



Country / City

University / School

Academic year

Title of the project

Authors

Switzerland

Accademia di Architettura di Mendrisio

2019

The Landscape at the Level of Climate Change | The tide clock in the Loire estuary

Andrea Sirotti



TECHNICAL DOSSIER

Title of the project	The Landscape at the Level of Climate Change The tide clock in the Loire estuary
Authors	Andrea Sirotti
Title of the course	Waterscape: Leaving Altitude 0.00, the Case Study of the Loire Estuary
Academic year	2019
Teaching Staff	João Nunes, João Gomes da Silva, Teresa Rosas da Silva Figueiredo, Angela Palmitessa
Department/Section/Program of belonging	3rd Bachelor, Autumn Semester 2019/2020
University/School	Accademia di Architettura di Mendrisio



Written statement, short description of the project in English, no more than 250 words

The Loire estuary is one of the many contemporary landscapes that is facing with the consequences of global warming and the consequent rise of oceanic waters which, for a territory where agricultural, urban, social and industrial life is regulated by the tide, we understand is a rather urgent issue.

The proposal is, through the manipulation of the morphology of the territory in particular of the area of the Martiniere Canal, to modify and concentrate the hydro-sedimentological processes on the higher altitudes of the soil already existing. In this way we want to preserve the ancient morphology of the territory ensuring at the same time a system of protection on the coastline.

The project is a complex system, defined by two characteristic elements. The first element is the wooden lines of poles, arranged on the already existing morphology, the second element is the anthropic element of the footbridges. Seven bridges that transversally connect the new islands ensuring the anthropic life of the landscape.

The project definition wants to be the time, the reading of the project is in fact in three phases at a distance of about fifty years from each other in which what appears is only a hypothesis of what the territory will potentially become. We do not work on the anthropic definition but rather on the natural possibilities that a landscape system can tell, where the spontaneity of the balance will be reached in a forecast of about 100 years.

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CLIMATE CHANGE AGAIN

11th International Biennial Landscape Barcelona

Barcelona September 2020
SCHOOL PRIZE

THE LANDSCAPE AT THE LEVEL OF CLIMATE CHANGE

THE TIDE CLOCK IN THE LOIRE



CASE STUDY | LOIRE ESTUARY

The Loire estuary is one of the many contemporary landscapes that lives and will soon experience the consequences of global warming and the consequent rise in ocean waters which, for an area where agricultural, urban, social, and industrial life is regulated by the trend of the tide we understand is a rather urgent issue.

The Martiniere canal located north-west of the city of Nantes, built in 1861, deeply marks the territory of the estuary. Built as a channel to more easily connect the city of Nantes with the ocean, it was used only for 20 years, then became a ship graveyard, used by the Germans in the Second World War, it is now used to regulate the agricultural waters of the Pays de Retz.

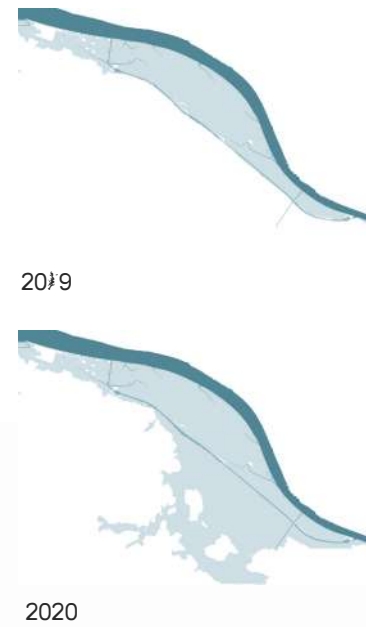
As an intervention site, I therefore chose to work in the Martiniere area, studying its complicated operation and ensuring its operation over time with the abandonment of the current level of the water.

GEOGRAPHICAL CONTEXT | LOIRE REGION



LOIRE - River of central and western France, which conveys the waters of a large part of the Central Massif and the south-western region of the Paris basin; it has a length of 1000 km. with a basin of 116,950 sq km.

HIGH TIDE EVOLUTION



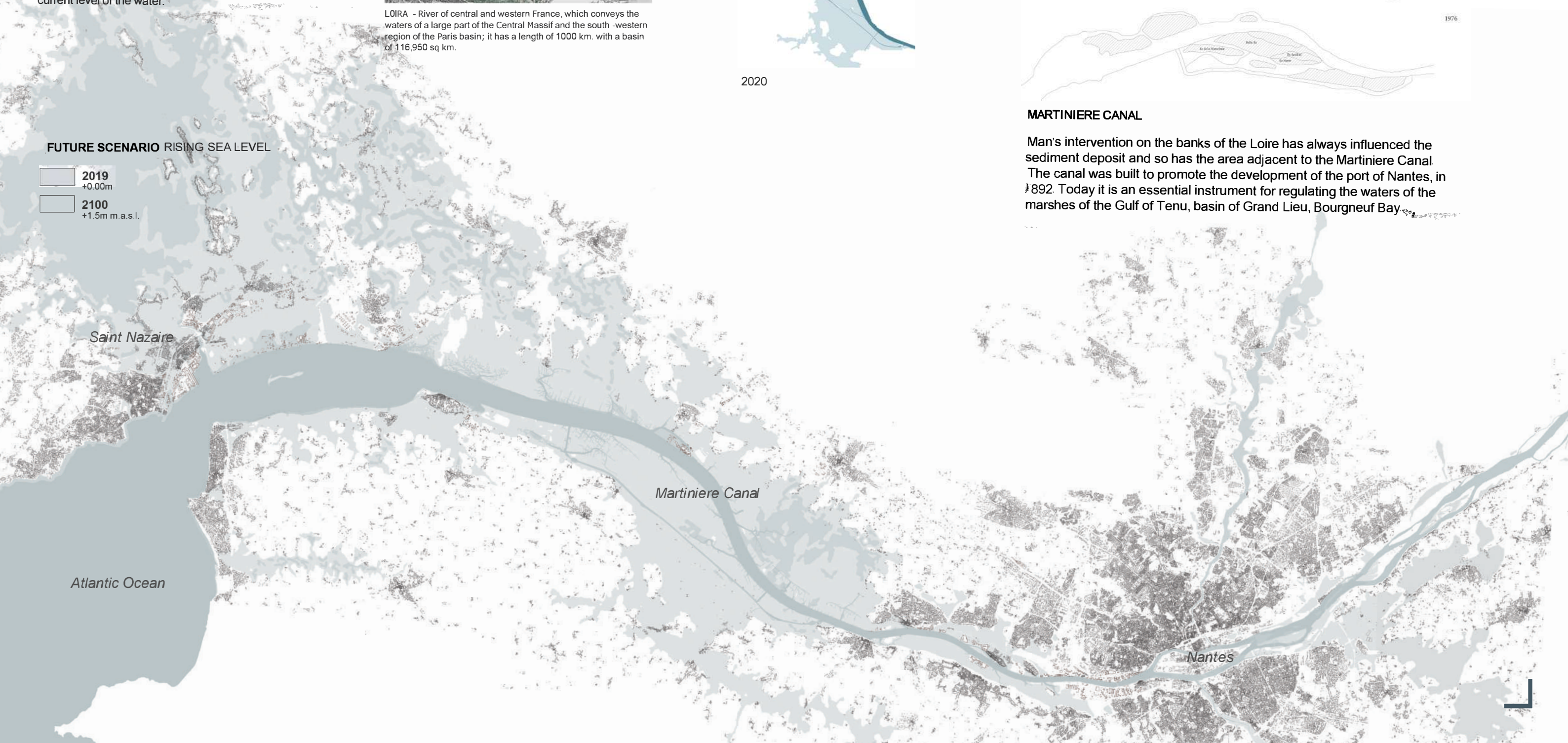
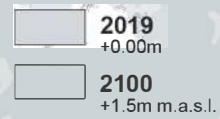
STUDY AREA | SEDIMENTS DYNAMICS



MARTINIERE CANAL

Man's intervention on the banks of the Loire has always influenced the sediment deposit and so has the area adjacent to the Martiniere Canal. The canal was built to promote the development of the port of Nantes, in 1892. Today it is an essential instrument for regulating the waters of the marshes of the Gulf of Tenu, basin of Grand Lieu, Bourgneuf Bay.

FUTURE SCENARIO RISING SEA LEVEL



THE LANDSCAPE AT THE LEVEL OF CLIMATE CHANGE

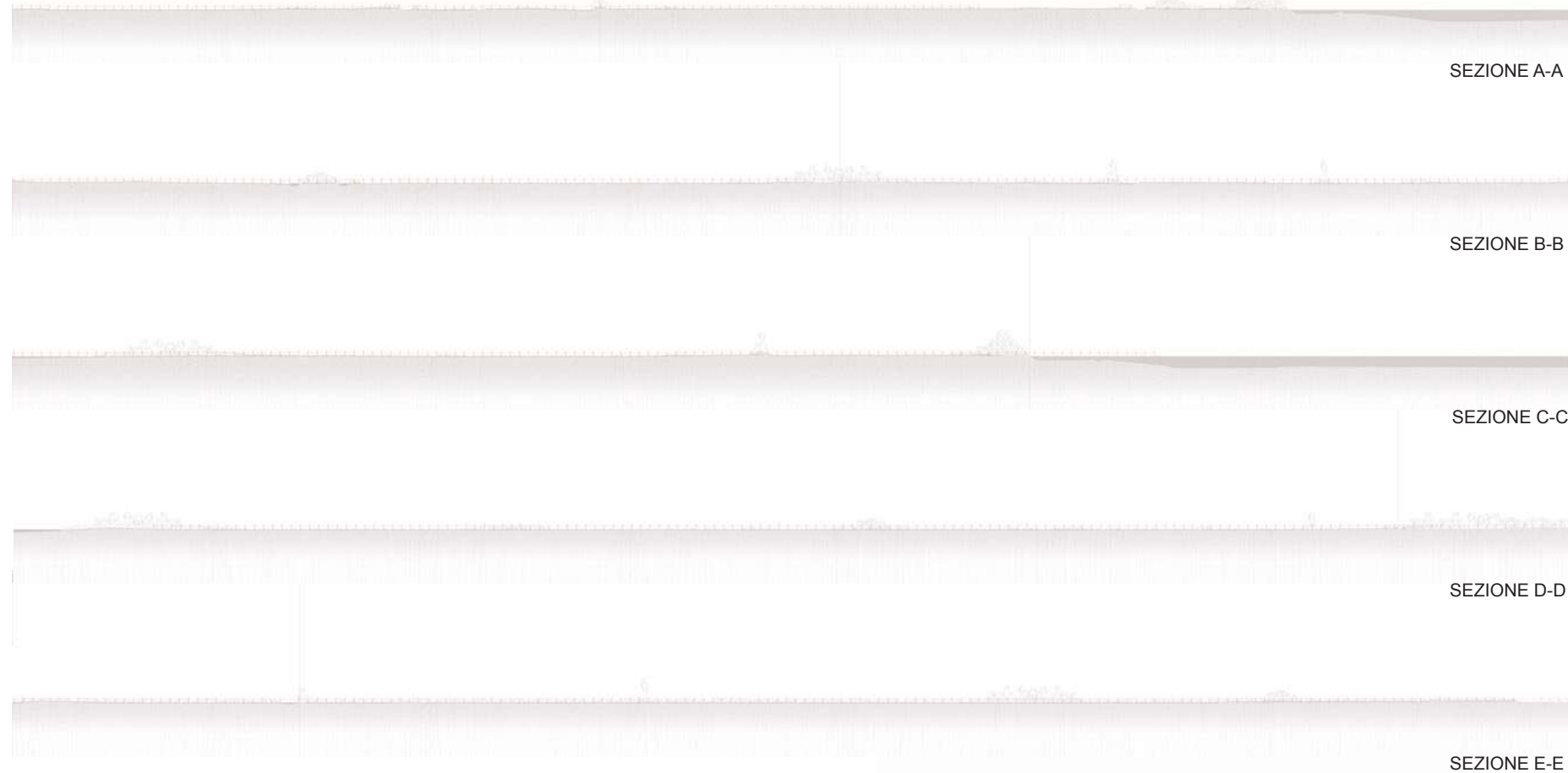
THE TIDE CLOCK IN THE LOIRE



THE SITE | STUDY IN SECTION

The Martiniere Canal, located about 30 km from Nantes and 23 km from the Loire river, is 15 km long and is one of the crucial places for the regulation of the waters of the agricultural territory and of the Grand-Lieu lake itself, with an area of almost 62 km². The territory between Martiniere and the Loire is practically without cultivation but an extraordinary place for the flora and fauna of the Loire, many bird's species find rest there after their migration period. In order not to lose these territories and at the same time protect the canal while still ensuring its operation, palafitic structure and wooden lines of poles are planned. In this way new sediment accumulations on the highest altitudes already existing on the territory will define the new islands and thus the new landscape protecting the coastline.

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REFERENCES | COASTAL PROTECTION SYSTEMS

Beach fence sketch, Sharon Williams



Indian coastal protection



Venice foundation



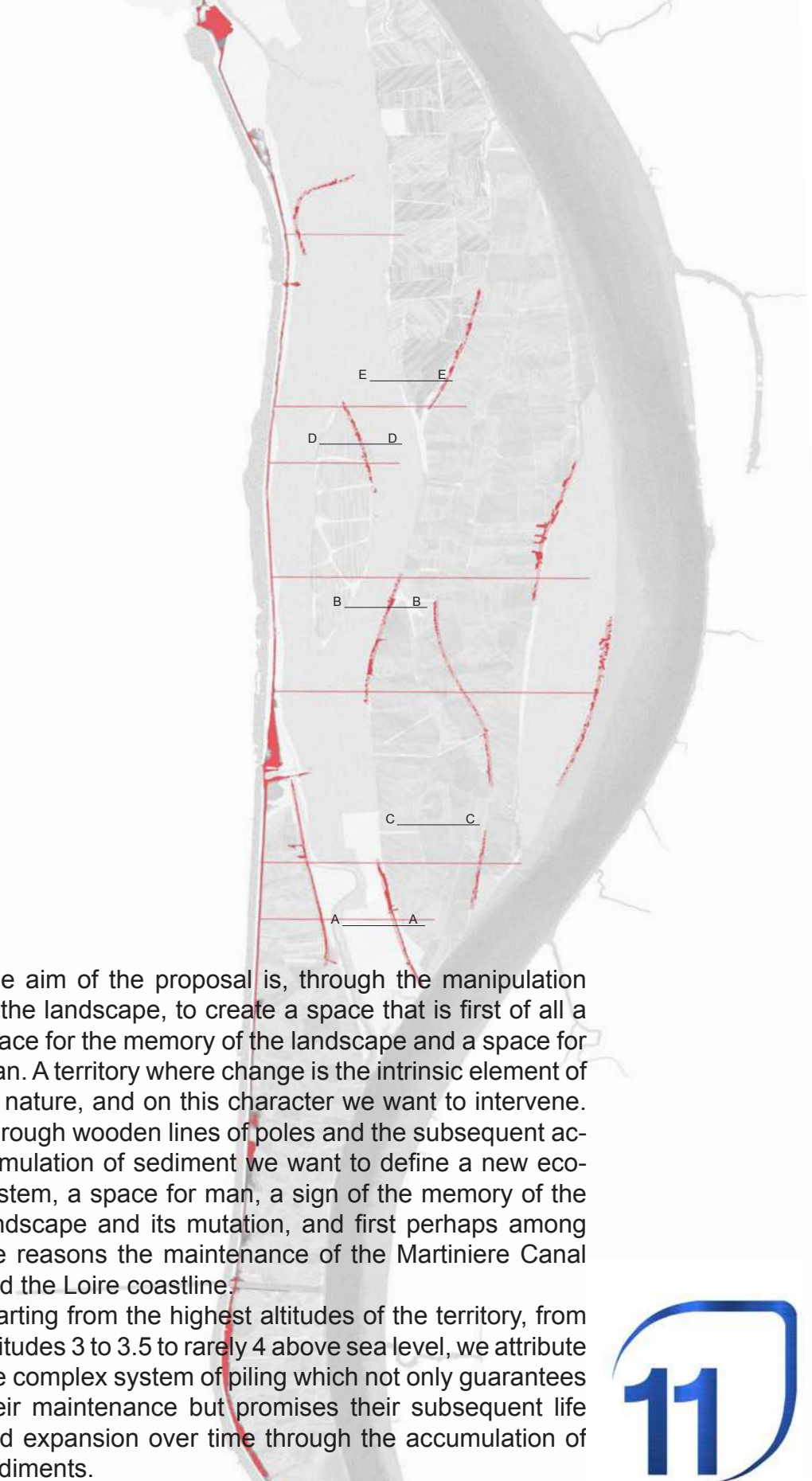
Sand dunes covered by barbed wire fence



Sand fence



GENERAL PROPOSAL | NEW ISLANDS AND THE



The aim of the proposal is, through the manipulation of the landscape, to create a space that is first of all a space for the memory of the landscape and a space for Man. A territory where change is the intrinsic element of its nature, and on this character we want to intervene. Through wooden lines of poles and the subsequent accumulation of sediment we want to define a new ecosystem, a space for man, a sign of the memory of the landscape and its mutation, and first perhaps among the reasons the maintenance of the Martiniere Canal and the Loire coastline.

Starting from the highest altitudes of the territory, from altitudes 3 to 3.5 to rarely 4 above sea level, we attribute the complex system of piling which not only guarantees their maintenance but promises their subsequent life and expansion over time through the accumulation of sediments.

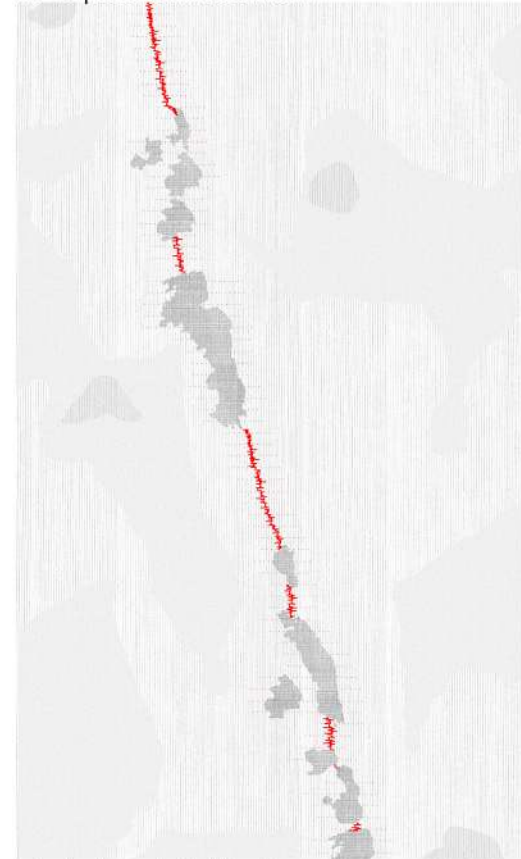


THE LANDSCAPE AT THE LEVEL OF CLIMATE CHANGE

THE TIDE CLOCK IN THE LOIRE



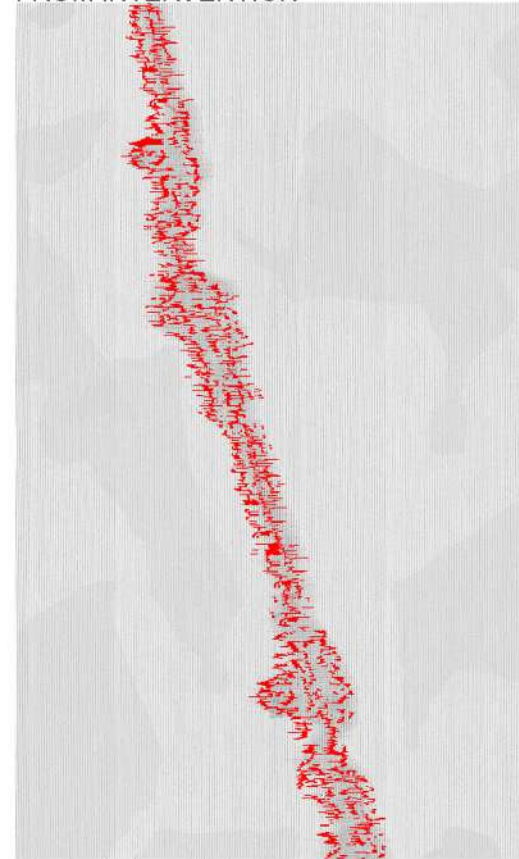
TODAY
2019 | CONSTRUCTION



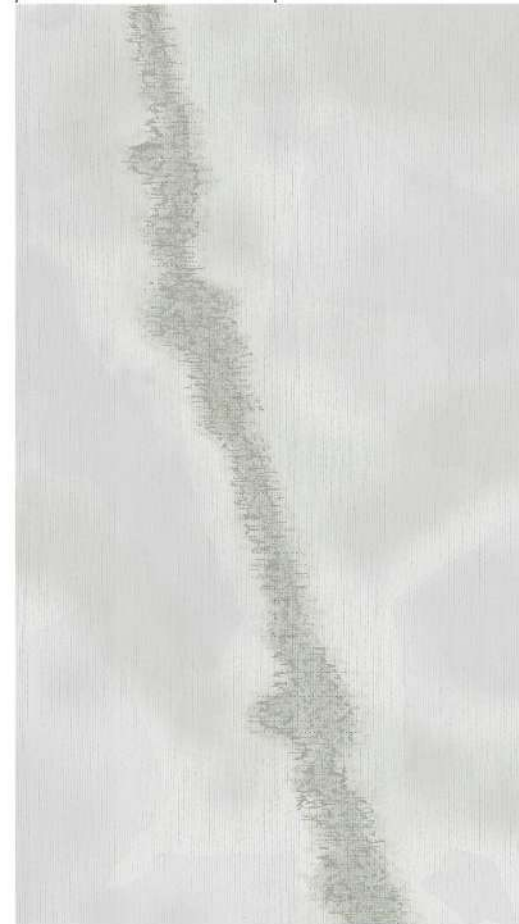
First phase | distribution of the wooden pole for the maintenance of the islands.



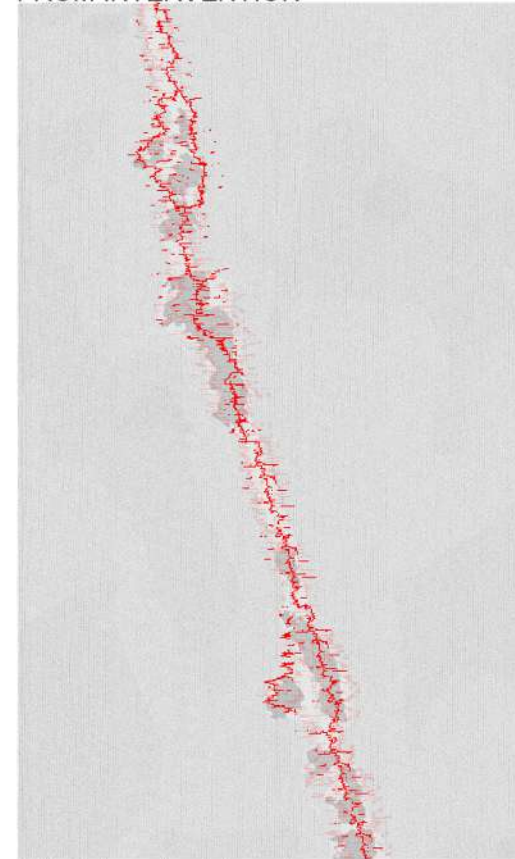
+50 years
FROM INTERVENTION



Second phase | The wooden pole is extended as a protection



+100 years
FROM INTERVENTION



Third phase | raising of water and construction of wooden bridges.



STRUCTURAL PROGRAM

Three different wooden systems are arranged in order to define the accumulation of sand and mud brought by the advanced tide. The first shovel, placed directly on the high morphological heights, about 3.5, 4 meters above sea level, defines the system of maintenance of the already existing islands, thus reinforcing their limits and allowing them to be maintained. The second system provides for the extension of these islands so as to encourage the accumulation of tidal sediment. Finally, the third pile is made up of wooden bridges, which do not directly affect the maintenance of the islands, but are placed at right angles to the advance of the tide to favour the distribution of water, and so the muds and sand. They make up the anthropic element, places to rest, enjoy the landscape, and at the same time connect the islands so that it becomes a real space for man.

Time is the design reason that defines the proposal, as the same design phases will be distributed throughout the life of the landscape. So the first shovel described will be the first to be arranged as well as the bridges will be the final phase.

DETAIL MODEL | VIEW ON THE BRIDGE



DETAIL MODEL | VIEW ON THE LAGOON



MODEL | VIEW ON THE LAGOON

