

ABSTRACT

Title of Document: ECOTOURISM AND ARCHITECTURE:
THE INTERTWINING OF ECOLOGY,
CULTURE AND ECONOMY

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Architecture, 2015

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Architecture Planning and Preservation

The town of Orbetello, located near the ancient port of Cosa in Tuscany, has, for many years, benefited from the seasonal influx of domestic tourism. However, uneven expansion in the town's industrial sector, as well as seasonal overuse of the land's natural resources, has negatively impacted the lagoon and its delicate ecosystem. Most recently, in the summer of 2015, over two hundred tons of fish were lost overnight due to increasing temperatures, lack of oxygen, and most likely, poor water-interchange between the lagoon and the Tyrrhenian¹. The continuous loss of this precious ecological and economic asset is, of course, devastating for an economy so reliant on its harvest.

¹ Lenzi, Mauro. "Laguna Di Orbetello, L'esperto: "Un Fenomeno Enorme E Repentino"
Cronaca. Il Tirreno, 7 Aug. 2015. Web.

With these extremely delicate natural, economic, and historical conditions, the need for responsive design becomes increasingly important. The focus of this thesis will be on the urban and architectural design interventions that could aid the Orbetello region, through the **reclaiming** of local ecology, **reuse** of historic structures, and **linking** of urban zones in the downtown area. This document will serve as a study on how the models of pescaturism and ecotourism can be applied to the fishing industry, both as a regenerative tools, and as an economic devices.

ECOTOURISM AND ARCHITECTURE: THE INTERTWINING OF
ECOLOGY, CULTURE AND ECONOMY

By

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Thesis submitted to the Faculty of the Graduate School of the
University of Maryland, College Park, in partial fulfillment
Of the requirements for the degree of
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2015

Advisory Committee:
Professor Ronit Eisenbach, Chair
Professor Michele Lamprakos
Professor Garth Rockcastle

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Preface

One of the first, and most vivid memories I have of our move to Italy in 1992, was the arrival at our family house in Orbetello, Tuscany. I remember clearly driving through the maremma hills, and the experience of the house emerging from this rich landscape.

Over the ten years we spent in Italy, this place became a second home to my family and me. Living in Rome, we continuously sought to escape its urban setting for the relaxed, picturesque qualities of our other home, in Orbetello, establishing lifelong friendships, and embedding ourselves deeper and deeper in its culture and lifestyle. However, regardless of how much we came to see ourselves as “locals,” our interactions with the town were most similar to those of the tourists who went there for the beaches, food, and relaxed ambiance.

My experience in Orbetello changed after returning to United States, just as the town continued to transition as a result of Italy’s failing economy, and declining natural condition. It became apparent that while the town thrived in periods of touristic prosperity, it suffered greatly in the off-months, resulting in severe unemployment and dissatisfaction within the local population.

It also became clear that the natural condition of the lagoon, the cultural, social, and economic source for the town’s long term survival, was in

a state of severe degradation, and had to be addressed in some way.

Moreover, I saw the town's decaying urban environment as a possibility to house a form of tourism that could actually benefit the town's redevelopment in the long term.



Figure 1: View of Sciolli family home, Credit: Author

Dedication

I dedicate this paper to my parents Rita and Stefano Scioli, my grandmother Loredana Scioli, and to Gabriel Scioli, the best grandfather one could wish for.

Acknowledgements

Special thanks to Hooman Koliji, Ronit Eisenbach, Garth Rockcastle, and Michele Lamprakos for their support over the past year.

To the whole of Orbetello, my favorite place in the entire world.

And to Rachele Mambrini and Clara Manca for all their work.

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Chapter 1: INTRODUCTION

The town of Orbetello, located near the ancient port of Cosa in Tuscany, has, for many years, benefited from the seasonal influx of domestic tourism. However, uneven expansion in the town's industrial sector, as well as overuse of the land's natural resources, has negatively impacted the lagoon and its delicate ecosystem. In the summer of 2015, over two hundred tons of fish were lost almost overnight due to changing temperatures, lack of oxygen, and most likely, poor water-interchange between the lagoon and the Tyrrhenian². The continuous loss of this precious ecological and economic asset is, of course, devastating for an economy so reliant on its harvest.

Once an area coveted for its militarily strategic location, the area of Orbetello and Monte Argentario possess a large number of fortresses, towers, and alcoves, some of which have been adaptively re-purposed in the modern era. Rich with Etruscan, Medieval, and post-industrial architecture, the town of Orbetello has failed to fully exploit the economic potential of such structures. While the main historic center of town retains its commercial appeal, other areas remain mostly unused and underdeveloped. These "in-between" spaces, nestled within the urban fabric, offer a number of opportunities for

² Lenzi, Mauro. "Laguna Di Orbetello, L'esperto: "Un Fenomeno Enorme E Repentino"" Cronaca. Il Tirreno, 7 Aug. 2015. Web.

both recovery abandoned spaces, and introduction of positive ecological strategies.

With these extremely delicate natural, economic, and historical conditions, the need for responsive design becomes increasingly important. The focus of this thesis will be on the urban and architectural design interventions that could aid the Orbetello region, through the **reclaiming** of local ecology, **reuse** of historic structures, and **linking** of urban zones in the downtown area. This document will serve as a study on how the models of agro-tourism and ecotourism can be applied to the fishing industry, both as a regenerative tools, and as an economic devices.

Chapter 2: THEORETICAL MOTIVATORS

Section 1: TOURISM: THE CURRENT CONDITION

Since the global economic collapse of 2008, the Italian financial system has experienced drastic drops in labor numbers (in 2014, total unemployment accounted for 12.7% of its population, and 42.6% of people under 25)³. With countries like Spain and Greece, Italy has struggled to adapt to modern financial systems, with creative, effective enterprises falling victims to intense austerity measures.

However, while a declining economy represents a manifestation of internal struggles, its global touristic appeal remains a reflection of its still relevant cultural and historical heritage. Every summer, thousands continue to travel to highly important destinations like Rome, Florence, and Venice, participating in what Dean MacCannell refers to as “access[ing] modern consciousness or ‘world view.’”⁴.

Conversely, Italy’s domestic culture of leisure has been severely impacted by the recent recession, with rates of travel within the country during the summer months dropping by 3% each year, with GDP, petrol prices, and

³ Italy unemployment rate 2015 (countryeconomy.com)
<http://countryeconomy.com/unemployment/italy>

⁴ MacCannell, Dean (1976). *The Tourist; a New Theory of the Leisure Class*. Los Angeles, CA, USA. University of California Press

weather conditions just some of the factors contributing to this decline⁵. And while this may be less detrimental to the ecology of the country as a whole, it signifies important economic changes. The domestic tourism bubble has grown and burst in a cyclical manner, and with it, so has the economy of Orbetello.

At both the global and local scale, tourism can be a device for economic empowerment. But while this should be an embedded ideal in the minds of planning agencies, it is mostly a manifestation of capitalist agendas, focused on the maximum use the land, with little regard to the impact on local ecosystems (quote). Towns like Orbetello, where economy, society, and culture are so intrinsically tied to the proper care of their natural resources, cannot sustainably maintain the constantly fluctuating demands of the tourism markets.

Tourism, as Martha Honey sees it, is “travel as a leisure activity”. This activity has continued to develop with the increasing ease of access to flights and modes of transport.

Mass tourism, in her eyes, is synonymous with the “four Ss: sun, sea, sand, and sex”⁶. She links this to more indirect effects, such as the over-

⁵ Cellini, Roberto, and Tiziana Cuccia. "The Tourism Industry in Italy During the Great Recession (2008-12) What Data Show and Suggest." Munich Personal RePEc Archive (2014). Print

⁶ Honey, M. (1999). *Ecotourism and sustainable development: Who owns paradise?*. Washington, D.C: Island Press

development of industrial areas, environmental pollution, and loss of money from the host countries. Citing ecotourism expert with the International Union for Conservation of Natural Resources, Hector Caballos-Lascural:

“In some instances, such damage is caused by uncontrolled mass tourism; in others, by industrialization, over-exploitation of natural resources, consumerism, and other forms of “unsuitable development that characterizes contemporary Western civilization”⁷

In Orbetello, the impact of these is evidenced by the growth of its agricultural sector, developed mostly along the banks of the lagoon, and in large inland territories. The Ex-Sitoco factory near this body of water is a prime example of such industrialization, ultimately generating large amounts of pollution to its fish population.

Section 2: WHY ECOTOURISM

Definition:

“travel to fragile, pristine, and usually protected areas that strive to be low impact and (usually) small scale. It helps educate the traveler; provides funds for conservation; directly benefits the economic development and political empowerment of local communities; and fosters respect for different cultures and for human rights”⁸

⁷ Honey, M. (1999). *Ecotourism and sustainable development: Who owns paradise?*. Washington, D.C: Island Press

⁸ Honey, M. (1999). *Ecotourism and sustainable development: Who owns paradise?*. Washington, D.C: Island Press

The idea of introducing Ecotourism as a major driver for the urban and architectural intervention came about an extensive analysis of the both the natural and the built environment of the Orbetello region.

The area of Orbetello, including the Argentario located west of the main historic center, has benefited from the use of its natural resources to attract tourism from the Italian peninsula. To cope with these needs, varying private business have grown and developed, slowly encroaching on the natural landscape. Some areas, like the Southern sandbar of Feniglia, have experienced development of beach establishments at their most urban areas, i.e. areas with the most economic potential.

However, as in the case for the Feniglia beach, the attractiveness of such places remains dependent on the quality of water.

The fragility of this economic model was cast into further light by the beach closings in the Summer of 2015, when, in order to avoid a second mass fish decimation, the flow of water in the Ansedonia canal from the lagoon was reversed, reportedly discharging large quantities of algae on one of the most used beaches of the region.⁹

This is not, however, the only model of tourism being implemented in the region. Important organizations have provided sources of knowledge and

⁹ Orbetello, per salvare la laguna il mare della Feniglia diventa melma. Turisti in fuga (Repubblica.it)

awareness of the natural environment through relatively “low-impact” architectural projects.

The World Wildlife Foundation has, since the middle of the 20th century, been a key element in the conservation of the natural environment of the Western lagoon, specifically in the maintenance of its native bird species. In an effort to limit its own impact on the landscape, the WWF has claimed strategic historical spaces and buildings, located around the natural reserve.¹⁰ Its most important location is the “Casale di Giannella”, located on the Eastern side of the Northern sandbar of Giannella.

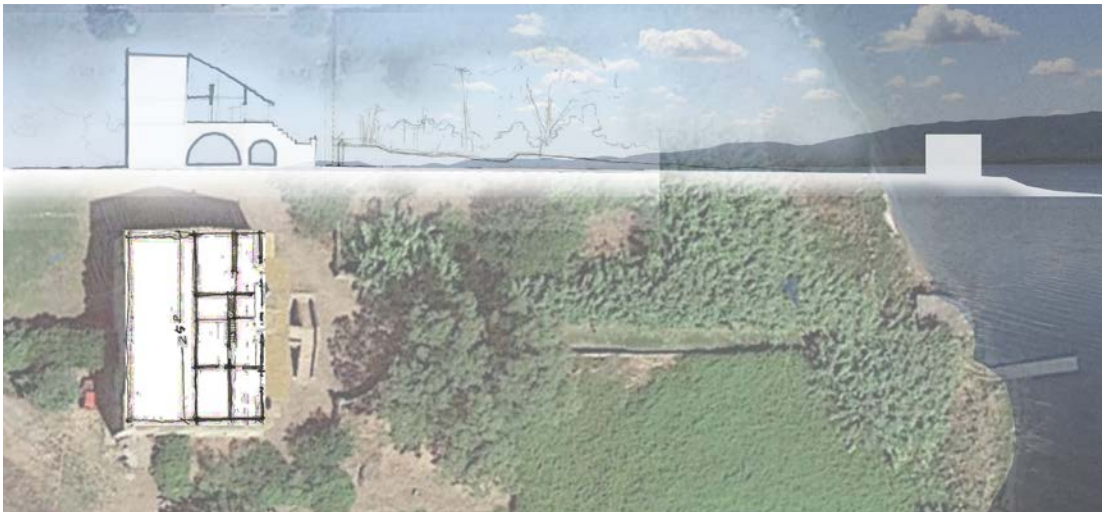


Figure 2: WWF Analytique, Credit: Author

¹⁰ Visita l'Oasi (WWF Italy -)
http://www.wwf.it/oasi/toscana/laguna_di_orbetello/visita_l_oasi/

It is important to mention this project because it represents a different strategy and approach to tourism. From a conservation perspective, the WWF's goal remains that of maintaining the natural habitat of native bird species, requiring low-impact architectural interventions.¹¹ With the reuse of this Spanish military outpost, the WWF has been able to create both a home for its local office, and a small-scale research facility. Moreover, its approach to tourism varies greatly from that of the beach establishments mentioned earlier. Its focus remains not on the commercial appeal of the location, but rather on generating environmental awareness through a physical nearness to nature. The main gathering spaces in the building are often used for yoga studios and children's groups, while most of the rooms have been converted into summer hospitality quarters for local tourists. The building also has a small museum on the natural history of the Orbetello region.¹²

¹¹ Visita l'Oasi (WWF Italy -)
http://www.wwf.it/oasi/toscana/laguna_di_orbetello/visita_l_oasi/

¹² Visita l'Oasi (WWF Italy -)
http://www.wwf.it/oasi/toscana/laguna_di_orbetello/visita_l_oasi/

Of course, the argument could be made that, as an internationally renowned organization, it is less likely to fall victim to the ebbs and flows of



*Figure 3: Perspective towards Casale (left), away (right),
Credit: Author*

tourism demands. However, the value of this space has been kept by careful curation of the natural environment, and the maintenance of a clear, ecologically driven mission.

Likewise, the approach of ecotourism involves similar attention to natural resources, empowerment of local people, and promotion of awareness.¹³

¹³ <http://www.ecotourism.org/news/websites>

Chapter 3: THE REGIONAL CHARACTER

In the early days of the First World Conflict, the Italian Air Force built one of its most important airports near the center of Orbetello. This complex, which catered to the flight of hydroplanes leaving from the lagoon, grew over the following ten years, eventually incorporating a number of Pier Luigi Nervi hangars, and a series of office and residential palazzi.¹⁴ This development, eventually bombed and destroyed during the Second World War¹⁵, exemplifies the diverse heritage and cultural significance of this area. In this chapter, I will describe the nuances of the region's cultural heritage and ecological condition.

Sit selection for this thesis involved a critical analysis of a number of different sites around the Orbetello Lagoon. The final site for intervention will be defined by its potential across a cultural and ecological platform, as well as its potential to house this new form of ecologically driven tourism.

¹⁴ Federici, Edoardo. *Orbetello a Confronto: La Citta' Come Era, La Citta' Come E'* Arcidosso: Archivi Riemersi, 2009. Print

¹⁵ Federici, Edoardo. *Orbetello a Confronto: La Citta' Come Era, La Citta' Come E'* Arcidosso: Archivi Riemersi, 2009. Print

Section 1: GEOGRAPHICAL CONTEXT

Site Description

The Municipality of Orbetello, situated in the Southern coast of Tuscany, is a community of eight settlements:

- Orbetello
 - *Downtown*
 - *Neghelli*
 - *Scalo*
- Fonteblanda
- Talamone
- Albinia
- Ansedonia
- Giannella¹⁶

¹⁶ <http://www.comune.orbetello.gr.it/>

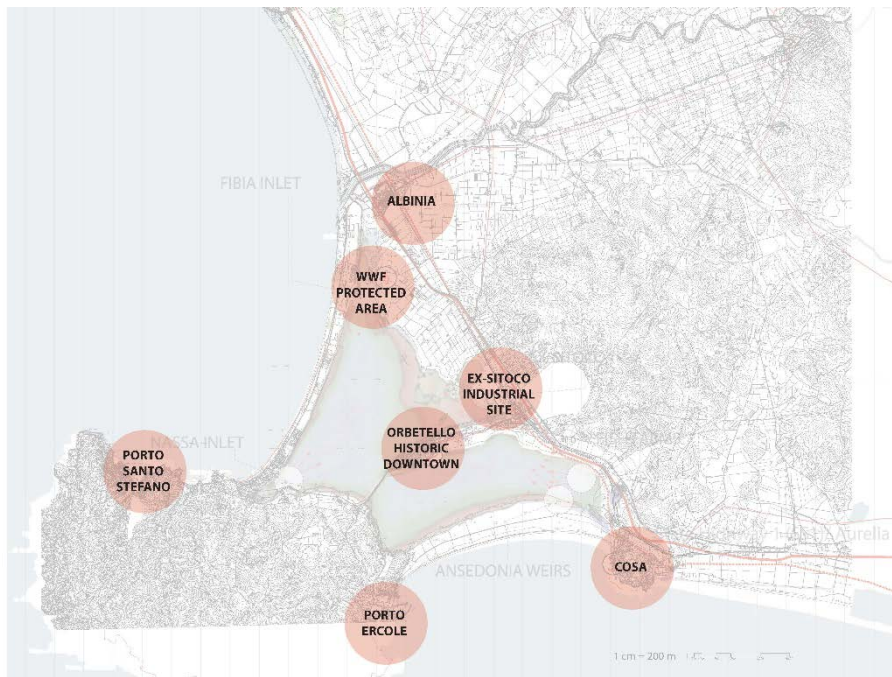


Figure 4: Sites of Orbetello, Credit: Author

Making up the majority of the municipality is its main natural resource; the Orbetello Lagoon. Surrounded by the natural sandbars of Feniglia and Giannella, this body of water represents much of the identity and economy of the place. The settlement of Ansedonia, now a purely touristic residential community, is located on the same hill as the ancient Roman site of Cosa, and serves much of the seasonal influx of people.¹⁷

¹⁷ <http://www.comune.orbetello.gr.it/>

Ecology



Figure 5: Sites of Canals, Credit: Author

At the core of the Orbetello region is its largest body of water, the Lagoon.

The lagoon is directly connected to the Tyrrhenean through two canals, and indirectly through one canal via the Albegna River to the north. Each of these canals is furnished with six pumps that promote the flow of the waters

between the lagoon and its surroundings.¹⁸ The lagoon's depth reaches only 1.5 meters in depth. It is surrounded by agricultural land and by smaller urban settlements, such as Orbetello, Albinia, and Giannella.

This shallow, brackish lagoon has been, since Etruscan civilizations first settled on the land, the primary source of food and industry. As mentioned in earlier sections, this area has suffered greatly from waste generated in urban areas, agricultural runoff and harmful industrialization.

There are, of course a series of reasons for Orbetello's ecological decline, such as industrialization in the early parts of the 20th century, such as the Ex-Sitoco pesticide factory. The overuse of the town's attractions, growth in the aquaculture industry, as well unsustainable agricultural practices have also all contributed to this ecological degradation.¹⁹

As identified by Dr. Mauro Lenzi, biologist with the Laboratorio di Ecologia Lagunare e Acquacoltura (LEALab) and in cooperation with the fishing cooperative of Orbetello, in several of his publications, the problem consist in an overabundance of sediments and nutrients in the lagoon, arriving through agricultural and urban runoff which, compounded by its

¹⁸ A. Giovani, S.E. Focardi, M. Renzi (2012). *Water Pollution by Surfactants: Fluctuations Due to Tourism Exploitation in a Lagoon Ecosystem*

¹⁹ Lenzi, Mauro. "Restoration of the Eutrophic Orbetello Lagoon (Tyrrhenian Sea, Italy): Water Quality Management." *Marine Pollution Bulletin* 46 (2003). Print.

shallow waters, has resulted in overgrowth of invasive algae, and oxygen depletion.²⁰

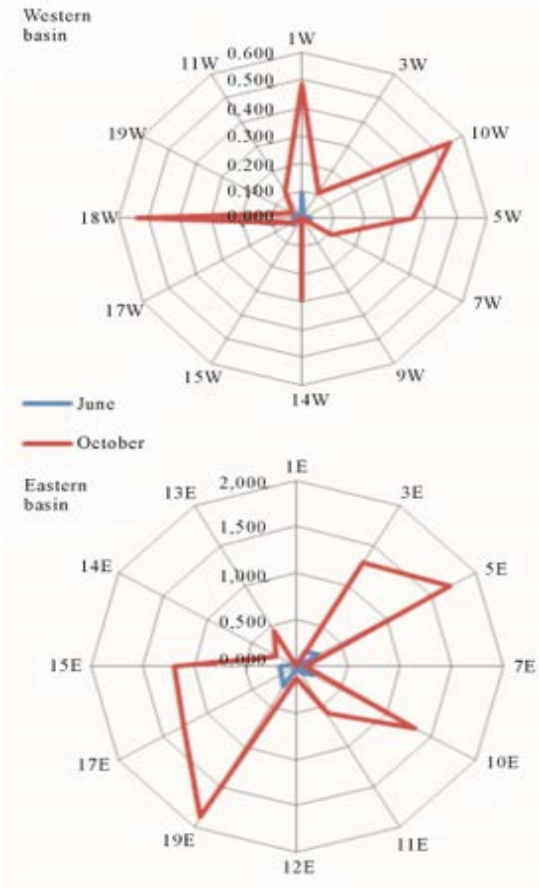


Figure 6: MBAS levels across the seasons, Credit: *Water Pollution by Surfactants: Fluctuations Due to Tourism Exploitation in a Lagoon Ecosystem*

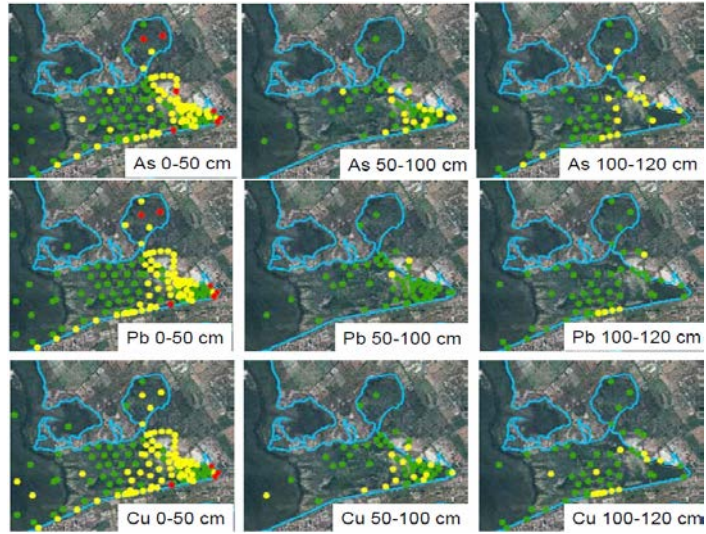
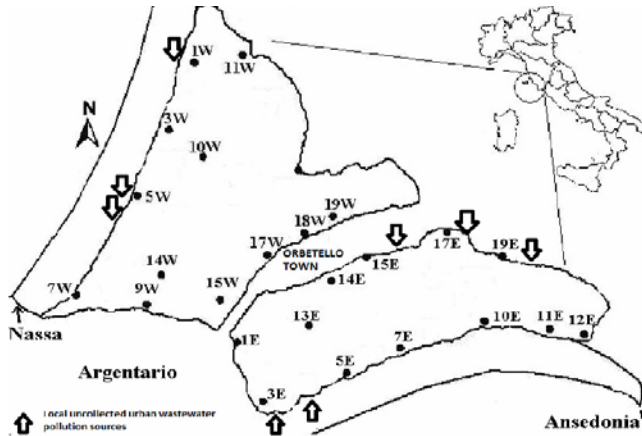


Figure 7: Heavy metals in Ex-Sitoco lagoon area, Credit: *Administration of the Grosseto Province*



Through analysis and water sampling through a number of testing stations, several scientific journals have been able to characterize both the

²⁰ Lenzi, Mauro. "Restoration of the Eutrophic Orbetello Lagoon (Tyrrhenian Sea, Italy): Water Quality Management." *Marine Pollution Bulletin* 46 (2003). Print.

water quality of the lagoon, and the impacts of both tourism and industry.²¹

Heavy metals include Arsenic (As), Lead (Pb), Copper (Cu), Cadmium (Cd), and Zinc (Zn).

Moreover, this ecological degradation has been at the forefront of Orbetello's government for some time, and efforts have been made to tackle this problem. In 1993, after the closing of the Ex-Sitoco factory, the town of Orbetello instituted an ordinance in an effort to reclaim the lagoon's ecology. This "Prefetto di Grosseto Commissario Delegato" was aimed at improving the injection of marine water into the lagoon, collect macroalgae, and tackle the factory site. Over the years, these have been amended and improved

²¹ A. Giovani, S.E. Focardi, M. Renzi (2012). *Water Pollution by Surfactants: Fluctuations Due to Tourism Exploitation in a Lagoon Ecosystem*

upon by following administrations, including a proposed expansion of the lagoon at the Ex-Sitoco area.²²

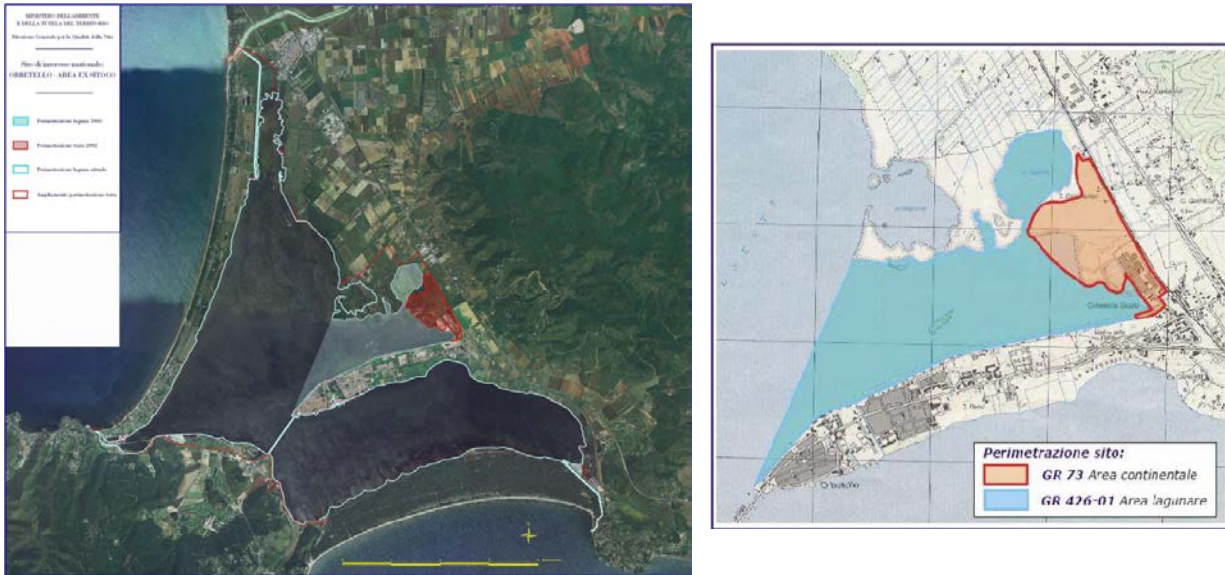


Figure 8: Proposed lagoon enlargement, Credit:Administration of the Grosseto Province

But while these efforts have been directly aimed at the restoration at the lagoon, there has been very little effort to redefine the tourism culture that has caused many of these issues.

Through this analysis, and continued conversations with Mauro Lenzi, I was able to identify three major problems: water pollution due to runoff, algae overgrowth, and water heating. Therefore, when thinking of a regional

²² Administration of the Grosseto Province. BONIFICA LAGUNA DI ORBETELLO

strategy, the thesis should involve some type of bio/sediment-remediation, as well as shading in the most overheated areas of the lagoon.²³

Section 2: REGIONAL IDENTITY

maremma (ma·rem·ma - /mə'remə/)

- Latin : *maritimus* (maritime), *mare* (sea; sea water)
- Italian: “a low region and mostly swamp land, situated near the sea or under sea level.”

Perhaps one of the most fascinating aspects of the Orbetello region is its largely diverse regional identity. The region of Maremma, now a more informally defined territory, was once the home of thriving Etruscan, and Roman societies. Abandoned in the middle ages, its landscape was largely unkempt, with uncontrolled rivers flooding much of the coastal plains. Below

²³ Lenzi, Mauro. "Restoration of the Eutrophic Orbetello Lagoon (Tyrrhenian Sea, Italy): Water Quality Management." *Marine Pollution Bulletin* 46 (2003). Print.

is a map of the Maremma region, which includes the northern part of Lazio, as well as portions of Tuscany.²⁴

From the latter parts of the Middle Ages, to the late nineteenth century, the Maremma region was the subject of a number of attempts at claiming its landscape, but was always feared for its deadly malaria disease.²⁵

This popular song from the early 1800's exemplifies the sentiment surrounding the region:

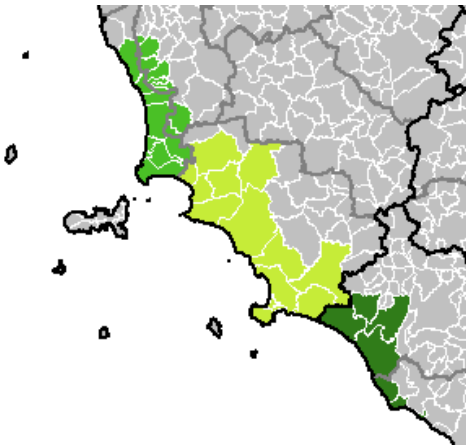


Figure 9: Maremma region, Credit: https://it.wikipedia.org/wiki/Maremma#/media/File:Maremma_map.png

*“Tutti mi dicono Maremma, Maremma...
Ma a me mi pare una Maremma amara
L'uccello che ci va perde la penna
Io c'ho perduto una persona cara.
Sia maledetta Maremma Maremma
sia maledetta Maremma e chi l'ama.
Sempre mi piange il cor quando ci vai
Perché ho timore che non torni mai”*

*“Everybody says Maremma, Maremma...
But to me it seems a sour Maremma
The bird that flies there loses its feathers
I've lost a dear person there
let Maremma be damned and he who loves
it
let Maremma be damned and he who loves
it*

²⁴ Federici, Edoardo. *Orbetello a Confronto: La Citta' Come Era, La Citta' Come E'* Arcidosso: Archivi Riemersi, 2009. Print

²⁵ <http://www.comune.orbetello.gr.it/>

*My heart always cries when you go there
Because I fear you may never come back”*

The difficult reclamation process, tracing back to the late 1700's and early 1800's, was finally completed with the advent of the machine-powered pumps. These efforts, guided by a desire to re-establish the region as an agricultural node, were initially pursued by Ferdinando III, the Duke of



Figure 10: Workers reclaiming maremma swamps,
Credit:<https://www.google.com/search?q=bonifica+maremma&espv=2&biw=1366&bih=677&tbm=isch&imgil=9fqvKlsgoqSiVM%253A%253BEiseiDTRglC7IM%253Bhttp%25253A%25252F%25252Ffiloveprincipina.it%25252F2011%25252F09%25252F26%25252F>

Tuscany (ultimately leading to his untimely death), and continued by his son Ferdinand II.

A large part of the planning process for the region involved the redirection of water through the

introduction of canal systems connecting the existing rivers to future agricultural land. Both agricultural development and integration of the train system, a North-South track, motivated much of this progress.²⁶

²⁶ Fabrizio Boschi, *L'oro della Maremma (Viaggio fra storia, mistero e leggenda)*, Del Bucchia Editore, pp. 228, (2009).

What remains of the Maremma's swampy history is perhaps the brackish lagoons near the coastline (namely the one in Orbetello), and its animal inhabitants, including wild boar, deer, and a number of native fish species.

Cosa



Figure 11: Site of Cosa layout, Credit: Google Earth with Cuccia overlay

directly above the Ansedonia community.²⁷ Its history, rich in cultural value, is characterized by periods of centurion domination, industry development, and strategic motivations. However, it is most directly linked to the development of

The origins of Cosa as a port town can be first understood by the Etruscan sites in the surrounding areas, as well as Roman ruins

²⁷ Cuccia, Andrea (2014). *Storia Maremmana, Ansedonia: i Segreti della Città di Cosa e il suo Porto*. Rome, Italy: Aldo Sala Editore

this thesis by its highly productive, sophisticated water management system.²⁸

In this map, it is easy to locate what was once called the *Portus Cosanus*, which served as the main port for its fishing industry. This infrastructure, made up of canals and water catchment systems, fed into a



Figure 12: Cosa aqueducts, Credit: Google Earth with Cuccia overlay

²⁸ Cuccia, Andrea (2014). *Storia Maremmana, Ansedonia: i Segreti della Città di Cosa e il suo Porto*. Rome, Italy: Aldo Sala Editore.

man-made lagoon. Additionally, what is fascinating about this site condition is the contemporary manifestation of this ancient aquaculture. As shown in the aerial, the canal (reconstructed for modern use), is now connected to a fish farm just North of the beach.²⁹

Orbetello

The Orbetello peninsula has always been a highly contended military zone, primarily because of its important strategic location in relationship to the Mediterranean and the rest of Western Europe.³⁰ Below is a timeline to



Figure 13: Orbetello timeline, Credit: Author

²⁹ Cuccia, Andrea (2014). *Storia Maremmana, Ansedonia: i Segreti della Città di Cosa e il suo Porto*. Rome, Italy: Aldo Sala Editore.

³⁰ Federici, Edoardo. *Orbetello a Confronto: La Città Come Era, La Città Come E'* Arcidosso: Archivi Riemersi, 2009. Print

summarize the various reigns that have influenced the urban morphology, and growth of the city.

Below is a series of map reconstructions of the downtown area's evolution over time, what these drawings highlight is the continuously changing relationship between the built environment and the landscape. The changes from the medieval era to modernity involves mostly the relocation of the main entry gates. While drawbridges were of extreme importance in earlier times, their role diminished after the unification of Italy in 1861. To note however, is the wall surrounding the downtown area. This structure traces back to its original Etruscan inhabitants, who built it not only as protection, but also as a way to keep water and mud out of the urban areas. Its formation is unclear, and was therefore not represented.³¹ However, the

³¹ Federici, Edoardo. *Orbetello a Confronto: La Citta' Come Era, La Citta' Come E'* Arcidosso: Archivi Riemersi, 2009. Print

medieval wall, which was eventually built under Siennese rule, maintained a clear path to the rest of the Italian peninsula, while enhancing its protection through a moat.³²



1512 RECONSTRUCTION

³² Federici, Edoardo. *Orbetello a Confronto: La Citta' Come Era, La Citta' Come E' Arcidosso*: Archivi Riemersi, 2009. Print



1918 RECONSTRUCTION



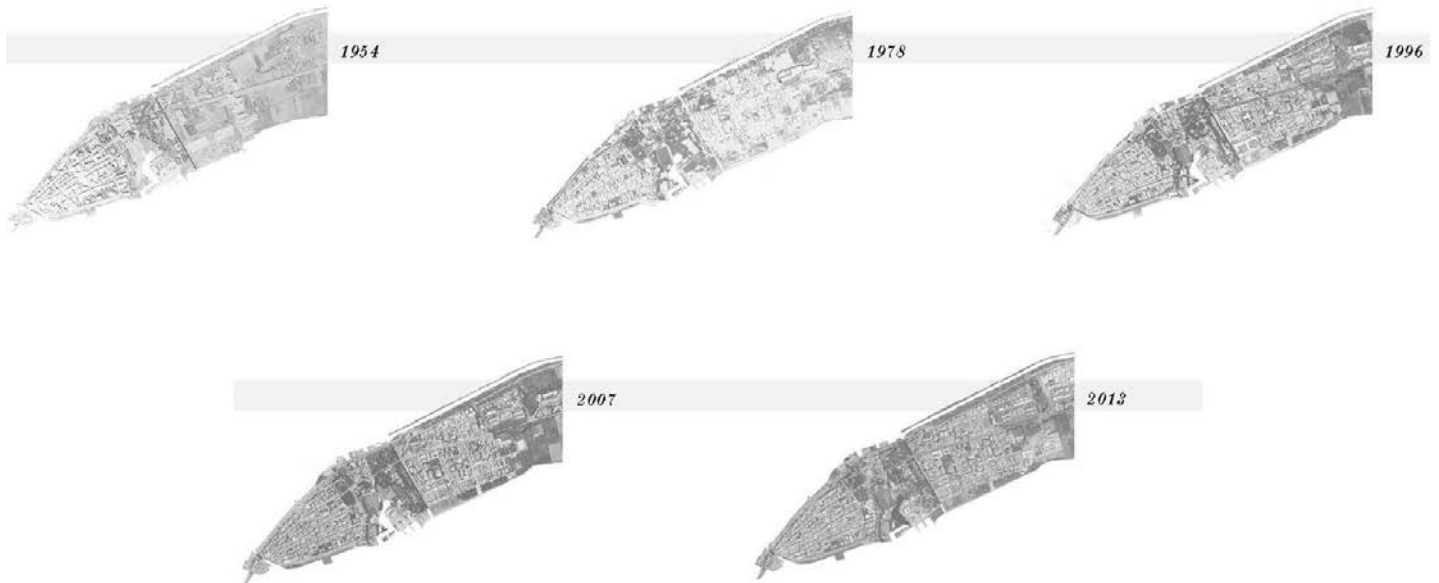
1707 RECONSTRUCTION



The Airport, which was mentioned in the introduction of this chapter, has an important role in understanding the eventual industrialization of the town. By becoming one of the most important flight paths out of Italy, Orbetello switched from being a town based solely on the production of agriculture, to a technological leader. It is difficult to predict what could have

happened had this complex survived the Second World War, but one can only speculate that Orbetello would have a very different economic and social identity.

Following the Orbetello's destruction in 1944 by retreating German troops, the town continued to grow eastward, encroaching on its agricultural land.³³



This industrialization and urbanization process, coupled with its transition from a purely fishing based economy to a tourism based one, is

³³ Federici, Edoardo. *Orbetello a Confronto: La Citta' Come Era, La Citta' Come E'* Arcidosso: Archivi Riemersi, 2009. Print

perhaps one of the more important clues into its current cultural identity. As such, it is the job of this thesis to reestablish a positive relationship between tourism and local ecology: what is perhaps the most important takeaway from the airport development and destruction is its value as a possible hub to house this development. At its height, this airport served as the portal to a modern era, and could yet again serve as the stitch between urban and historical fabrics.

Chapter 4: METHODOLOGY

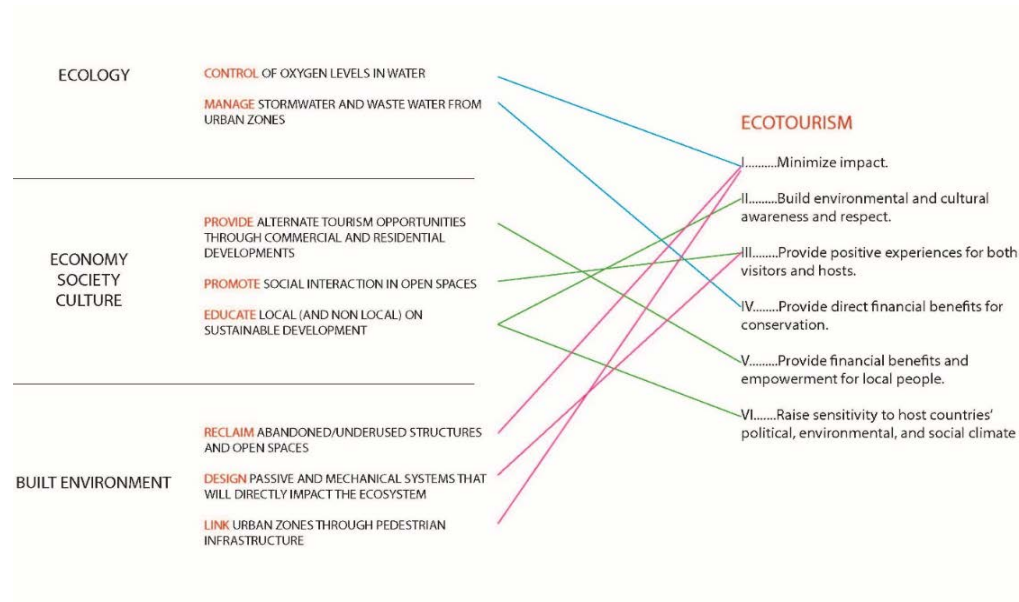


Figure 14: Ecotourism principles matrix, Credit: Author

This section will describe the interaction between the ideas of ecotourism, pescaturism, and the agenda of the thesis. Having identified the main ecological, social, urban, and economic conditions, the architectural and landscape solution takes in consideration both mechanical and passive methods.

As part of the methodology, I also analyzed a number of sites that had the potential for redevelopment, following the parameters indicated by ecotourism, and its mission to reconnect tourism to the natural environment.

In this chapter, I will present a series of diagrams which interpret site conditions and possible interventions for each.

Site 1: Cosa / Ansedonia

The adjacent Feniglia beach is one of the most utilized tourist attractions, with consumers ranging from locals to out-of-towners. Its high usage is linked to its proximity to both the Ansedonia residential neighborhood and to Porto Ercole on the opposite side. The canal, which connects the lagoon to the sea is a largely ignored feature, as its confluence is inaccessible to the general public.

There could be an opportunity for this piece of infrastructure to be a place for social interaction outside the normal beach environment. Also relevant is the proximity to the Cosa site, which could be an asset in developing interest from the general population.

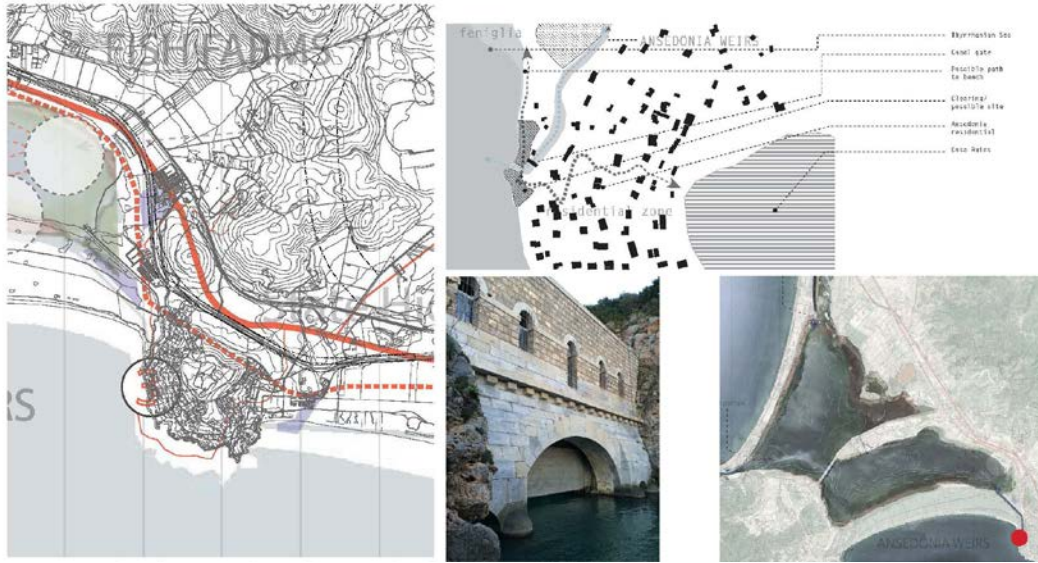


Figure 15: Cosa Site Matrix, Credit: Author

Site 2: Ex-Sitoco

The Ex-Sitoco site is most relevant from a social/cultural standpoint for its initial planning intent and for its relationship to the major North South train network. Currently in a mostly uninhabited part of the municipality, the site could create a new centrality, promoting future growth.

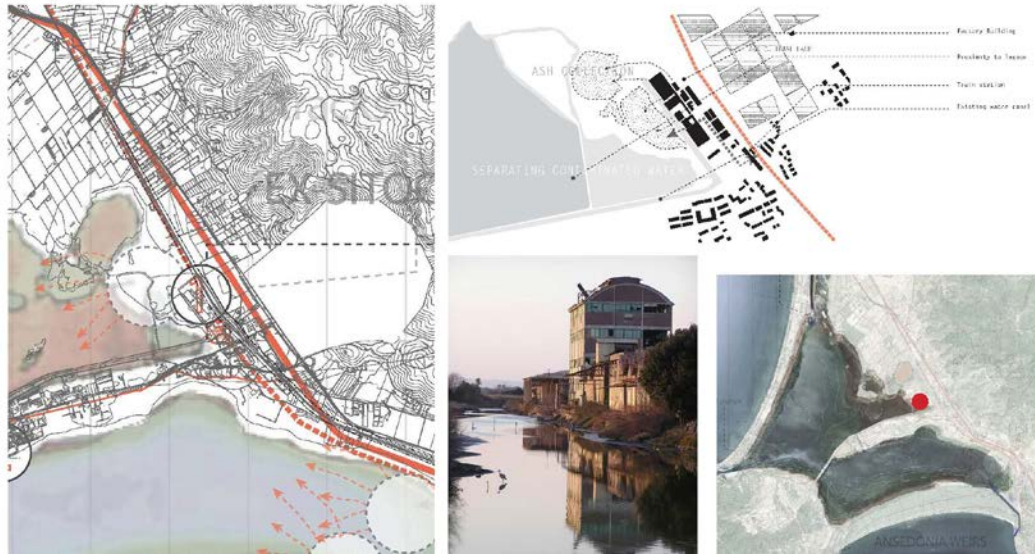


Figure 16: Ex-Sitoco Site Matrix, Credit: Author

Nearby commercial neighborhoods like Neghelli and Scalo could benefit from having such an attraction, so long as its impact didn't cause uneven amounts of development.

Site 3: WWF | Albinia

The case for the WWF Protected zone in the northern part of the lagoon has already been discussed in earlier portions of this thesis. The opportunity at a larger scale in this case would be to connect to nearby Albinia, the post-WWII settlement. The opportunity in this case would be to reconnect a town struggling to find an identity, so a natural amenity such as the lagoon, and the bird protection area. In November 2012 the whole of Albinia was flooded following a low pressure system from southern Spain,

causing six deaths and demolishing parts of town.³⁴ Ever since this catastrophe, the town has made attempts at reconstructing and generating a more individualized identity, with pedestrianized areas and weekly festivals.



Figure 17: WWF Site Matrix, Credit: Author

Site 4: Orbetello Downtown

The case for Orbetello downtown has already been discussed in the previous section. More specifically, the airport site separating the old and new fabric presents an opportunity for urban connectivity and reuse. Its connection to Orbetello's multilayered history is of special significance, as well as the already present weekly and seasonal markets

³⁴ Maltempo: 2 anni da alluvione Albinia, furono 6 i morti - Toscana (ANSA.it) http://www.ansa.it/toscana/notizie/2014/11/12/maltempo-2-anni-da-alluvione-albinia-furono-6-i-morti_2e184328-cc50-4c7a-8fe8-644dc463e047.html



Figure 18: Orbetello Site Matrix, Credit: Author

Chapter 5: PROGRAM

Section 1: Why Pescatourism

The agrotourism culture in Italy has redefined the way in which its agricultural establishments connect with tourism. In Tuscany, this has been enhanced by foreign interest in its wineries, and the appeal of its natural landscape. At the root of agrotourism, is the notion that agriculture, or local production, can be experienced through the lens of an outsider. The goal is to provide hospitality through the active interaction with the daily activities of agriculture.

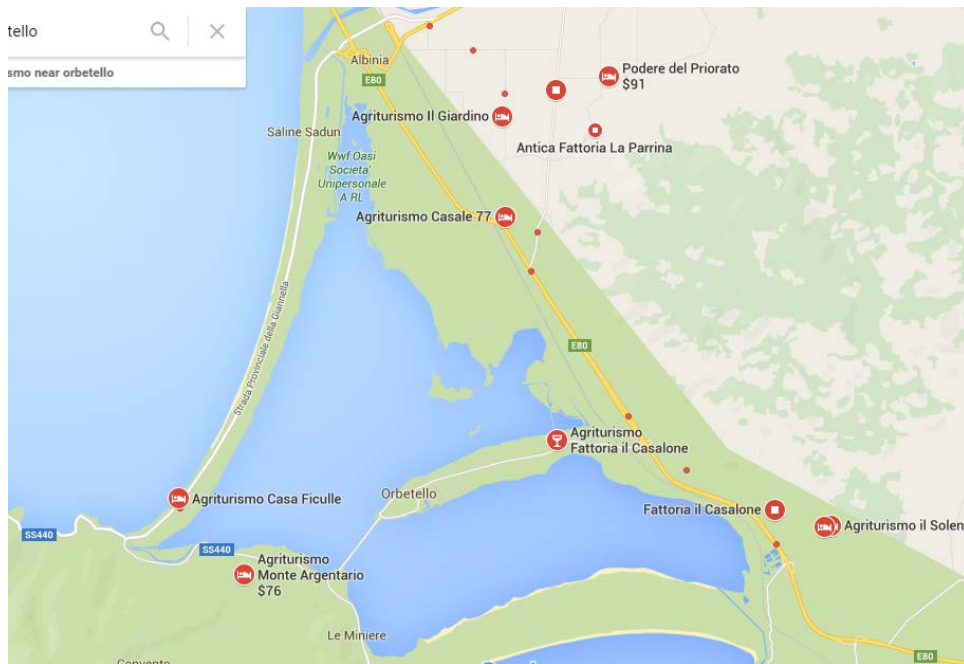


Figure 19: Agrotourism Sites, Credit: Google Maps

There are several examples of such establishments in the Orbetello region, each with varying levels of price and natural setting. Most of these focus on the rural areas of the region, like the agricultural zones located in the Giannella sandbar, or the eastern portion of the Orbetello peninsula.³⁵

Much has been discussed in this paper about the importance of the natural environment in relation to the local economy, particularly about the quality of the lagoon as a factor of productive fishing practices. The lagoon fishing industry focalized in one cooperative that operates out of the downtown area, using weirs at the three canals and traditional boat fishing activities. After conducting a series of informal interviews, it is easy to see how the cooperative has a strained relationship with the local population, due to the recent death of fish in July of 2015, which has severely impacted people's perception of the quality of the fish. In addition, there is a general sense of resentment towards the cooperative, as it maintains restrictions on who can work within the company.

In response to this perception shift, the cooperative has tried to mobilize and inform the local population of its practices, and the importance of this industry to the local economy through events and galas, though often exacerbating the omnipresent feeling of distrust.

The fishing practice is of course, important not only to the economy of Orbetello, but also to its cultural identity, and its maintenance is arguably one

³⁵ <http://www.agriturismocasalone.com/index.php/en/>

of the keystones to the town's sustainable development. Currently, the cooperative runs a restaurant in near its base of operations in the downtown area, but its efforts to promote transparency could be re-imagined. Could agrotourism be then, repurposed to this industry, as a form of pescatourism?

Chapter 6: APPLICATION TO SITE

Following the analysis of Orbetello's ecological, cultural, and economic condition, it was determined that the strategy actually be one based on a "low impact" approach. As such, the strategy aims to take advantage of existing structures, historical layouts, and introduction of stormwater remediation strategies.

As inspiration for the site design, this thesis applied principles and ideas extracted from the site plan as it was during the airport area, incorporating not specifically form, but meaning and use, as a way of reinterpretation and translation. This strategy also connected to existing plans by Rachele Mambrini and Clara Manca to reuse the structures within the wall, in an effort to reinforce pedestrian connectivity from these two separated urban zones.

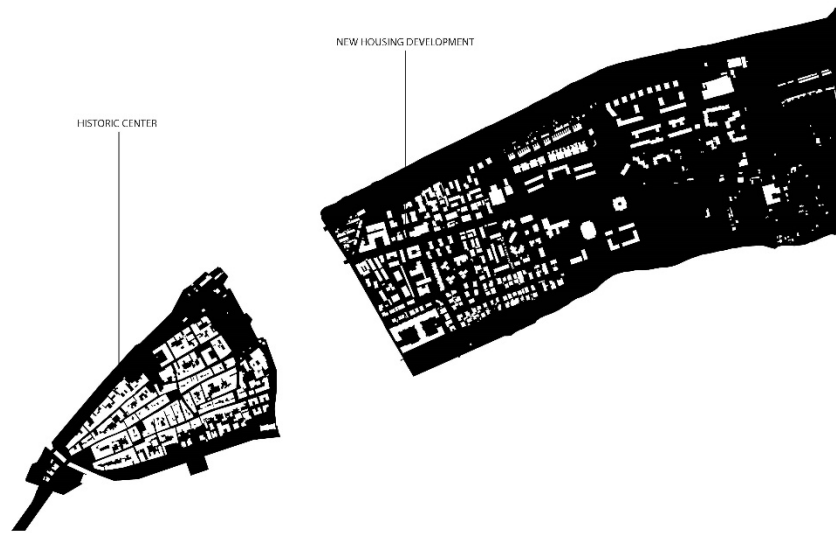


Figure 20: Reverse Figure-Ground, Credit: Author

The most critical elements for the site are its relationship to the water (being one of three connectors between the two lagoons), and the open spaces and uses. While the majority of these spaces are underutilized, the project tries to replan these activities through landscaping strategy. As such, considering a scale similar to that of the mall at the University of Maryland, this zone can be considered a green lung to the city.



Figure 21: Scale Diagrams, Credit: Author

As mentioned, the site is largely abandoned, with only some recreational and institutional uses still in the area. These include a rowing facility and boat dock, a bocce club, and a Navy office.



Figure 22: Orbetello Uses, Credit: Author

The seasonal markets occur in the northern half of the site, with occasional concerts during the summer months, while a weekly market takes place near the water's edge by the newer housing developments. This thesis tries to encapsulate these activities and uses through its master plan.

Site Scale

Reuse of the Rock of Orbetello, by Rachele Mambrini and Clara Manca



Figure 24: Idroscalo view, Credit: http://www.orbetelloturismo.it/wp-content/uploads/2011/04/Idroscalo_2.jpg



Figure 23: Reuse of Rock, Credit: Rachele Mambrini, Clara Manca

The restoration of important airport structures is a process that has been already studied over the past few decades. Most recently, Rachele Mambrini and Clara Manca proposed a strategy that would adaptively reuse the airport building in the historic wall. This project took into consideration all possible iterations of the structure, finally landing on a strategy that embodied aspects of pedestrian access to the wall via a stair from the airport era, and a strategy for commercial and hospitality uses. Their research, which involved extensive ground research, took into account local business strategies, cost estimations and feasibility, resulting in a sensitive approach to sustainability.



Figure 25: Wall Current Condition, Credit: Rachele Mambrini, Clara Manca



Figure 26: Wall and Stair Current Condition, Credit: Rachele Mambrini, Clara Manca

In these sections, it is clear how the addition of the stair as an infrastructural element easily manages the elevation change of the wall and the two urban areas.

Ancient Moat Re-Thought

In this strategy, the thesis tries to reconsider the current formation of the water inlet on the eastern edge of the site. The thesis adopts a number of elements from both medieval formations and airport development. In this case, the new moat would close off vehicular access at the northwest, limiting it to the eastern road of the site. In addition, the moat would act as a filtration system through a “stepped wetland”, which would gather water through bioswales at a number of points.



Figure 27: Idroscalo current condition, Credit: Author



Figure 28: Historical reconstruction of Moat, Credit: Author

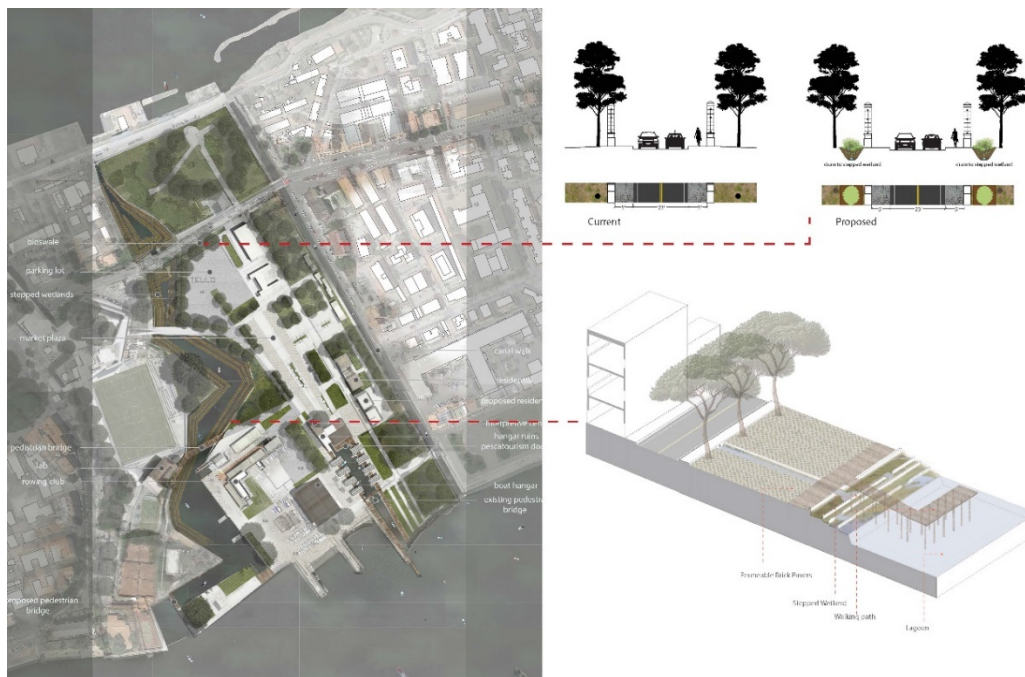


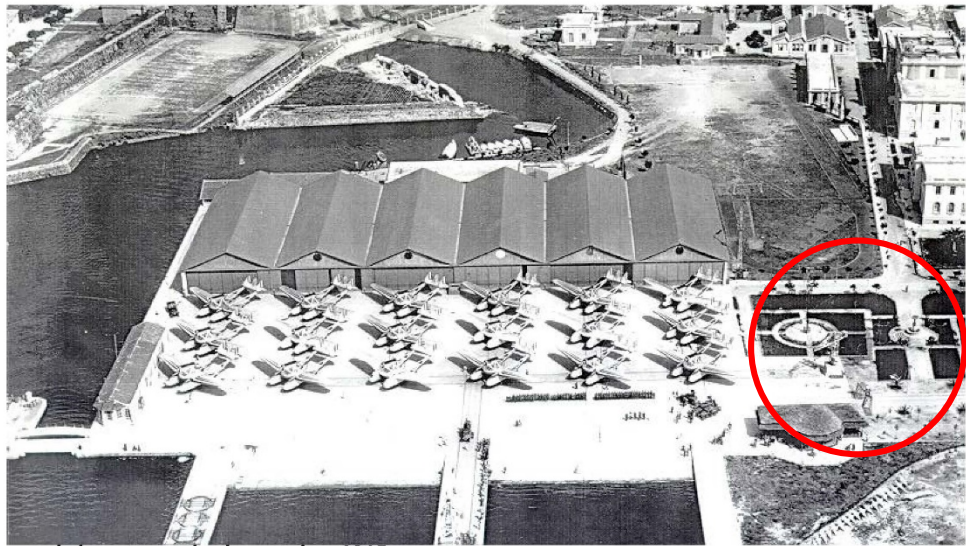
Figure 29: Filtration Strategy, Credit: Author



Figure 30: Stepped Wetland and walk section, Credit: Author

Inlet Dock

In this site intervention, the design reinterprets one of the airport's landing as a pescaturism dock. This allowing for a more personalized fishing experience, and a way to interact with the local fishing culture. More on these will be explained later in the paper.



second airport complex layout circa 1915

Figure 31: Idroscalo view, Credit:http://www.orbetelloturismo.it/wp-content/uploads/2011/04/Idroscalo_2.jpg



Figure 32: Dock Inlet with site plan, Credit: Author

User Experience

Perhaps the best way to describe the design is through the experience of the user. As previously mentioned, each element of the site plan was devised as a means through which the tourist might experience the ecological elements of the lagoon, while simultaneously engaging with pedestrian walks.

Approach to the site can occur at two different points, the main entrance to the north, or from the historic city, along a pedestrian walkway along the water's edge.



Figure 33: View from Canal Walk, Credit: Author

If one were to arrive from this direction, one would eventually arrive at the proposed research facility.



_ approach from old city



Figure 34: Approach from the Wall, Credit: Author

The experience of this walk would be symbolic of the aims of this thesis, with continuous interaction with the lagoon, the moat, and the historic wall to the left.

The building itself employs an adaptive reuse strategy of an abandoned warehouse structure, most likely from the airport complex. The goal here is replace the abandoned laboratory, located on the northern part of the site, with a newer version, aimed at housing university interest, but also as a source of knowledge for tourism.

This building re-considers the current layout of the warehouse as an adaptable laboratory. By adding a loggia on its eastern façade, the arrival experience to the proposed site plan is enhanced, while also promoting a more direct interaction with both the rowing facility and the stepped wetland below.



Figure 35: View of Warehouse from the Wall, Credit: Author

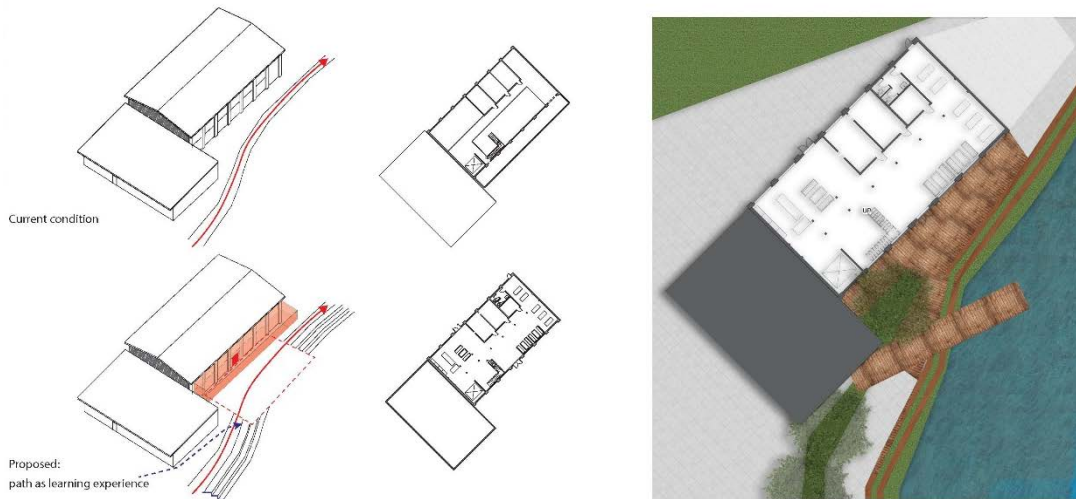


Figure 36: Lab plan and open space diagram, Credit: Author

Again, at the core of the intervention is the notion that this research facility should house the intersection of tourism and local culture. For the purpose of this thesis, it is easy to begin to imagine local high schools using this lab as a resource.



Figure 37: View of Lab Exterior, Credit: Author

If one were to approach from the main entrance, the experience would be quite different. Here, at the Orientation Plaza and interpretive center, one can book rooms for the nearby residential buildings, while also experiencing a relic of the past in the ruins of the airport. The plaza's main use would be that of providing a space for the multiple uses of the site, including markets, concerts, and other special events.



Figure 38: View of Orientation Plaza Exterior, Credit: Author

The building, which you can see in the background of the image, reuses a relic from one of the original hangars. This serves as a threshold between the market spaces and the dock mentioned earlier.



Figure 39: Relic from idroscalo hangar, Credit: Author

Below is a sample dock, the design of which was inspired by the first hangars in the airport complex, preceding Nervi's.

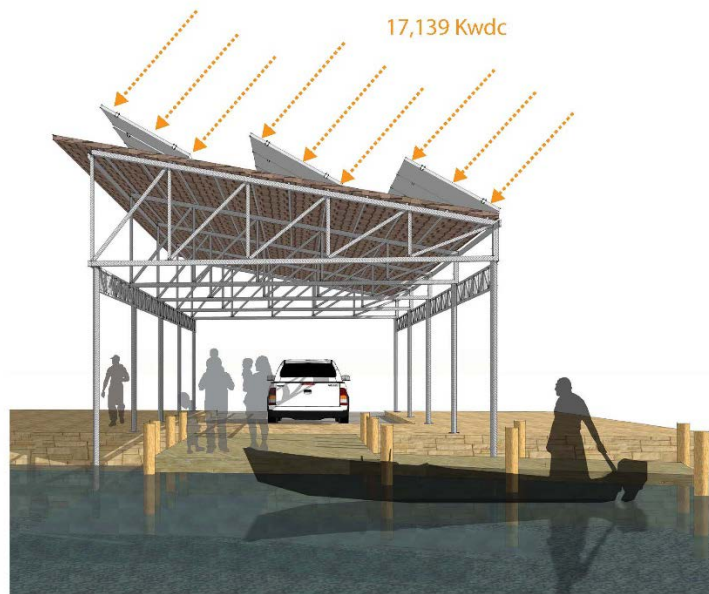


Figure 40: Dock Design, Credit: Author

The design of these docks would facilitate user interaction between tourism and fishing, while also producing energy through photovoltaics on each roof. All of which, would generate 17,139 Kwdc/yr per structure and 127,112/yr total.

After being directed to a specific use, such as pescatourism, or research lab, the tourist could then go to the housing building, which adaptevely reuses an officers quarters structure from the airport era. In the design of this thesis, this space is reimagined as the permeable membrane of the site, with walking paths along the canal edge, which interact through sight lines to the post-war housing district to the east.

Currently, the site is completely abandoned, even if it sits in a particularly prominent position.



Figure 42: Relic from Idroscalo Near Palazzo, Credit: Author



Figure 41: View of Palazzo, Current Condition, Credit: Author



Figure 43: View of New Residential District, Credit: Author

**_ addition of 32 studio
apartments over three buildings**

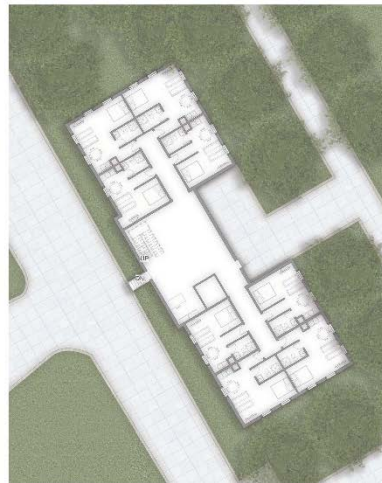
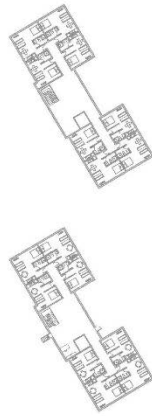


Figure 44: Residential Design diagrams, Credit: Author

In the image above, one can see the possible interaction between user and landscape strategy. In this case, the stepped wetland acts as filter to avoid continuous erosion along the canal edge.

Finally, having completed initial arrival sequences, the tourist may enjoy the fish caught earlier in the pescaturism experience at the restaurant, located in the same building as the interpretive center.



Figure 45: View of Restaurant and Dock, Credit: Author

Chapter 7: CONCLUSION

The hope for this thesis is not to present the “only” solution to Orbetello’s economic and cultural condition. The hope is that the project proposed in this design actually acts as a catalyst for change in the future of the town, and its interaction with the tourism industry. As previously mentioned, there are several opportunities around the region for similar developments, including the Ex-Sitoco factory, Ansedonia, and Giannella.

With the implementation of a regional strategy, it may be possible to tackle its massive ecological problem. Below is a proposed toolkit, which employs shading in the lagoon’s most afflicted areas, remediation from agricultural and urban runoff, and a system of pedestrian walkways which would further enhance the ecotourism agenda.

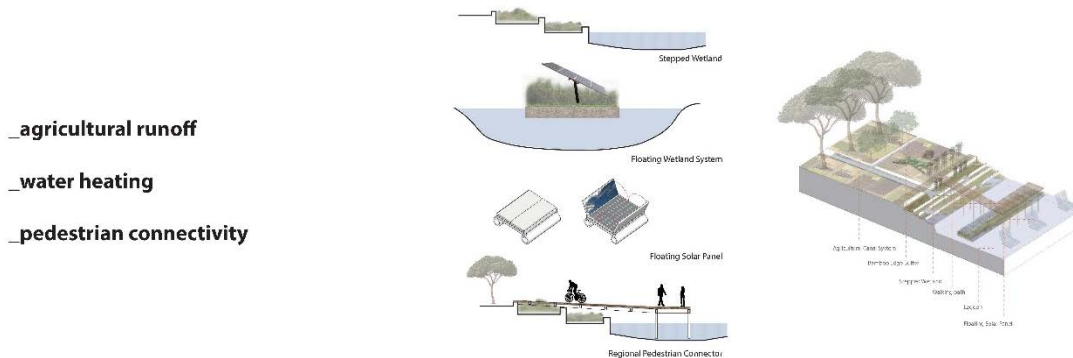


Figure 46: Regional Strategy Toolkit, Credit: Author

So, the initial question of: can architecture be a catalyst for economic sustainability is not uncommon in the modern discourse. Earlier in this text, I

discussed some of the positives and negatives of this activity, while proposing an alternative in the form of ecotourism. What is evident is that complex urban and ecological conditions require sophisticated solutions.

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