidence level, shown simply by opposing the coloring, can make us see different things. Hence, is the flooded Inland territory and the lost Seaward lagoon territory rather a loss or a gain for new types of habitation?*

*The question becomes even more relevant if we look at the possible 2100 image of the social housing neighborhood Pertini. Is this image showing us a devastating future or an opportunity for Venice to be an archetype of the after-crisis coastal areas?*

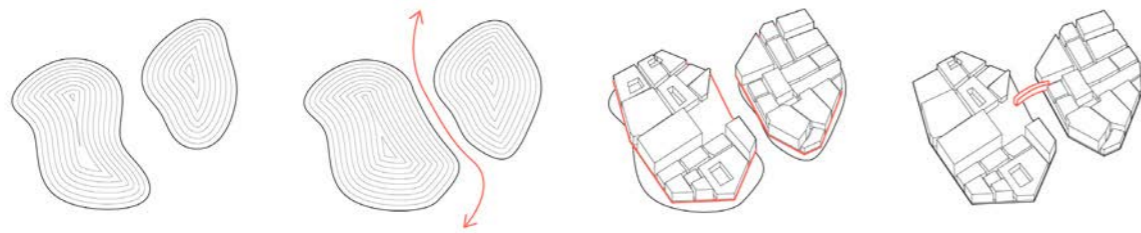


## Inlandseaward

Inlandseaward is what defines the new borders of the Venetian lagoon. Because of the 2100 RSL, the coast borders of the Adriatic open up, letting salty water flow through the lagoon. The laguna morta on north and south retracts itself towards the hinterlands. The infiltration of the marshlands creates new bays and swampy landscapes. Where one stood full of history Piave river, now is a peninsula which looks towards the new lagoon. The countryside town of Oriago now becomes a proper island, together with a lot of others, creating a new Archipelago of ex-Inland small and big islands. These new border is created through the observation of the RSL scenario map overlaid on the satellite images. This way it was possible to make a projection on which places -being more urbanized and populated than others- will rather become islands, part of a peninsula or would just be incorporated in the Seaward marshland territory.



## Infrastructure for an Archipelago



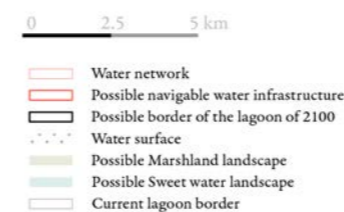
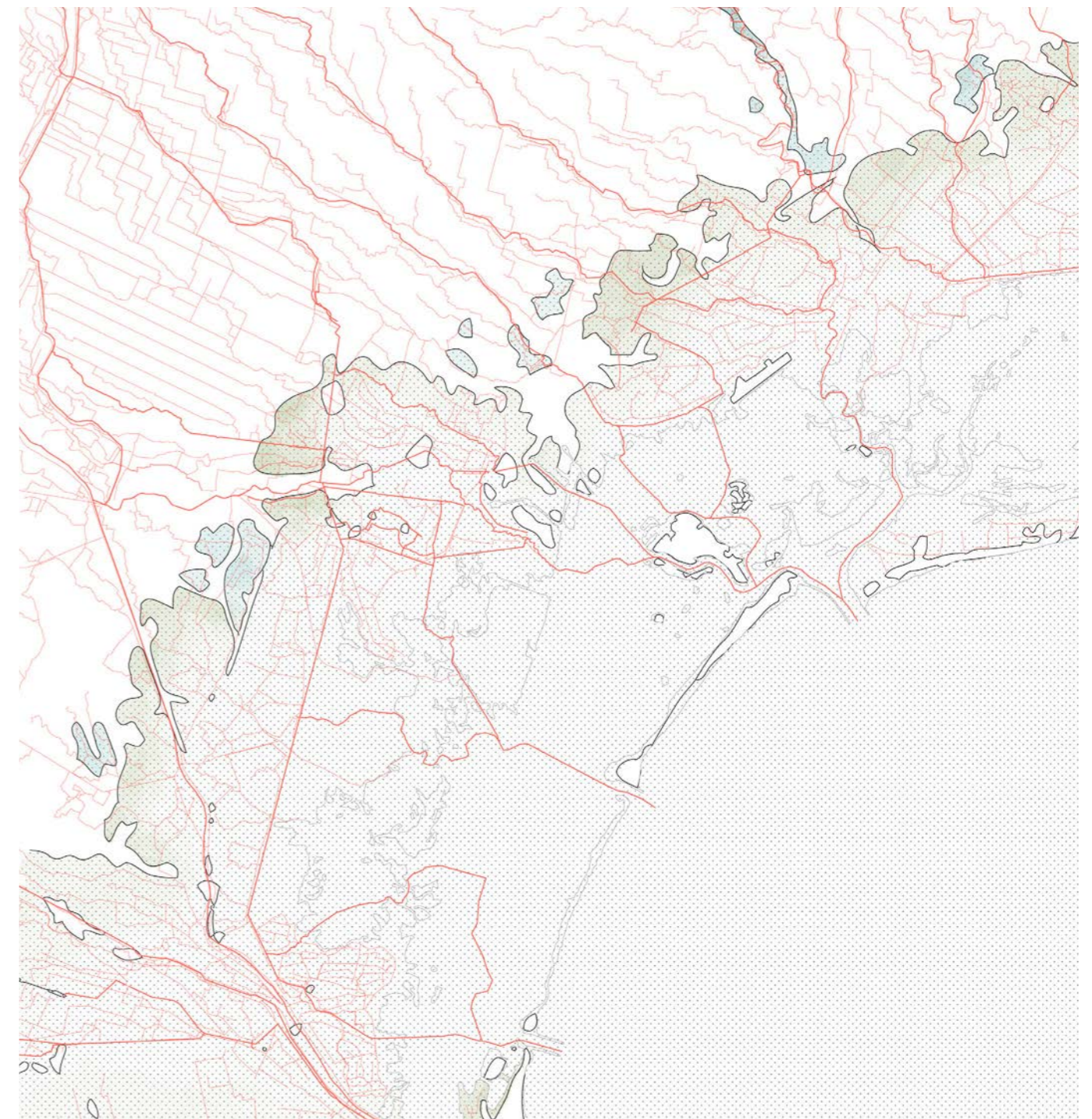
Because we are stating the Intention of the thesis, at this point is essential to look back at the *Tricipitium* of Tiziano. This project looks towards a very far and dogmatic future, it is important therefore to have a stable ground that understands and reflects on the historical definition of infrastructure and the way it developed through time. Psarra (2018) explains how the different islands of the historical Venice developed. From the land reclamation processes on the *barene* marshlands, the water navigable network was the first infrastructure to be functional. Later on, the individual islands were laid down: each island was owned by a different family. The various founding families had everything they needed on their island: a church, a square, a pozzo and direct access to water. We can therefore see all the different islands as an Archipelago of mini societies which would sustain themselves autonomously. From the 12th century, with the highlight of the doge as institutional figure and the development of the mercantile society, water and land transportation became more crucial. With the building of the first bridges, we see a new network appear above the primary navigable one. It is important to notice that even though most of the islands began to be interconnected through the network of bridges, *campi*

and *calli*, their identity, culture and differences kept on surviving. This brings forward the relevance of heterogeneity in a design which tries to look back at the wolf of the *Tricipitium*. Venice cannot be covered with a unified scale of values and analogies, it is a collection of different ways of inhabiting the space and the society around it: the quote of Schmitt (2002) underlines this even further.

As already stated, in order to create the Inlandseaward frontier, a redefinition of Infrastructure is needed. The map in the next page shows the new borders in combination with the current water network. Highlighted are the canals which could become more essential as primary infrastructure in the 2100 scenario. Furthermore, for the zooming in the local scale, it will be interesting to analyse and understand the new lagoon configuration in relation to the different types of Infrastructure.

**“L’uomo del suo spazio una determinata coscienza, soggetta a grandi mutamenti storici. Alle varie forme di vita corrispondono spazi altrettanto eterogenei. Perfino al l’interno della medesima epoca, nella prassi della vita quotidiana, l’ambiente dei singoli uomini è già determinato in modo diverso dalla loro diversa attività. L’abitante di una grande città si raffigura il mondo diversa mente da un contadino; un cacciatore di balene ha uno spazio vitale diverso da quello di un cantante lirico, così come ad un aviatore il mondo e la vita appaiono non solo sotto un’altra luce, ma anche con altre dimensioni, altre profondità e altri orizzonti.**

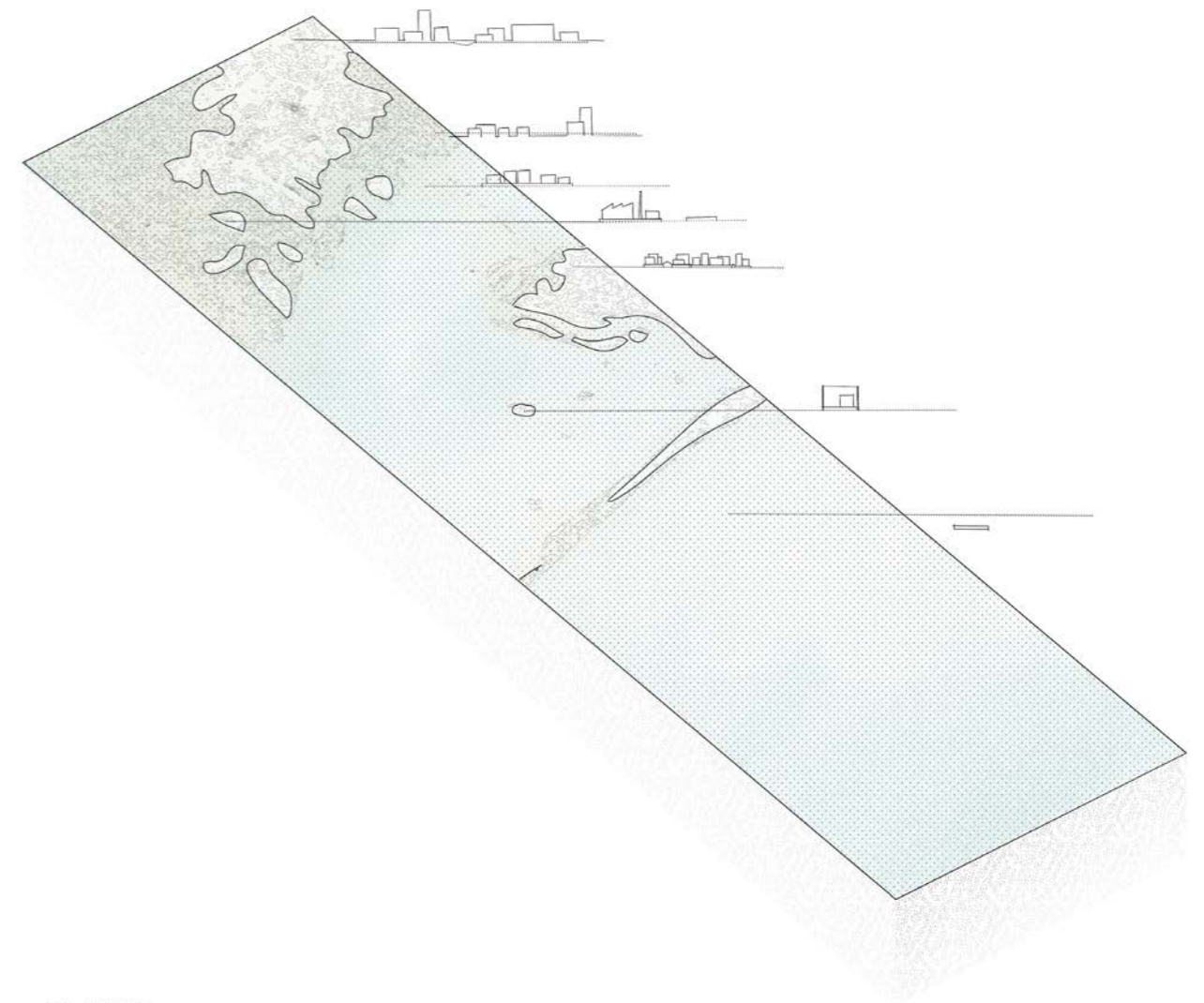
- Schmitt, C. (2002). *Terra e mare*. Adelphi.





# INLANDSEAWARD

Design framework  
Inland Seaward Morphology  
RSL scenario's



- Marsh water
- Water depth
- Urbanized area above water
- Land above water in 2100
- Contours height
- Water line section

## Design framework

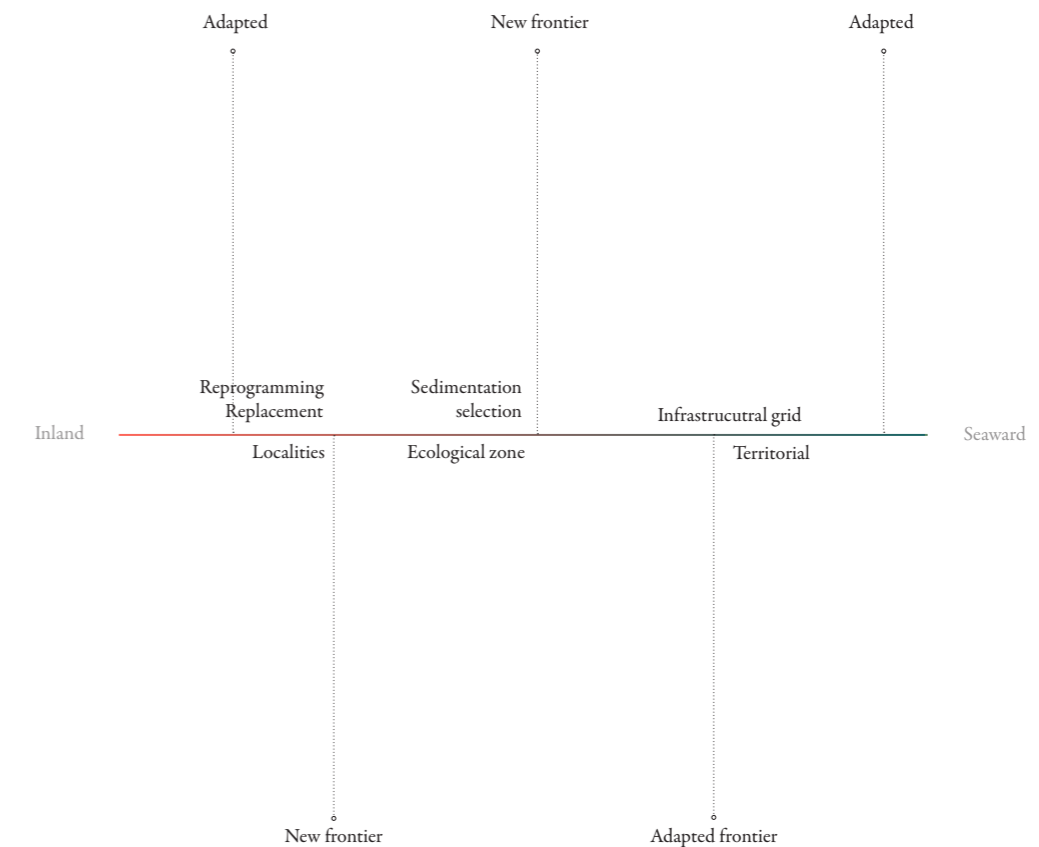
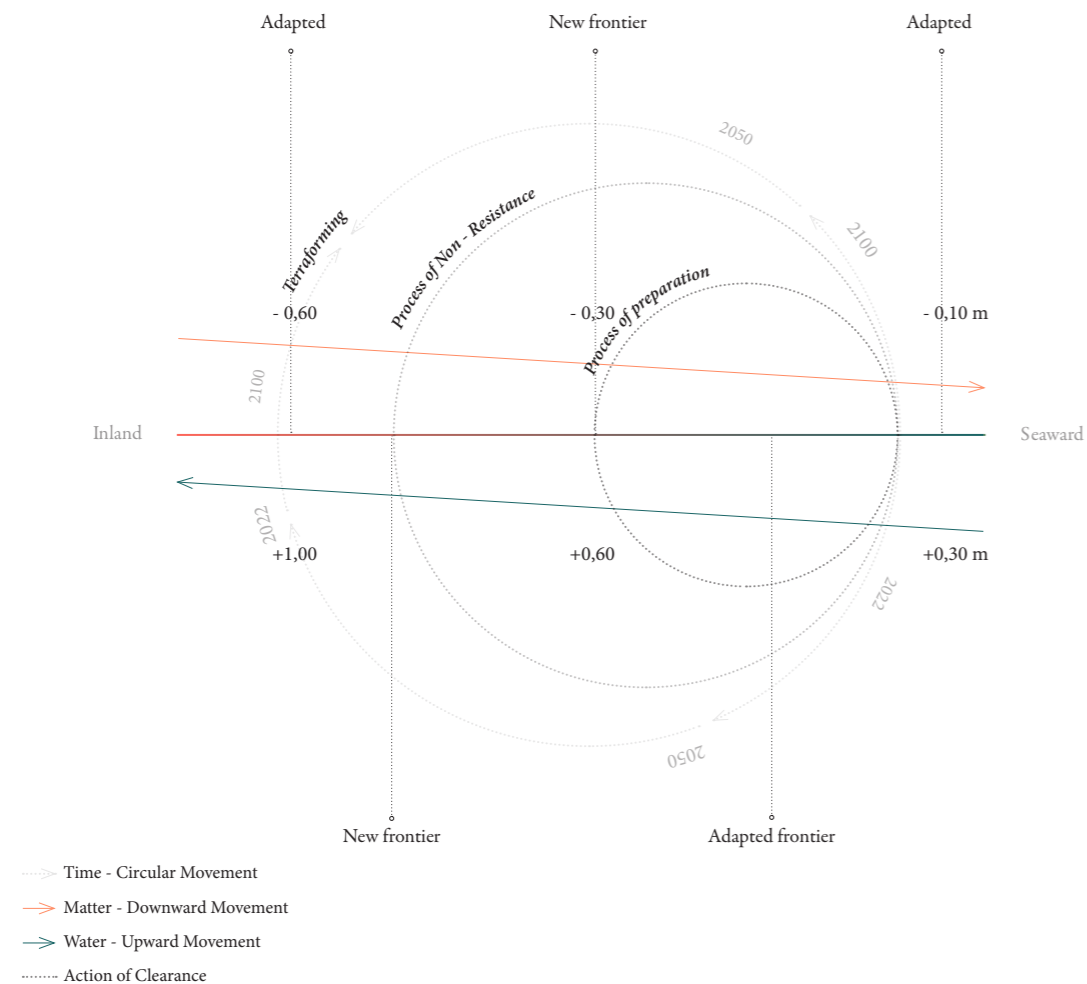
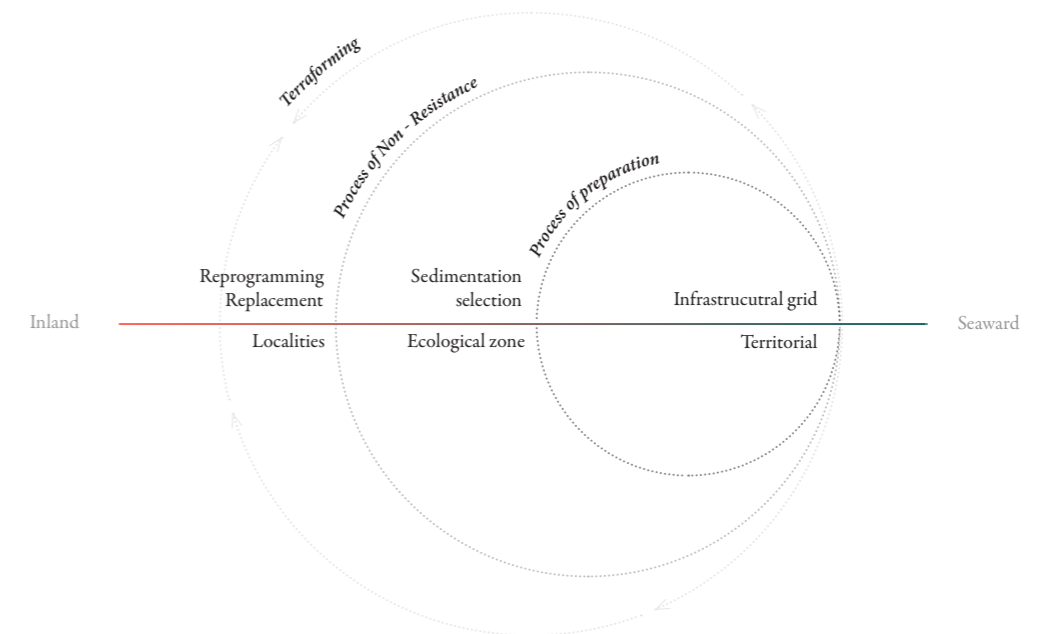
The lessons of Manfredo Tafuri thought us to not consider the Venetian time as linear but as rather a circular process. The research intends to spatialize time and demonstrate through design that the relationship between Inland and Seaward territories is also sustained by the circularity of time and movement. Therefore, the starting point for understanding the best design strategy was to individuate the various movements that happen in the gradient Inland seaward while associating it to the time development until the year 2100. This way it was possible to ideate three main processes that help in the phasing of the design project itself.

In the Inlandseaward line, we can see the downward movement of Matter, which is specifically referring to the critical subsidence processes happening in the lagoon; we see the upward movement of water, which represents the tides and the sea-level rise. The cycles represent the time in concomitance with the actions of Clearance.

The three action processes are represented in the second scheme. The concentric placement of the circles stands for the fact that a certain process can

be happening in either the present or the future, the strategic nature of the process only limits a future period of action: as the process of preparation can happen within now and 2050 while Terraforming has a span from now to 2100. The scheme illustrates that each circle is associated with a scale and a type of action. The process of preparation lays down the infrastructure as the basis for the rest of the processes and acts on the territorial scale of the Venetian lagoon. The process of Non-resistance is when the RSL condition changes drastically the inhabitation possibilities and is when new sedimentation conglomerates can be selected for new land reclamation, therefore we talk of ecological zones. The Terraforming process is when on the local scale actions of reprogramming and replacement of people, activities and nature will happen.

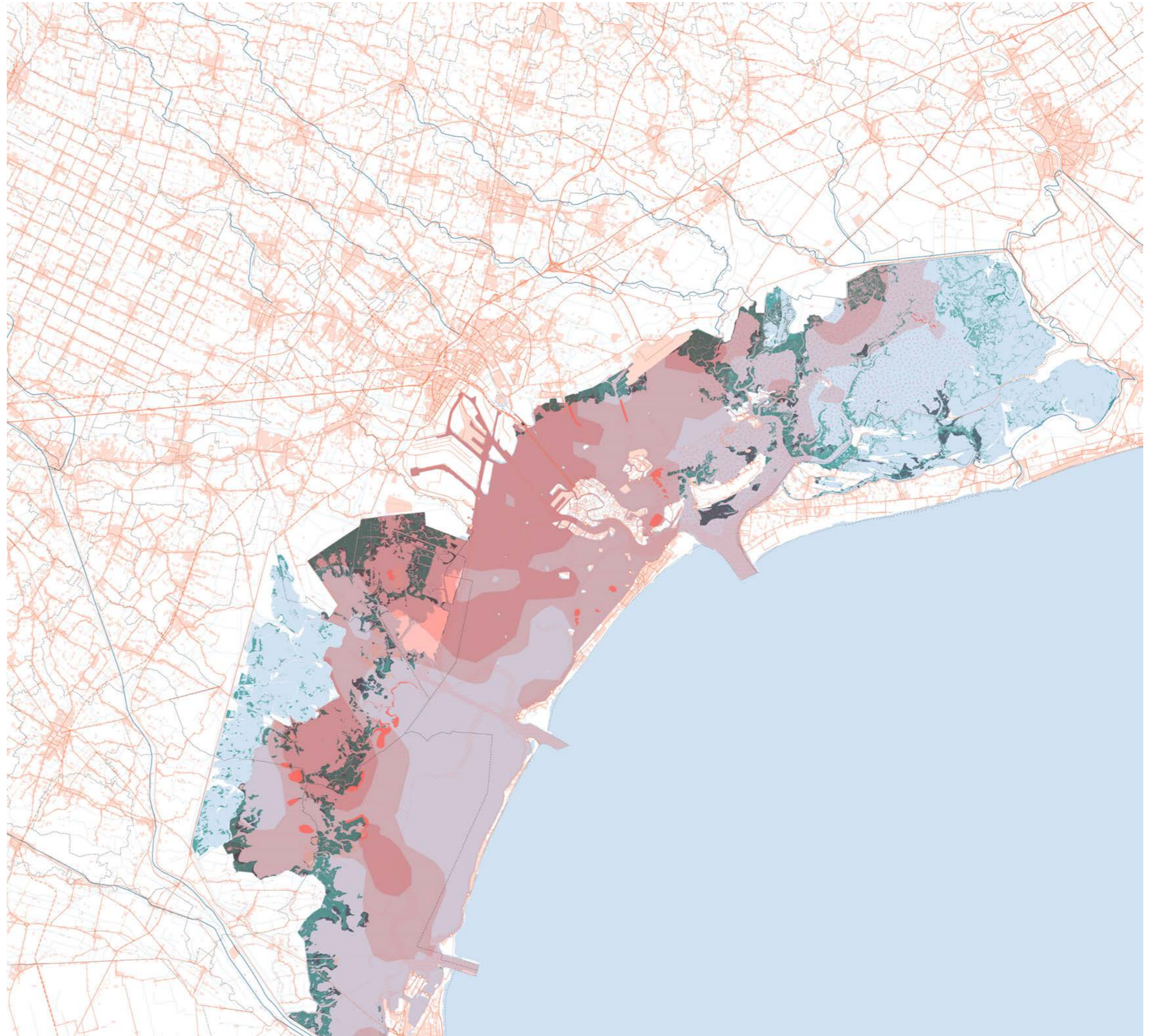
Because of the spatiality of these processes, the actions are also associated with the Inland and Seaward frontiers that because of the actions will melt together into Inlandseaward frontiers of different adapted natures.



## Inland seaward morphology

To start designing it is crucial to define precisely what spatially means Inland and Seaward and what relationship they have with each other and with the human and non-human forms that inhabit them. The goal of this chapter is true to discover the morphology of Inland and Seaward as the discovery of the form of these two territories. The result of this investigation is shown in this spread. Everything that is coloured in red tones is related to Inland territory while what is in blue tones is related to Seaward. We can see how now Inland is crucially winning on seaward by means of mobility infrastructure, urbanization patterns, pollution, and administrative borders. In the next pages, this map is going to be broken apart into different themes contained in it.

- Inland**
- Urban fabric
  - Railway
  - Road Infrastructure
  - Canals jurisdiction
  - Ex - Magistrato alle Acque
  - Veneto Region
  - Genio Civile opere maritime
  - Municipality of Venice
  - Proposed borders of the project 'Parco Laguna'
  - Artificial Barene
  - Artificial Velme
  - Pollution of sediment
  - PCCDF between:
  - 1-2
  - 2-3
  - 3-6
  - Municipality borders
- Seaward**
- Water bodies
  - Primary rivers
  - Hydrological elements
  - Natural Barene



The exploration of the Inlandseaward morphology looks forward toward the future potentiality with the use of current natural and human-induced processes of the lagoon.

Subsidence is analysed by observing the lithographic soil layers and the spaces which are seeing human-induced subsidence. Soil that contains clay and peat, especially from riverbeds geological movements, and general soil containing a high percentage of organic material is most affected by subsidence. (Teatini, et. al., 2005). Reclaimed land like the *casse di colmata* by the oil canal is also highly affected while the Po River plain is also under influence of the geologically induced subsidence from the vertical movement of the Apennines and Dolomites. Finally, it is well researched how the porosity of highly urbanised areas influences the risk of vertical displacement. These aspects are shown in the second map, where areas most possibly affected by subsidence are highlighted.

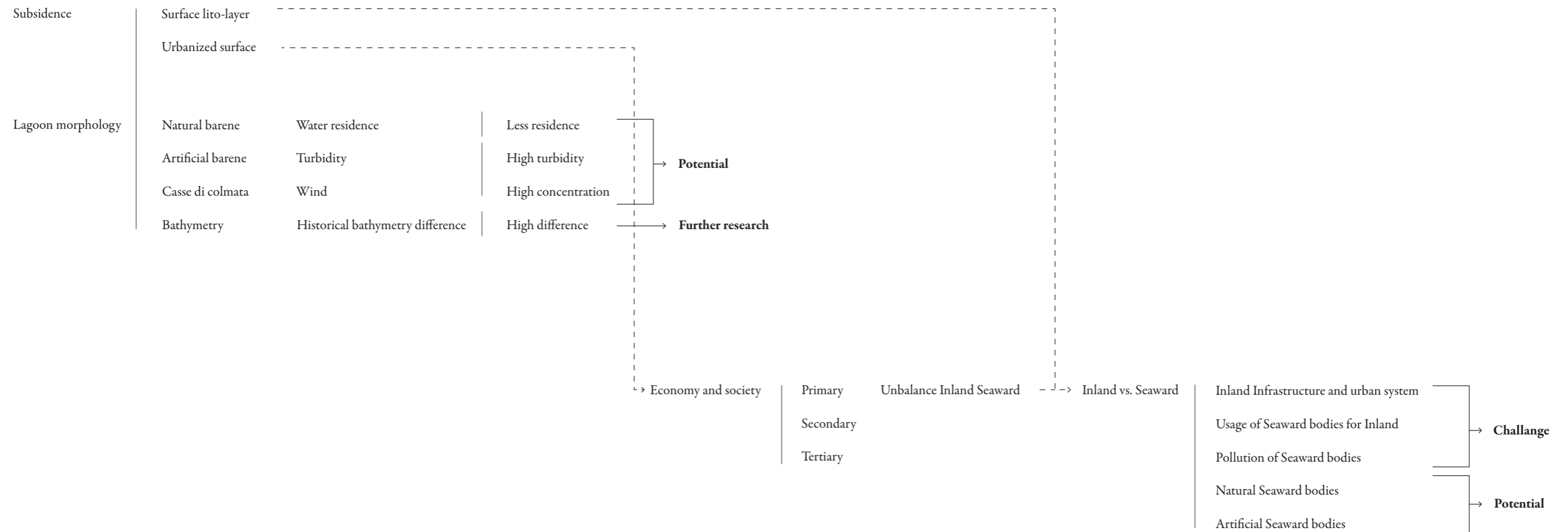
For what concerns the lagoon morphology, we analyse the natural *barene* and artificial *barene* dis-

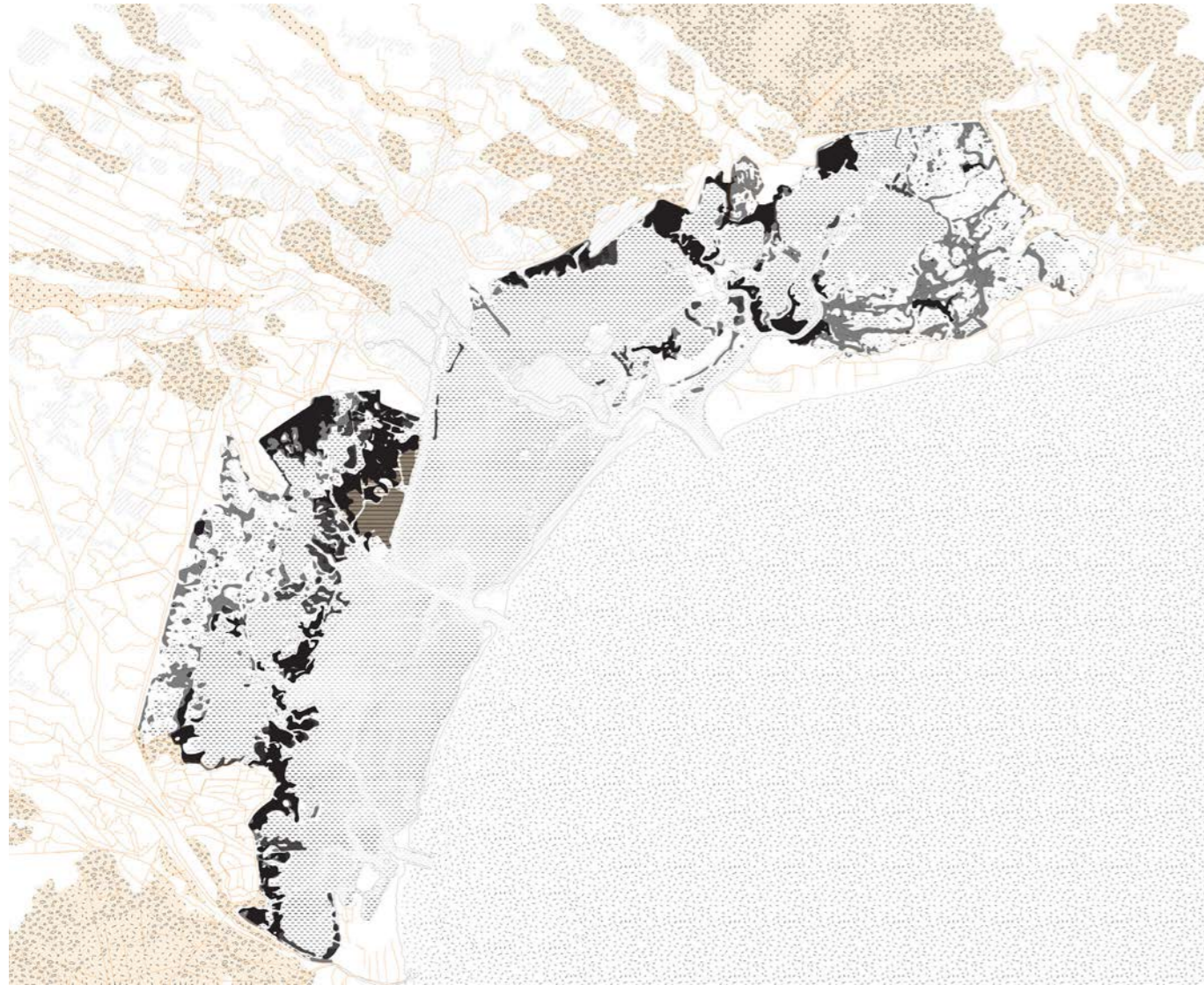
tribution, the reclaimed land, and the bathymetry of the lagoon bed. This helps understand in general ways how is the lagoon made, where there's emerged land and where there's water, how deep is the land and its water. We know that the creation of *barene* is dictated by natural processes and it's important to understand what these processes are to use them to our advantage. There is an inland movement coming from the river's flows and the seaward movement coming from the Adriatic Sea: the exchange of water and salinity percentages and sedimentation is creating land which we know as *barene* or *velme*. Specifically, a *barena* is land that is stabilized by plants and low vegetation, it is the most visible when we go around the lagoon, *velme* are those lands in between *barene* and water which are constantly affected by the tides: as it is low tide they are appearing on the surface and at high tide they disappear under the water.

For this research there are two ways that we look at the creation of new land and *barene*: one is by understanding the current processes and where po-

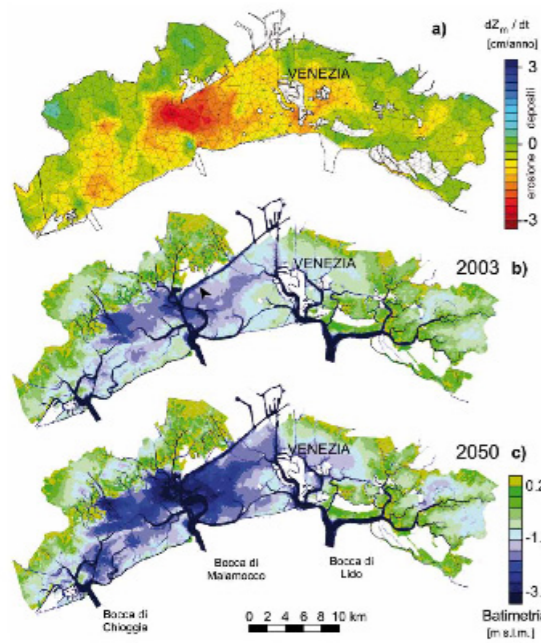
tentially new conglomerate of sedimentation could happen in the future and the second is to create or add new processes that would enhance the natural creation of the *barene*. The first part, the current processes, can be looked at through the mapping of water residence, turbidity, wind direction, and historical bathymetry differences. In the third map, we can see how the water can reside longer in certain areas of the lagoon. Because of elements that block the flows of water from the rivers and flow from the sea, in some areas like in the deep end of the north and south lagoons would stay longer, meaning more sediment brought by this flow would be transported there. This can be seen by the fact that a lot of the natural *barene* is currently present in these areas. We can therefore suspect that even where there are not so many natural *barene*, where we observe more water residence days there is a higher potential for new land to be created. Because of the pandemic, we also could observe the water turbidity of the satellite maps of NASA, as shown in the fourth map. (Braga, et.al. 2020) The space observation pictures

were not affected by boat movement which usually affects the colour of the water because of the alterations that they cause to the lagoon bed. The water turbidity together with the wind direction can show us where potentially new conglomerates of sediments could group. Furthermore, the bathymetry difference between 2002 and 1970 in the fifth map shows us where the most crucial points of human-induced processes affected the lagoon. Clearly, the oil canal is the most striking alteration that happened, and it is still affecting the natural sedimentation processes to this day. Indeed, this last reflection makes us question the activation of the industrial port of Marghera and its consequences on the whole ecosystem. The first maps come from the analysis of historical archives of D'Alpaos (2010) and one shows specifically the sedimentation projection for the year 2050. If we compare that map and the fifth map, we can see points in common, we, therefore, take further this projection produced for the design of the rest of the Terraforming project.

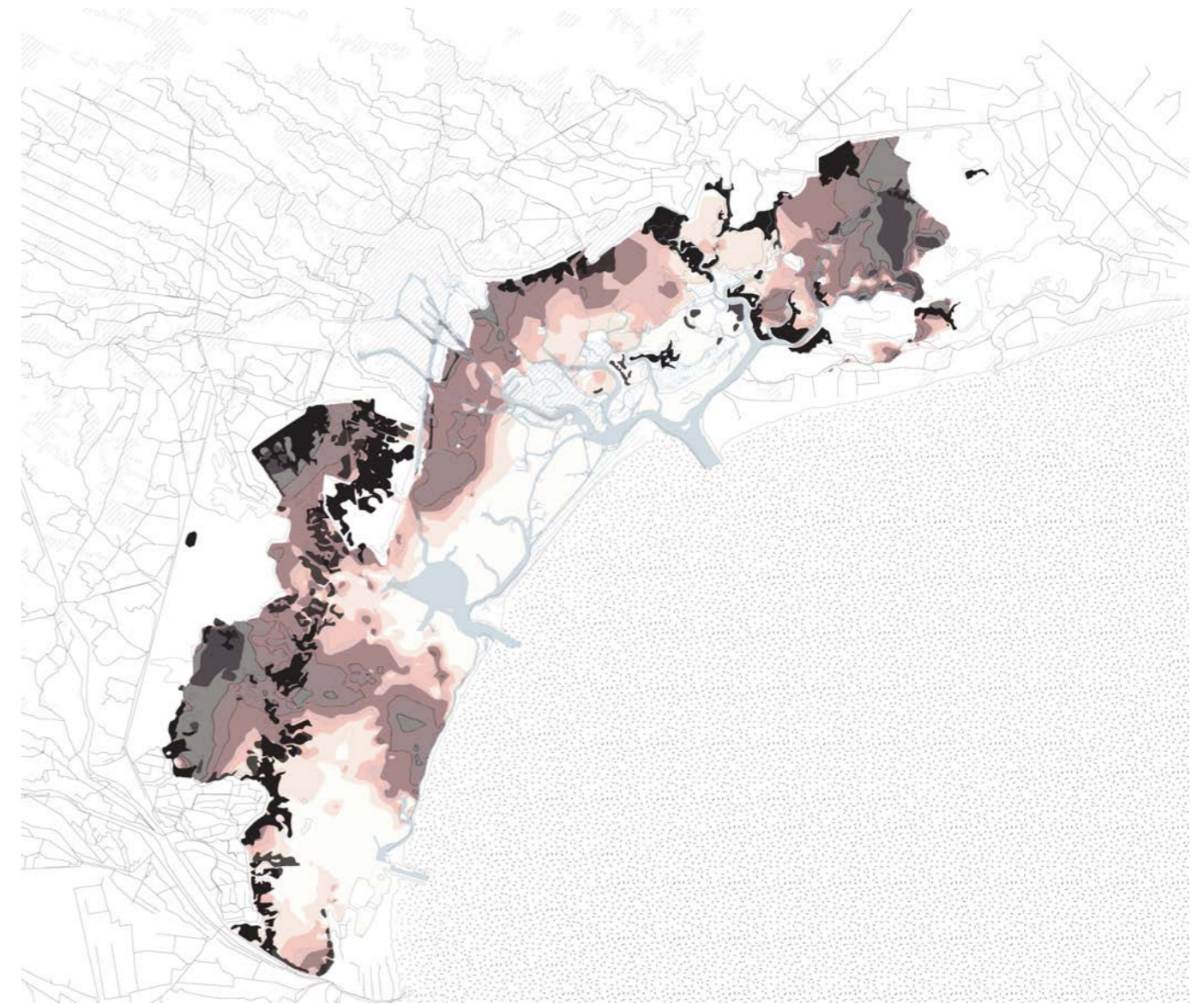




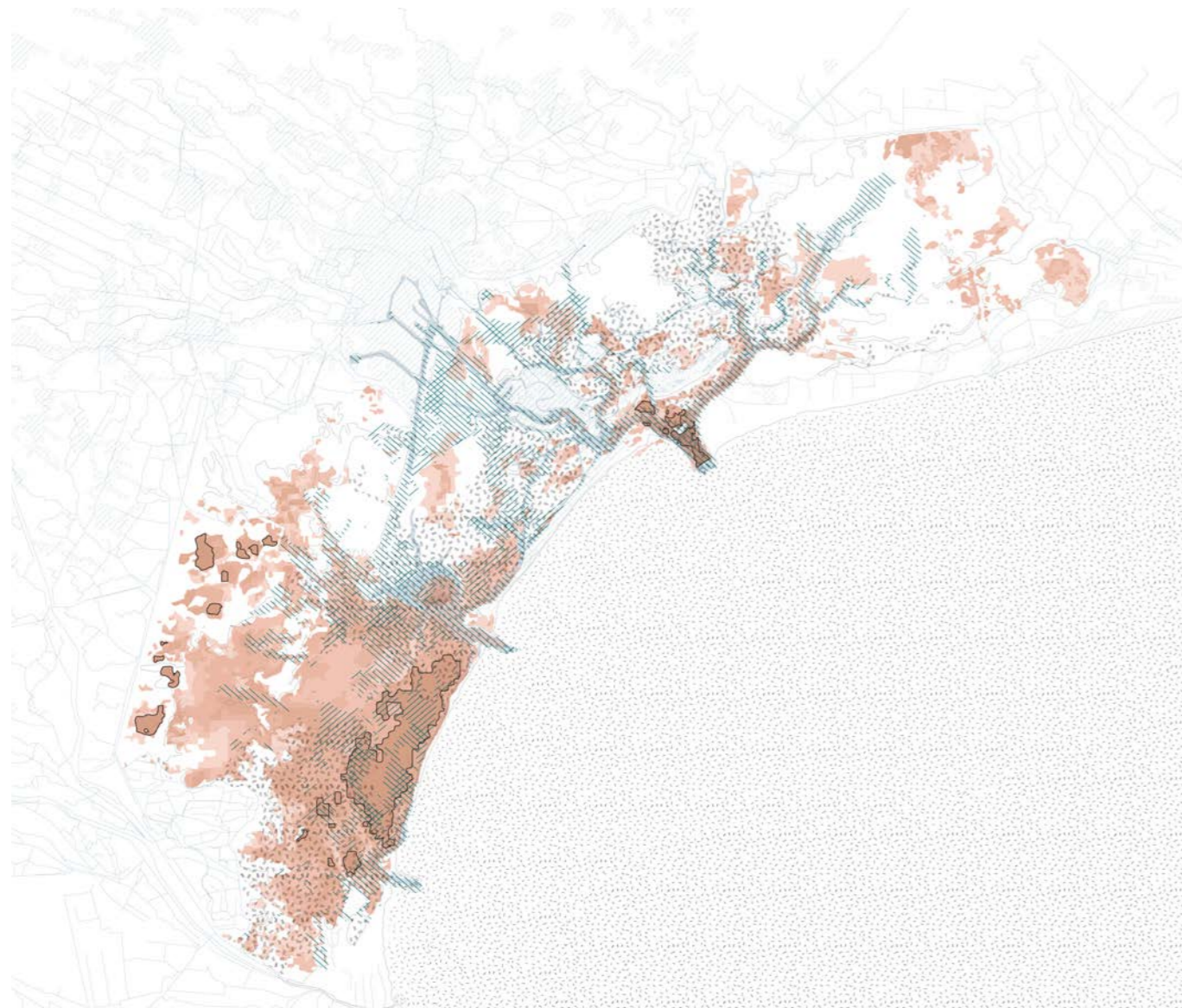
Map 2 - Subsidence and lagoon bathymetry



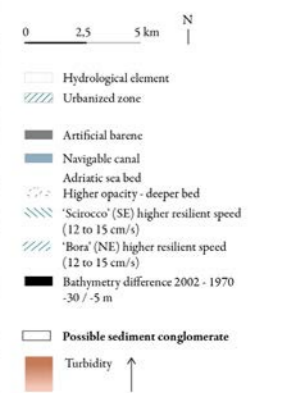
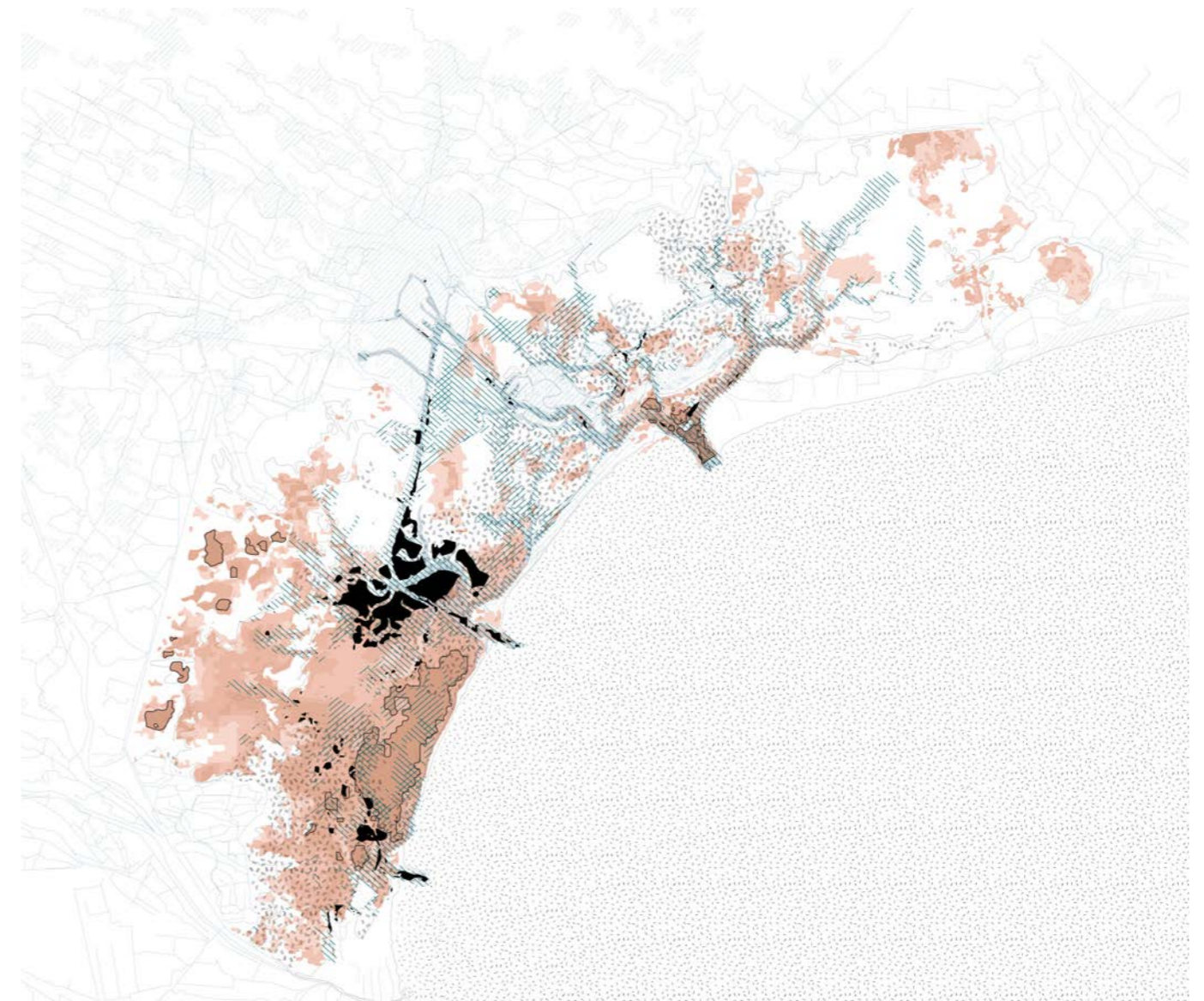
Map 1 - Sediment potential and erosion, (D'Alpaos, 2010)



Map 3 - Water residence



Map 4 - Turbidity, wind speed resilience and possible sediments



Map 5 - Turbidity, wind speed resilience, possible sediments and crucial bathymetry differences

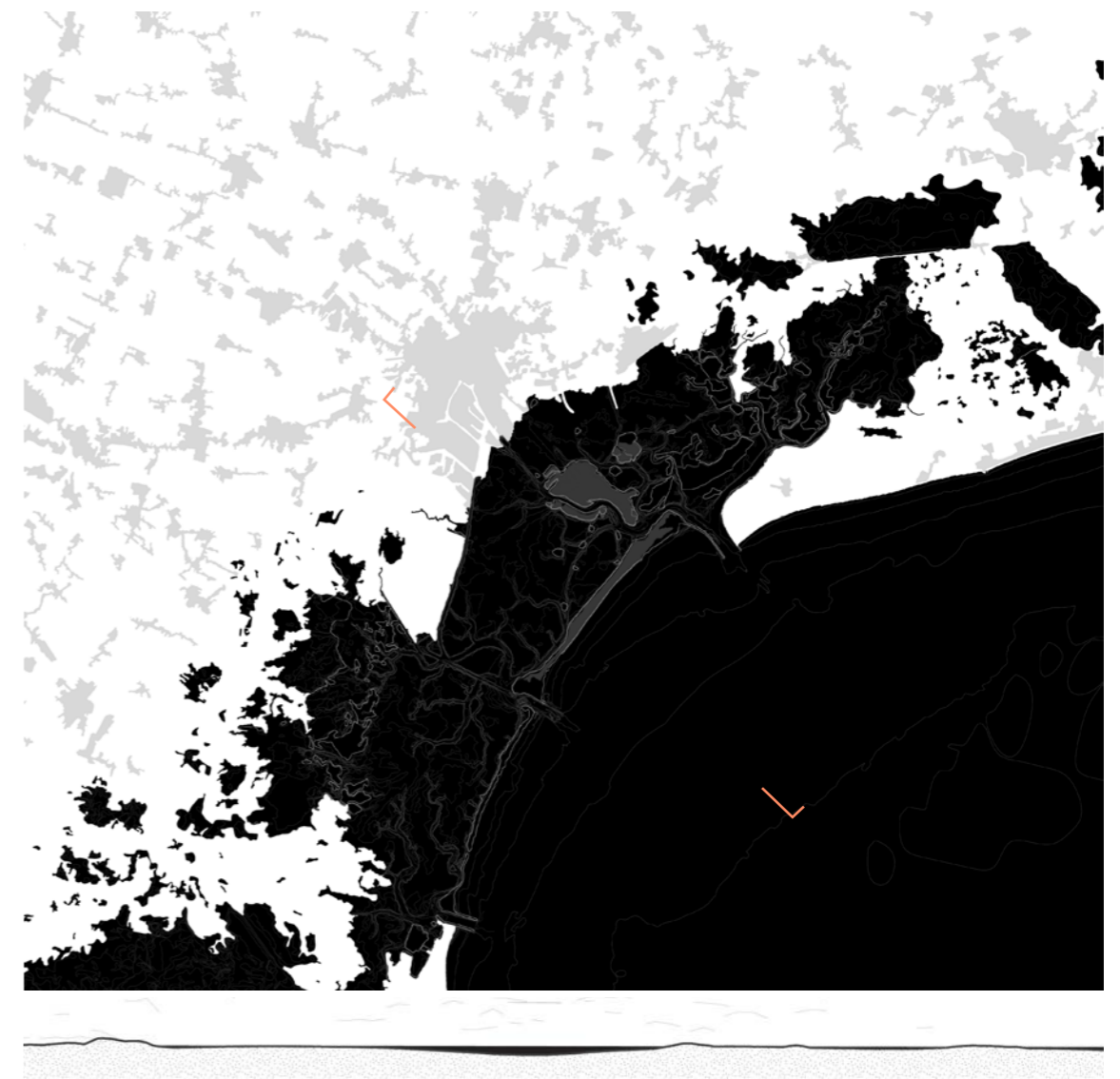
## RSL scenarios

For this research, it was important to define precisely the different sea-level rise scenarios that would illustrate the changes through time until 2100. The scenario of 2100 in question is already illustrated on page 23 and it gives a general overview of the choices made. Moreover, to design we need to spatially understand the consequences of RSL.

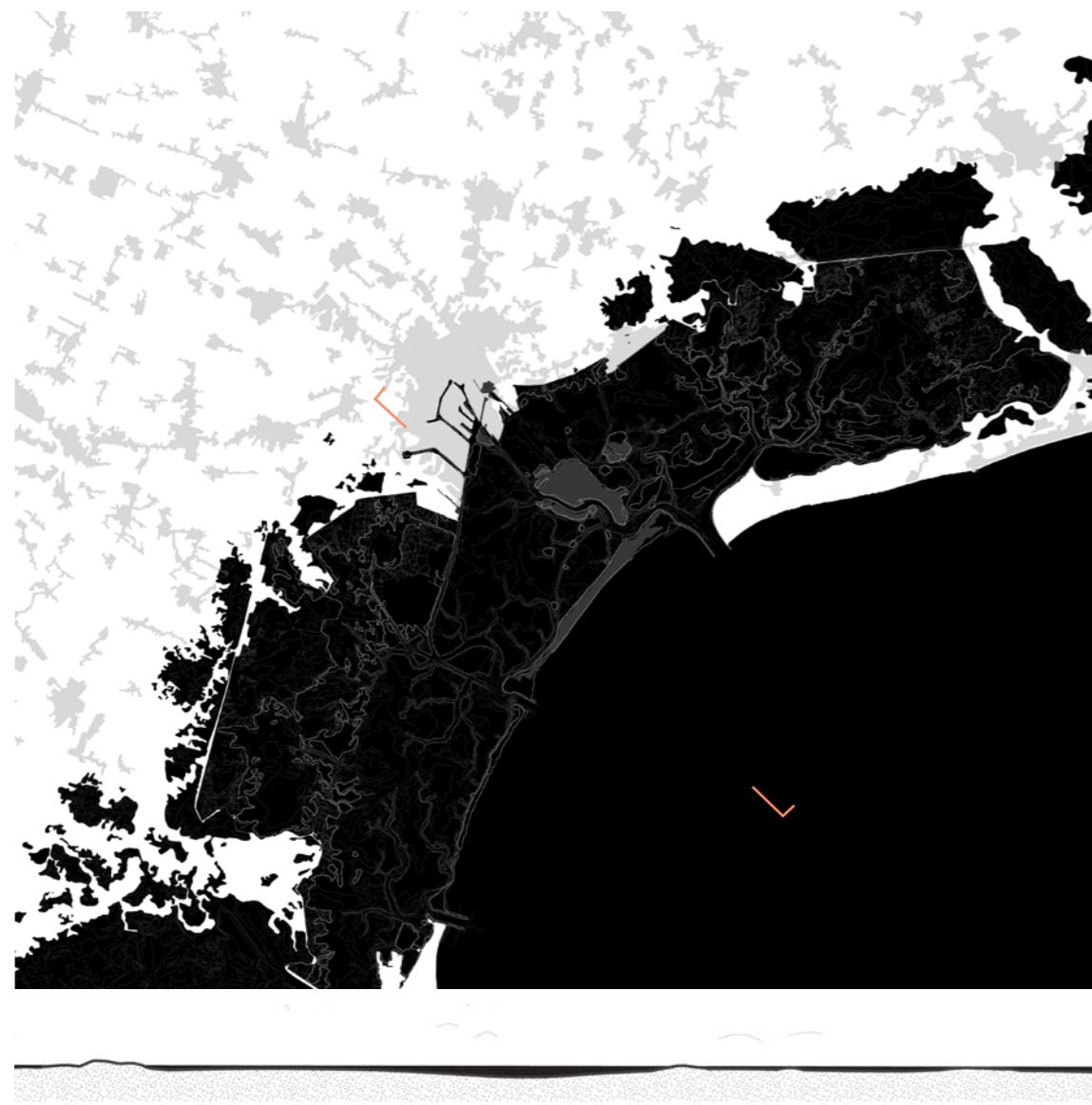
Because of the time limitations that the graduation thesis poses it wasn't possible to define the scenarios in between with scientific precision. In the previous chapter, it was shown how subsidence and other externalities influence the lagoon ecosystem, the research is thus limited to showing the different influences on the future of 2100 in a descriptive way. For the years 2030 and 2050 so it was chosen

to work with the height contours. For the first scenario of 2030, all the areas below the height of -0,0 m are imagined as inundated, for 2050 all below the height 0,5 m. Even though this way subsidence, tides, pollution, etc. are not considered, we are still able to work within a transitional period.

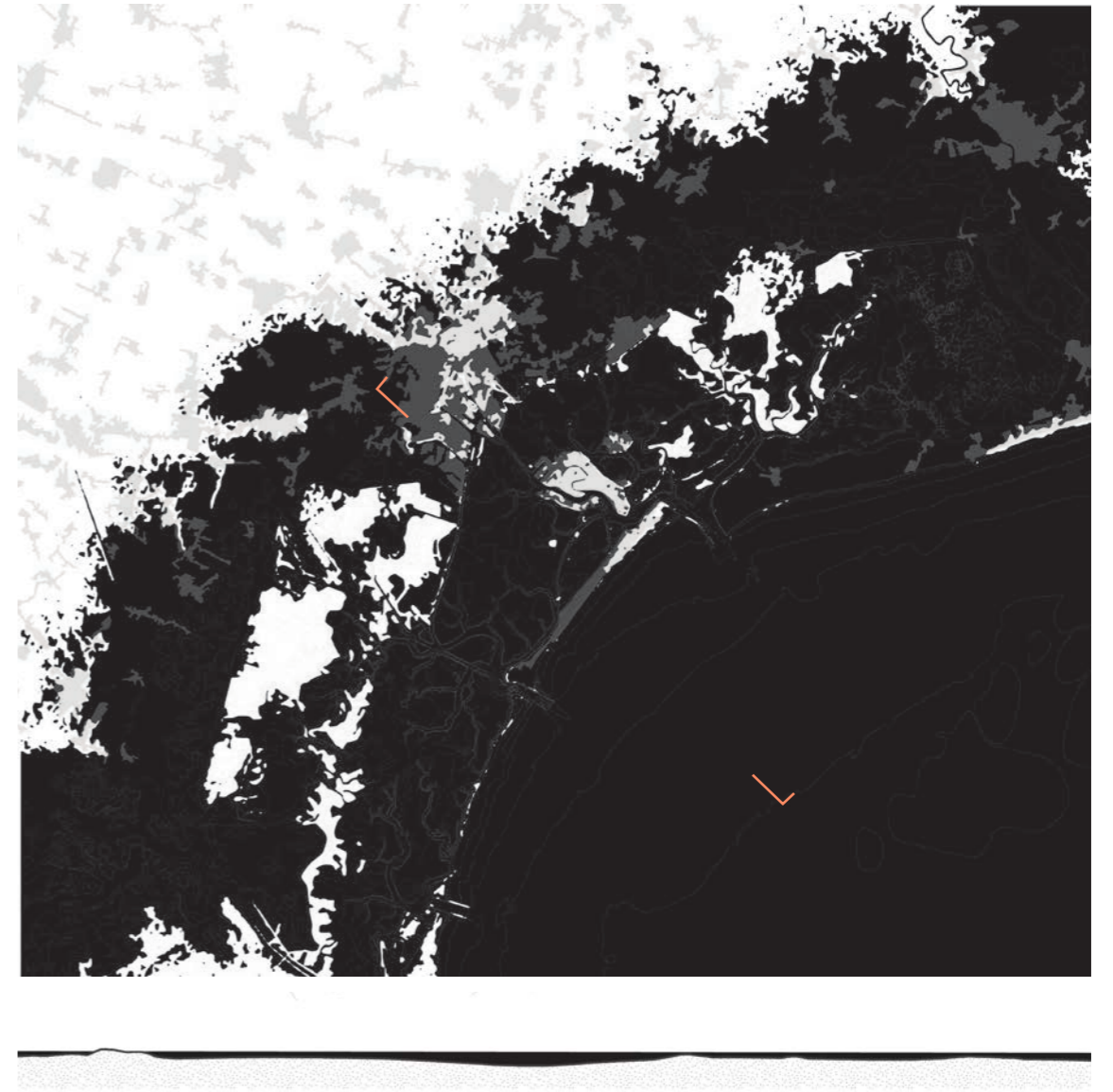
For what concerns the final 2100 scenario we take as reference the geographic research data of the European financed project Savemedcoast-2 (an acronym for Sea Level Rise Scenarios Along the Mediterranean Coasts). The project works towards the prevention of natural disasters due to RSL and LS (Land Subsidence) and is therefore the best reference for the design of the 2100 Terraforming scenario.



Scenario definition	Year	RSL projection - median (m)	RSL projection - Worst case (m)	Subsidence (average 1,5 mm/y)	Altimetry	Action
1	2030	+0,15	+0,175	-12 mm	< 0 m	Process of preparation



Scenario definition	Year	RSL projection - median (m)	RSL projection - Worst case (m)	Subsidence (average 1,5 mm/y)	Altimetry	Action
Phase 2	2060	+0,325	+0,45	-57 mm	< 0,5 m	Process of Non-Resistance



Scenario definition	Year	RSL projection - median (m)	RSL projection - Worst case (m)	Subsidence (average 1,5 mm/y)	Altimetry	Action
Phase 3	2100	+0,75	+0,1	-117 mm	< 1,0 m	Terraforming

*Coastal plains - Mediterranean region*

*Main coastal plains of the Mediterranean region, as identified from radar data and geospatial analysis. The coastal plains are placed at elevation < 2 m above sea level and potentially prone to be flooded due to sea level rise by 2100, storm surges and tsunamis (savemedcoasts-2, 2018)*



## DOCUMENTARY

Documentary as research  
Photo documentary  
Video documentary  
The interviews  
Conclusions



## Documentary as research

Documentary, in its photographic and video form, is at the core of the research project and therefore an integral part of it. During the first phases of research and analysis, one aspect that came forward as lacking is the socio-economic, political and spatial reality of the context of the lagoon of Venice. The analysis does not properly depict the reality of human beings living and experiencing the Venetian lagoon as space and environment. It seems that literature review, critical mapping, and conventional cartography presents a strong limit in the form of representation of this subject. Urbanism is a field that concerns people and their environment, it is the duty of the designer to strive for equality in its research and design. For this reason, to integrate this missing part, a photo and video documentary are integrated into the research.

Furthermore, as Urbanists we are often acting the role of mediators in the built environment, we communicate with different fields and different stakeholders while collaborating with specialists of various disciplines. For the documentary, it was decided to ask for advice and help from people who are living in Venice and are specialized in documentary making. The photography part was made in collaboration with Oana Irina Ionasc, a student at IED in Rome in the department of Photography. The video documentary was made together with Maria Costanza Asta (BA Politics and French University of Nottingham), Orsola Grespi (current student at DAMS Bologna section Cinema), and Violetta Perini (current student at Ca' Foscari Venice section Cultural Anthropology, Ethnology and Ethnolinguistics). The development of the goals for the filming, the creation of the group of interviews, the interview layout, the planning of logistics, and the use of the video equipment were managed in teamwork and supervised by me as the main director of the project.

Documentary films through their multi-sensory nature have been found to be more impactful in portraying reality as well as a means for social persuasion. In recent years, documentary films are increasingly being used in academia as well for disseminating knowledge. An evolving belief is that documentaries can be valuable in the field of Urban design research to illuminate issues of socio-spatial justice and existing inequities. They are as well a tool to democratize research (Friend & Caruthers, 2016). The ability of film to capture authentic voices and lived experiences is a powerful tool that can be utilized to bring to the light key aspect of the spatial environment, which critical cartography cannot reveal.

Through the story narrated by the interviewed people and the journey planned with them, we re-

searched in depth what is the present and future inhabitation potential of the location, what is the adaptive power of people, and what is their perception of the socio-spatial context in which they live and the future changes. This is important not only to acquire a more complete understanding in terms of research but also to guide the design proposal for the future of Venice in the face of the climate crisis. Furthermore, through the video medium we were able to demonstrate the slower and circular time of Venice, clearly showing the contrast between the Inland and Seaward territories through the people's narratives, and the movement experiences. The various challenges that we faced while filming and that maybe were not always portrayed on camera were still important for the research findings that come through the final products.

Doing the documentary was an opportunity to prove points posed precedent in this thesis, getting an opportunity to be surprised by new findings which were not predicted, experience first-hand, humanly, the reality described by literature and mapping, and finally, we could give voice to a heterogeneous group of people who showed us a deep need for sharing their experiences and ideas. Furthermore, the video product itself is undoubtedly a very direct informative tool for the public. This thesis, in its ambition, does not want to limit itself to the academic environment: the goal is to reach out to the public as well -and to the citizens of Venice - so as to connect a very complex and uncertain topic to the human and spatial context which it affects.



**Film captures authentic voices and lived experiences of students, educators, and community members with diverse perspectives in order to share knowledge and experiences that have the potential to contribute to equity and democracy in education.**

- Friend & Caruthers, 2016



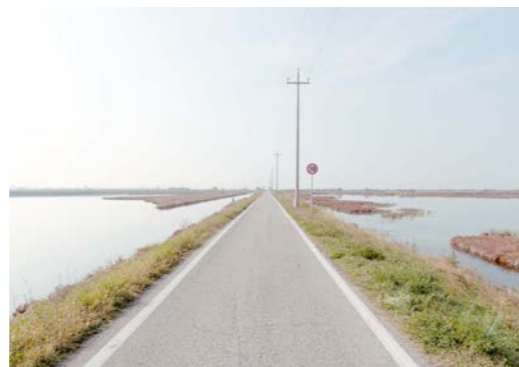
## Photo documentary

The photographic part of the research was done in December of 2021 together with Oana Irina Ionasc. The intent was to have a preliminary understating of what the frontiers Inland and Seaward look like, what is the atmosphere, what are the inhabitation patterns, and which architecture or natural elements can we find in these territories. This work would then lay the bases of the filming journey made in April 2022. The main areas investigated were Saccagnana - Lio Piccolo in the municipality of Cavallino-Treporti, the area of the port of Fusina and Marghera port, the area of 'Taglio del Sile' in the municipality of Quarto d'Altino and the island of Sant'Erasmus.

What strikes the eye is that wherever we would go and photograph, the colors, the atmosphere, and the urban patterns would match most of the frontiers. This is also why in the next pages, the placing of the material is not made to match the location but rather is a representation of the collection of objects, spaces, and guiding lines that define the environment. Land and water, Inland and seaward meet in spaces in between, where people don't live most of the time and where rather heavy industry and non-places were created. As we would travel, we were immersed in 'the land of no one', where together with the beauty of nature we experienced a deep feeling of displacement. This same feeling is being depicted in the photographic material, where the layering of perspectives gives a sense of two dimensional and abandoned atmosphere.

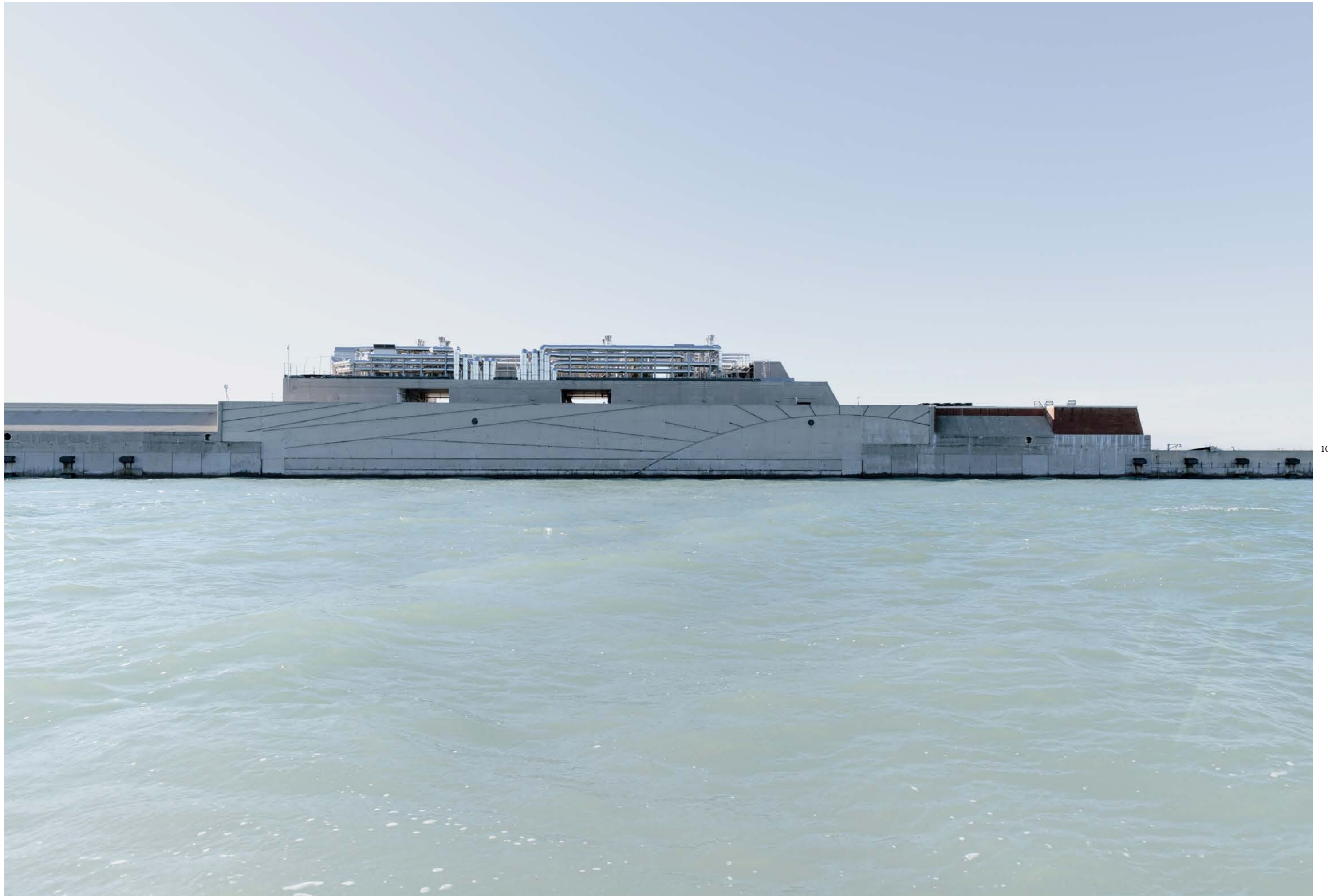
*All the photographs are by Oana Irina Ionasc*











## Video documentary

The filming of the video-documentary took place between the 9th and the 20th of April 2022. The project was sponsored by the EFL foundation (ref.) which made it possible to rent the equipment and finance the transportation costs. Together with the team we identified an heterogeneous group of people to interview which represent the different frontiers of the Inland and Seaward territories. The intention was that of having different age groups, different professions and cultural backgrounds, in order to find out if common values and ideas would rise from the interviews. The documentary was not only a tool to testify the voices and the spaces of the territory but it was also a learning and explorative experience for the team. Many of the places visited were new to all of us, and represented inspiration input for the research and the design. Before starting, we made an outline of what the planning was going to be, but we tried to let ourselves be guided by the interviewed people, the filling images and videos are dictated by the narrative of the characters and are an aid to understand them and their environment.

110

The interviewed people therefore can be also placed on the gradient Inland to Seaward. This placement is not only based on where they have physical residence, but also on how they interact with the territory in their private and professional life. At each interview we could identify a general feeling of the atmosphere of the frontier we were in,

how is it to get there with public or private transport, what are the main economic activities, what are the housing typologies and so on.

The interview was divided in two parts: the first one which tackles the present and past perception of Venice and its lagoon, the second which focuses on the future projection. The future projection discussion is done with the help of an illustrative map that shows the sea level rise scenario for 2100. The question posed can be seen in the next pages.



Inland

Seaward

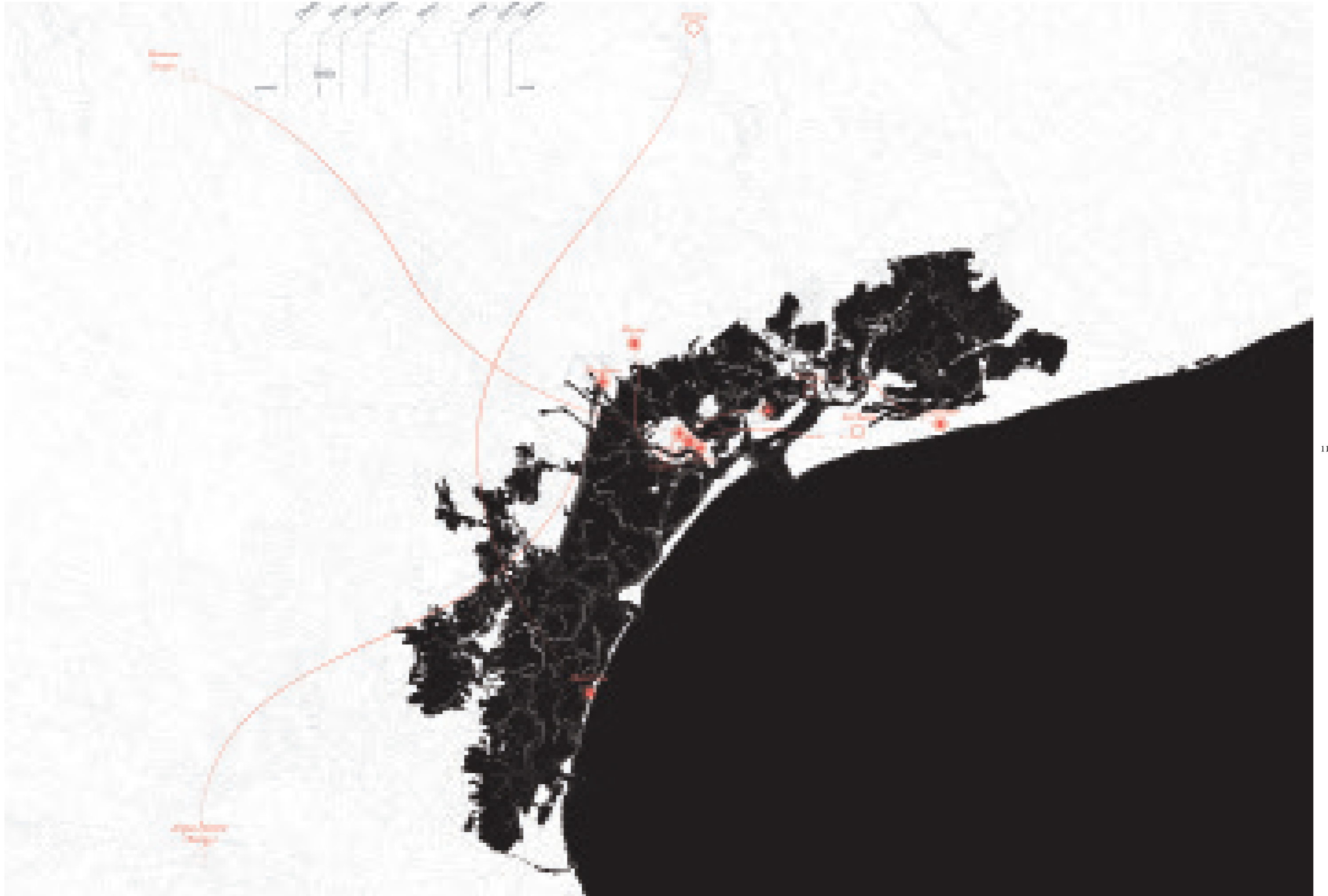


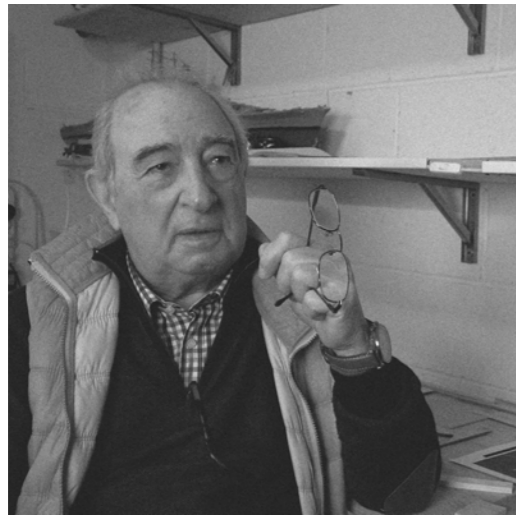
111



DOCUMENTARY







tre, and he wanted to reconnect with them because staying in Venice would have made the visits harder. It is easier to create a sense of community in the hinterland for him.

Mario thinks that if the politics would offer a car parking spot for all the citizens of Venice Island, young people would stay more easily there. For him, Venice cannot live without Mestre and Mestre cannot live without Venice.

Mario's moving to Mestre was in conjunction with his retirement from his job in the port. This created a strong feeling of displacement for him: being without a job after 52 years of busyness and the change of living environment ended up in clinical depression. He still dreams at night of his job tasks. Therefore, he found a way to reconnect with the

## If Venice wouldn't have a bridge, the world would be an island.

### Mario

Date: 09/04

Age: 84

Residence: Mestre

Place of Birth: Venezia

Occupation: Retired – former Marghera port employee

#### Conclusions:

Being Venetian means representing the civilization that made the history of the Mediterranean Sea and its international commerce and prosperity.

It is harder for an Inland resident to adapt to the seaward territory rather than vice-versa. Doctors and Magistrates for example do not want to fill public spots in Venice because they find it a hard city to live in, the usual inland commodities are missing. The Venetian can adapt itself better while savouring the hinterland commodities. However, Venetians don't feel their participation in the city. The flood of tourists and the lack of fundamental services make the Venetian external to their own homes, especially the elderly, who have difficulty surviving Venice.

The reason that would have made Mario stay in Venice is to be close to his family, children, and grandchildren. His family moved earlier to Mes-

seaward environment and his former job through a new hobby: building boat models. He says in the interview that starting this new hobby came from the dramatic decision of understating that at a certain point in life there is a feeling of being outdated and to go through this feeling you need to let go.

His reaction to the inundation map is a sadness, especially for his grandchildren, but at the same time, he realizes that there has been always changes on our planet. He doesn't know how to answer what could happen after the 2100 scenarios, but he says that there will surely be someone smarter than him that will find a solution.



She decided to do the job that she does only because of the city.

The map makes her feel scared. The 2019 *Acqua grande* made her ask herself 'if it continues like this, can I continue to live here?'. At the same time, that event made her see the strong sense of community and collaboration of Venetians and non-Venetians and that made her feel hope. She recognizes an adaptive spirit in the Venetians, they always showed in history this aspect. She thinks that we will need to let go necessarily of something, we cannot battle with nature forever and nature will dictate what to let go at the end.

For Alizee even with the 2100 scenario, it is worth enough to live in Venice and she thinks she will stay if it will be possible.

### Alizee

Date: 09/04

Age: 28

Residence: Venezia

Place of Birth: Mentone, France

Occupation: Commerce

#### Conclusions:

Alizee feels Venetian but she doubts that Venetians consider her as such. Venice is home to her; at the beginning, it was a difficult city to live in because of the hard layout of the city and because it was hard to find locals to bond with. She feels that when she met Venetians, they would wear a sort of barrier because they are so used to a lot of tourists that come and go and they don't accept non-locals that easily. After a period of adjustment though, she finally feels accepted and she feels that Venetians have a beautiful sense of community.

Alizee would like to remain living in Venice, but it is hard for the prices therefore she is considering other places like Treviso, not Mestre. Mestre for her is a new city that is not that pretty and not safe, and generally is not a nice place to live in.

The main difference between Venice and other cities is time. Everything is slower than in other places, there is less stress and more tranquillity. She feels that the life here is defined by calmness and beauty, no other place is like Venice: everywhere you go there is beauty. She agrees that the slowness and the tranquility of Venice are caused by the presence of water. Already the sound of it gives out calmness and can be reassuring. She was always living by a source of water, and she couldn't live without it, and being Venice an island this factor is stronger.



### Marco

Date: 10/04

Age: 33

Residence: Cavallino

Place of Birth: Venice

Occupation: farmer

Marco feels Venetians in part, Venetian of surrounding, Venice for him is the island that also made the rest of the territory be known in the rest of the world. Cavallino is related to Venice because the city cannot produce vegetables itself, so it relied on the surroundings for alimentary production.

The biggest difference between Venice and other cities is the way you move in the city: walking.

Walking is though the best way to enjoy the city. Marco loves to hang out in Burano because it is related to his family heritage and Lio Piccolo because he gets inspiration. Venice for him is unique and should be seen as such; he would like to live there but because of his job it would be hard logistically to live there and work in Cavallino. Being a farmer, you are necessarily connected to the land and the climate. His profession is strongly connected to the lagunar ecosystem. A farmer is connected to the land, water, and sea. This territory is completely unique: 90% of the soil is sand-based and this gives a thriving environment for fruit, vegetables, and herbs. The product acquires tastes that cannot be replicated elsewhere because of the particularity of sand and the salty aquifer at 50 cm of depth makes it possible for the greens to get a natural salinity directly from the ground. The problem of RSL though and the rise of salinity with it is changing the natural balance of the territory and can be already visible. Too much increase if water creates a layer of crystallization of salt in the ground that doesn't let the oxygen through for the plants. He can see how the seasons and the weather events are becoming more extreme: it doesn't rain for 100-120 days and the rain that should be coming in that period is possible that gets to the ground in one night. It is a huge problem, the weather is not something that we can change as we need to accept it, while sometimes taking actions that are not pleasant to fix it. Especially thinking about the last years' events of strong winds and tornados that strongly affected the territory and his company. The map feels scary also because it is soon. Talking about the events of 2019, Cavallino was extremely lucky, but it got very close to the ones of 1966. That year changed completely the nature of the territory. Cavallino was famous to produce fruit, especially peaches which were the main ingredient of the famous drink Bellini, from 1966 peaches cannot grow anymore in this territory. The soil got salinized and ruined all the fruit plantations. He thinks that in the 2100 scenario it would be impossible for him to work underwater, he would probably move. Still, he thinks that people would adapt to the new situation, the only alternative is to find a solution. This solution needs to inevitably come from politics, the community needs support to adapt.



### Simone

Date: 11/04  
 Age: 28  
 Residence: Padova  
 Place of Birth: Polesine (RV)  
 Occupation: Mechanical engineer at the technical office of Fincantieri

Simone doesn't feel Venetian, he feels from Veneto and has great respect for the locals. He quotes: Venice is the only place where you don't need to look left and right when you cross the street. Venice is an island, a unique place with unique people even though there is a bridge. He could think of living in Venice because he would like to have that experience in his life. He stays in Padova for economic reasons and because he has its community there. He is very close to the Po's Delta. He's less connected to Venice but he has a strong connection to the water of the river Po. The definition of Venice is tranquillity and live life with calmness. He reminds us of the inundation of 51 that affected greatly the province of Rovigo. You needed to go by boat in the hinterland territories. Humans are animals if you want to stay here you need to adapt. The history of the hinterland makes us think that most of the people will run away from the water difficulties. He is very connected to this region. He shows a lot of doubt about the future. The solution should come from engineering and politics, we are not good in Italy in protesting.



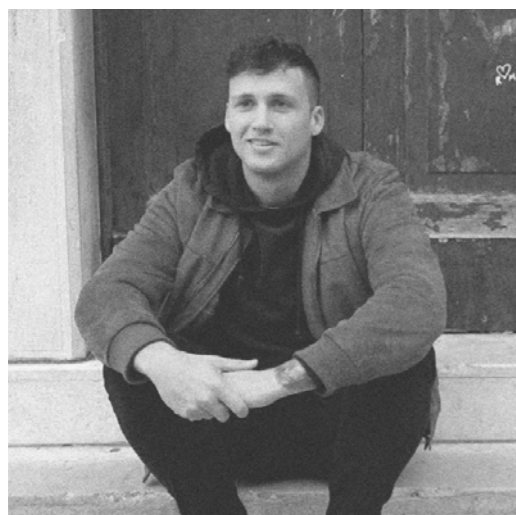
### Paolo

Date: 13/04  
 Age: //  
 Residence: Ca' Savio  
 Place of Birth: Venice  
 Occupation: Fish dealer

Paolo was born in Venice and lived in Burano and now is currently living with his family in Ca'Savio. All his family came from Venice but now his relationship with the city is limited to his job. The lagoon on the other hand gives him economic means. It is the way he 'brings bread to the dinner table' but is also the reason why he enjoys living here. The main difference for him between Venice and Ca'Savio (therefore Inland), is the comfort of having a car to move more freely. Venice is for him the most unique place on earth, and he still feels Venetian even though he is not living there anymore. He has seen the city changing because of people's displacement and the lagoon changing because of the decrease of the fish population. He thinks that pollution and the rise of the water temperature make it hard for fishing. This also means that fish is also becoming more expensive. The 2100 map makes him scared. The flooding of 2019 made him impossible to go to work and it was shocking to see his city in that bad condition. He thinks that in the new condition it would be impossible to still live in the city, he doesn't think that people could not adapt.



*Il Giornale del Po. (2018, March 31). Non c'era più fiume, non c'era più terra. 66 anni fa in Polesine c'erano solo acqua e fango. <https://www.ilgiornaledelpo.it/non-cera-piu-fiume-non-cera-piu-terra-66-anni-fa-in-polesine-c'erano-solo-acqua-e-fango/>*



need to clean the canals underwater, not having the best results as you would while dry. The main difference between working in underwater Venice and other places is the visibility. The combination of lagoon bed, *moto ondoso* (wave motion), and salinity of the water makes the diver barely see. One of the first things that Sebastiano had to learn is to use his tactile senses: sometimes using a welding machine underwater without seeing the broken cable needing maintenance.

Because of the sea level rise projection, most probably the job of the diver is going to be essential in the future.

#### Sebastiano

Date: 19/04

Age: 28

Residence: Venice

Place of Birth: Venice

Occupation: Student, former diver

The job opportunities in Venice are limited because of its size and because in the last years everything has been focusing on the tourism economy, says Sebastiano. On the other hand, he, as a young man in Venice, has done two jobs that still reflects strongly the core of the city. He's been a transporter or conveyor and a professional diver.

People who are working in the transportation of goods are everywhere in the world but doing it in Venice is a totally different job. It is a physically demanding job, especially because of the rise of online shopping. Inland you have cars and vans with transpallets, in Venice, you cannot use special machinery, you need to transport piece by piece with your hands, being careful of not breaking or damaging anything. You still need to work in the rain and with *acqua alta*, and you need to know the city by heart. The carts do not fit in every *calle* (street), not everywhere you can tie up the big boats. As a conveyor you need to plan every move, trying always to make trajectories with as few bridges as possible to decrease the physical work. Transporting 300 kg of pasta with his hands, was very demanding.

As a diver, you are also requested all over the world, but in Venice is a totally different task. The cleaning of the canals is one of the major activities. In the past Venetians used to dry up the canals and scrape the mud, now, because of lack of funding, divers



*Sebastiano in a job as professional diver*



raise their children. The community feeling is easier in Venice because there is more occasion for meeting people: by walking everywhere there are simply more chances to have a chat with your neighbour. For her, Venice is not a metropolitan city, but Venice is its lagoon. The lagoon is peace, nature, and relaxation. Water is the main factor for Venice: water creates, and water destroys. Claudia fears the future because of the sea level rise projections and because she doesn't see any incisive action from politics. She thinks that probably her children will need to relocate from Venice eventually. The *Mose* project is not going to be enough, and she is worried about it. Like all the big changes, she thinks that a big shift will happen only if a big disaster happens, the 2019 flooding was apparently not enough to show the ad-

## For now, the benefits are still more than the sacrifices.

#### Claudia

Date: 14/04

Age: //

Residence: Venice

Place of Birth: Venice

Occupation: Municipality employee

Claudia's graduation thesis in 1994 was already focused on the lagoon morphology and its ecosystem.

It was the first chance to understand better the genesis and the future of the lagoon and to start her passion. She feels that in Venice there are a lot of people and scientists that are interested in the lagoon, but the citizens themselves maybe don't have enough opportunities to discover the environment. People go abroad to see natural oases while they have them next to their house. Claudia is happy to stay in Venice, for her, for now, the benefits are more than the sacrifices. It is a sacrifice, and it is under everybody's eyes: the tourism boom, the poor maintenance; it is still a lively city though. There is another lifestyle than in other cities, the safety and the community feeling make the citizens still happy to live here and

ministration and the world that we must do something about it. We need to decide on a solution to save the city or the lagoon: if the lagoon is going to be flooded by the sea or if the lagoon should be closed and we should create a new artificial environment from within. If she could choose, she would keep the main islands and a bit of the environment, trying to find a new balance between nature and urban. She is concerned about the exchange of fresh water, how could we do it if we lock the lagoon with dikes and walls, would we need a new system of pumps? It is a gigantic work, a huge task, but at the same time the future is not coming in 100 years, already in 20 years is going to be too late. She fears that is too late to use nature-based solutions; the 1 m sea-level rise projection is too crucial to be handled by more nature-inclusive projects. Maybe Venice is lucky because is unique and has interests from all over the world because of the artistic and historical patrimony, maybe someone will do something eventually while in other parts of the world there are already plans for the evacuation of people.



because of the overcrowded public transport situation, the flows are divided into two rows when taking the water bus: residents and all passengers; because she is not a resident of the municipality or has a working contract, she must use the 'all passenger' row, even though she is Venetian and identifies as such. Germana has a subscription to the Fenice theater, she goes regularly to the cemetery, she was born in the city but now lives 25 km away, and that is enough reason to not give her the public transport priority. She feels discriminated and excluded from her own home. Venice apart from being home is also the exclusivity. She feels privileged to be Venetian but also isolated from people who don't know what Venice is. The difference between Venice and other cities is freedom: kids that grow up in the city

## I am privileged of being Venetian but also isolated from the people who don't know what Venice is. I feel that I need to explain Venice to others.

### Germana and Roberta

Date: 12/04

Age: 86 and //

Residence: Treviso

Place of Birth: Venice and Trieste

Occupation: Retired - former ISTAT employee and Freelancer

Germana was a primary school teacher for a long time before being employed by the Italian Statistics agency. She was born in Venice and lived there until the end of her teenage years; after her family decided to move to Treviso for work opportunities reasons. She met the love of her life while she was in Treviso and because of it she moved to Trieste for 6 years, finally moving back to Treviso once again. Germana feels Venetian, but she describes that now

can go alone everywhere because it's safe and everybody knows each other. Being a kid, you can discover Venice freely, looking at the old walls and the art manifestos while walking around. Another difference between other cities is the commodity for the elderly. It is tiring to bring around the groceries and up and down the steep bridges. In regard to her relationship with water, she tells the fact that who in the past had the 'porta d'acqua' (Water door), in order to learn how to swim, as a kid would get tied by the hips and thrown in the canal.

### Questions interviews

#### Basic information

- Age
- Birth place
- Family situation
- Current and / or previous residence
- Education
- Occupation

#### Research investigations before the flood map

1. Do you feel Venetian?
2. What is Venice for you?
3. What do you think is the difference between living in Venice or in another city?
4. In which areas of the metropolitan area do you prefer to visit or spend your free time?
5. What means do you use to cross the city?
6. Do you define Venice as the historic centre of a metropolitan city (or a larger urban system) or a city in its own right?
7. Where would you imagine yourself living for the rest of your life?
  - a. (If they live on the mainland) Would you like to live on the island of Venice? - If so, why don't you do it?
  - b. (If they live on the island) Would you like to stay and live on the island of Venice? - If not, why don't you?
8. Have you been to or do you frequent other places in the Lagoon (besides the historic centre or Venice)?
9. Do you feel that your life is marked by the presence of water?
10. Do you feel that your profession is strongly connected to the lagoon eco-system?
11. Would you recommend (to your children or to) someone you are close to - future generations - to live in Venice?

#### Research investigations after the flood map

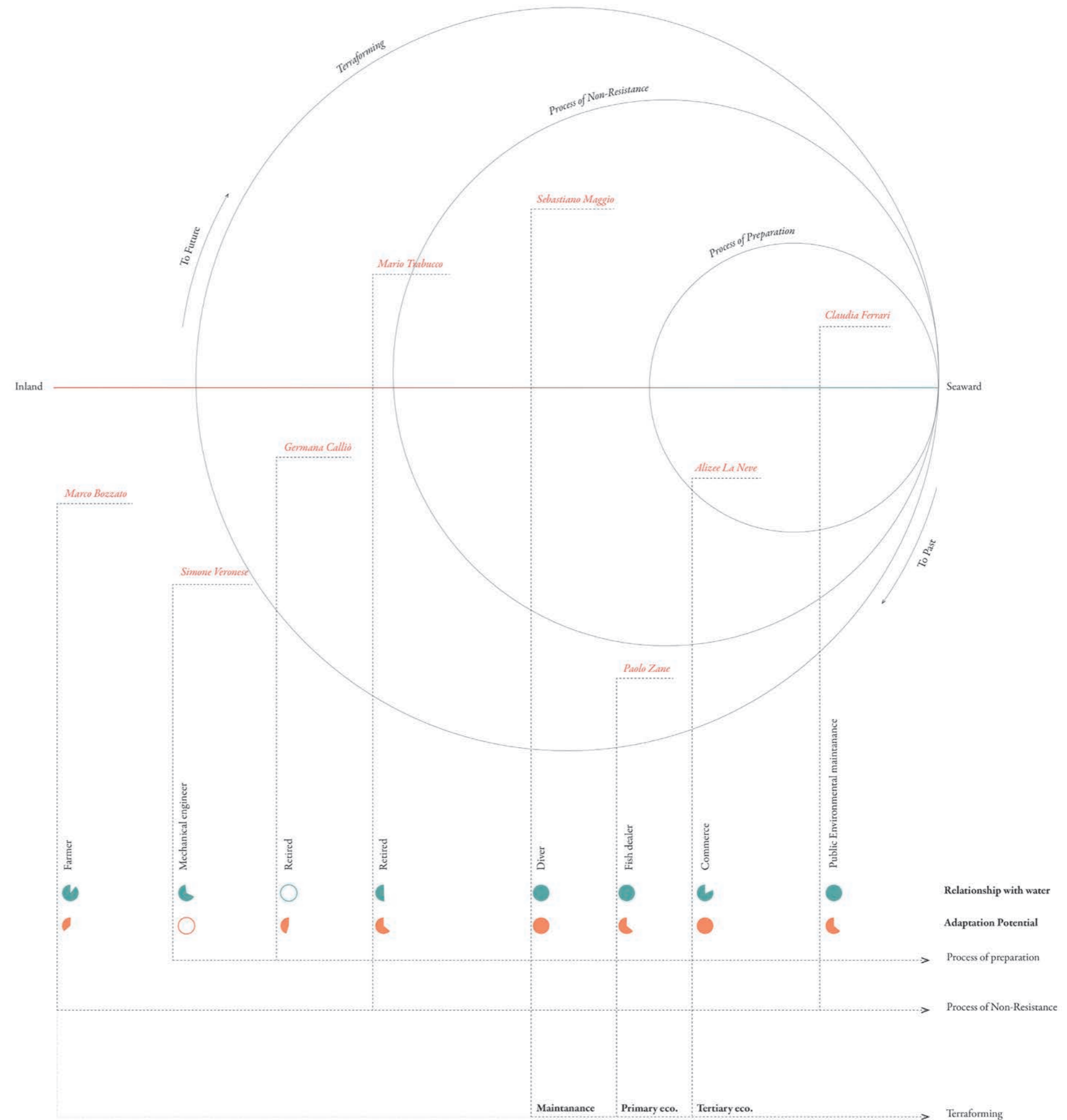
1. What is your first reaction to this map?
2. Starting from the experience of the *Acqua Granda* in 2019, what impact did it have on your life?
  - a. Nothing - Imagine, it can happen to you too (in the mainland ..)
  - b. If it had an impact, imagine that this could happen every month, until it becomes a constant flood, what would your life be like?
3. Where would you imagine living now in the future (after seeing this map), would you stay (where you are now)?
4. Would you recommend (to your children or someone you are close) to live in Venice?
5. Do you imagine (and your children or someone close) to be able to adapt to this new reality?
6. Do you foresee that your profession will be affected by the new scenario of 2100?

## Conclusions

### Venice is still alive

After filming, it was time to reflect on the results of the research and the discussion had with the interviewed people. The general feeling that is brought forward is one of resistance: everybody wants to stay in Venice and think of it as a lively city (see the image on the next page). People want to stay, and people want to fight. There is a melancholic atmosphere that rises from the general awareness of being in a crisis but being also something special to be saved.

For the sake of the scientific and academic method, I, therefore, stipulated a scheme for the understating of the human/social dimension in comparison to the temporal and spatial one. The interviewed people, in addition to being placed on the Inland-seaward spatial gradient, also represent a certain temporal dimension: certain jobs and activities are more likely to be brought towards the year 2100, others, because of the landscape condition might disappear or drastically change. In addition, their relationship with water and their adaptability potential are taken into consideration. We can observe how certain characters and jobs are suitable for which design process (the process of preparation, the process of non-resistance, terraforming). Finally, three main activities are recognized as essential in the last terraforming process: maintenance (related to ecological systems), primary economy (because of the traditional and cultural component of adaptation), and tertiary (because of its placement flexibility).





## THE PROJECT OF NON-RESISTANCE

Design strategy  
Phasing  
Process of Preparation  
Process of Non-Resistance  
Non resistance  
Pali di fondazione  
Terraforming as new foundation  
Shape Adaptation  
Territorial foundation



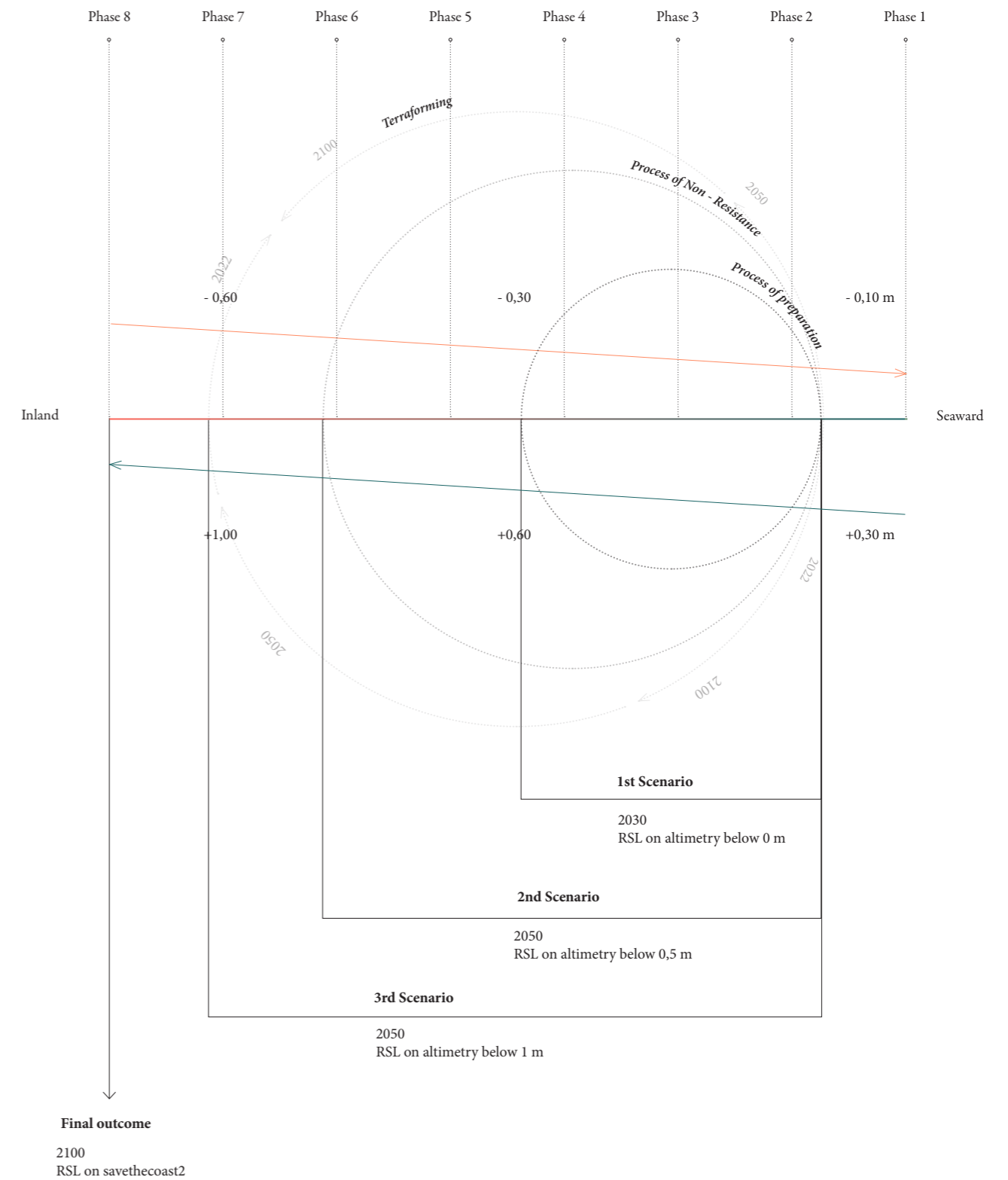
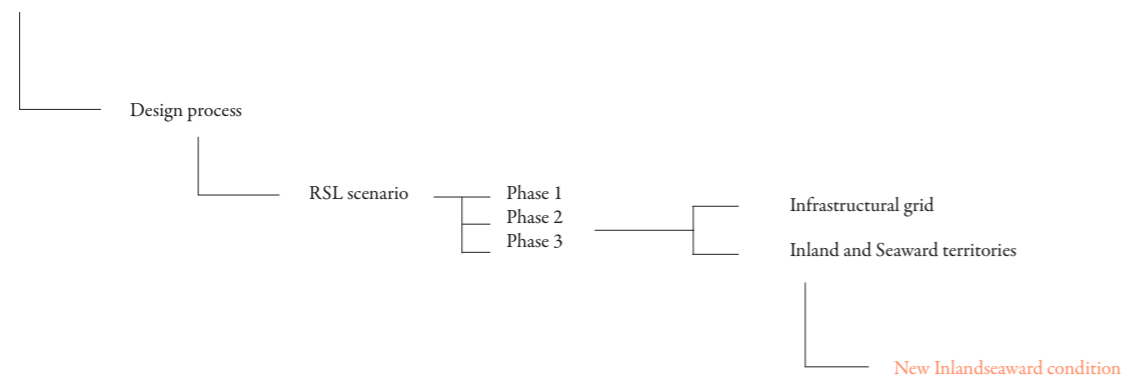
## Design strategy

At this point of the research, all the ingredients are on the table to define the actual design project. The theoretical framework defines the historical, philosophical, artistic, and scientific backbone of the research. The landscapes of accumulation help in understanding the current condition of the landscape, the inhabitation patterns, the manipulations of the territory, and the geopolitical movements. The movement toward Clearance lays the ground for the imaginative exercise towards the year 2100. Moreover, a deeper analysis of what means Inland and Seaward and the relationship between them highlights the crucial frontiers and the ranges of action of the design framework. The seal level rise scenarios built up the scientific framework of the design, precisely describing the spatiality of the future and therefore the possibility of action.

Finally, the documentary brings visually forward the societal and human dimensions of the project. Because of the complexity and the strong temporality of the project, it is important to delineate a design strategy step by step. The strategy is an enlargement of the design framework where the RSL scenarios and the design phases are included. For each design process, a RSL scenario is attached, and within that process, 3 phases can happen. The design phases and process are defined by two main factors: the Inland and Seaward territorial conditions and the water infrastructure manipulation.

In summary: from the current state of Inland and Seaward and its infrastructure, a design process is connected to a RSL scenario and to 3 design phases that finally define the new condition of Inlandseaward. The phasing of the project coincides also with the poles of foundation that represent the main actions of the project. In the next pages, the strategy is described step by step through maps and visual aid.

Current Inland vs. Seaward and Infrastructural condition



# Phasing

- 0,60

- 0,30

- 0,10 m

Reprogramming  
Replacement

Sedimentation  
selection

Infrastructural grid

Inland

Seaward

Localities

Ecological zone

Territorial

+1,00

+0,60

+0,30 m

2100

2050

2030

Phase 1 - Water network on the foreground

Phase 2 - Enhancement barene and velme

Phase 3 - Containment new natural sediments

Phase 4 - New sediment fluxes opening

Phase 5 - Lagoon evaquation

Phase 6 - Preparation new islands and borders

Phase 7 - Inland adptation

Phase 8 - Sediment maintanance and new inhabitation

**Process  
of Preparation**

**Process  
of Non-Resistance**

**Terraforming**

Adapted Inland

New InlandSeaward frontier

New SeawardInland frontier

Adapted SeawardInland frontier

Adapted Seaward

**Incrocio (Crossing)**

**Argine (Dyke)**

**Arcata (Arcade)**

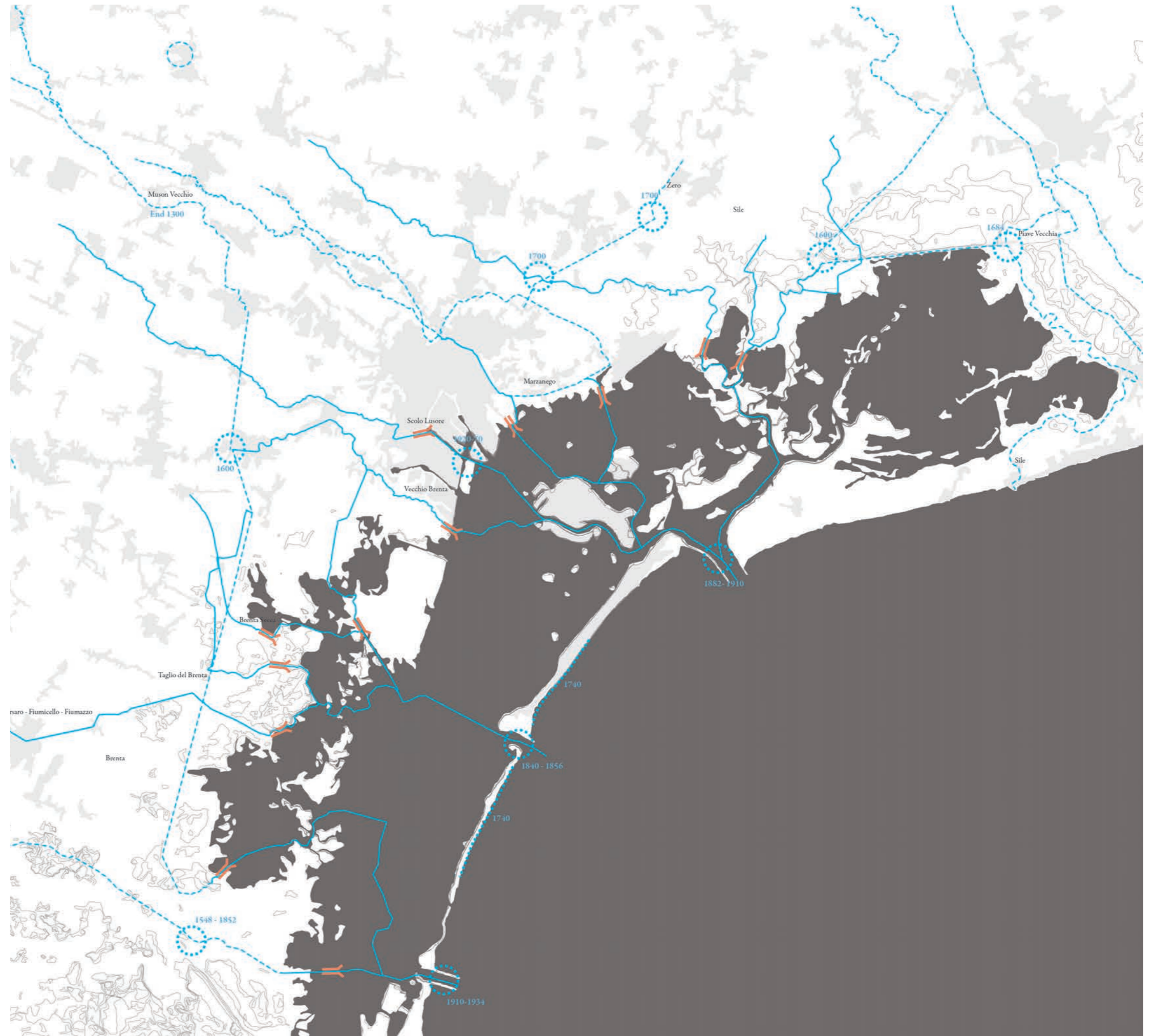
**Murazzi (Stones)**

- Water bodies
- Urbanized area
- Historical canals
- Primary water network

- Historical hydrological intervention
- Fresh water inlet

### Water Infrastructure

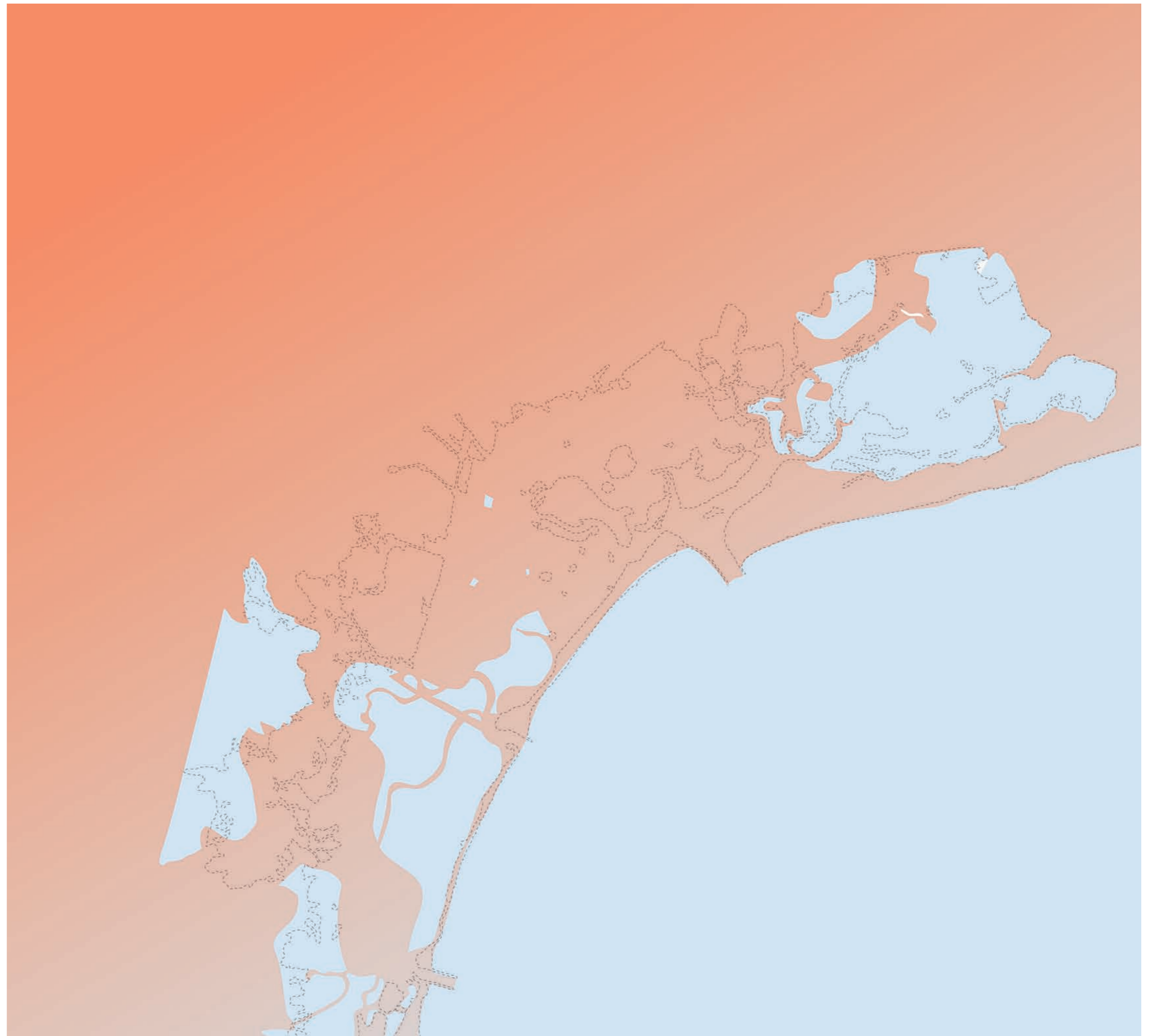
The starting base of the water infrastructure is shown on this map. We can see the current borders of the water bodies while recognizing the seaward canals and the inland rivers. The freshwater inlets are also highlighted because they are going to be one of the most crucial points of intervention. It is also essential to identify the historical points of the manipulation of water. As we know, from the 12th century, Venice redirected the flows of rivers to create fewer sediments in the lagoon and more recently created sea barriers to protect the natural ecosystem.



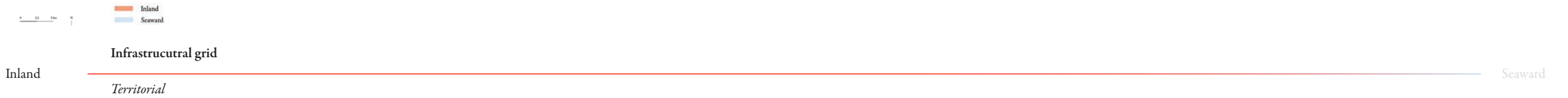
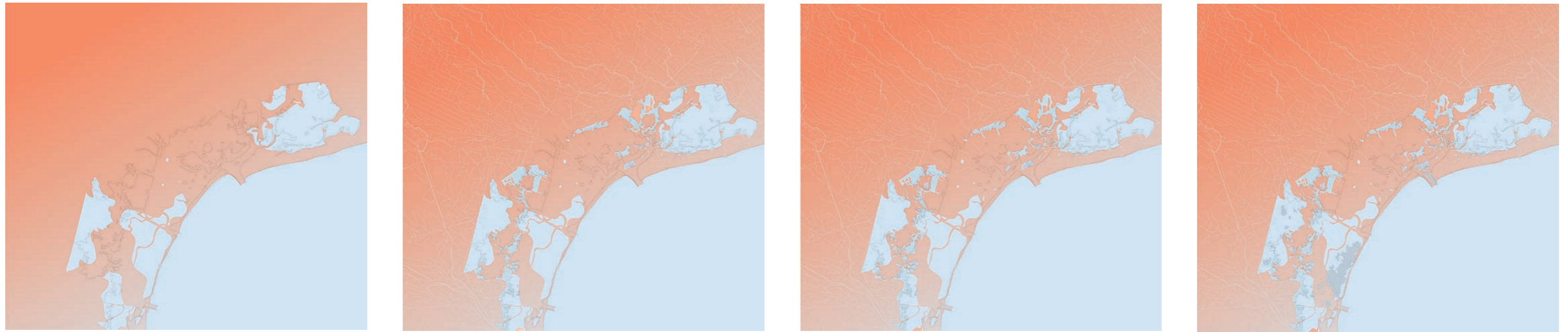
- Inland
- Seaward
  
- Water bodies
- Primary rivers
- Hydrological elements
- Natural Barene
- Natural Velme
- Artificial Barene and Velme
- Possible new sediments

**Inlandseaward**

The base for the definition of the new Inlandseaward condition is purely based on the map on pages 80-81. This time all the gradients of blue and red are collected, showing the strong contrast and border between the two territories. The goal of the design strategy is to bring the color blue to the foreground, consequently to the fact that the design shouldn't resist the rise of the sea level and therefore the 'win' of Seaward over Inland.



Process of preparation



Current Inland and Seaward situation

Phase 1

Phase 2

Phase 3

Water network on the foreground



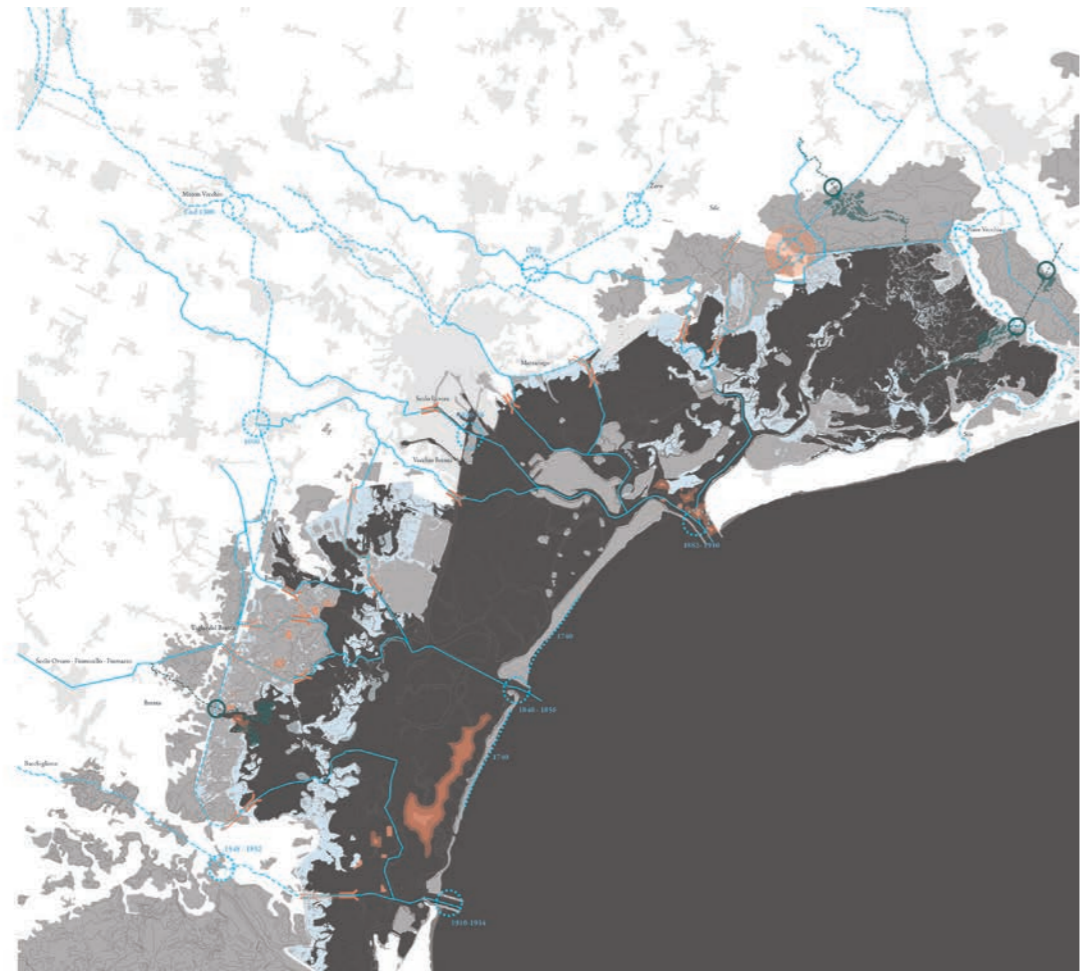
Enhancement barene and velme



Containment new natural sediments

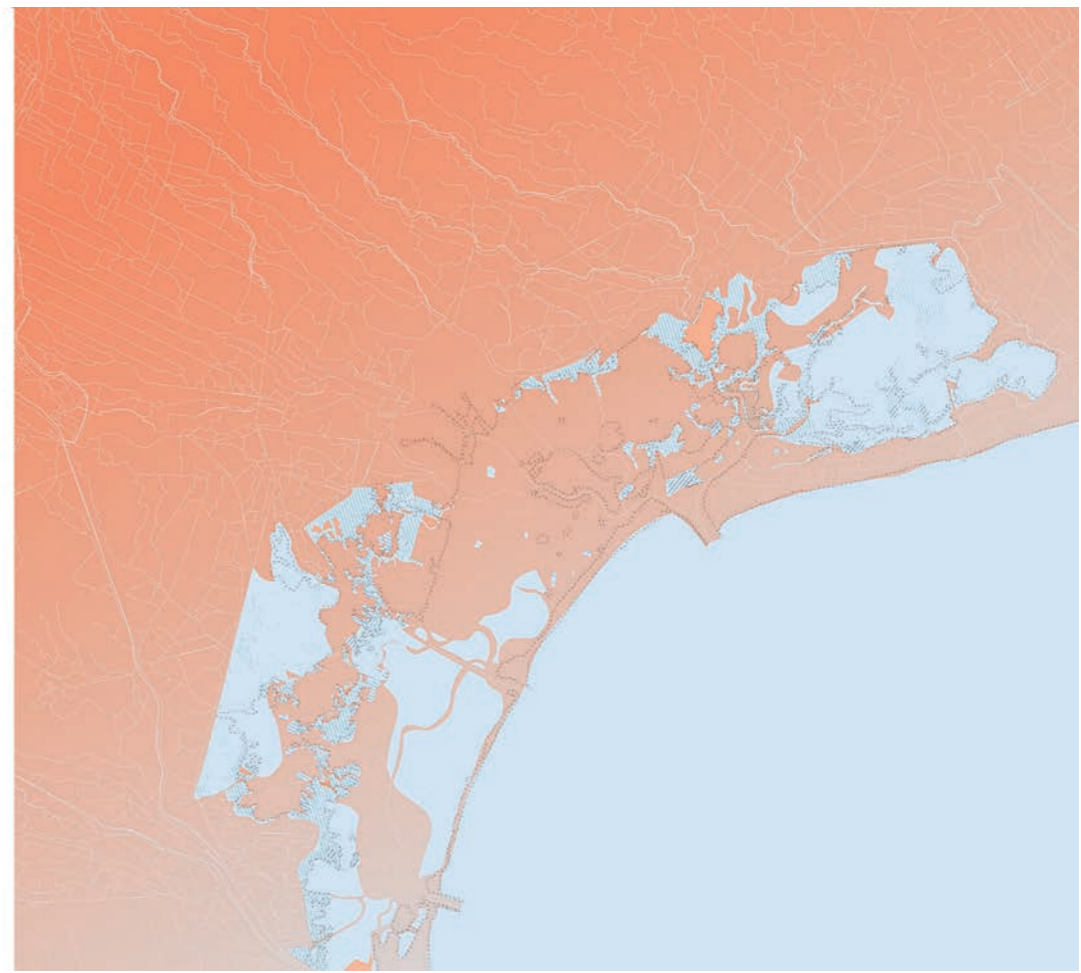


- Water bodies
- Urbanised area
- Historical canals
- Primary water network
- Natural Barriers
- Artificial Barriers
- New sediments
- Historical hydrological intervention
- Fresh water inlet
- New Fresh water inlet
- New Infrastructure
- Re-foundation of historical hydrological intervention
- New openings of sedimentation faces
- Rivers to be opened up



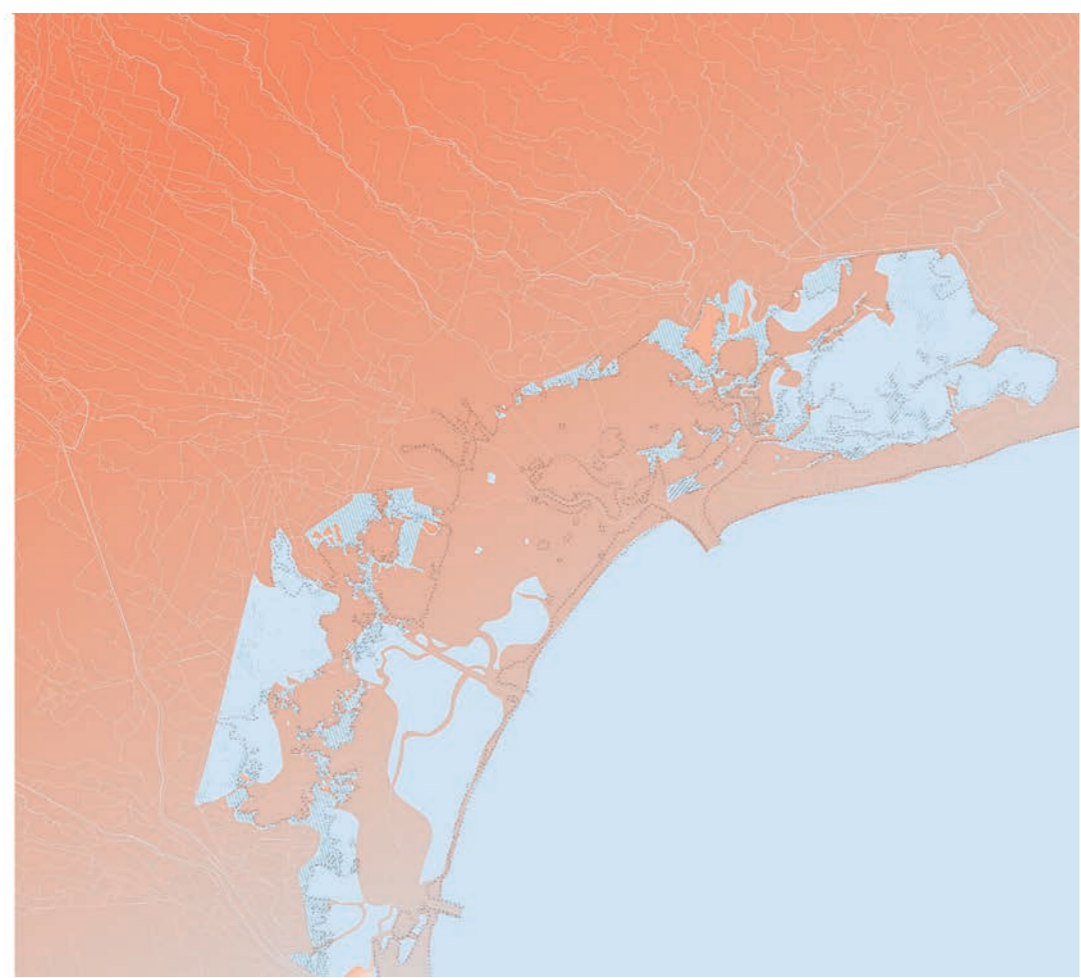
Infra

- Island
- Seawall
- Water bodies
- Primary rivers
- Hydrological elements
- Natural Barriers
- Natural Valine
- Artificial Barriers and Valine
- Possible new sediments



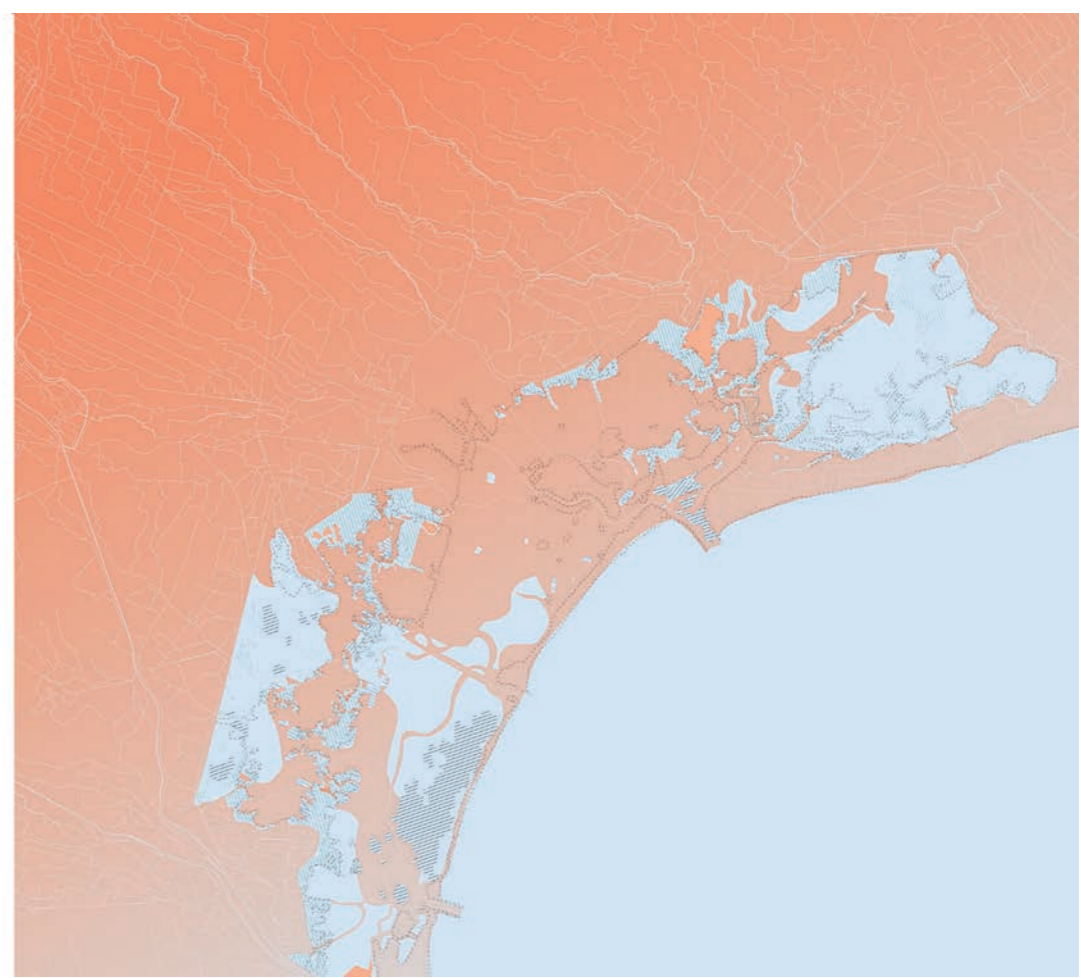
Phase 2

- Island
- Seawall
- Water bodies
- Primary rivers
- Hydrological elements
- Natural Barriers
- Natural Valine
- Artificial Barriers and Valine
- Possible new sediments



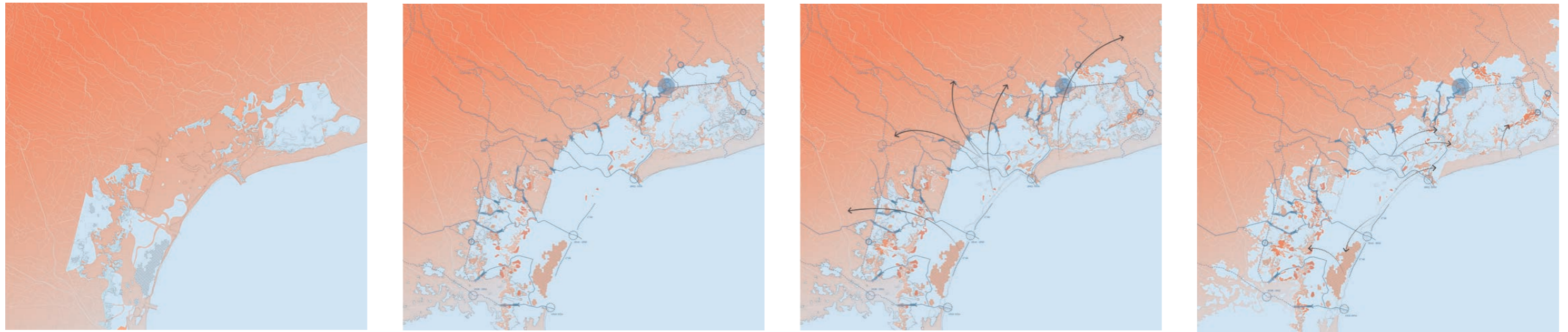
Phase 1

- Island
- Seawall
- Water bodies
- Primary rivers
- Hydrological elements
- Natural Barriers
- Natural Valine
- Artificial Barriers and Valine
- Possible new sediments



Phase 3

Process of Non-Resistance



0 50 100 m  
■ Inland  
■ Seaward

Sedimentation  
 selection

Inland

Seaward

*Ecological zone*

Phase 4

Phase 5

New sediment fluxes opening



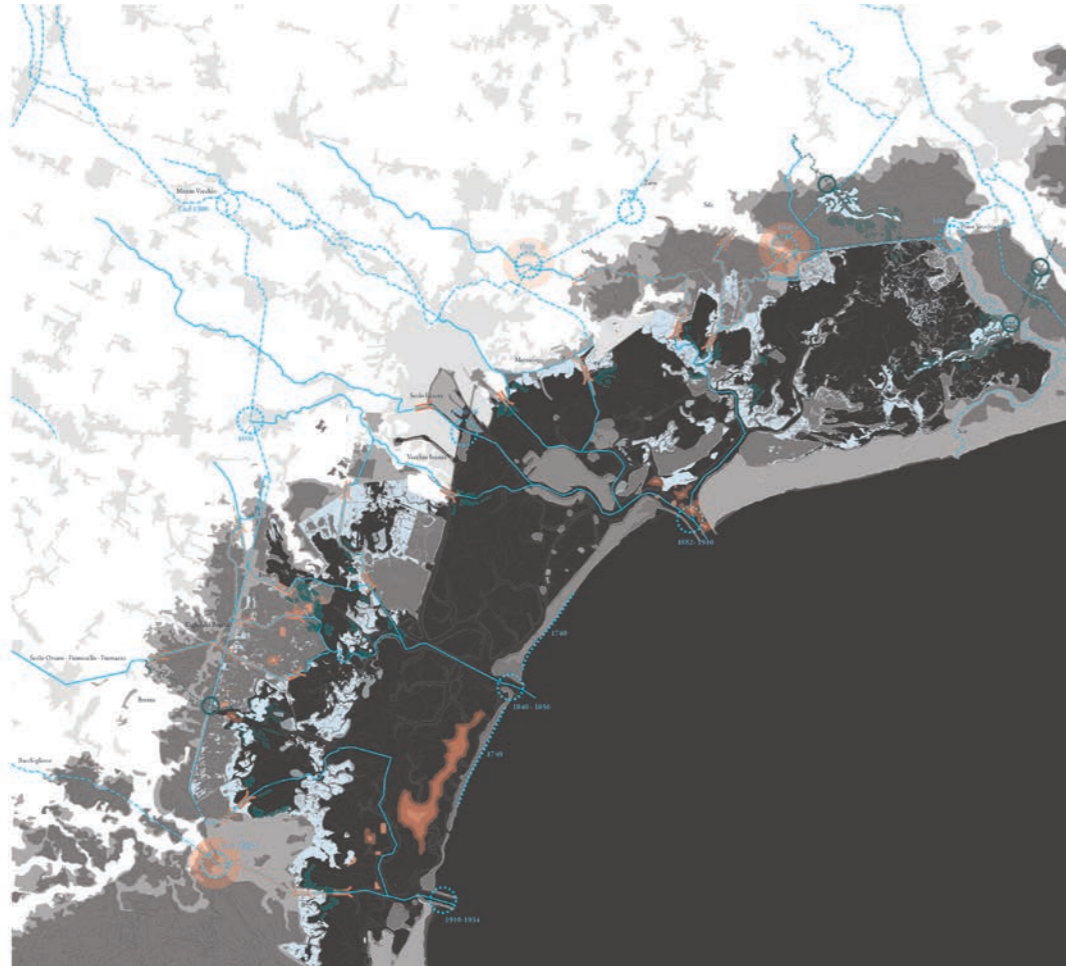
Lagoon evacuation



*Towards Inland*

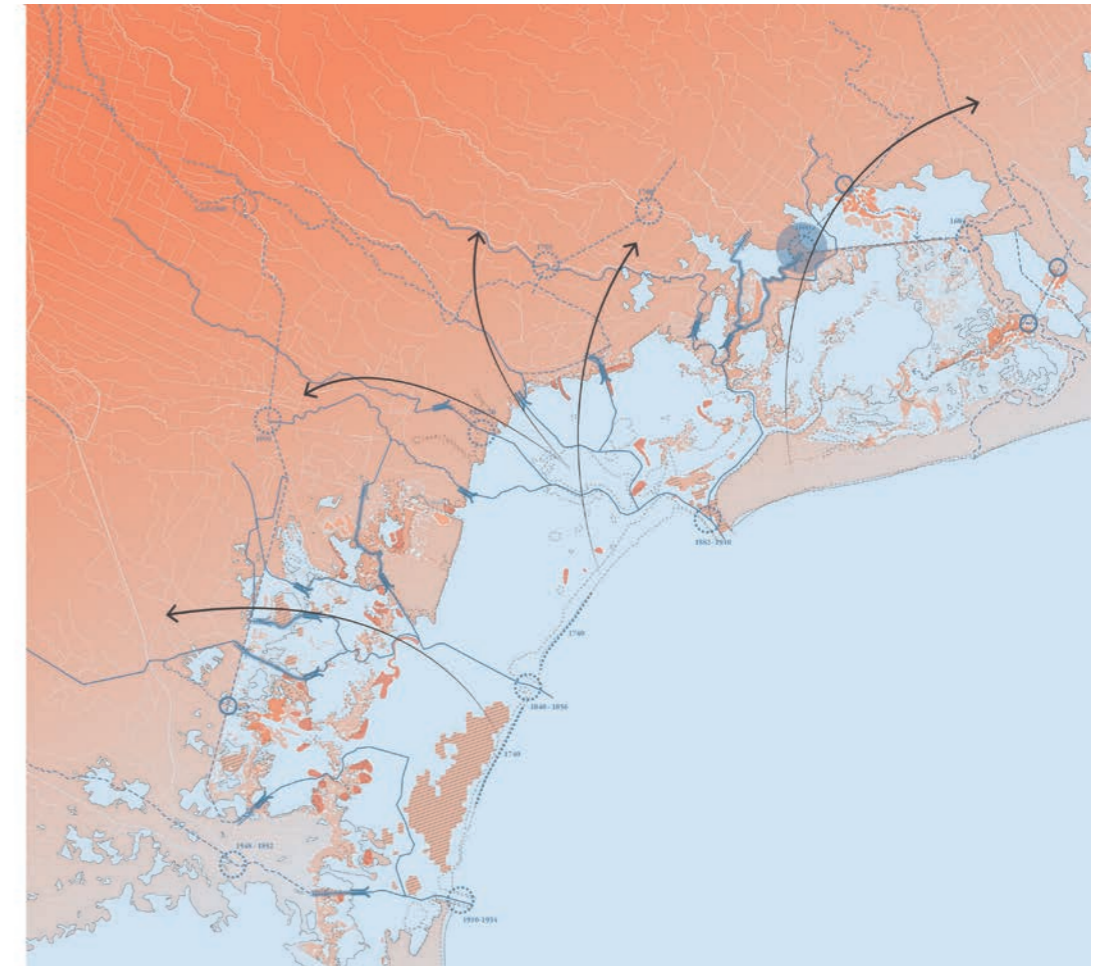
*Towards new territories*

- Water bodies
- Urbanised area
- Historical canals
- Primary water network
- Natural Barriers
- Artificial Barriers
- New sediments
- Historical hydrological intervention
- Fresh water inlet
- New Fresh water inlet
- New Infrastructure
- Re-foundation of historical hydrological intervention
- New openings of sedimentation basins
- Rivers to be opened up



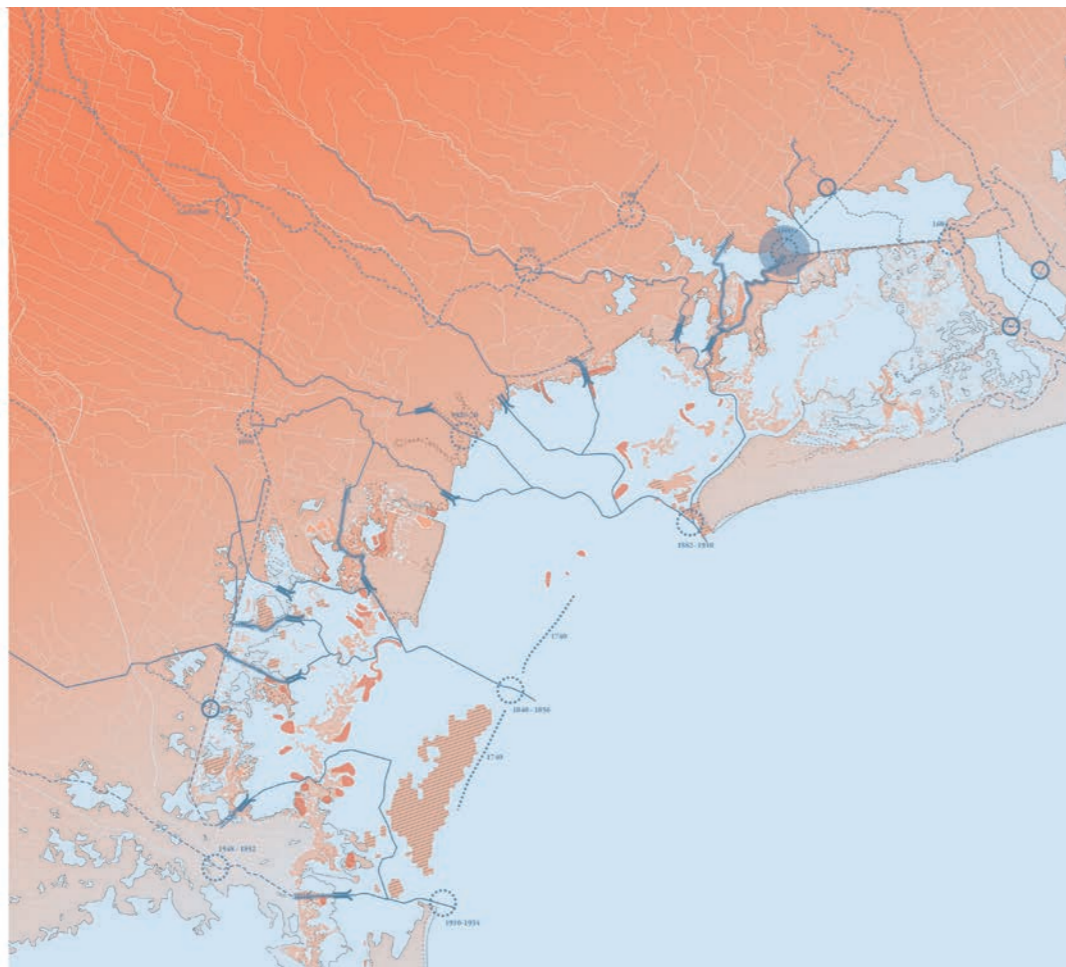
Infra

- Island
- Seaward
- Water bodies
- Primary rivers
- Hydrological elements
- Natural Barriers
- Natural Valleys
- Artificial Barriers and Valleys
- Possible new sediments



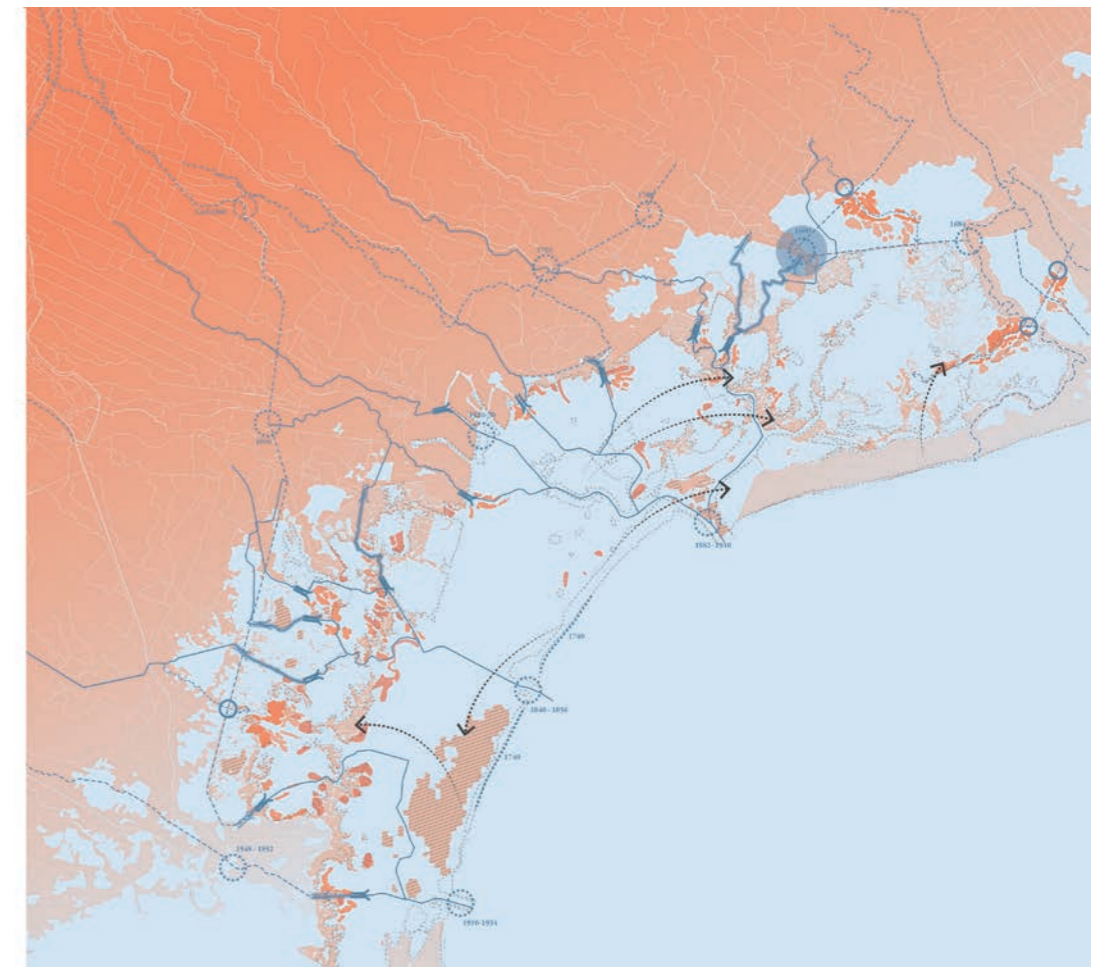
Phase 5

- Island
- Seaward
- Water bodies
- Primary rivers
- Hydrological elements
- Natural Barriers
- Natural Valleys
- Artificial Barriers and Valleys
- Possible new sediments



Phase 4

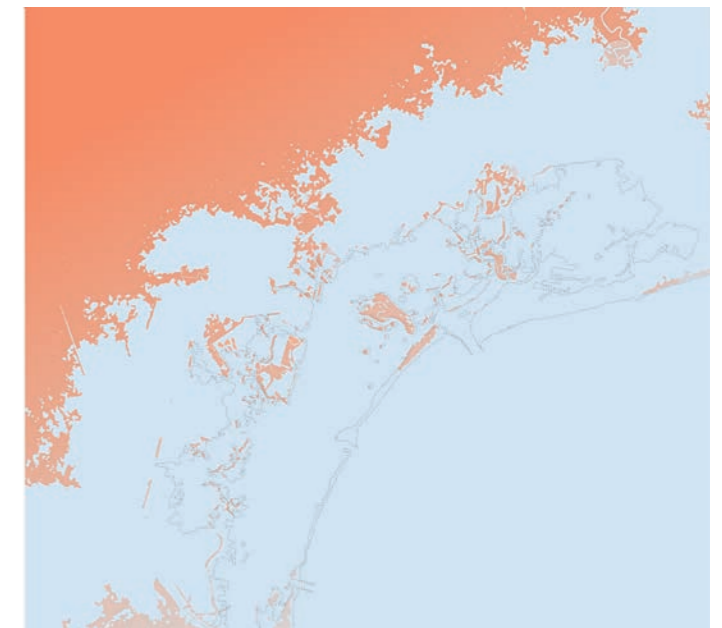
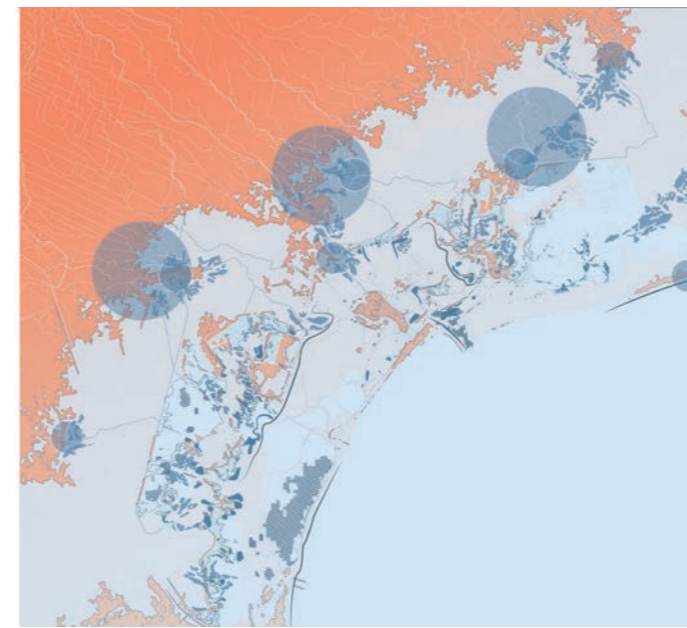
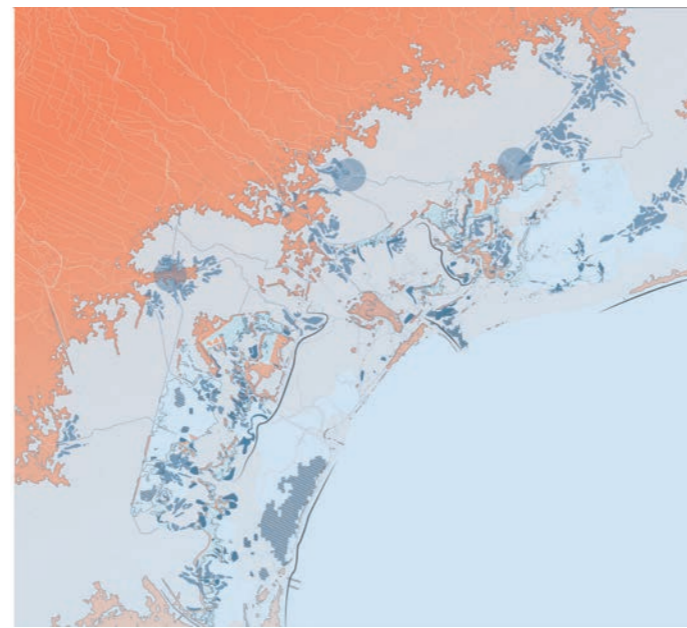
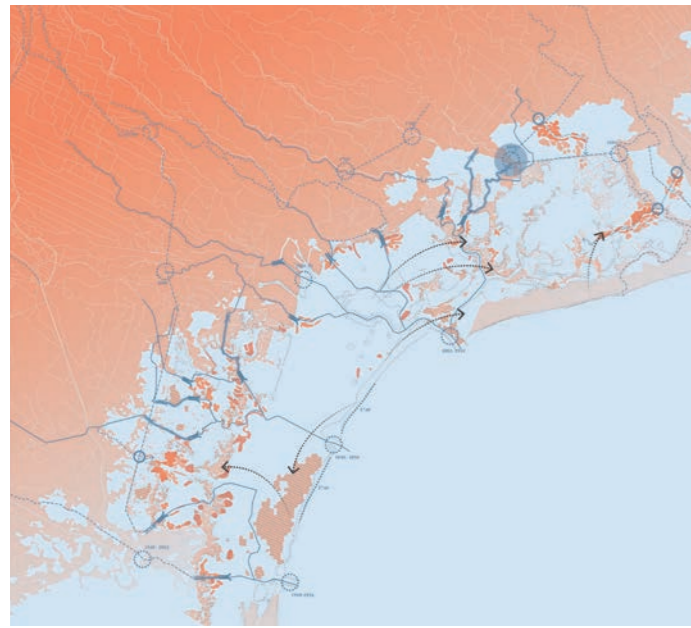
- Island
- Seaward
- Water bodies
- Primary rivers
- Hydrological elements
- Natural Barriers
- Natural Valleys
- Artificial Barriers and Valleys
- Possible new sediments



Phase 6



# Terraforming



0 50 100 150 200  
Inland Seaward

Inland

Reprogramming  
Replacement  
Localities

Seaward

Phase 6

Phase 7

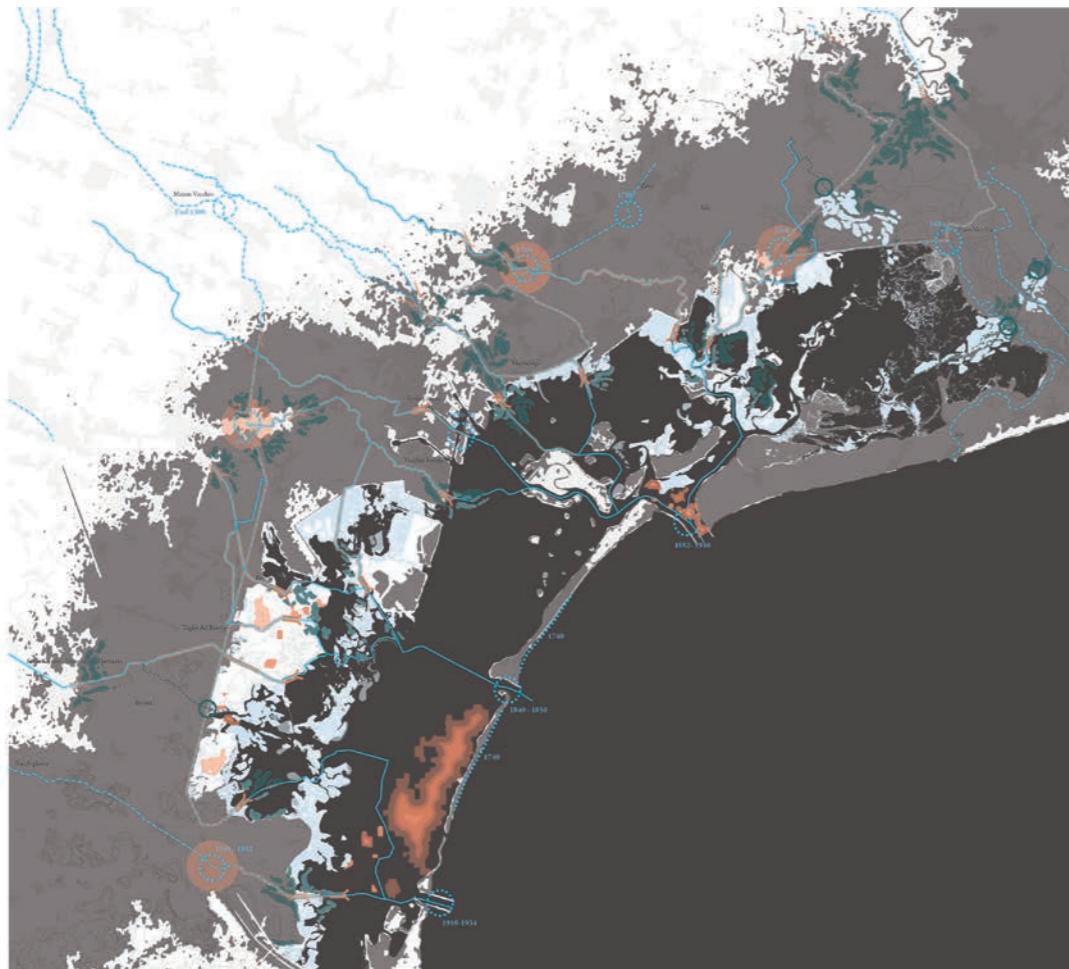
Phase 8

Preparation new islands and borders

Inland adpation

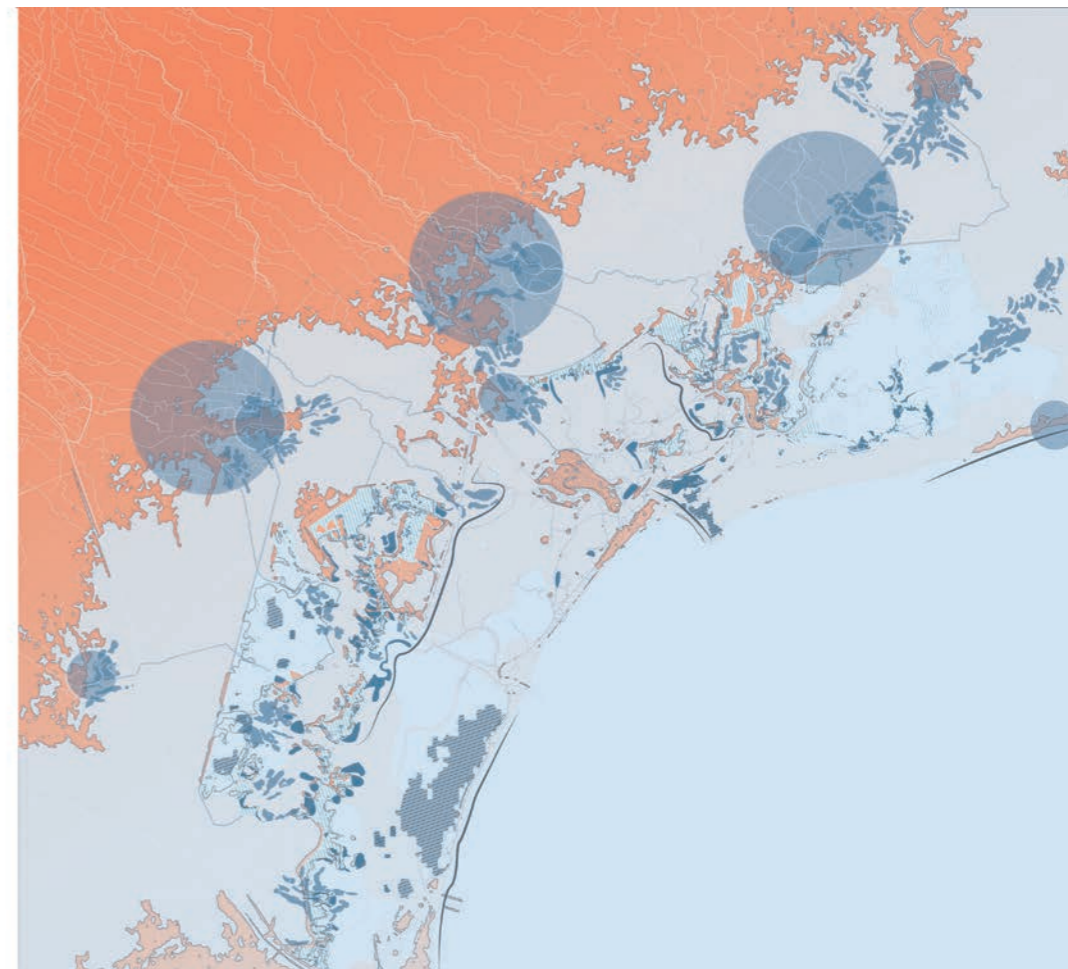
Sediment maintainance and new inhabitation

- Water bodies
- Urbanised area
- Historical canals
- Primary water network
- Natural Barriers
- Artificial Barriers
- New sediments
- Historical hydrological intervention
- Fresh water inlet
- New Fresh water inlet
- New Infrastructure
- Re-foundation of historical hydrological intervention
- New openings of sedimentation basins
- Rivers to be opened up
- New Fluvial sediments



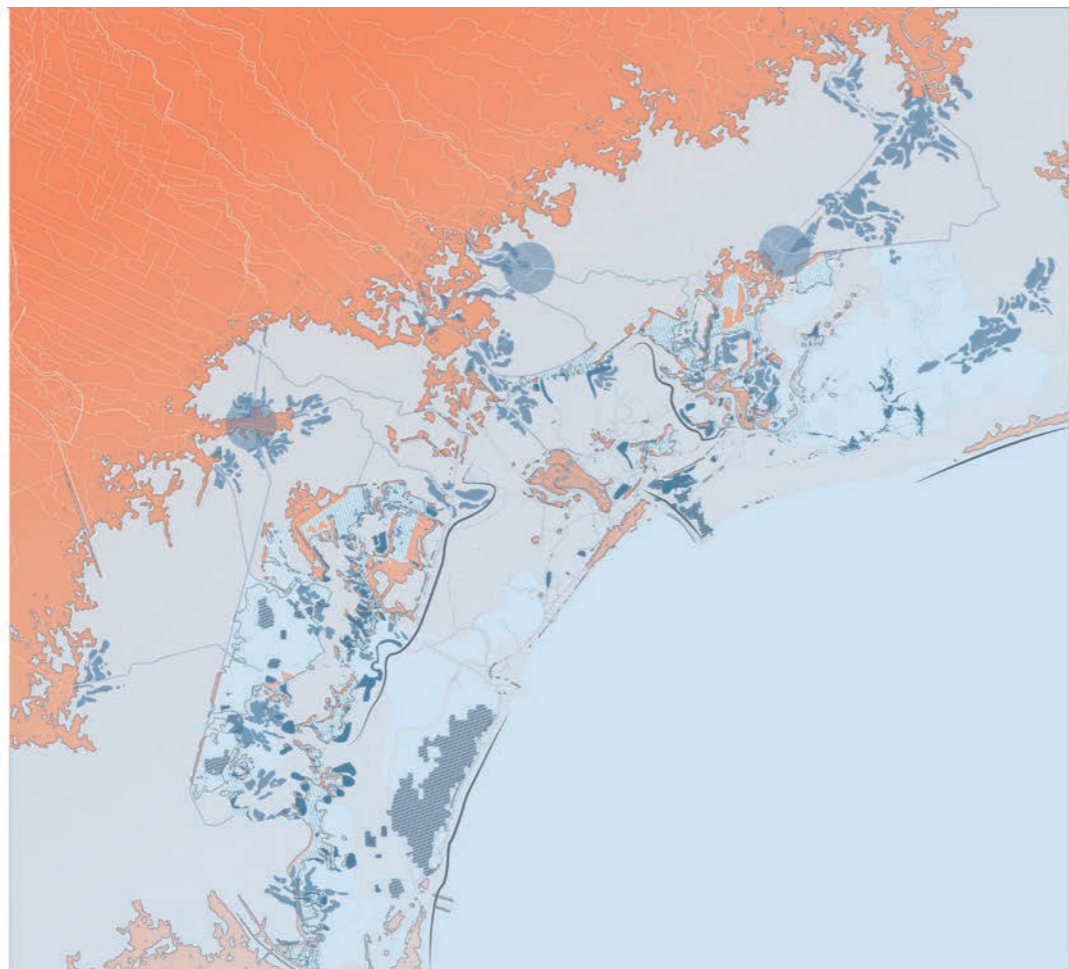
Infra

- Inland
- Seaward
- Water bodies
- Primary rivers
- Hydrological elements
- Natural Barriers
- Natural Valves
- Artificial Barriers and Valves
- Possible new sediments



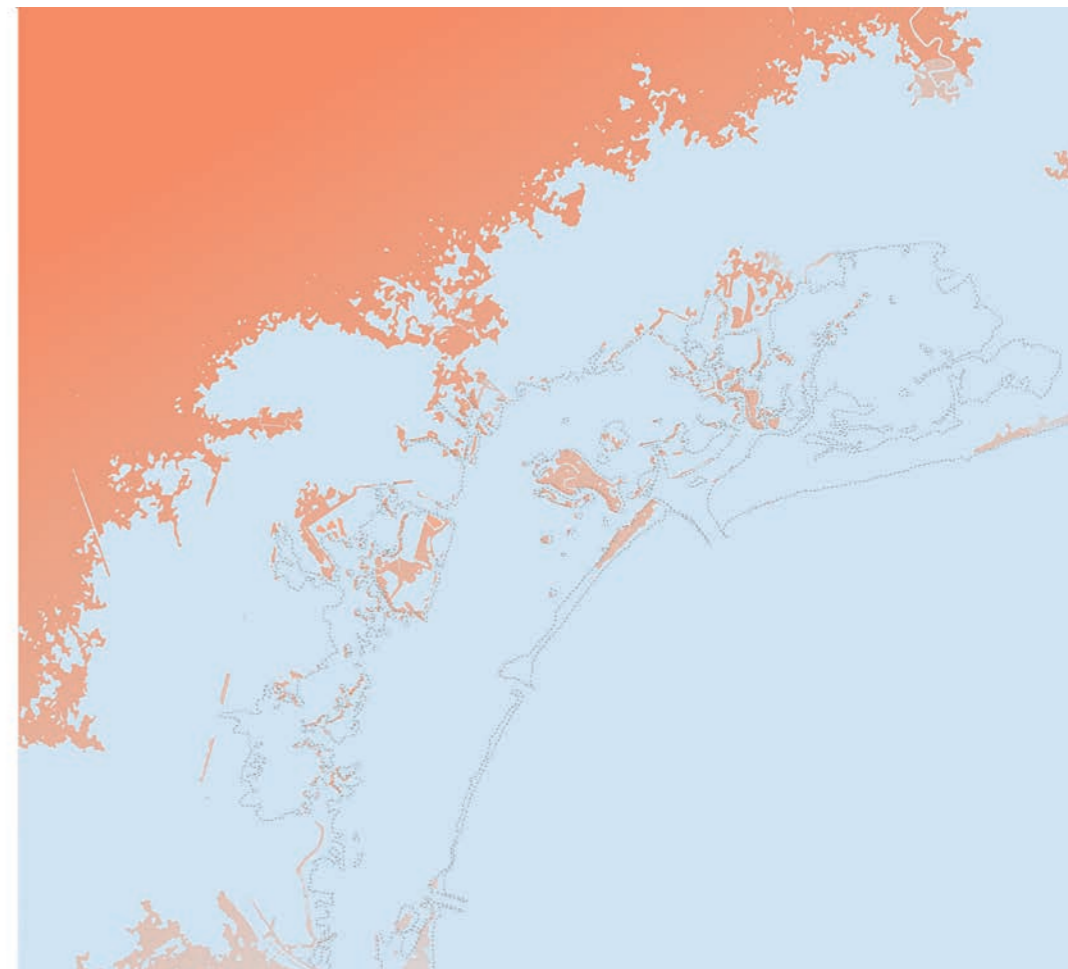
Phase 7

- Inland
- Seaward
- Water bodies
- Primary rivers
- Hydrological elements
- Natural Barriers
- Natural Valves
- Artificial Barriers and Valves
- Possible new sediments



Phase 6

- Inland
- Seaward
- Water bodies
- Primary rivers
- Hydrological elements
- Natural Barriers
- Natural Valves
- Artificial Barriers and Valves
- Possible new sediments



Phase 8

## Non resistance

From the deconstruction, analysis, and research, there is a clear view that comes to the foreground. The imminent climate crisis is a major obstacle for the survival of all the human and non-human life forms enclosed in the affected territories. There is no Inland or Seaward, detached from each other, fighting in the run for progress and modernity. There is only radical change which reflects on every system: spatial, economic, environmental, political. The future change is mostly unpredictable and moreover, it has been observed how, all over the world, technology and over-engineered solutions are not responsive enough (which we could see as representations of modernity). *Mose* as well as for instance the Dutch dykes, are inflexible objects by design, they intend to block and to regulate the natural system with their weight, monumentality and strength. As we are already observing though, the fluctuations in climate changes coming towards us, are too great for the present power of these technological solutions.

This project brings this critique forward by using the metaphor of Inland and Seaward, represented in history and theory by Alvise Cornaro and Cristoforo Sabbadino. We can see through the maps in the previous chapters how this juxtaposition is evident in the various systems: the mobility infrastructure, the politics, the inhabitation patterns, the ecological values. Furthermore we can see Inland vs. Seaward in the way people live the space. People living in the Venetian lagoon territory have their existence deeply rooted in the environment. The extreme living conditions that the space gives, have eventually and historically shaped the adaptation drive in the cultural and anthropological context. People are attached to Venice and the lagoon, they identify with it and they live with and for it. They do not resist the forces of nature, the movements of the tides, the seasons, the fog and humidity, the salinity of the ground.

The academic literature doesn't offer yet a definition of 'Non-resistance' or other synonyms like 'Acceptance' in Urbanism practices. The terms that can be found are opposites concepts such as Resistance, Tactical Urbanism, Guerrilla Urbanism, etc. (Guerrilla urbanism: urban design and the practices of resistance).

These theories and practices involved a strong take on action or regulation of informal actions.

What we can observe on the (geo)political sphere is a lack of effective action. The major of Venice last year announced in Rome the candidacy of the city as 'Capital of Sustainability', in the article of Monticelli (2021) we find right after the announcement of the candidacy, another quote from the Major,

saying the goals next to sustainability is one to re-activate the port of Marghera. The public speech of the Major shows an evident incoherence: how can Venice be capital of sustainability if the port is active? Marghera being one of the biggest polluting industrial places in Italy, would need to go through a radical change of energy, transportation, production systems to be part of the sustainability plan for Venice.

If we look at agents, institutions and policies made for the purpose of a possible sustainable transition of Marghera port, we again encounter a hole. In 2021 the *Forum Venezia Sostenibile* was found, an organisation that looks at possible solutions for the sustainable transition in Venice. The forum was born as an answer to the Green Deal (A European Green Deal, 2019) and the PNRR (National recovery and resilience plan). (Deputati della Camera, 2018) They produced so far Manifesto, and the Porto Marghera Green&Blue plan, that lays down three main solutions and is now looking for funding of the project and stakeholders involvement. (Zuccato, 2022)

We can therefore conclude that there is not an active plan of action yet for the survival of Venice and its lagoon. The movement arising are not enough, they are too late and don't have enough power. As we can observe by the maps in this thesis and the RSL projections, by the year 2030 it will be possible to see radical changes already. Furthermore RSL, as already mentioned, it is not an event that appears in a certain date or year, is a process that makes its way slowly but radically in the territory.

For this project I could have tried to design a plan for the survival of Venice as we know it now, creating a system of dykes and *polders*, or a nature based solution that regulates the water inlet in the lagoon, keeping the historical city centre afloat together with the economic and political gains involved. This was not done because, as we can speculate and design for a brighter future and with it we could possible prevent the loss of Venice: 'someone has to pay' and 'someone has to decide'. If we look at current trends, the priority of Institutions is not the lagoon, it is not the survival of the Venetian population, it is not a comprehensive approach to protect the environmental, social, cultural, historical, artistic value of the territory. What I personally see, and it can be argued as an opinion, is that the priorities are on 'milking the cow' as long as it is alive, and trying to portrait projects like *Mose* as the 'magic wand' solution, even if denied by the scientific community.

The lack of action now and in the last years, even

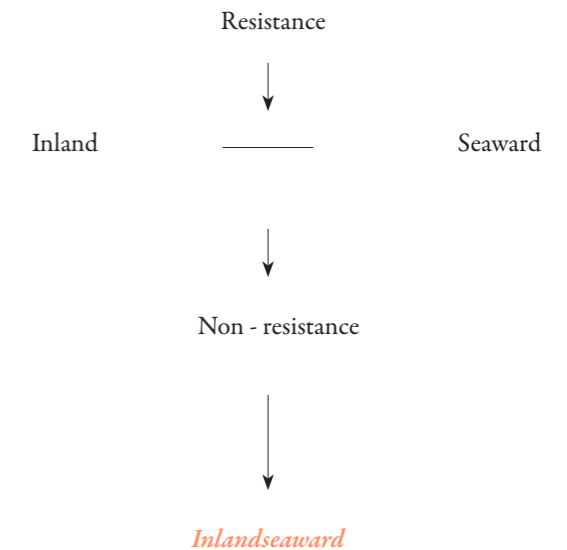


after the disaster of *Acqua Granda* in 2019, shows clearly that there is not going to be a solution for the issues that the climate crisis will bring forward in the foreseeable future; At least not from the geopolitical actors which are the ones that could make fast and long term action possible. This point is the one that brings forward the Non-Resistance approach.

Non-Resistance means for this project accepting the inevitable consequences of RSL from the present towards the temporality of year 2100. Help and solutions are not going to arrive on time, so Urbanism should work with what is left and do the best with the tools in hand.

It could be seen as a glooming and negativist approach, while on the other hand is about unveiling the potentialities there are already present in the territory. Non resisting to the natural forces that cannot be stopped, can be an opportunity for re-foundation of the Urban, a new, different but grounded version of the present. It comes again the choice of Utopia and Terraforming as theoretic backbone of the project. Only by envisioning the extreme, only by having the courage to let go of the comfort of the known, it can be possible to cherish the unknown. Venice is already an extreme place, where people adapted for centuries their life to an extreme environment. Why wouldn't then be possible to adapt to the RSL scenario of 2100?

The approach of Non-Resistance can remind us of the martial art of Judo. Judo's characteristics are of using the force of the opponent as leverage rather than opposing it. The same happens in this project: to not resist doesn't mean to not act at all, to be pas-



sive to the changes, it is rather about catching the momentum of a natural movement and working with it for the advantage of urban life and environment.

Therefore the goal of Non-resistance is to bring together Inlandseaward into a circular time and movement system.

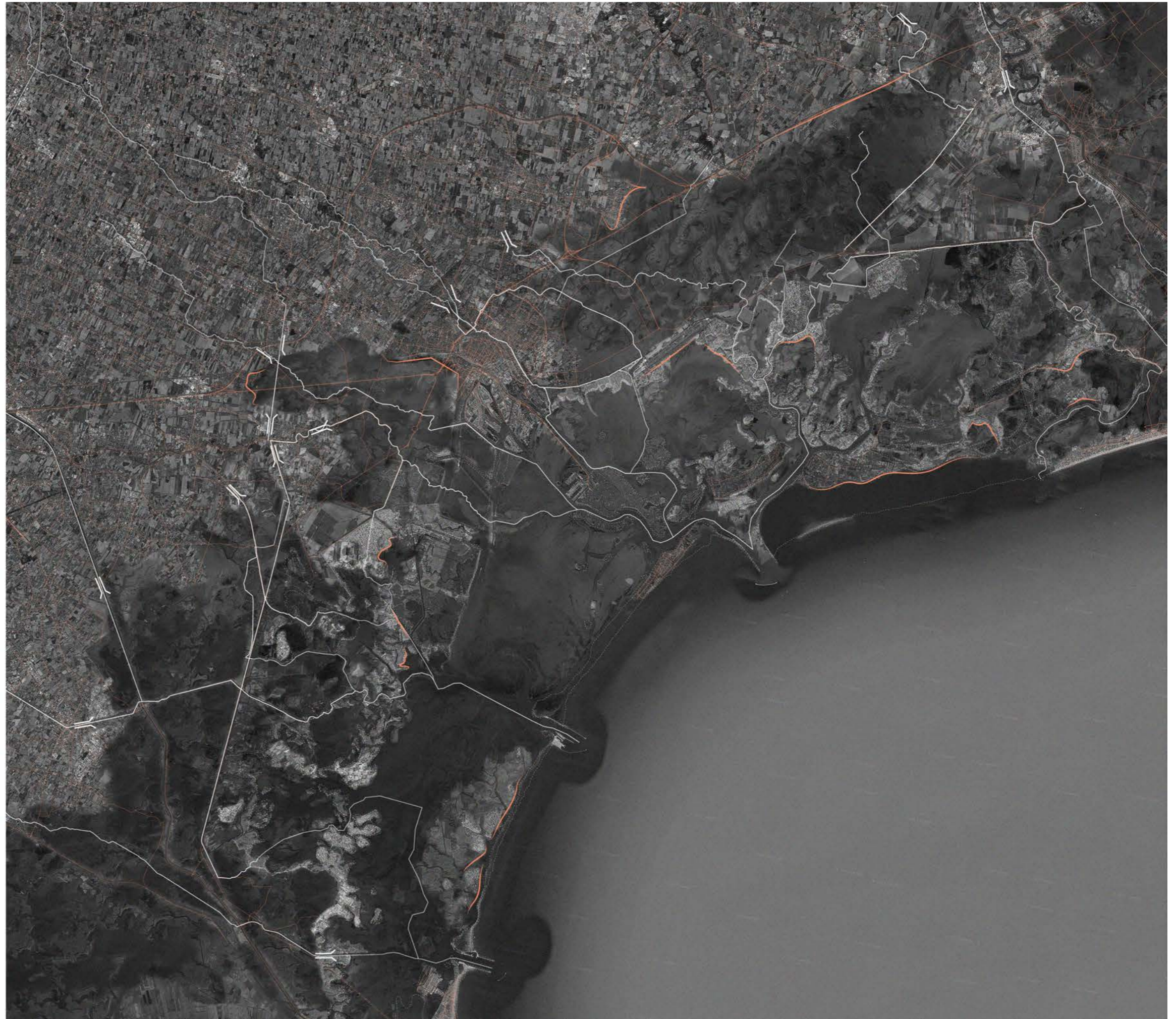
— Lines of resistance  
- - - Lines if Non-resistance

150



151

— Lines of resistance  
— Lines if Non-resistance



## Pali di fondazione

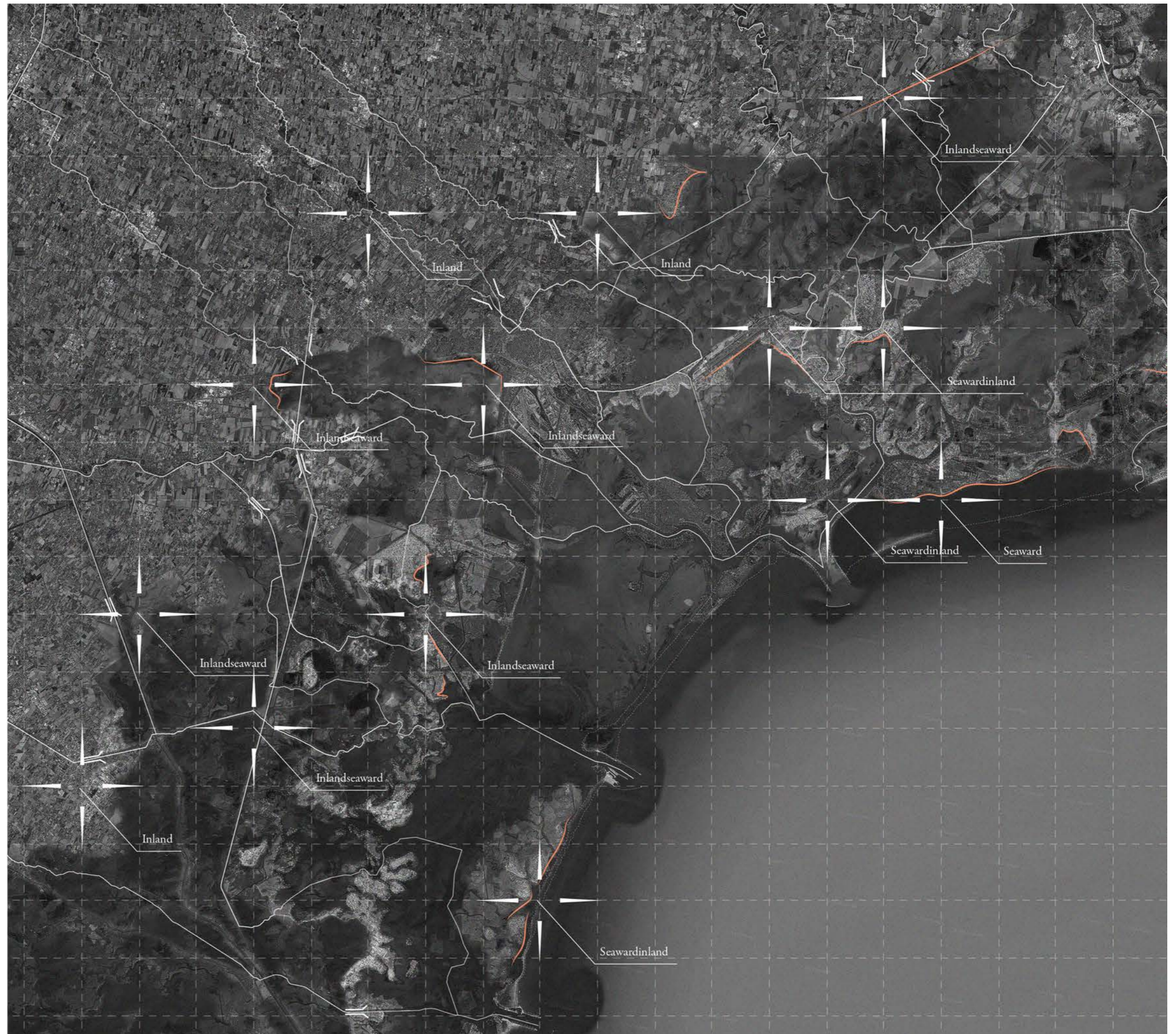
The maps in the previous pages are an effort to envision what the lagoon in 2100, after the lens of Non-Resistance, could look like. The strong opposing lines of Resistance of Inland vs. Seaward are becoming gentle curves that accompany the smoother gradient Inlandseaward. This new lines, together with the water mobility infrastructure, are the guiding grid for the creation of a new territorial system. The frontiers of Inland and Seaward are also changing. What was Inland becomes Seaward, new Inlandseaward exchanges are created, and present ones are shifting. The crossing between the water infrastructure, the lines of Non-Resistance and the frontiers are the most suitable places for the creation of new poles of foundation.

As said previously, the RSL scenarios give us an opportunity for reinterpretation of the human and non-human systems, so that we can start a new foundation through Terraforming towards Inlandseaward.

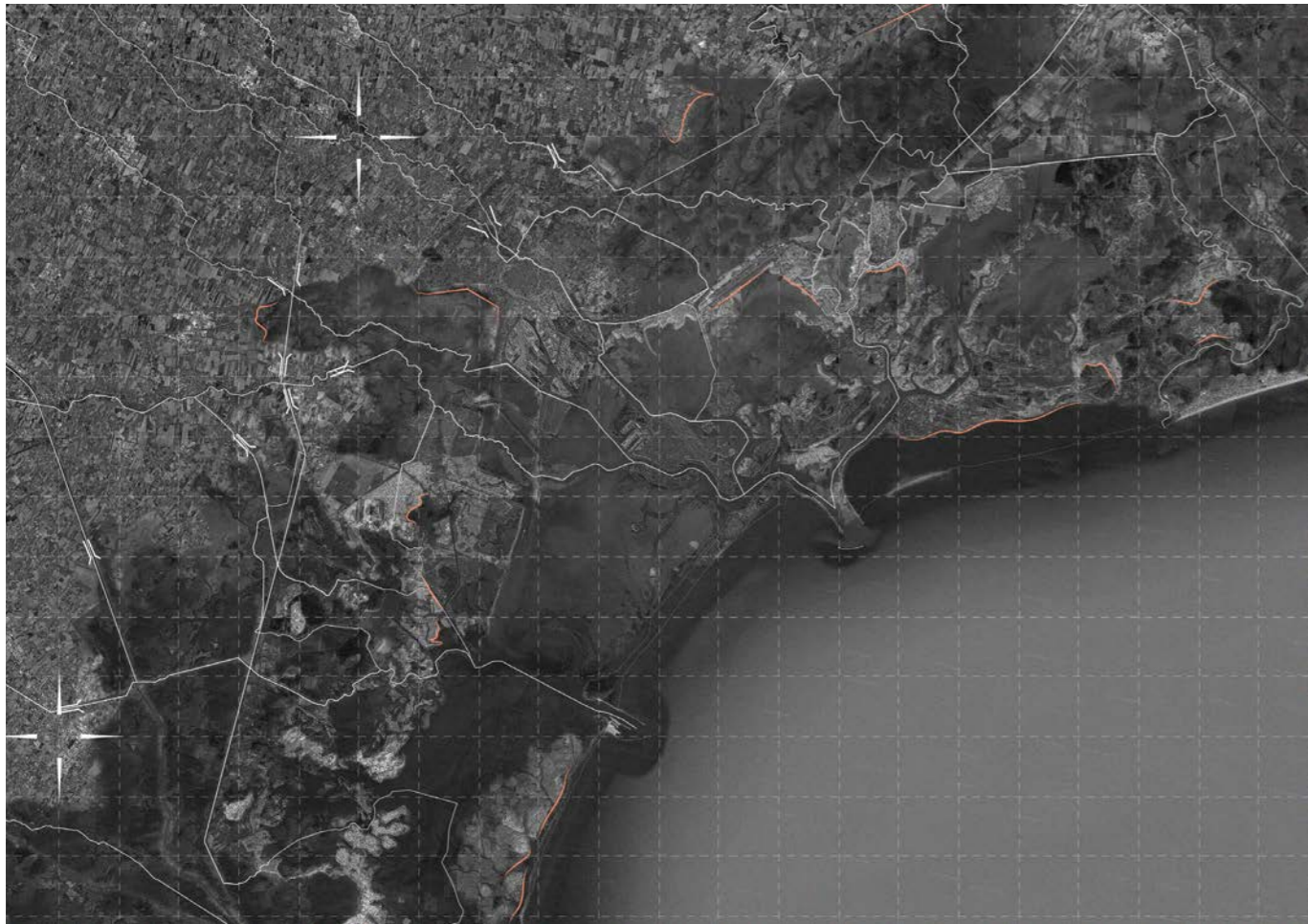
The poles of foundation (*Pali di fondazione*) are the physical activation of adaptation to the RSL condition of 2100 and the initiators of the processes of Terraforming.

One of the most well-known peculiarities in Venice is in fact the foundation on wooden pillars. The wood coming from the Alps via the rivers, get solidified together with a mud called 'caranto', making the poles not rot, while the traditional stone from Istria, placed on top, is in direct contact with brackish water and air. The new foundation and its poles are therefore a reinterpretation of the traditional Venetian building method.

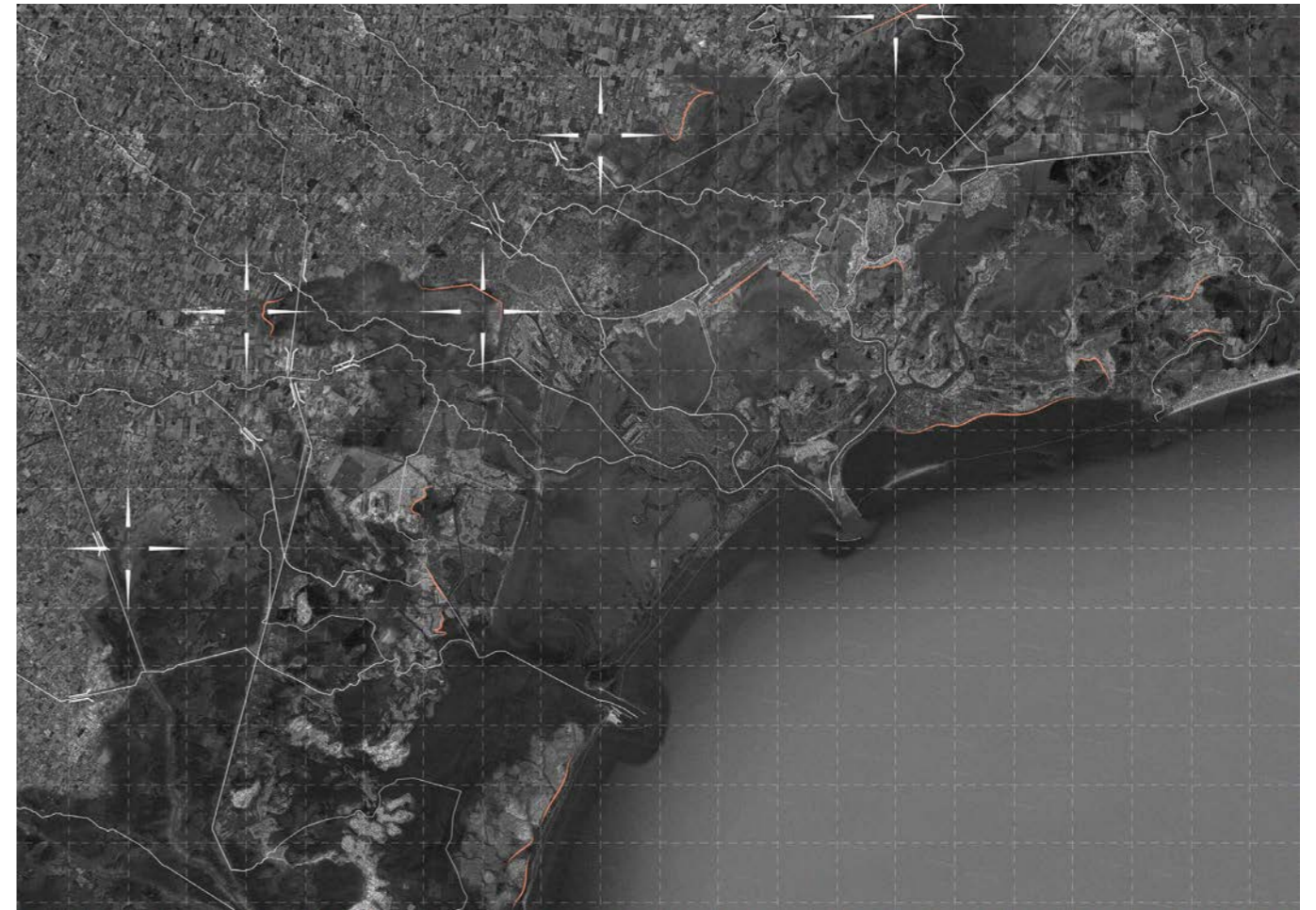
154



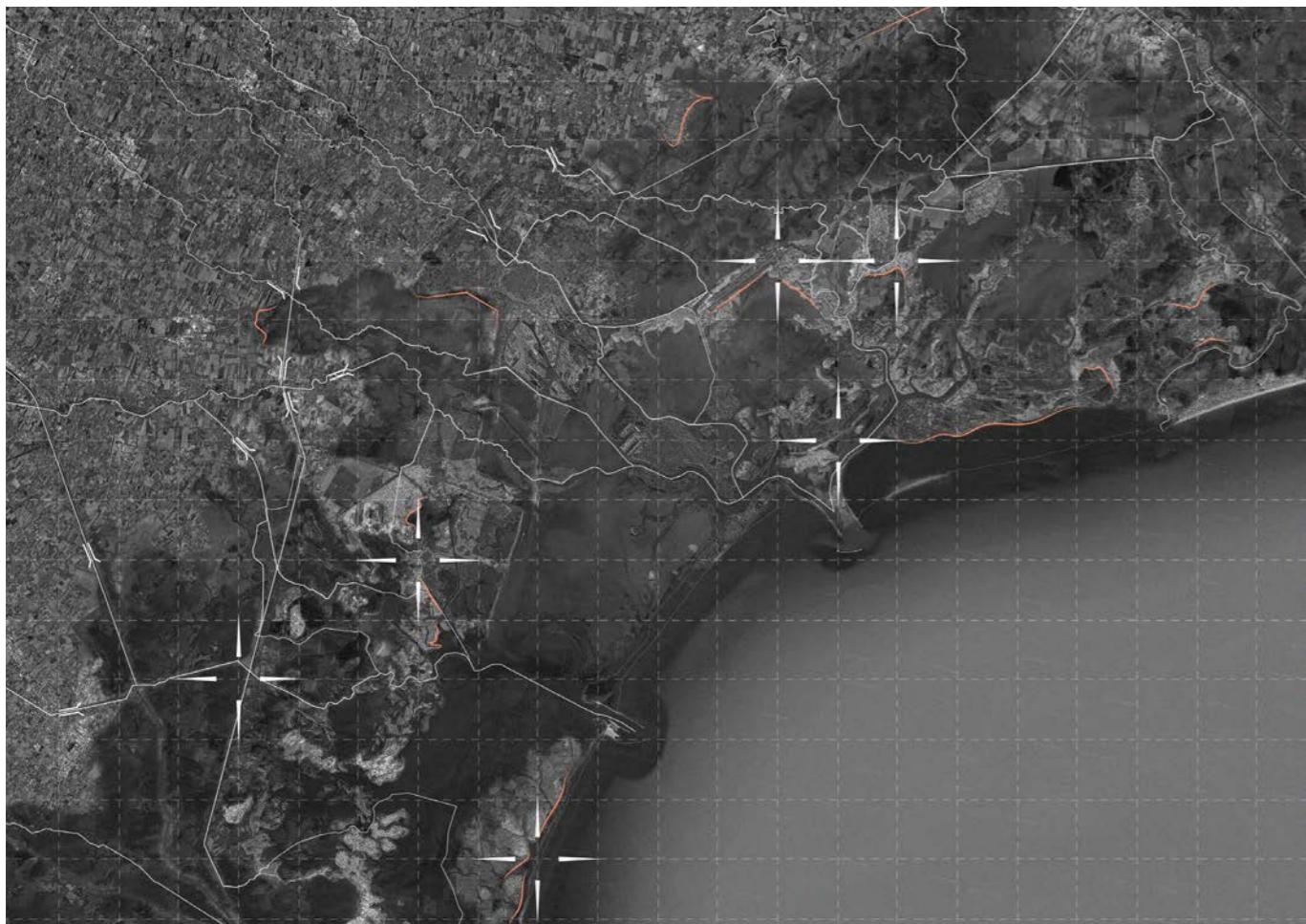
155



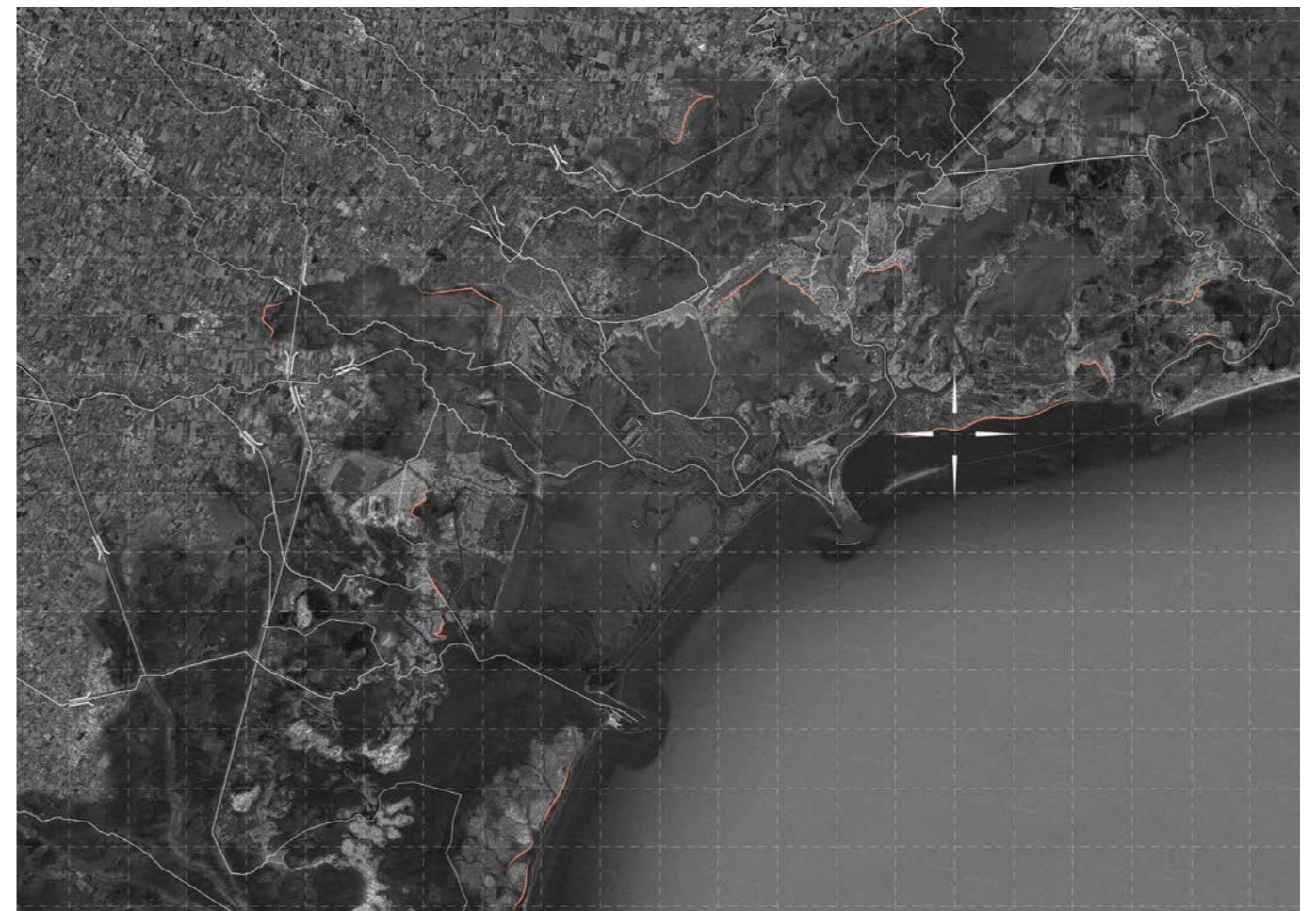
*Inland*



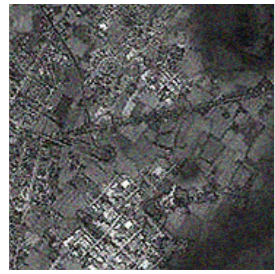
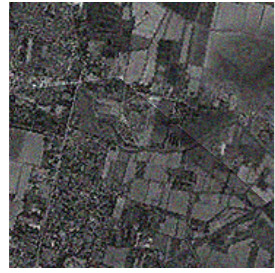
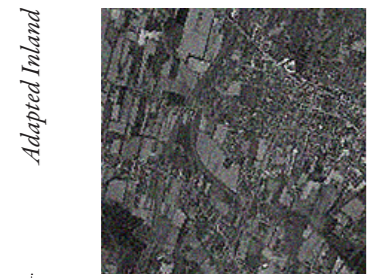
*Inlandseaward*



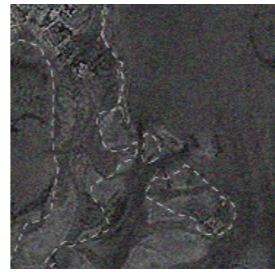
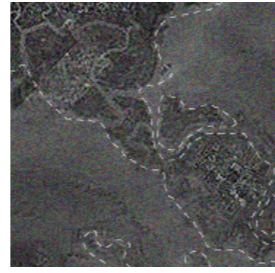
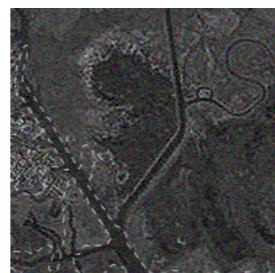
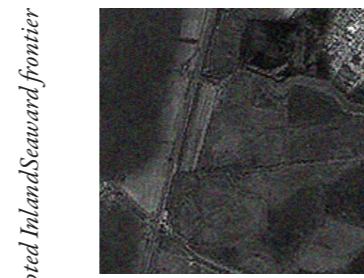
*Seawardinland*



*Seaward*  
THE PROJECT OF NON-RESISTANCE



X  
2,5 km  
2,5 km



Inland

Seaward

*Inland*

*Inlandseaward*

*Seawardinland*

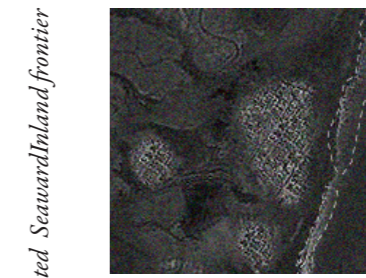
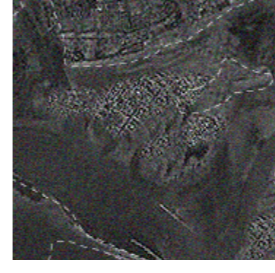
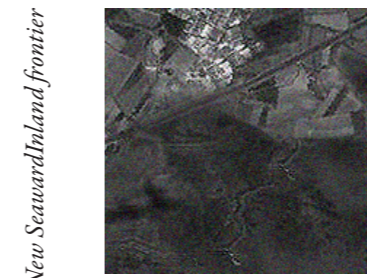
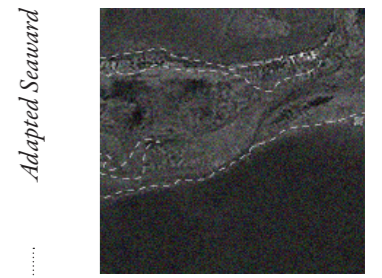
*Seaward*

Incrocio

Argine

Arcata

Murazzi





## Terraforming as new foundation

The pole of foundation creates a process of Terraforming at its placement. At the location of frontier, from a clear and distinct division between Inland and Seaward, the pole creates a 'bridge' to connect the two territories. From that action, sedimentation processes are initiated following the shape guidelines of the pole and land can be created autonomously.

The border between land and water is still there, it is not possible to eliminate it, but on the other hand the new foundation tries to enhance a new type of relationship between the two types of territories and facilitates the exchange of matter and flows.

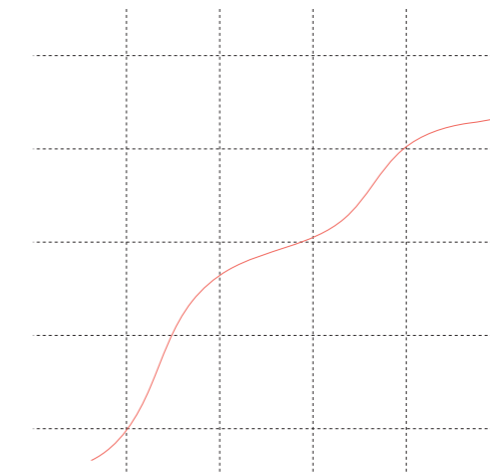
In the pole, Cornaro and Sabbadino, are finally making peace. The four typologies of poles, repeated in various locations in the lagoon space, are composed by two elements: the wall (to remind Alvise Cornaro) and the sedimentation flow (Cristoforo Sabbadino). The new foundation can only happen if there is a collaboration of Inland and Seaward, not by only letting water and sediment flow, not by only blocking them.

Furthermore, because of the frontier position in relation to the gradient Inlandseaward, the direction of Terraforming is shifting.

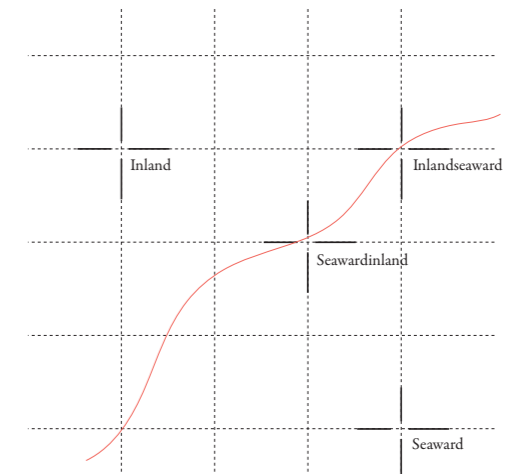
In the case of Inland, the pole of foundation becomes the Terraformed object itself, being the initial source of sedimentation flow. The poles of Inlandseaward (Inland facing Seaward), provide land towards the sea. Seawardinland, being in the centre of the historical lagoon, accelerates Terraforming in all the directions. Finally, Seaward creates towards Inland, enclosing the new land and giving it a border.

The four typologies are the following:

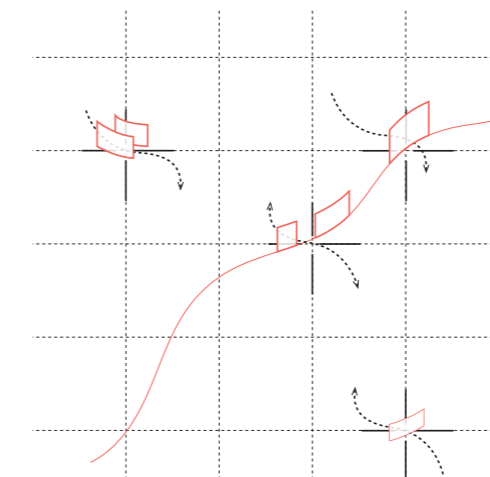
- *Incrocio*: it is placed in the Inland frontier and is the source of the sedimentation flow and the exchange point of mobility connection between car road and water.
- *Argine*: these poles are the active intervention of opening up extra flows of water towards the lagoon. the original dykes are cut in strategic positions and they let more water through. They are placed at Inlandseaward frontiers.
- *Arcata*: These poles are in the middle of the original lagoon, they let flows through and block others, the arcade help giving direction to the mobility infrastructure.
- *Murazzi*: they constitute the Seaward barrier, protecting the lagoon at strategic points.



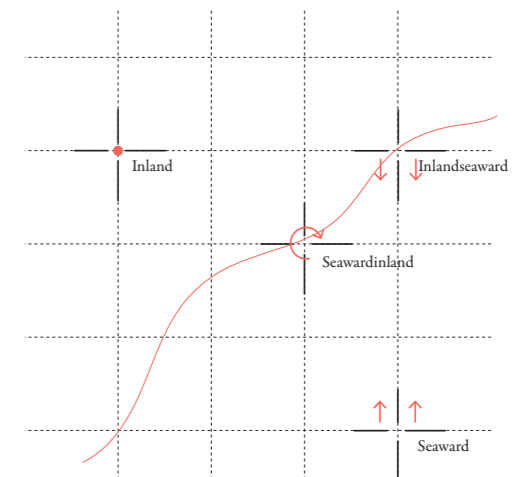
Step 1



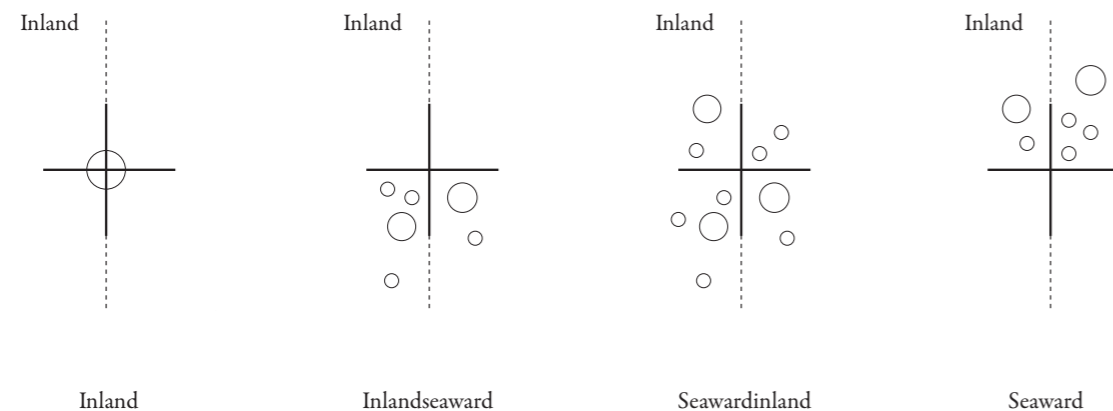
Step 2

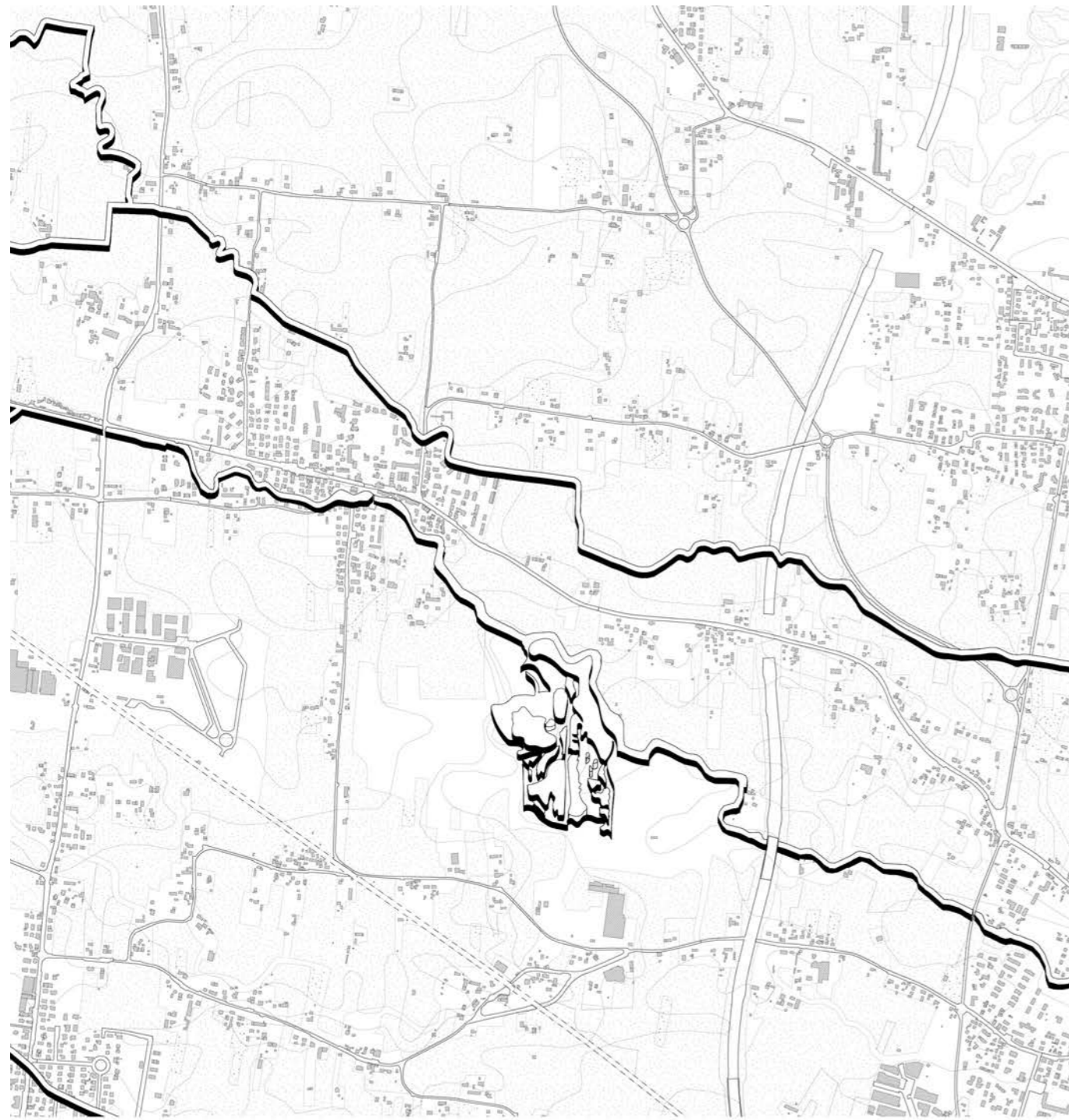


Step 3



Step 4

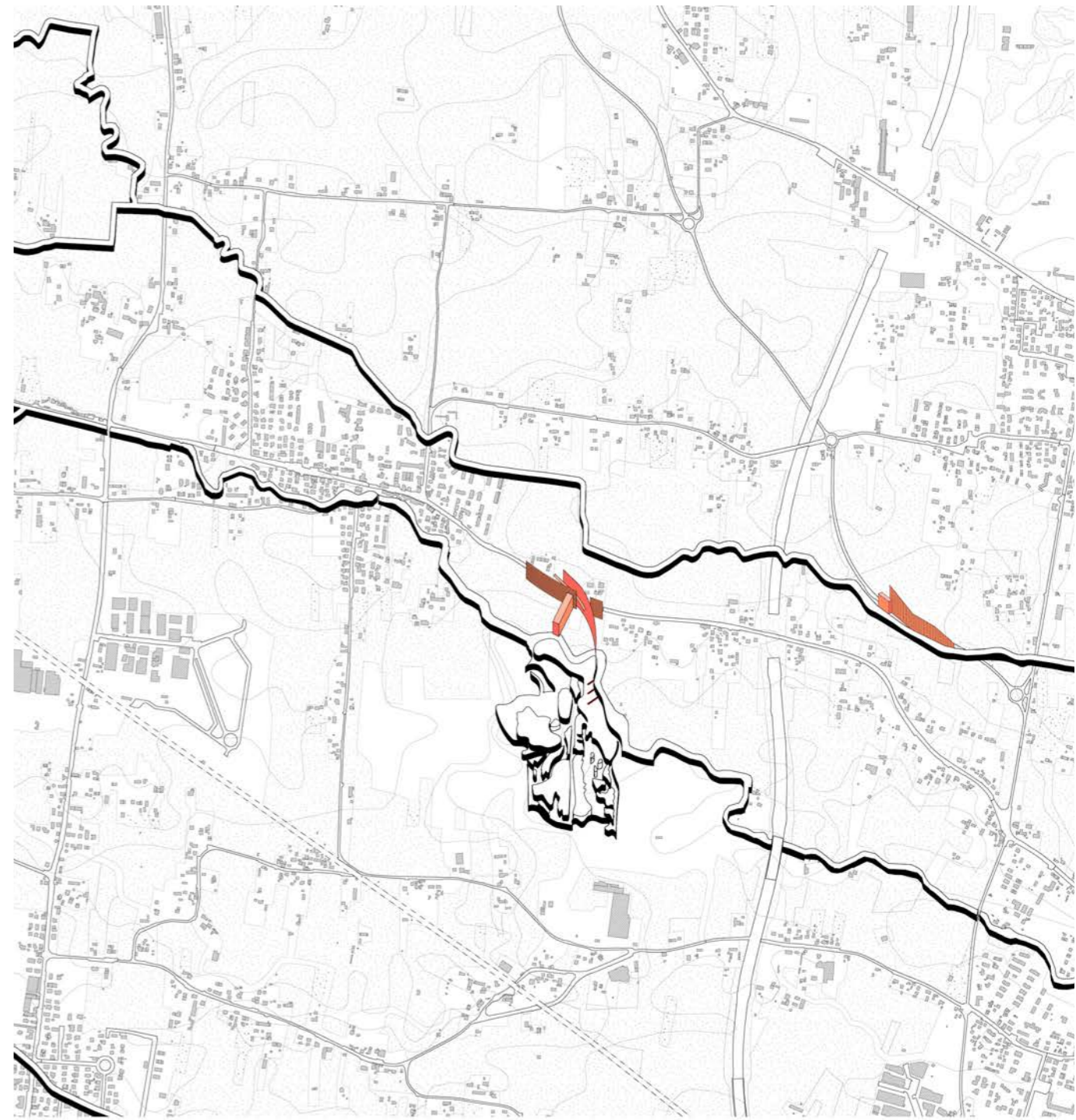




-  Green areas
-  Vineyards
-  Urban system
-  Buildings
-  Palo di fondazione
-  Water flow

Inland // Incrocio

2022



-  Green areas
-  Vineyards
-  Urban system
-  Buildings
-  Palo di fondazione
-  Water flow

Inland // Incrocio

2100



- Green areas
- Vineyards
- Urban system
- Buildings
- Palo di fondazione
- Water flow

Inlandseaward // Argine

2022



- Green areas
- Vineyards
- Urban system
- Buildings
- Palo di fondazione
- Water flow
- RSL projection 2100

Inlandseaward // Argine

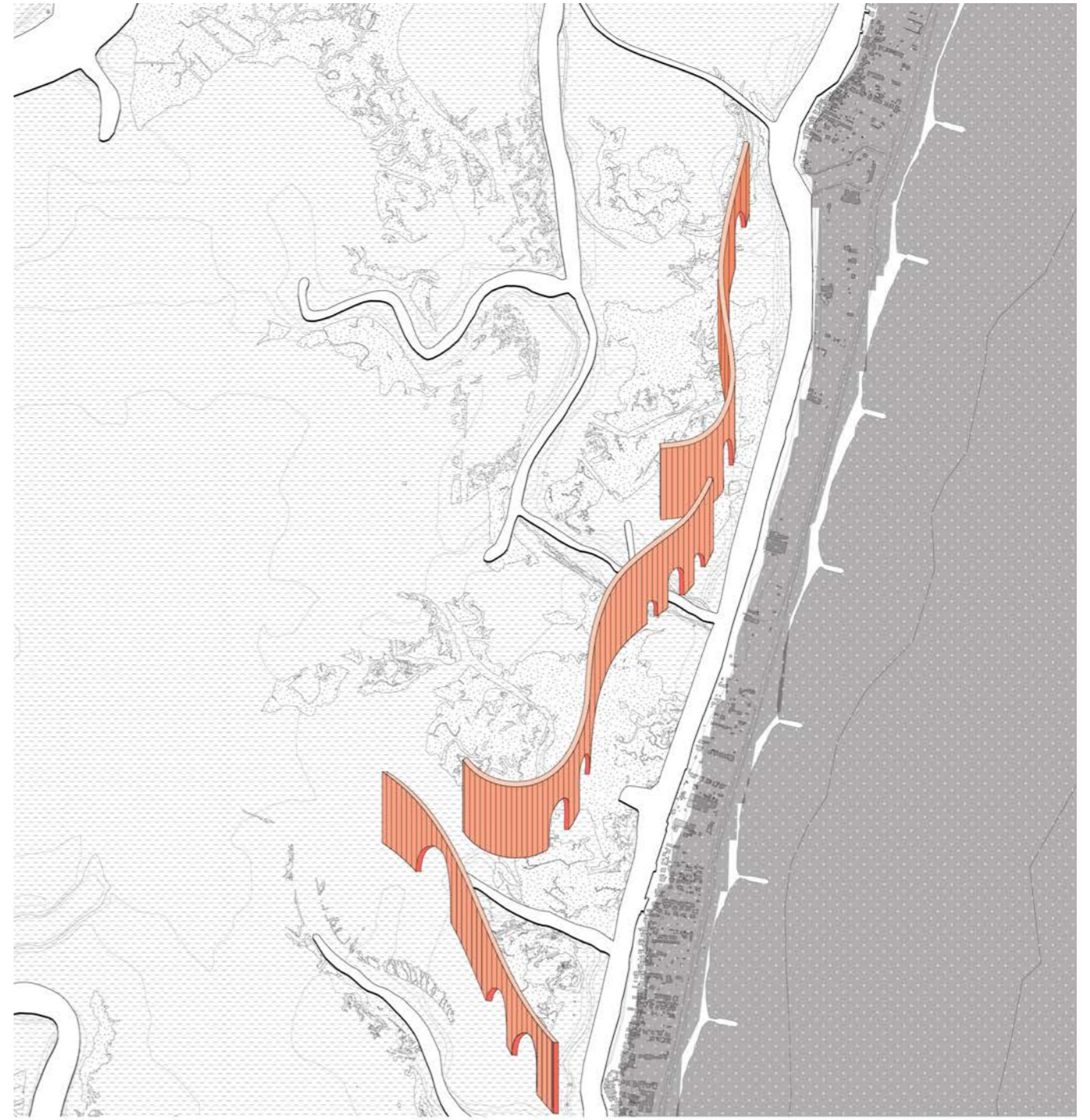
2100



- Green areas
- Vineyards
- Urban system
- Buildings

Seawardinland // Arcata

2022



- Green areas
- Vineyards
- Urban system
- Buildings
- Palo di fondazione
- Water flow
- RSL projection 2100

Seawardinland // Arcata

2100



- Green areas
- ▨ Vineyards
- Urban system
- Buildings
- ▬ Palo di fondazione
- ▬ Water flow
- ▬ RSL projection 2100

Seawardinland // Arcata

2022



- Green areas
- ▨ Vineyards
- Urban system
- Buildings
- ▬ Palo di fondazione
- ▬ Water flow
- ▬ RSL projection 2100

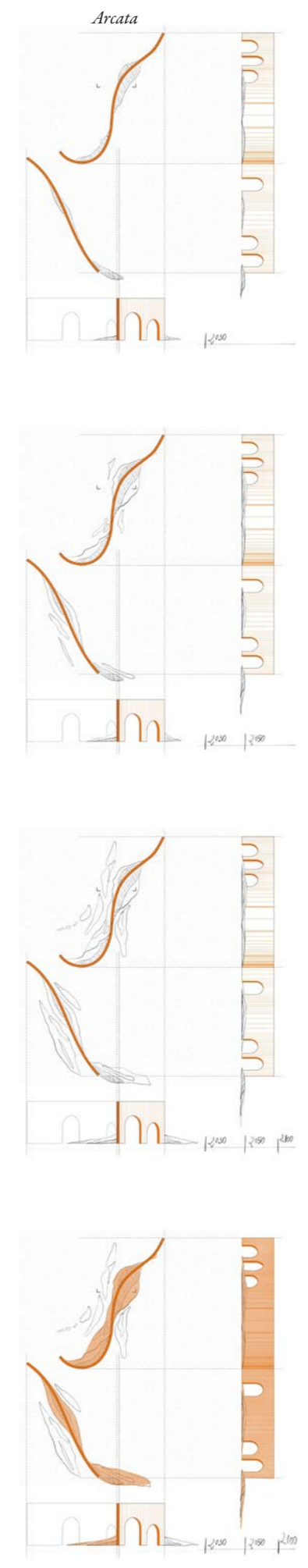
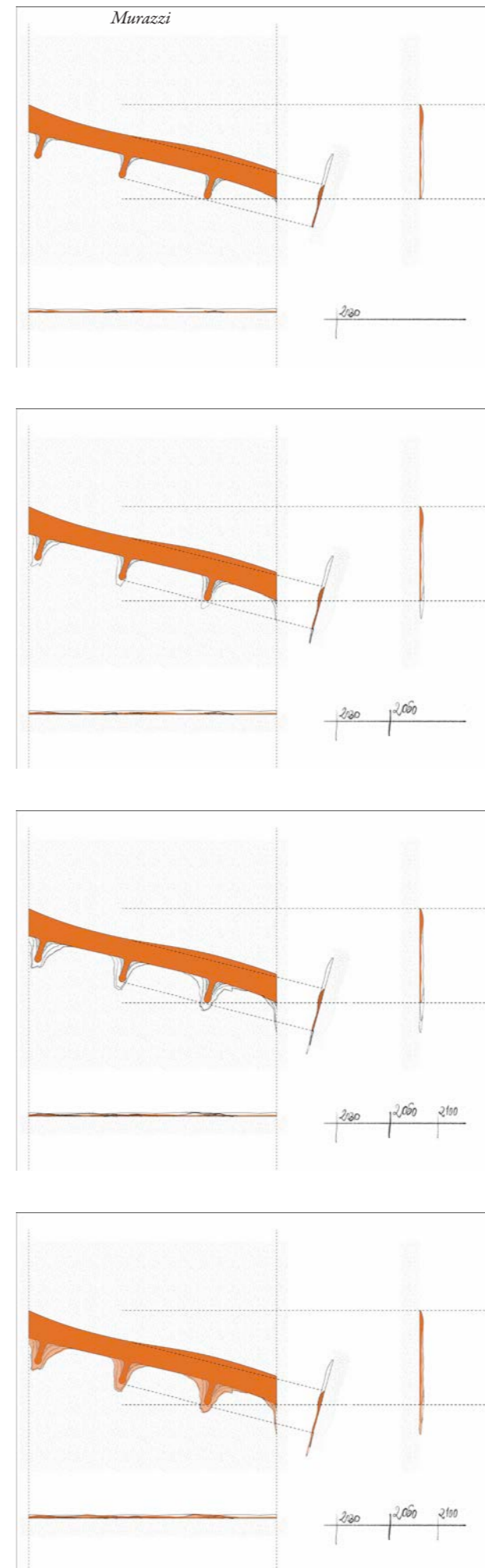
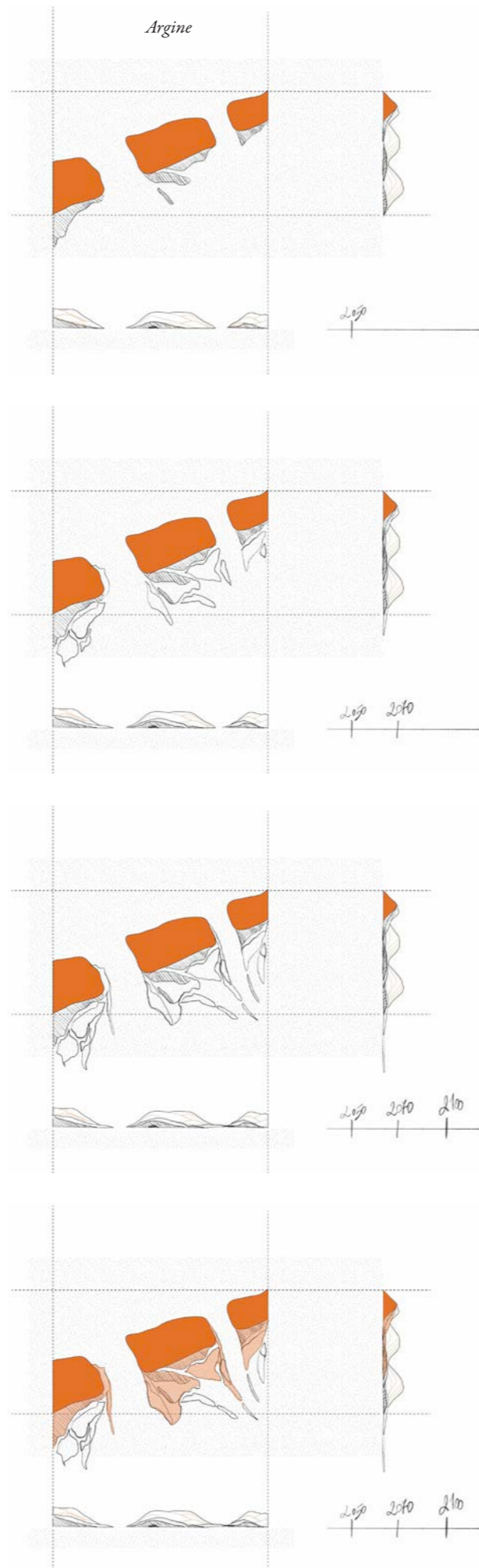
Seawardinland // Arcata

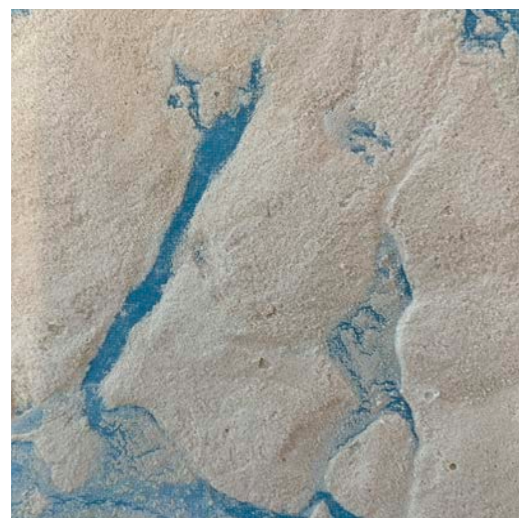
2100

## Shape adaptation

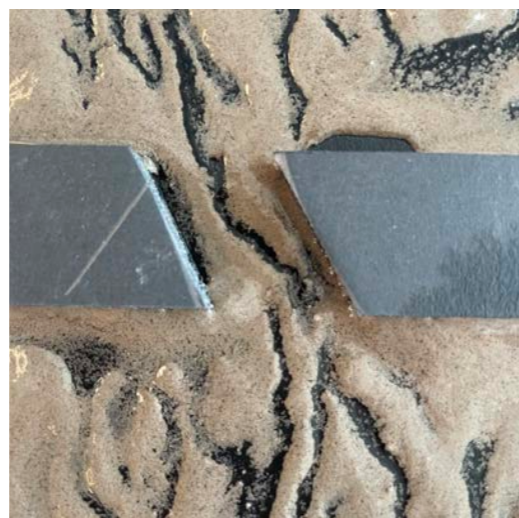
The design project puts an accent on the water mobility infrastructure. The design consists in a reinterpretation of its definition. We are usually thinking of infrastructure as a line that connects, but most of the time it divides two territories too. The intent of the poles of foundation is also of changing the infrastructure spatiality from a line that divides to a surface that creates space. This happens anyway in traditional Urbanism, a car road means a space around it, where for instance houses shouldn't be placed too close, or trees shouldn't have too big roots. The infrastructure connected to the poles of foundation acknowledges this more directly, leaving space for the growth of space around infrastructure. Because of the two elements of the pole (wall and flow), the object itself grows through time. As is represented in the drawings, for example the arcade, is laid down as a line, a wall, but through time, because of the sediments conglomerates, the new land becomes part of the wall, adapting and enlarging the pole of foundation through time.

This aspect has been tested with models. From the pictures in the next pages it is visible how the sand and the clay, moved by the water, gets attached in the strategic places dictated by the pole of foundation.

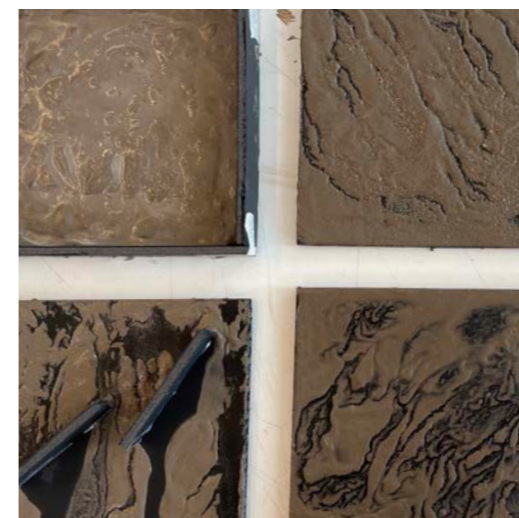




*Limestone sand tests*



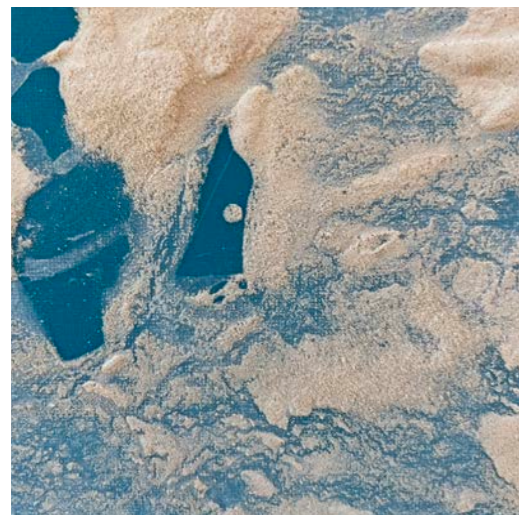
*Testing of a river embankment opening*



*6 tests - combination of loam and sand and introduction of blocking elements*

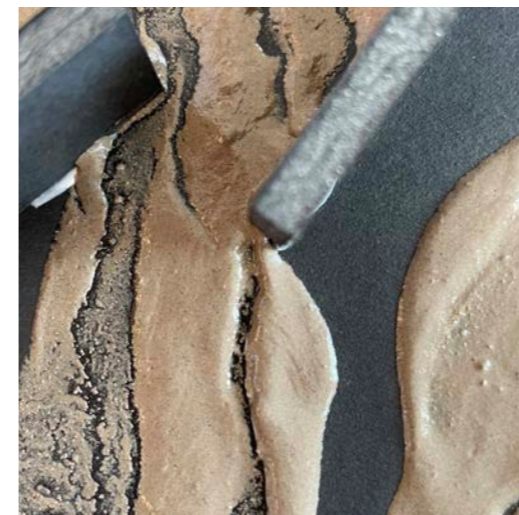


*Loam contained in closed environment*



*Very low loam composition*

*Higher sand conglomerate*



*Wall composition blocking test*

*Little sand conglomerate*



## Territorial foundation

The poles of foundation, beside being an activator on the local scale, are surely composing a territorial system. The four typologies are happening in fourteen different places and they are acting on specific flows, rivers or canals.

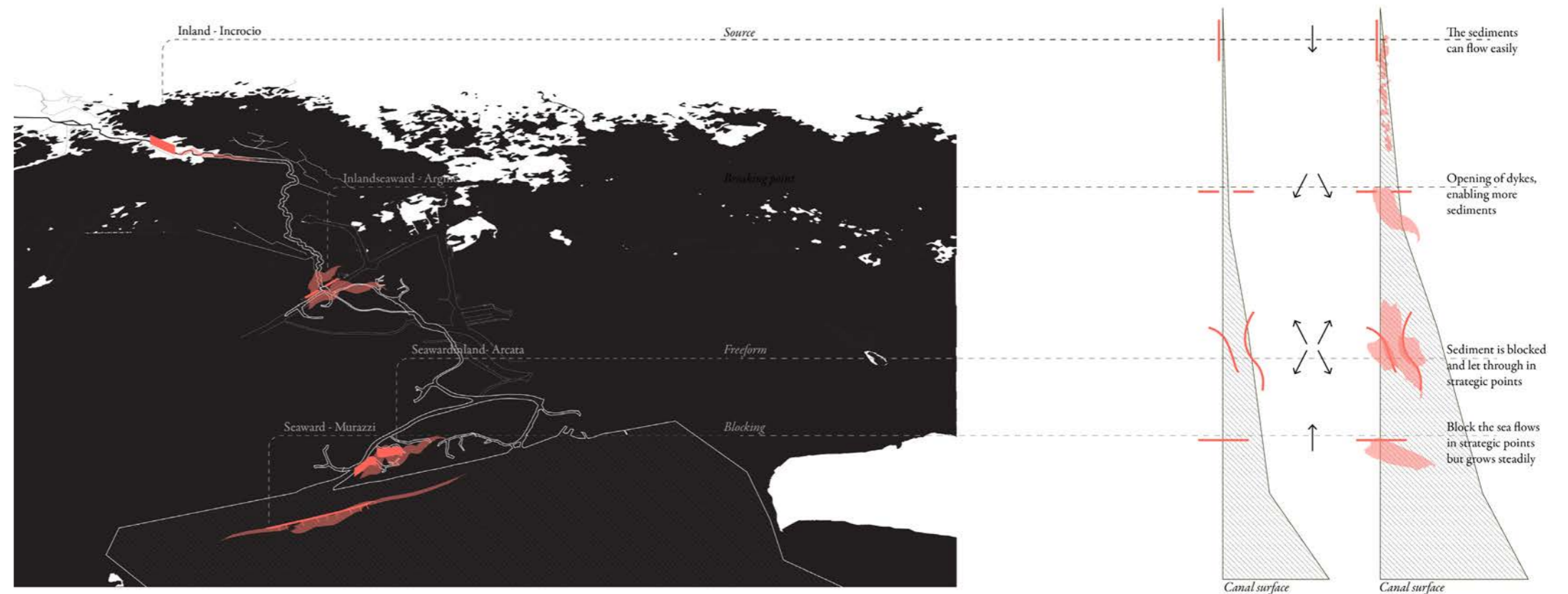
If we consider one particular water line, we can see the each pole of foundation having an action on it and on the enhancement of the Inlandseaward territory. The 'Incrocio' is the source of the river, the first action taken on it. The mobility is key at this point: from the Inland transportation mainly by car, here is possible to reach the Seaward territory by boat. The walls are not manipulating the sedimentation flow, but rather facilitating it.

From the 'Argine' we start seeing the flow enlarging. This is the breaking point because it opens up the dykes and gives more space to the river. The 'Arcata' is enlarging further the flows, the canals start branching out, becoming 'ghebi' (small canals which connect the *barene* to the main water network). 'Murazzi' is the last step before the river or canal becomes finally sea.

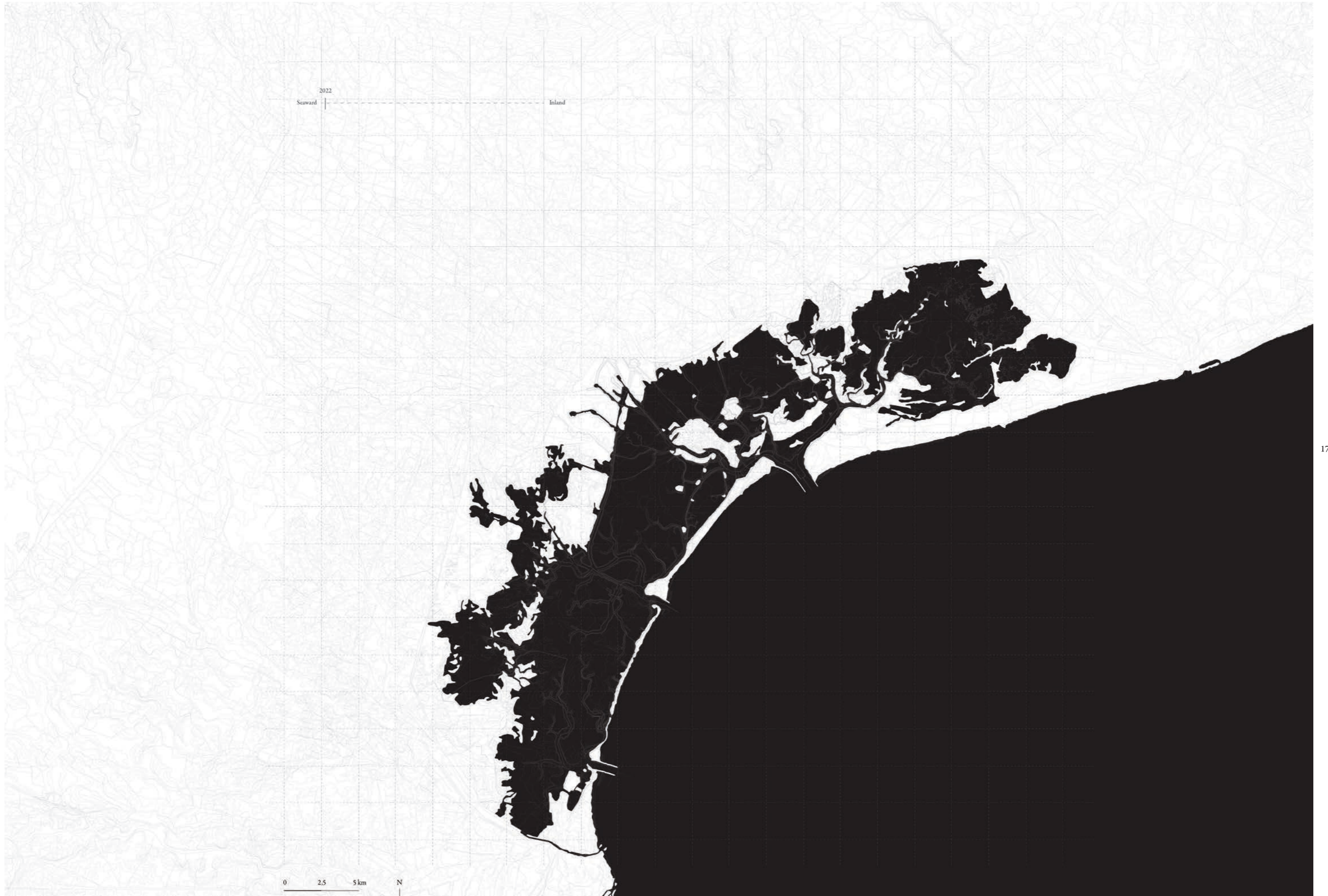
The system of four typologies is a network of feeding of sediments to the lagoon, from the sea and from the rivers.

The final maps in the next pages, show further how the adaptation and feeding of the sediments develops true time and through the advancement of the RSL. The arcades and open dykes are starting to arise from 2030. From 2060, some of the dykes get more openings, the protection of the remaining coast takes place with the new 'Murazzi' infrastructure. Finally in 2100 we see all the poles of foundation in place, with the 'Incrocio' coming into the picture as well.

We can observe a territory which is deeply changed, but in an organic and facilitated way.



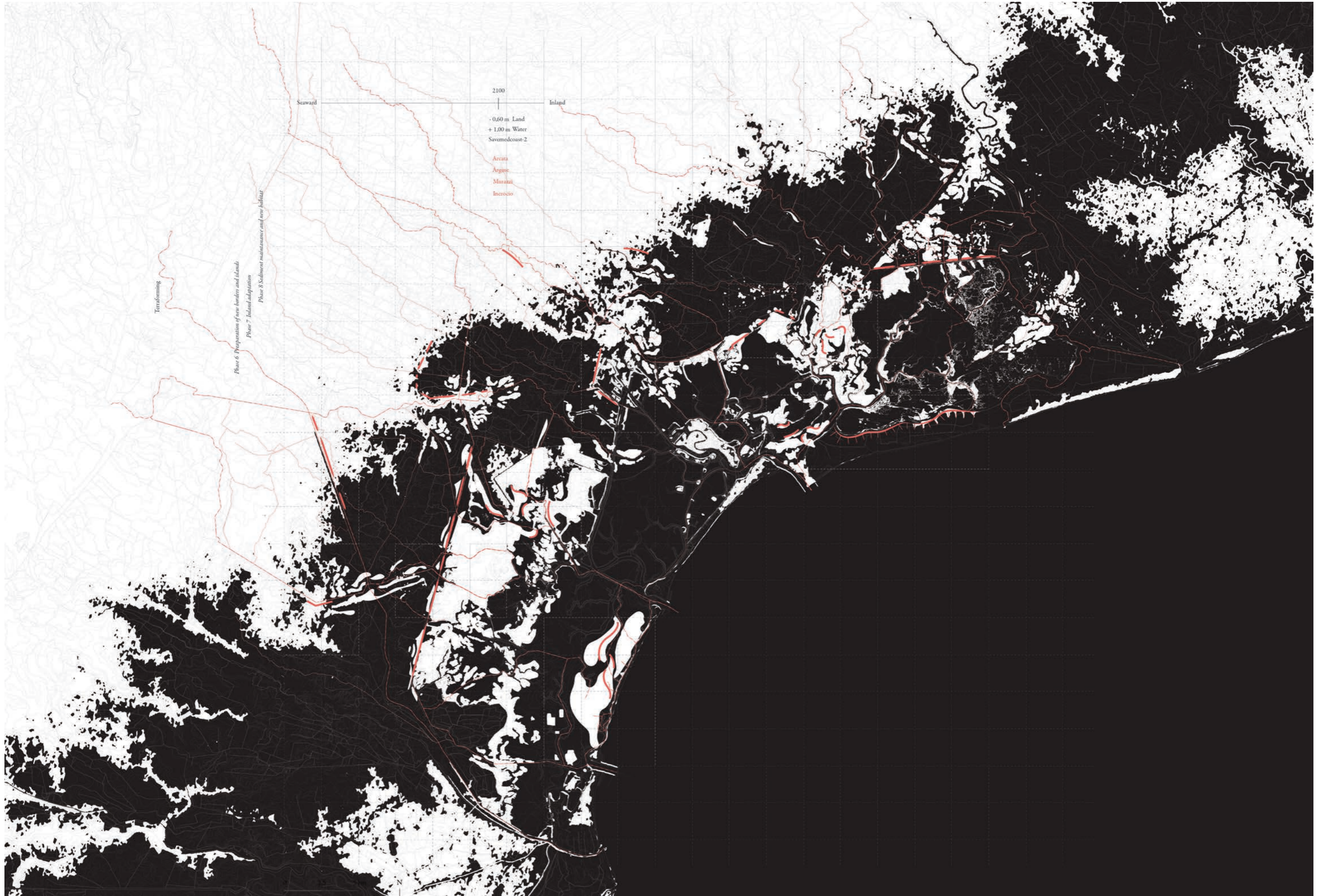






Process of Preparation  
 Phase 1 Water network on the foreground  
 Phase 2 Enhancement Barre and Vigne  
 Phase 3 Containment of new sediments





## CONCLUSIONS

Terraforming islands  
Project deconstruction

## Terraforming islands

We could potentially put the poles of foundation under laboratory scrutiny, run thousands of tests in order to predict how sediments and new land will evolve in 2100 under the designed condition.

The purpose of the project though, is not to depict the new reality for 2100 in Venice, it is to unveil the potentialities of human and non-human present systems and their adaptability to the climate crisis spatial consequences. Because of this, we can say that the form of the project is unpredictable. It is not possible to show a precise and pragmatic picture of how Marco, Paolo or Claudia could live in 2100; what is possible though, is to imagine which human activities most probably will go on in 2100. We can imagine that Sebastiano could still be a professional diver, the form of it, the clear condition with which he is going to work with, is out of the project scope.

For this reason, a small exercise of imagination has been done. The activities, being the input for future life in Venice, can be represented by creative and curious islands. So we have the furnace of glass blowing inside a flask island, houses inside moorings, coat hangers on a pier to access the *barene*, etc.

It is possible to categorize these future terraforming object in three different elementals: the islands (for life and activities), the public spaces and the infrastructural accessories (such as water doors, fishing nets and fountains).

The exercise could be brought forward, by creating an abacus of elementals that together make life possible in the new Venetian condition.



Public space

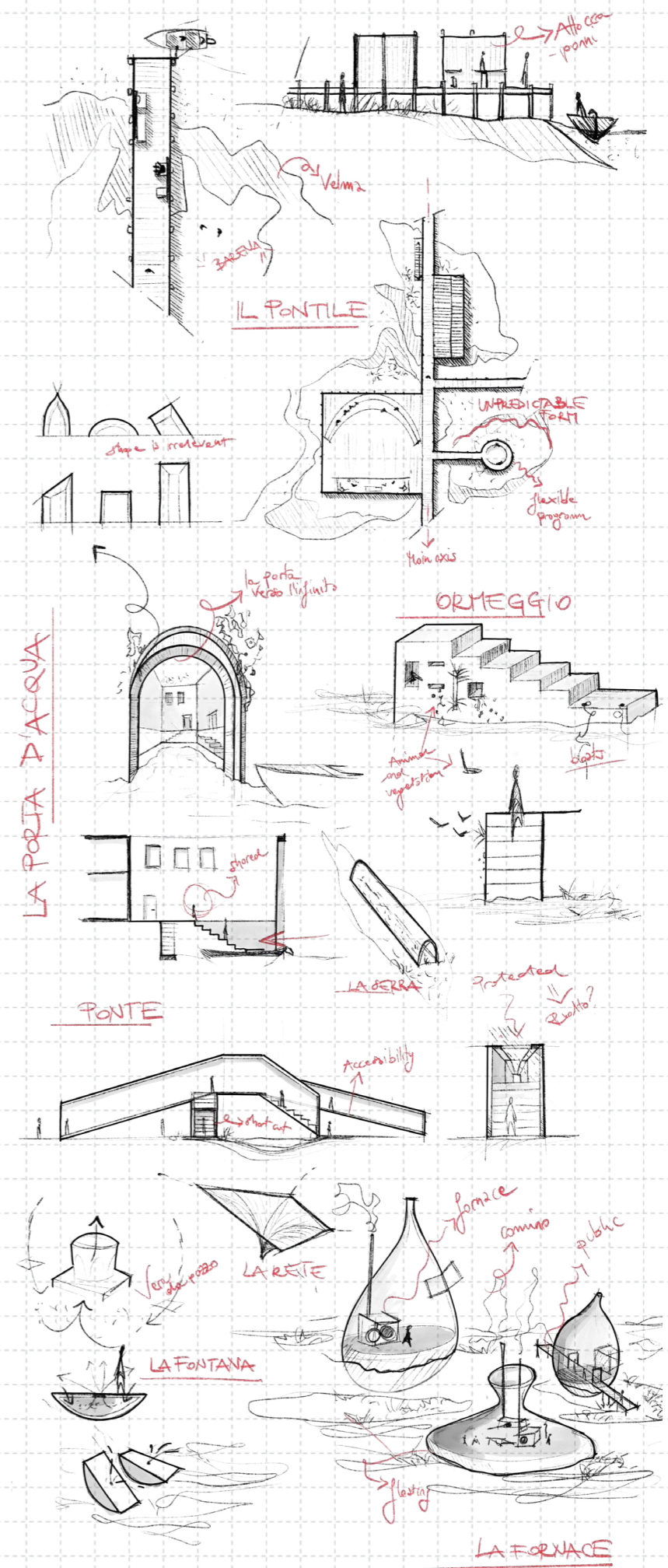
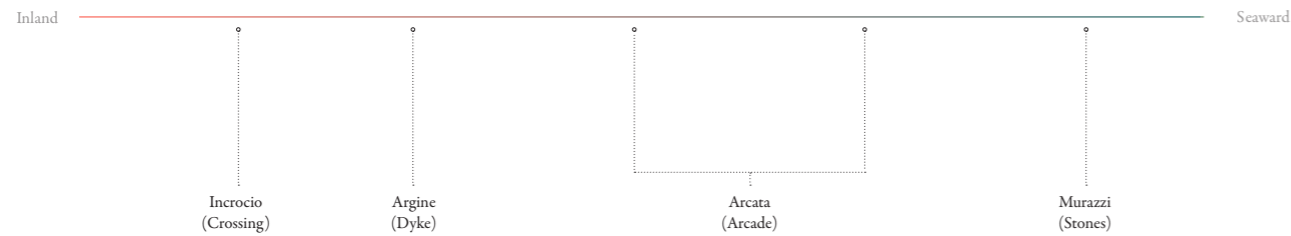
- Square // Campo
- Bridge // Ponte
- Pier // Pontile
- Mooring // Ormeggio

Islands

- Residential // Palazzo
- Agricoltura // Serra
- Fishing // Valle da pesca
- Kiln // Fornace

Infrastructural Accessories

- Water door// Porta d'acqua
- Sand // Sabbia
- Net // Rete
- Fontain // Vera da pozzo





Seaward // Murazzi



Seawardinland // Arcata





Inlandseaward // Argine



Inland // Incrocio

## Project deconstruction

A Design, Architecture or Urbanism project never ends at the conclusion paragraph. Especially in the territorial scale and far temporal dimension, with so many unpredictable factors, the project could never get a final form.

This is why it was decided to take a brief look at the evolved project through the lens of the lines of inquiries taken into account in the Landscapes of Accumulation and Clearance: Matter, Habitat, Topos and Geopolitics.

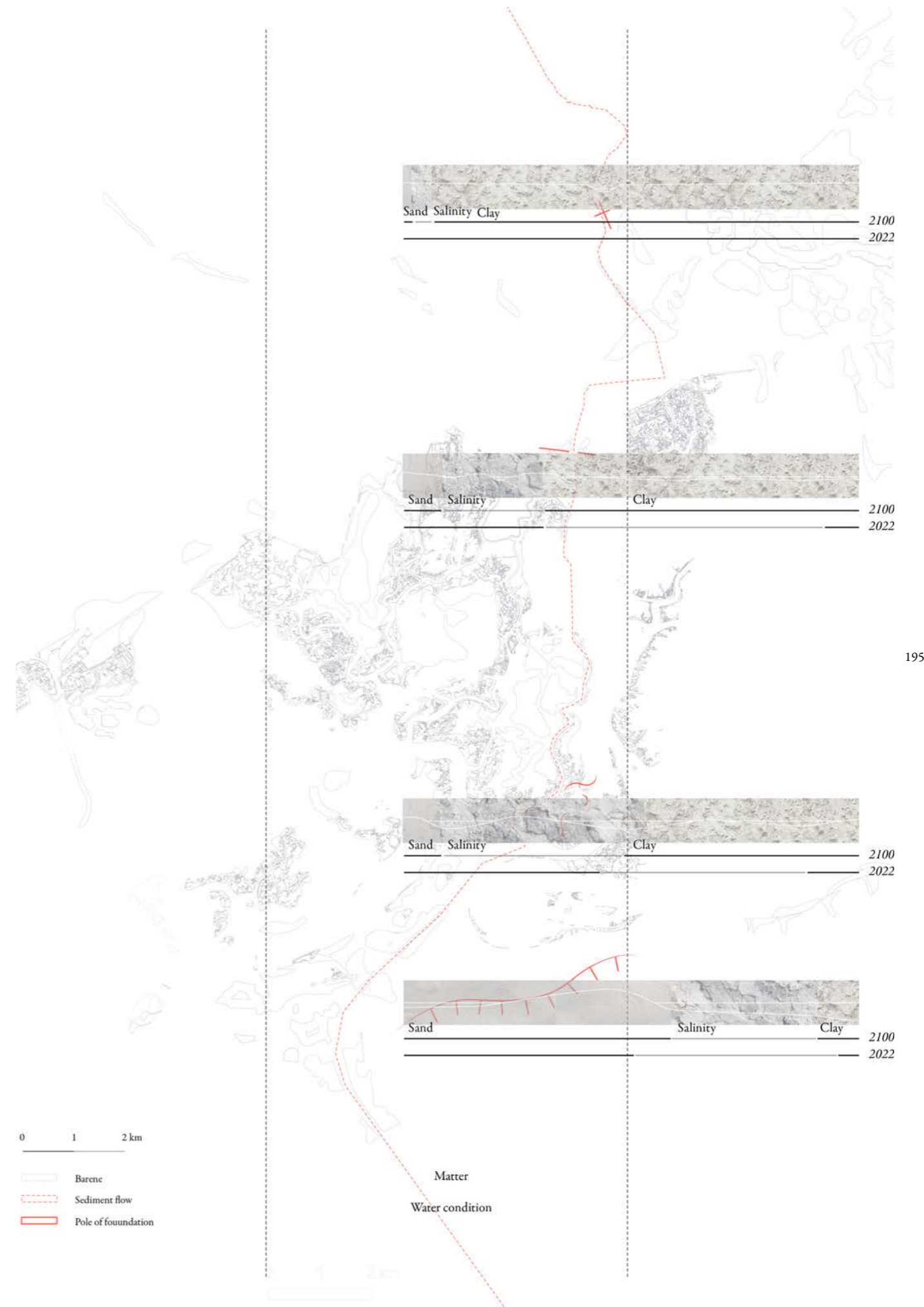
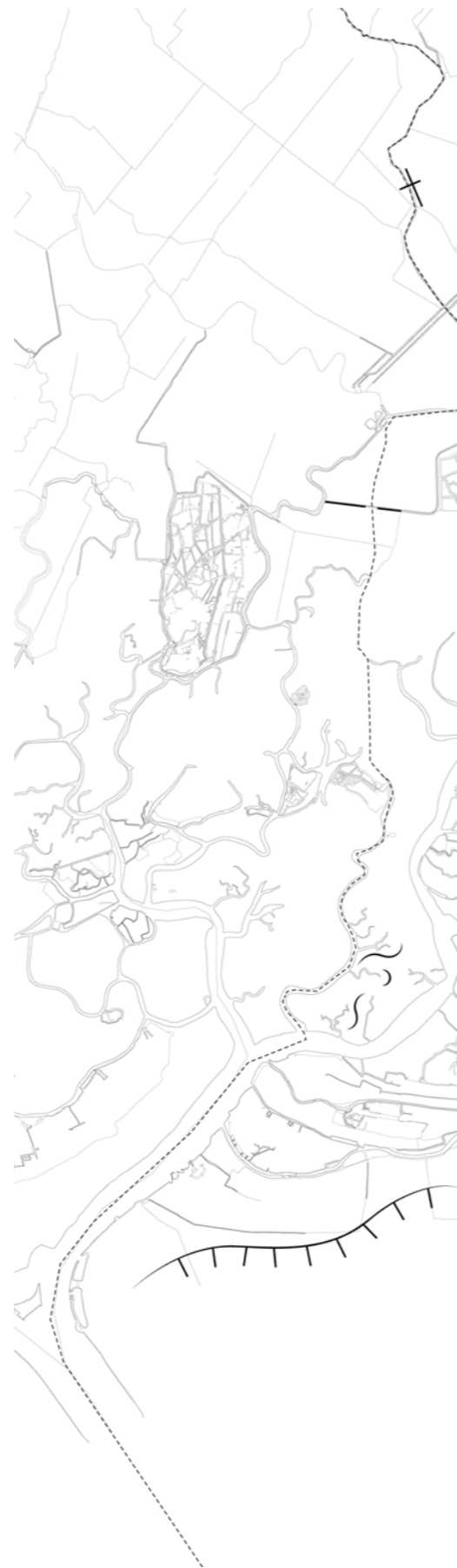
From the essence of the project, the flow of water and the four types of poles of foundation, it is possible to deconstruct once again the new condition into the four aspects.

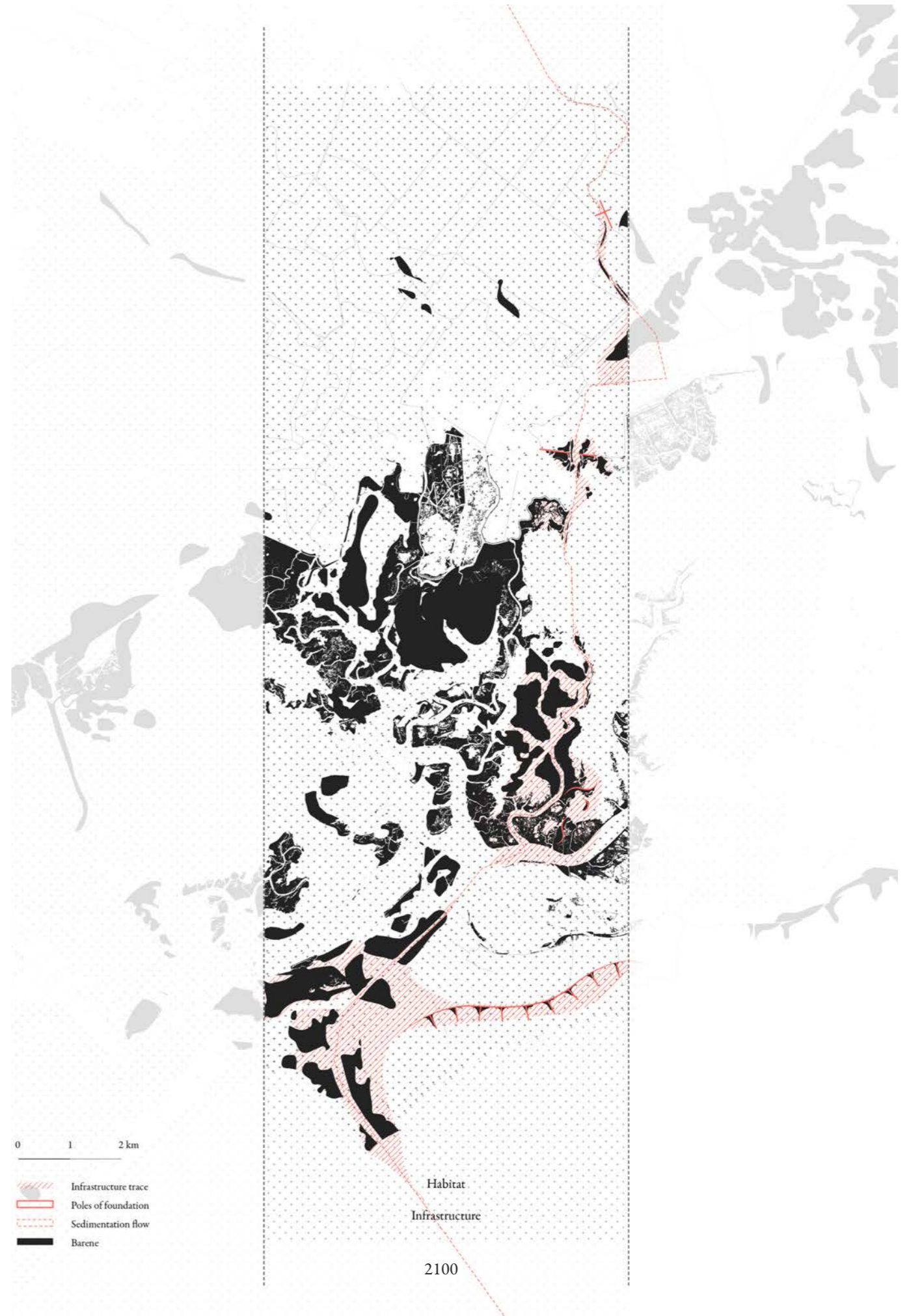
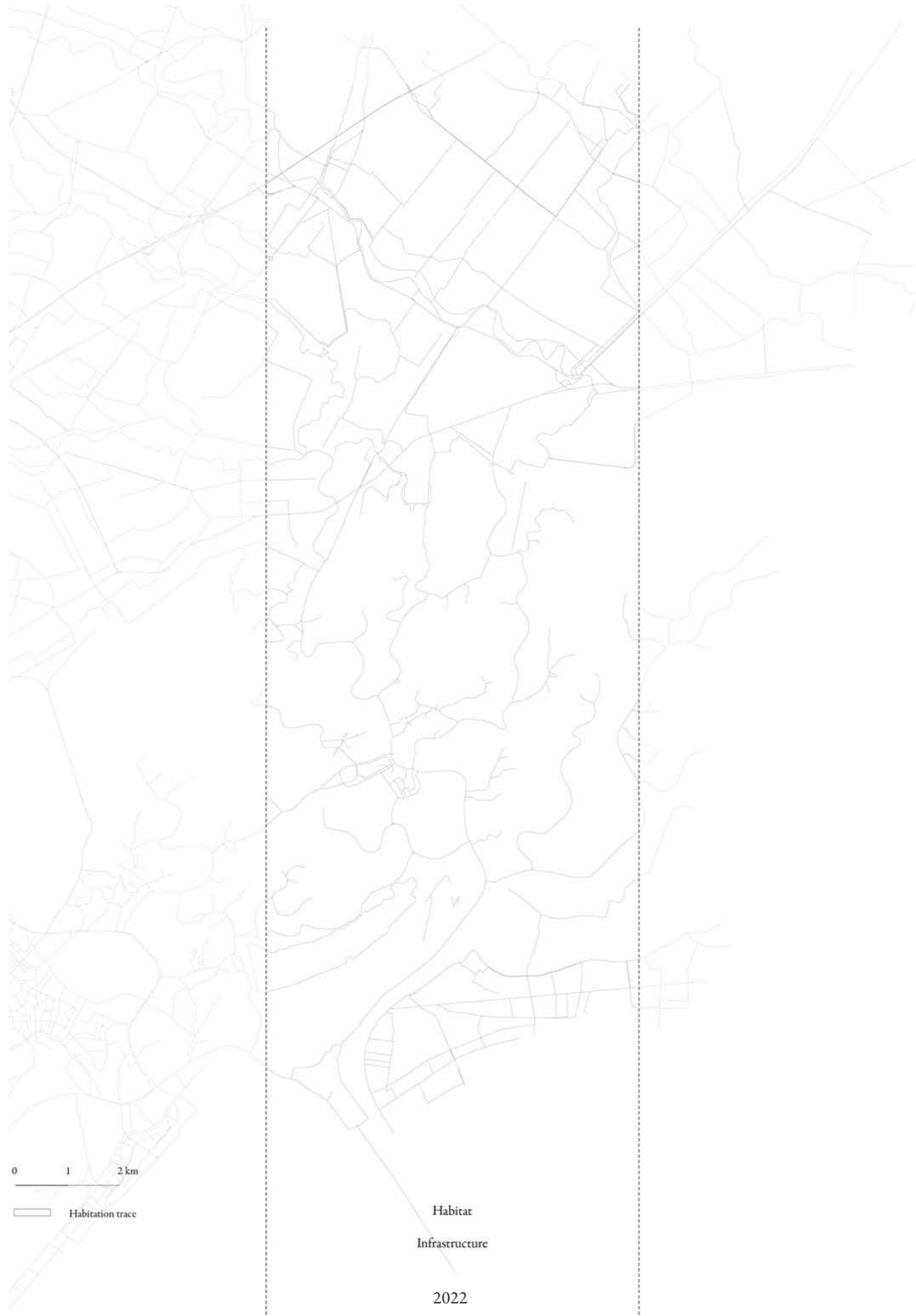
For Matter it was considered the water condition once again. The new water morphology is more articulated and free, with changes in surface elevation and chemical composition. The salinity is decreasing overall because of the intense presence of sediments from the rivers, while sand and clay fluctuate because of it.

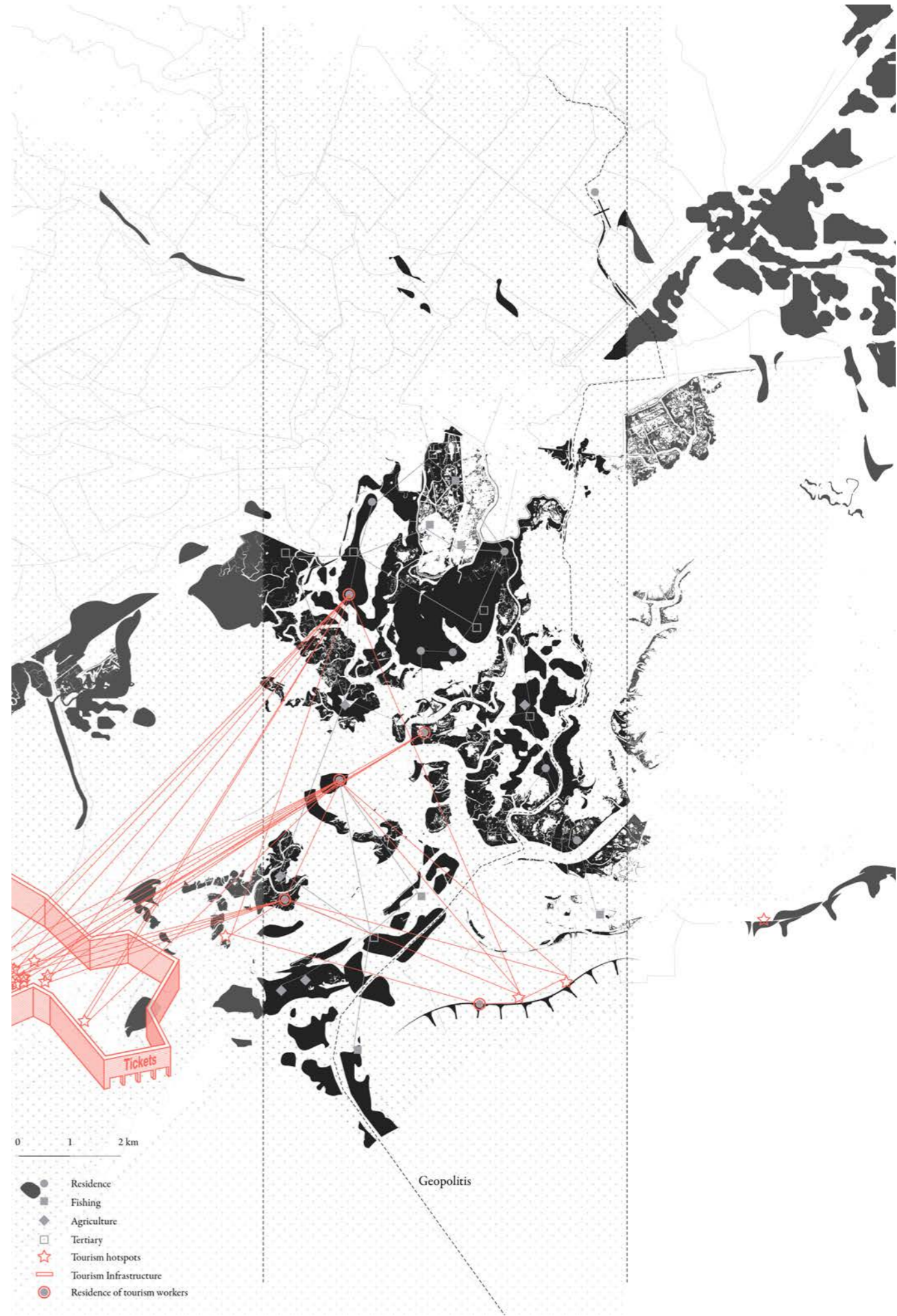
For Habitat, it is important to remember the lessons of Accumulation: the inhabitation pattern is observable from the mobility network, no matter the type. The infrastructure, roads, canals, airlines, railways, having the same hierarchy, are only a line, while in the new 2100 condition, they express a different form. The infrastructure connected to the poles of foundation is a surface, it is a composition of land, water and activities, not only an urban object.

Topos is where we can observe a network of programs activated by the infrastructure. The functions individuated in the video.

Finally geopolitics is where we can see the critique of mass tourism taking place. It is impossible to overlook the fact that nowadays tourism is a vital part of the Venetian economy, it is unrealistic to imagine 2100 without it. Therefore we can assume the historical city centre of Venice might be artificially preserved in order to continue to the tourists the city and tourism to the city.







## REFLECTION

This research and thesis started from a personal point of view and my familiar experience with Venice.

The initial input came from the sense of displacement, from the experience that my family, friends, and I had first-hand.

I started by trying to recognize why this sense of displacement is so present in Venice, and I hypothesized that the infiltration of modernity and its acceleration of the slower tranquil Venetian time made this aspect rise in the last decades. Coming from this very present reality and its spatial consequences, I decided to add to the table an extreme temporal and climate-related variable: the rising sea level scenario of 2100.

Therefore, the intent was to better understand the present and predict the future in a drastic manner: to make conscious but brave design decisions for the territory.

Through the monographies exploration of the investigation of Modernity, the spatial consequences of displacement, and the RSL projection, the first analysis was defined. I had the chance to research deeply through the lines of inquiry and my interpretation of them, going beyond the conventional mapping methods. Especially the effort of going from landscapes of Accumulation to the action of Clearance was crucial for my Utopic and Terraforming approach to the project. The strong exercise of imagination towards an unpredictable and glooming future started from the Clearance intention and thought me that the way to approach all these challenges would be through non-resistance. Non-resistance also became the name of the thesis, making it clear that the main idea that guides my research and design is one of accepting the inevitable while taking a caring approach toward what's left and recognizing its potential.

The research question, therefore, highlights the non-resistance effort, and questions what would be its consequence in the spatial domain, what would be the new form and its morphology.

Looking back, I can see that the method that drives the thesis is one of going from analysis to design back and forth per phase of the project.

Once I arrived at a certain finding through research, I straight away made a design effort based on that finding; after defining a projection I went back again to analysis and started the process again.

This methodology shows me clearly that this thesis is not only research or only design but is a research by design exercise that juggles between creation and reflection.

An instance of this methodology is that the territorial design of non-resistance, with its frontiers of Inland and Seaward, was defined before going back to Venice and filming the video documentary. After a crucial design step was taken, there I was investigating the human component of the territory, trying to understand better the sense of displacement and the adaptation potential of people. Moreover, the video documentary and its characters are then the main inspiration and lesson for the reprogramming and Terraforming of the new 2100 condition.

My graduation work is relevant to Urbanism because it gives a different theoretical and conceptual view of the climate crisis. It refuses the over-engineered approach, welcoming instead the future environmental changes. As we usually try to fix the problems deriving from the climate crisis, this thesis accepts and acknowledges the environmental changes that it brings, working with it towards a future possible scenario of inhabitation of the remaining space.

The most interesting aspect of all for me was to design the unpredictable, design without a consistent space and form. This brought a huge challenge as we as designers are used to manipulating reality as we see it now for the future, while the case of this thesis is looking directly towards a future that is uncertain and hard to grasp. While I was interviewing people for the documentary, I asked them to try to imagine their life in 2100, looking at the RSL projection on the map, all of them were showing confusion and difficulty in imagining so far ahead. The most important thing though is their belief that someone will eventually find a solution for it, someone will fix it for them. The realization for me on a personal level was that that person could be me, I am a designer and as such, I have the responsibility and the role of giving solutions for people to live in their territory freely and safely. It is the duty of Urbanism to answer to that call for help, it is mandatory to challenge the present systems, the politics, the urban condition. Thus, this thesis is an attempt to make a strong critique to the territorial condition and its politics of space, revealing the strong adaptation potential of the landscape and the people who inhabit it.

## Further research

The project of Non-Resistance has been the product of a fruitful collaboration between various fields. This thesis is an experiment on how in Urbanism is possible to combine Arts, Social sciences, Visual research and others. In this text it was already presented the integration of Photography and Film, but further deepening of the project is still to come.

The initial research question:

“In light of the imminent climate crisis and its consequent sea-level rise,

What is the altered anatomy of non-resistance of the Metropolitan city of Venice, supporting its reflection in the spatial, eco, social, economic systems through a Terraforming approach?”

Can have multiple sub questions for other fields of research:

(Linguistic) How will the Venetian dialect develop in 2100 because of the influence of RSL?

(Fashion design) How can the inhabitants of the different poles of foundation dress in 2100?

(Economy) How can the economical activities still provide sustainment in 2100 under influence of the RSL?

(Marine Biology) Which fish species will be able to adapt to the new 2100 conditions? What is going to be the influence on the Adriatic sea population?

And we could suppose more questions further.

The topic addressed in this thesis, is an example of how well Urbanism can be influenced by non-Urbanism studies. It shows clearly that collaboration can bring us a more holistic vision of the future. Furthermore I personally believe that only Arts and people who do Arts, can have the creativeness and imagination power to go beyond the norms and envision a different and adapted year 2100 for Venice. More integration of it, would make this project richer and more grounded.

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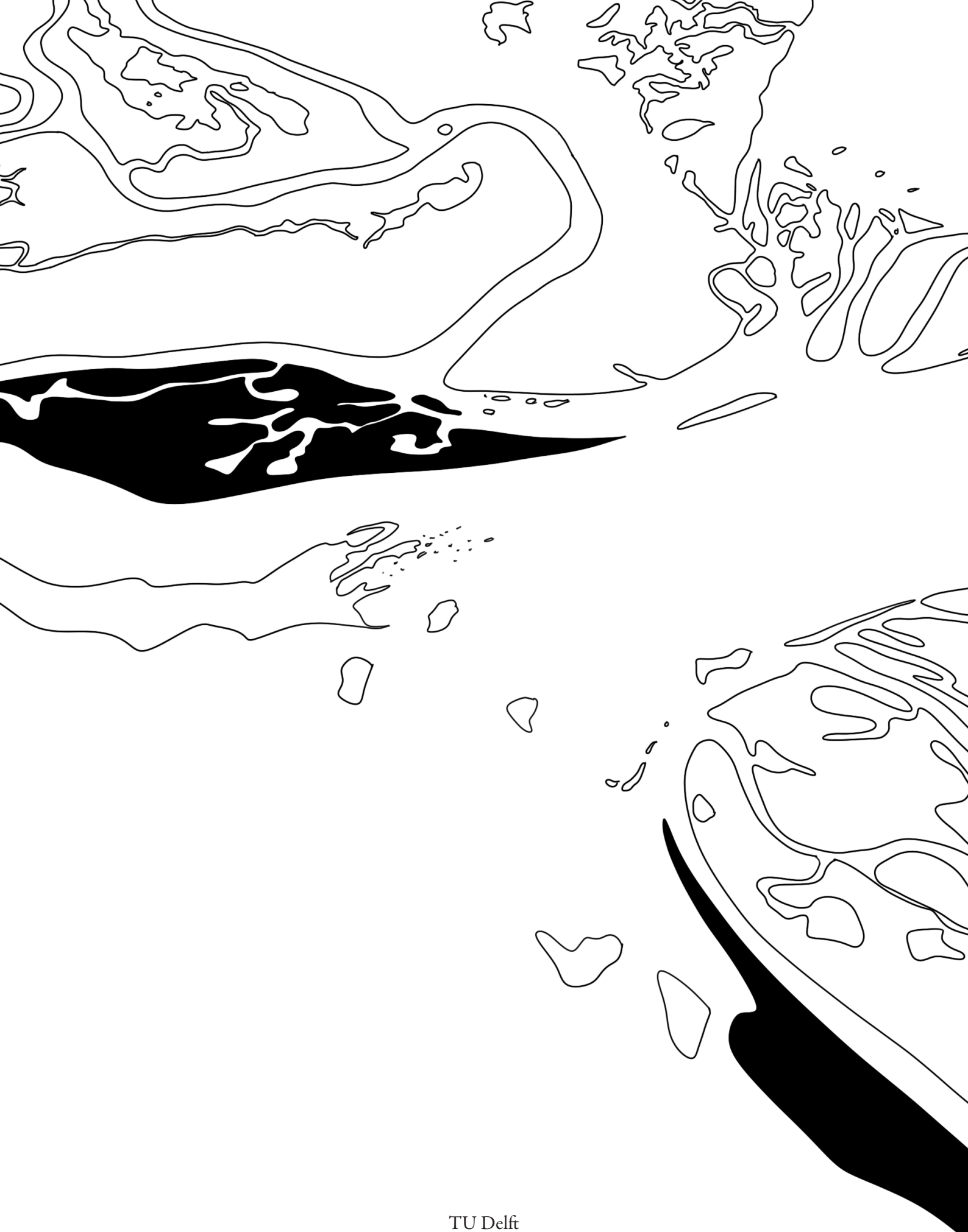
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