

WATERFRONT DIALECTICS

ROME AND ITS
REGION FACING
CLIMATE CHANGE
IMPACTS

Edited by:
Pedro Ressano Garcia
Claudia Mattogno
Bruno Monardo
Antonio Cappuccitti



Colophon

tab edizioni
© 2023 Gruppo editoriale
Tab s.r.l.
viale Manzoni 24/c
00185 Roma
www.tabedizioni.it
First edition April 2023

**SOS CLIMATE
WATERFRONT
GRANT AGREEMENT
NUMBER: 823901 –
SOSCLIMATEWATERFRONT
– H2020-MSCA-RISE-2018**

MAIN COORDINATOR
Pedro Ressano Garcia

EDITORIAL BOARD
Justyna Borucka
Tullia Valeria Di Giacomo
Claudia Mattogno
Lucyna Nyka
Rita Pais
Alkmini Paka
Pedro Ressano Garcia
Anastasia Tzaka

EDITOR
Pedro Ressano Garcia
Claudia Mattogno
Bruno Monardo
Antonio Cappuccitti

EDITORIAL TEAM
Antonio Cappuccitti
Tullia Valeria Di Giacomo
Claudia Mattogno
Bruno Monardo
Pedro Ressano Garcia

ISBN
print edition 978-88-9295-666-7
digital edition 978-88-9295-685-8

LEGAL DEPOSIT
Copyrights belong to the authors

Authorship responsibility:
the authors of the chapters
are responsible for the
content of the manuscript

Unless specified, images are
owned by the contributors



This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No 823901.





WATERFRONT DIALECTICS

ROME AND ITS
REGION FACING
CLIMATE CHANGE
IMPACTS

Edited by:
Pedro Ressano Garcia
Claudia Mattogno
Bruno Monardo
Antonio Cappuccitti

H2020 MSCA RISE #823901 participating institutions:

Academic partners

FOCUS CENTER SAPIENZA UNIVERSITY OF ROME
LUSÓFONA UNIVERSITY OF HUMANITIES AND TECHNOLOGIES
GDAŃSK UNIVERSITY OF TECHNOLOGY
KTH ROYAL INSTITUTE OF TECHNOLOGY
ARISTOTLE UNIVERSITY OF THESSALONIKI
TOBB UNIVERSITY OF ECONOMICS AND TECHNOLOGY

Non Academic partners

ALPHA CONSULT SRL
PORTUGUESE CHAMBER OF COMMERCE AND INDUSTRY (ACL/CCIP)
THE CITY OF GDAŃSK
RIVER//CITIES PLATFORM
INTERCULT PRODUCTIONS EK
MAJOR DEVELOPMENT AGENCY THESSALONIKI S.A. (MDAT)
STICHTING CPO NOORD-HOLLAND

More info:

<http://sosclimatewaterfront.eu/>

Guest institutions and consultants in Rome:

Agenda Tevere Onlus Association
Icomos - Unesco
Insieme per l'Aniene Onlus Association
Istituto Comprensivo Scolastico G. Borsi - A. Saffi
ISPRA - Higher Institute for Protection and Environmental Research
ISPRA/MIUR, Joint Programming Initiative
Italian Geographical Society
Lazio Region
La Torre, self-managed social center
Legambiente, Coastal Observatory
Ostia Antica Archaeological Park
Roma Tre University
Sapienza, Department for History, Drawing and Restoration of Architecture
Sapienza, Department of Planning, Design, and Technology of the Architecture
Sapienza, Department of Civil Engineering, Building and Environment
Stefano Cioffi, photographer
Tevereterno Association

Introduction

- 12 **Vulnerability and opportunity on waterfront facing climate change**
Pedro Ressano Garcia
- 17 **Do three different waterfronts make Rome a city of water?**
Claudia Mattogno

Part 1. Rome Coastal System

- 23 **Rediscovering Layers and Links Between Water Landscapes and Cultural Heritage**
Claudia Mattogno
- 27 **The 'Various Landscapes' of the Ostiense Coast Cultural and Environmental Heritage**
Maria Grazia Turco
- 39 **The Coastal Territory of Rome Environment, Architecture, Archaeology**
Sonia Gallico, Barbara Tetti
- 51 **The Navona Lake and the Eels of the Pantheon Architecture and Landscape for Flooding**
Annalisa Metta

- 61 **A Trip Along the Lazio Coast**
Giulia Luciani
- 71 **Land Consumption and Coastal Erosions in Italy.
A Focus about the Lazio Region**
Michele Manigrasso
- 87 **Land Consumption Along Coasts is Increasing Local
Vulnerability. The Case of Rome and Other Six Cities**
Francesca Assennato, Daniela Smiraglia, Chiara Giuliani,
Alice Cavalli

Projects results

- 99 **Roman Riviera Rome Open to the Sea**

Part 2. Rome and the Tiber

- 109 **Interpreting the River through Kaleidoscopic Glances**
Bruno Monardo
- 115 **Rome and the (Lost) Landscape of the Tiber**
Maria Margarita Segarra Lagunes
- 121 **The River Between Space Symbolisation and Place
Affordances**
Elena Battaglini

- 127 **The Great Floods of the Tiber River in History**
Guido Calenda, Corrado Paolo Mancini
- 133 **The Strategic Approach in Planning Water Cities. National and International Best Practices**
Carmen Mariano
- 139 **Regenerating Cities with Blue and Green Networks. Inspirational Models and Rome Potential**
Irene Poli
- 145 **The General Masterplan for Rome and the Key Role of the Tiber Strategic Planning Zone**
Chiara Ravagnan
- 151 **Rethinking the Human-Water Interface for the Tiber and the City of Rome: the PS5 Flood Risk Management Plan**
Fernando Nardi, Antonio Annis
- 161 **The Tiber River Contract: the Roman Path**
Luna Kappler
- 169 **The Public Space Around the Tiber Realm**
Federica Dal Falco
- 173 **The Flaminio District. Historical Plans and Urban Fabric Evolution**
Bruno Monardo
- 181 **Landscape and Perception Values in the Urban Context of Flaminio**
Francesca Rossi

Projects results

187 **Through water**

193 **Let it Tiber**

Part 3. Rome Aniene River

197 **The Aniene River and the City of Rome**
Antonio Cappuccitti

203 **The Relationship between the Aniene River and the City of Rome. Current Status and Regeneration Scenarios**
Antonio Cappuccitti

213 **White and Blue Water and Travertine Landscapes Along the Aniene**
Elena Paudice

225 **Spaces and Initiatives Along the River Aniene**
Tullia Valeria Di Giacomo

237 **The Role of Local Association in Improving the Quality of River Spaces**
Marta Polizzi

245 **Water – and Heat – Resilient Built Environment**
Simona Mannucci, Federica Rosso

253 **The Quality of Urban Rivers with Respect to the Contaminants of Emerging Concern**
Camilla Di Marcantonio, Agostina Chiavola, Maria Rosaria Boni

259 **The Problem of Forgotten Peripheral Rivers and Streams in Big Cities**
Paulina Bone

Projects results

269 **Discovering Aniene**

277 **Permeable Widen Aniene**

Part 4. Water as a Lifeline for Rome

289 **Urban Watering by Nature: the Romans way.
A graphic story**
Germaine Sanders

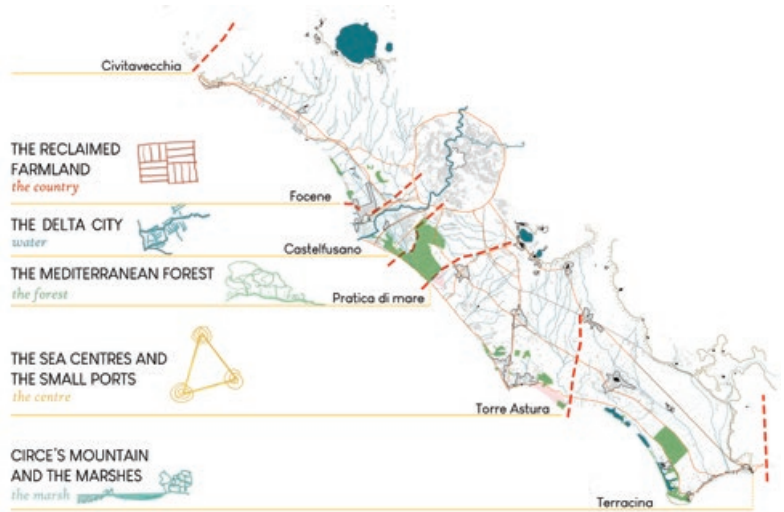
A Trip Along the Lazio Coast

The coast of Lazio Region, considered in the stretch from Terracina in the South to Civitavecchia in the North, can be understood as a composite environment, but at the same time it is marked by unitary characters due to its overall common history. Small and major transformations have left their traces and a rich and diverse system of features. The first layer of traces is the system of archaeological remains, mostly from the Roman imperial period. Another distinctive system of remains is that of the many defence towers, built in the course of the centuries from the ninth until the eighteenth, often on pre-existing structures, to face the Saracen incursions. The most impressive transformation, however, able to deeply change the territory in a very short time, was that of the land reclamation works, begun in the late nineteenth century and completed in the thirties. During the same years, the Fascist regime started a sort of colonisation of the coastal plain and development of a seafront for the capital, founding Ostia Lido and the towns reached by the new roads, Via del Mare and Via Pontina – both names meaning “road of the sea”. The land reclamation almost destroyed the previous natural ecosystems and left only some fragments, the value of which was unfortunately recognized too late (Bagnasco 1998). The preservation of these ecosystems is pursued through the maintenance of three main protected areas: the Circeo National Park, the Castelporziano Presidential Estate, and the Litorale Romano State Natural Reserve.

This territory was subject to rapid population growth in the post-war period, especially after the Sixties. Many of the current problems it is facing can be linked to an unregulated urbanisation process, enhanced by several drivers including the settlement of new functions – the airport for instance – the transformation of agriculture, seasonal tourism, and building speculation. This in turn has caused or worsened problems such as coastal erosion, flooding, poor water quality, low accessibility of the seafront, soil sealing.

To elaborate a coherent portrait of this vast coastal area, with the ultimate intention of elaborating a strategy for the regeneration of its most critical parts, a division into sequences has been proposed, based on different elements. First, elements of morphology were taken into consideration: homogeneous areas can be detected looking for example at the flow direction of the hydrographic network. The reliefs, in turn, define the borders of the coastal plain towards the interior and to the North and South, where the promontories reach the sea. Second,

Figure 1. The five sequences. An overview of the division into sequences with an indication of the respective archetypes: the marsh and the forest reminding of nature-ruled places, opposed to the farmland, which symbolises a man-ruled nature; the centre, archetype of the built environment and its hierarchical structure, and water, essential life-giving element.



historical elements, such as the common reclamation history of the two areas known as *Agro Romano* and *Agro Pontino*, or the fact that the whole area was for centuries under the rule of the State of the Church. Connectivity was also important to establish the limits of the area. Finally, perception of the changing or common features when travelling along the coast was recorded and captured through photographic material. Methods for defining an outline of each sequence included surveys, the collection of photographs, an overview of cartographies and planning regulations, and the use of bibliographic material.

Archetypes were also used to portray each sequence in a brief symbolic way, with the aim of providing not only a record of geographical facts, but also an effort to restore a meaning to the territory's perceptive identity. Indeed, the concept of archetype is similar to that of "invariant", indicating elements or features of the territory that time has selected because they were able to better provide a material and symbolic answer to the human needs¹. An analysis of the morphology and settlement patterns shows a rhythm of sequences where in some cases it is the "otherness" of the place, in the form of the marsh or the forest, that dominates and sets stricter rules to the human

1. As described by A. Marson, archetypes can be defined at two levels, the basic one of the *essential matrices* (the vital elements), and the level of the *functional and symbolic constructs* (constructed and consolidated by the human practices within the environment). Archetypes are analysed as means to re-establish a bond between urbanism and the sacred human relationship with the *cosmos* and nature (Marson 2008).

presence, while in the others it is the stratification of anthropic interventions that gives the sequence its own perceptive identity. An evaluation of the archetypes' state and perceptibility helps to identify the sequence where planning action and design intervention are needed the most. In many sequences it is still possible, despite the alterations, to recognize some functional and symbolic constructs which help to give order and meaning to the human environment. In the fourth sequence, however, a chaotic and unintelligible mosaic of archetypic traces and contemporary *nonplace* (Augé 1992) calls for a descent to a basic level of meaning, that of the "essential matrices", to identify *water* as a representative archetype. Water, once the sacred basis of human settlements, has been normalised and hidden in the contemporary Tiber delta, but if its multiple meanings and perception are recovered, it can be the unifying element from which to restore a sense of place and identity.

Circe's Mountain and the Marshes

The first sequence is a vast plain, dominated by the low peak that was home to the mythological sorceress Circe². The Circeo national park preserves the most important marsh ecosystem in Italy, with its four lakes, where traditional activities are still present in agriculture and livestock farming. When travelling along the coast, one is surrounded by the natural landscape of the lake area, which seems at first sight an almost intact environment, but in fact reached the present arrangement through works of water canalization and cementification of the shores, as part of the same transformation process which turned the once widest marsh, further inland, into an intensively exploited land.

The Coastal Towns and Small Ports

The Anzio promontory is the major centrality in the second sequence, with the ports and the intertwined towns of Anzio and Nettuno. The two centres feature a strong historically consolidated connection to the Albano volcanic hills and the via Appia towards the interior. The importance of the port today is linked also to the development of Ponza and Ventotene islands as holiday destinations. Leisure and entertainment in various forms are and

2. According to Homer's *Odyssey*, Circe was a demigoddess who attracted and seduced the seafarers, trapping them in her island (identified as the rocky peak which is today a promontory) with the help of poisoned drinks. Among her victims were Ulysses' companions.

Figure 2. First sequence: the coastal plain. After a 2-hour climb on the rocky peak of Circe, the view opens towards the coastal plain, with the lakes, the pinewoods, the cultivated fields.

Figure 3. First sequence: la Bufalara. Livestock farming in "la Bufalara", a place whose name directly recalls traditional buffalo farming. It was one of the main activities also in the Tiber delta and other wet areas northwards in Tuscany.

Figure 4. Second sequence: Anzio. View from the port towards the town of Nettuno. The two towns are indissolubly tied historically and physically, being only 2 km distant. Ancient Anzio was abandoned during the Barbarian incursions, when its inhabitants founded Nettuno, while modern Anzio developed in the 19th century.



have always been somehow part of this area's identity, as suggested by the many villas built by the Roman aristocracy from the first up to the eighteenth century. Today, the coast is heavily built-up, and common holiday houses extend with a few interruptions to all the seafront.

The Mediterranean Forest

The third sequence is a unique one, because it preserves part of the ancient Mediterranean forest which once covered the whole coastal plain. Here we can trace back the original natural ecosystem, made of the submerged and the dry sandy beach, the dunes, and the hygrophilous forest, with its species mostly from the oak family. With such a wild and unregulated atmosphere, the beach was since the Seventies the favourite place of freedom for the most disparate people.

The Delta City

The fourth sequence is such a mosaic of landscapes, that the only structuring feature able to somehow unify the area is the all-pervasive water matrix. Tiles in this mosaic range from the impressive archaeological remains of Ostia Antica and Trajan's basin to the towers and fortified villages, from residual wet ecosystems and woods to planted pinewoods and agricultural drained land, from diffused canals to large water treatment plants, from founded centres of the Thirties to extensive urban areas and informal architecture, neglected places and large logistic facilities linked to the ports and the airport. The connection system somehow doubles the ancient road system and seems to mimic and multiply the river's flow from Rome to the sea. In this sequence the plot of traces of the past becomes thicker, it seems to coagulate around the Tiber delta and at the same time to melt into the urban sprawl and abandoned land.

The Reclaimed Farmland

The fifth sequence is dominated by a vast agricultural land, largely designed by the reclamation works in the place of an ancient pond. It is situated between a narrow stripe along the coastline, where natural areas alternate with residential villages and small towns, and a bundle of infrastructures running along the foothills of the first reliefs. Eucalyptus rows are typical of this landscape, chosen to border the canals for their drainage capacity. The asset of the reclaimed area, as it is today, was settled with the construction of Maccarese village, an industrial

Figure 5. Third sequence: the dunes of Castelporziano. The beach is accessible from numbered gates in the fence protecting the reserve. In the Seventies, when the wild character of the area was more prominent, the gates were handmade holes, originating the name "il buco" with which the place was known.

Figure 6. Fourth sequence: Fiumara Grande. The main branch of the Tiber is home to the biggest sailing port in the Mediterranean, although it is considered a ghost port, because it has never been officially authorised.

Figure 7. Fourth sequence: Fiumicino. The second branch of the Tiber is the port-canal of Fiumicino. Increasing port activities have led to ongoing plans for new commercial and touristic seaports.



centre not far from it, and many small farmhouses at regular distance from one another. Cows replaced buffalos, and cereals, forage, vegetables, and vineyards made up for the cultivations. The agri-food vocation is still central to this area's identity, as the presence of prosperous enterprises testifies. Among these, Maccarese SPA, heir of the society that managed the reclaimed farmland at first, is one of the largest in Italy.

A project for the delta sequence will have to consider the coexistence in this unique area of the features and personalities of all the other sequences, albeit in the form of fragments, disjointed and unable to compact into a meaningful narrative. To restore an identity to this sequence, then, an appreciation of the traces of the marsh and wood ecosystems, an enhancement of sustainable agriculture for the care of the open areas, the establishment of an order and a hierarchy for the built environment must be part of a strategy. A new landscape and a new sense of place will emerge when the fragments are mended according to a coherent vision of this chaotic but still fascinating offshoot of Rome towards the sea.

Figure 8. Fourth sequence: Piazza della Rocca in Ostia Borgo. Together with Portus Episcopate, Ostia Borgo is the main one of the fortifications that arose in the Middle Ages to protect the area from the frequent Barbarian incursions. They were part of a system of towers, only partly preserved today, along the coast and the river.

Figure 9. Fifth sequence: Via della Muratella. The canal named "Collettore delle acque alte", bordered by a eucalyptus row, collects water from the natural streams running towards the plain. Drainage canals, mostly with concrete beds, still host an interesting biodiversity of vegetal and animal species.

Figure 10. Fifth sequence: Fregene. The mouth of river Arrone in Fregene is a valuable residual ecosystem. Urbanised segments of coast with their seaside villages alternate with such natural protected areas.



References

Augé M. (2009). *Nonluoghi*, Elèuthera, Milano, [Or. Ed. M. Augé, Non-lieux, Editions du Seuil, 1992].

Bagnasco C., (1998), *Alle foci del Tevere. Un viaggio fra passato e futuro*, Palombi Editori, Rome.

Budoni A., Martone M., Zerunian M. (eds.) (2018). *La Bioregione Pontina: esperienze, problemi, linee di ricerca per scenari di futuro*, SdT Edizioni, Firenze.

Caneva G., Travaglini C., Virlovet C. (eds.) (2017). *Roma, Tevere, Litorale. Ricerche tra passato e presente*, École française de Rome – CROMA, Rome.

Marson A. (2008), *Archetipi di territorio*, Alinea, Firenze.