

# Architecture, not only building

Interventions across four ecological sea levels in the Po Delta

**ATELIER XU**  
**Accademia di Architettura di Mendrisio**  
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## Introduction - Time Speed and Corrosion

In a context where fresh water and saltwater continually mingle throughout the year, the Po Delta emerges as a breathtaking and ever-evolving landscape. Time, speed, corrosion, and water are elemental forces that shape this environment, working in concert to establish a delicate equilibrium conducive to diverse ecosystems. Functioning akin to a sensor, the Delta records the passage of time and fluctuations in atmospheric conditions, offering us a tangible awareness of these phenomena.

Human production activities on land, such as rice, lavender, and corn fields, and in water, such as the cultivation of mussels, clams, and pink oysters, thrive by taking advantage of the phenomena present in these ecosystems to monitor their continuous changes. Yet, the quest for balance between humanity and nature remains perpetually challenged by the swift currents of water and the unpredictable shifts in weather patterns.

Local villages and communities coexist in symbiotic harmony with their natural surroundings, nurturing a distinct culture and way of life. To safeguard against recurrent floods, houses are often erected on stilts, while transportation predominantly relies on traditional boats navigating the waterways. The contemporary landscape of the Po Delta bears witness to the impacts of depopulation in its villages and the profound alterations brought about by climate change and globalization. As a result, the Delta finds itself in a constant state of adaptation, wherein both humanity and the natural world continually strive to adjust and endure amidst the evolving challenges posed by modernity.









HUNTING ON THE LAGOON, CARPACCIO VITTORE, 1495

## Production and Mutations of the Delta Ecosystems

The land production in the Po Delta is distinguished by its remarkable fertility, attributable to the sedimentation from the Po River. As early as Roman times, the region was intensively cultivated through sophisticated land reclamation systems designed to control the waters. Following a period of abandonment during the Middle Ages, Benedictine and Cistercian monks resumed reclamation efforts, enhancing agricultural techniques. The Renaissance saw continued transformation of the region with the construction of dikes and locks.

In the 20th century, agriculture in the delta underwent modernization through the introduction of machinery and chemical fertilizers, establishing it as a significant area for the cultivation of rice, corn, wheat, and sugar beets. Although contemporary challenges related to sustainable water resource management persist, the Po Delta remains one of Italy's most productive agricultural regions.

Sea production, particularly in the Scardovari Lagoon, has a long history. The lagoon has been utilized for fishing since ancient times, with mussel and clam farming emerging as principal activities due to favorable environmental conditions. Modern developments have seen the addition of pink oyster cultivation. The current configuration of the Scardovari Lagoon was shaped during the 1950s and 1960s, a period marked by Italy's surge in natural resource exploration and extraction, including natural gas. Geological surveys led to the discovery of gas deposits beneath the lagoon, prompting drilling and extraction operations that initiated an era of intense

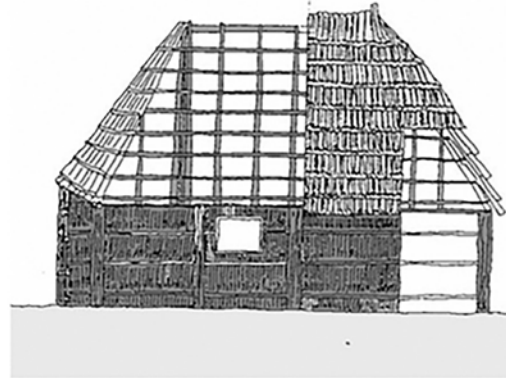
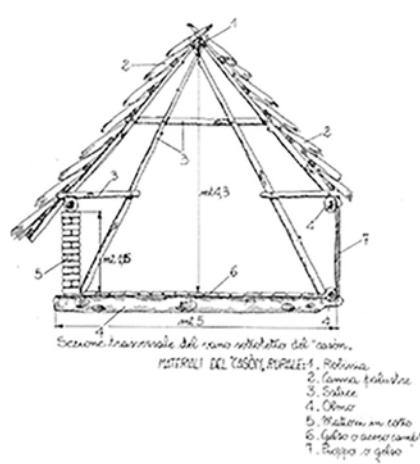
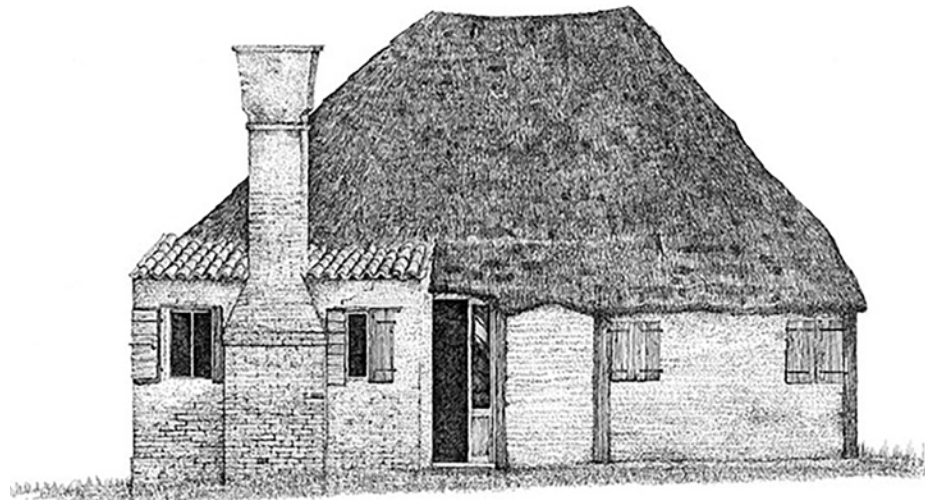


era of intense industrial activity. These activities significantly altered the environment, causing subsidence (up to 3 meters) and disrupting water circulation, which adversely affected local flora, fauna, and fishing activities. By the 1970s, most extraction operations had ceased, ushering in a gradual process of environmental recovery. Subsequently, a dense network of rice paddies was established around the lagoon to counteract the threat of rising waters. These paddies not only produce rice but also function as a natural water management system, absorbing excess water and stabilizing the lagoon's water level. This integrated agricultural system safeguards the ecosystem, providing a buffer against floods and enhancing water quality through natural filtration. Rice paddies play a crucial role in maintaining the ecological balance of the area, illustrating how sustainable agricultural practices can contribute to environmental conservation.

Today, the Po Delta, and particularly the Scardovari Lagoon, faces a new challenge: the invasion of the Blue Crab (*Callinectes sapidus*), a species native to the Atlantic coast of North America. Introduced via large cargo ships, the Blue Crab has proliferated rapidly in the Po Delta, finding a conducive habitat. The Blue Crab thrives in brackish waters and inhabits depths ranging from 3 to 35 meters. It competes with native species for food and habitat, inflicting severe damage on the ecosystem. Predating on mollusks, fish, and other aquatic species, the Blue Crab causes a decline in populations of clams and mussels, which are vital to the local economy. Furthermore, their presence increases water turbidity, diminishing the light available for photosynthetic aquatic plants and disrupting the entire ecological balance.

The Delta ecosystem has endured various historical phenomena, yet it has consistently managed to rebalance itself through the strategic interplay of natural and human interventions linked to the reconfiguration of pre-existing ecosystems. This resilience underscores the dynamic and adaptive nature of the Po Delta, highlighting the potential for sustainable practices to foster ecological harmony.



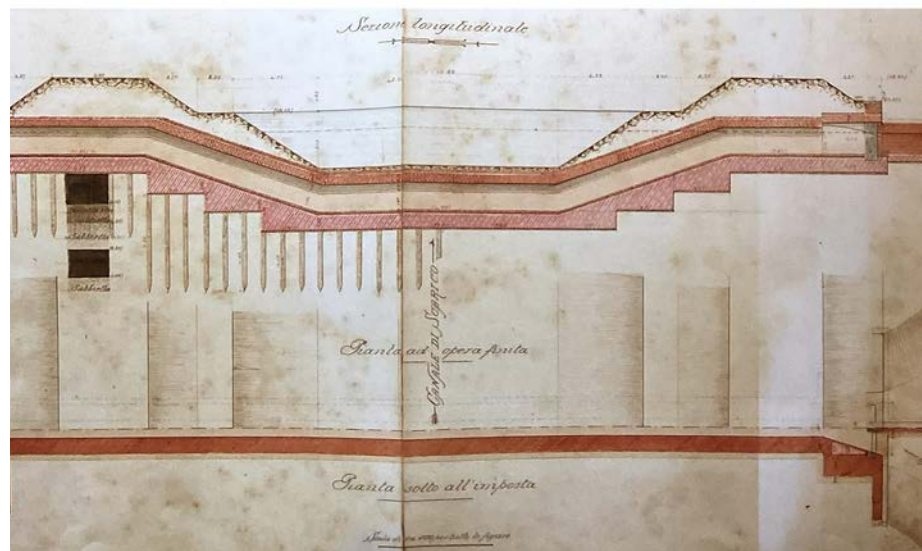


## Delta Po, Materials and Construction

Construction in the Po Delta has always necessitated adaptation to the territory's peculiarities, marked by marshy lands and frequent flooding. Since ancient times, the delta's inhabitants have developed specific techniques to inhabit and exploit these fertile lands effectively.

During the Roman era, buildings in the Po Delta were primarily constructed from wood and clay. Wood, abundantly available from the surrounding forests, was used for supporting structures and pile dwellings, while clay was utilized to create bricks and plaster. Pile dwellings were common to mitigate flood damage. Additionally, reeds, abundant along the riverbanks, were employed for roofs and walls due to their resilience and insulating properties.

In the Renaissance and subsequent centuries, the use of fired bricks became prevalent, facilitated by local kilns that utilized the delta's clay. Bricks offered greater resistance and durability compared to earlier materials. Construction techniques were further refined with the introduction of methods to consolidate marshy lands, such as the use of foundation piles. These techniques drew from new knowledge developed in nearby Venice, a city built in a similar marshy ecosystem. However, reeds continued to be used for roofing due to their excellent thermal insulation and water resistance.



The 19th and 20th centuries saw the advent of industrialization, bringing modern materials like concrete and steel into use. These materials enabled the construction of larger and more resilient infrastructures, such as bridges, dams, and industrial buildings, as well as water pumps that manage the flow and exchange between different areas of the delta. Land reclamation became a common practice, transforming vast marshy areas into agricultural land and urban zones, thus uncovering new arable land.

Today, the delta is dotted with remnants of 20th-century constructions, such as granaries, rice warehouses, and brick and clay kilns. These buildings symbolize a period of prolific industrialization and agricultural activity. However, they now stand as static monuments or skeletal remains, reflecting an ecosystem in continuous transformation.





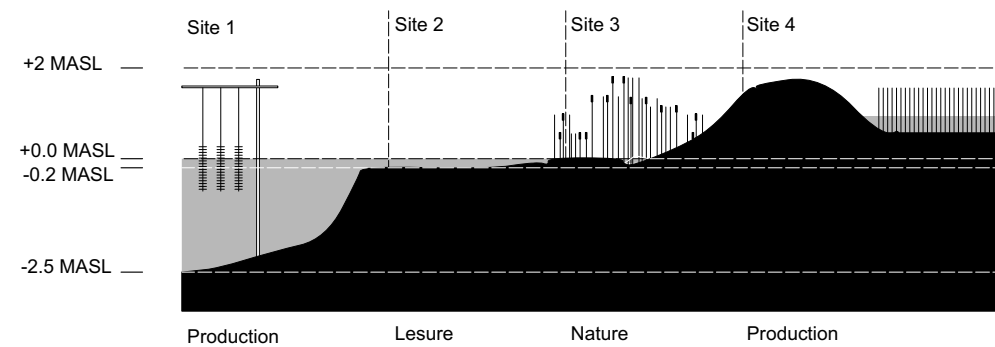
## Design Task

The design task for this semester will involve creating a system of interventions to connect various ecosystems at four specific sites in the Delta Po, particularly close to the Sacca di Scardovari. Collectively, these interventions will establish a new systems of interventions in the Delta, across four ecological levels, serving as focal points integrated with its assets and identity, and shaped by the landscape.

Each site will be explored with an intervention size ranging from 150 square meters or more. The study trip will take place in Italy, in the Veneto region of the Delta Po, from the 20th to the 22nd of September. During the first two weeks of the semester in Mendrisio, we will construct a context model and collectively study the context and economics of the Delta to propose a program for each architectural project.

The mid-review is scheduled for October 24th, and the final review will be held on December 19th.

The atelier project will be developed in pairs.









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Professor:

Xu Tiantian  
tiantian.xu@usi.ch

Assistants:

Davide Contran  
davide.contran@usi.ch

Junjun Dai  
junjun.dai@usi.ch

Office:  
Canavée, Office 377 (Level 3)