Embracing the Future of the Wadden Sea Landscapes

Voices and Imageries from Students and Educators

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Laura Cipriani Embracing the Future of the Wadden Sea Landscapes | *Voices and Imageries from Students and Educators*

Embracing the Future of the Wadden Sea Landscapes

Voices and Imageries from Students and Educators

edited by Laura Cipriani

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Colophon

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Embracing the Future of the Wadden Sea Landscapes

Voices and Imageries from Students and Educators

edited by Laura Cipriani

TU Delft OPEN

This book features a symposium and exhibition held
within the Dutch Landscape Triennale (Landschapstriënnale)
at the De Kanselarij in Leeuwarden
on 22 September 2023.

The symposium and exhibition were organized by
Laura Cipriani with Saskia de Wit

TU Delft | Faculty of Architecture and the Built Environment

in collaboration with

Province of Friesland | Landscape Triennale

and with

Amsterdam Academy of Architecture | EMiLA | Wageningen University |
Groningen Academy of Architecture | NVTL | Wadden Academy

Contents

1 | Introduction

Embracing the Future of the Wadden Sea Landscapes

How do young generations and educators envision the future of the Wadden Sea territories? How will these landscapes be modified in the years to come? How do we embrace the past and the present and imagine the future?

This book focuses on the design works of landscape architecture schools. It collects some materials from the exhibition "Embracing the Future of the Wadden Sea Landscapes. Voices and Imageries from Students and Educators," which was held at the De Kanselarij in Leeuwarden as part of the 2023 Landscape Architecture Triennale.

Students and educators from TU Delft, Amsterdam Academy of Architecture, Wageningen University, and Hanze Academy of Architecture presented design results and ideas on the future of the Wadden Sea coasts and landscapes, from the sea to the coast to the rural and urban inland areas.
The exhibition was complemented by a symposium where a panel of experts from Friesland Province, Gemeente Den Helder, Wetterskip Fryslan, Wadden Academy, Lund University LTH, and the young association of landscape architects NVTL discussed the views and insights on students and educators' works.

This catalog is structured into four parts, describing three studio courses and one summer workshop of the schools involved in the

exhibition.
The first laboratory—"Modelling Fluid Soils"—highlights the role and importance of soil and water materialities in shaping the landscapes, their future scenarios, and related imageries in the age of climate transition.
The second laboratory—"Place and Memory"—explored the coast starting from individual perceptions in the city of Den Helder to build up a "deep map" as an intensive and immersive exploration of the different landscape layers and their mutual relationships.
The third laboratory presented—"Climate Adaptation in Architectural Education"—addresses climatic changes in the Groningen province and the wider area through adaptive design solutions rooted in the specificities of the local context.

The fourth section—"Wadden Sea: a Laboratory for Living with Nature"—sums up a summer school exploring the Wadden Sea's delicate balance between humans, animals, and plants.
The open and fresh gazes of landscape architecture students are the first step in embracing the future of the Wadden Sea landscapes, its people, and living organisms.

Laura Cipriani with Saskia de Wit

TU Delft
Faculty of Architecture and the Built Environment
Department of Urbanism
Section of Landscape Architecture

2 | Symposium

Embracing the Future of the Wadden Sea Landscapes

15:00 | *Introduction*
Convenors | Laura Cipriani, Eric Luiten, Saskia de Wit

15:10 | *Design Explorations in the Wadden Sea Landscapes*
Speakers
Laura Cipriani | TU Delft
Rudi van Etteger | Wageningen University
Ifigenia Psarra | Hanze Academy of Architecture
Eva Radionova| Amsterdam Academy of Architecture
Saskia de Wit | TU Delft

16:30 | *Working with (Un)Certainty* | *Roundtable*
Moderator | Eric Luiten | Landscape Triennale
Laura Cipriani | TU Delft
Rudi van Etteger | Wageningen University
Joca Jansen | Wetterskip Fryslan
Heleen van Londen | Wadden Academy
Ifigenia Psarra | Hanze Academy of Architecture
Stephan Smeijers | Friesland Province

17:00 | *Fieldwork as a Practice* | *Roundtable*
Moderator | Steffen Nijhuis | TU Delft
Joeri de Bekker | NVTL
Alex van de Beld | Lund University LTH
Frits op ten Berg | Gemeente Den Helder
Clemens Bernardt | Hanze Academy of Architecture
Eva Radionova | Amsterdam Academy of Architecture
Saskia de Wit | TU Delft

17:30 | *Exhibition*
Students | Anna Gorokhova | Xinjian Jiang | Zhaolei Li | Hanneke Wander | Heather Wong | Borui Xiong | Jantine van Halsema | Jingxuan Tu | Pjotr Boomgaard | Ying Han | Yizhuo Zhang | Sanne Dijkstra | Jacob Krol | Boukje Klaver | Ozgur Yilmaz | Marjolein Tolsma | Marith Bos | Lisette Woltjer | Live Victoria Hesland | Salma Marghich | Leslie Majer | Eva van de Jagt | Maurits Zeinstra | Emma de Zwart | Rikke Ter Horst | Julia Kannegieter

2.1 | Working with (Un)Certainty

Roundtable

Moderator | Eric Luiten

Panel | Laura Cipriani | Rudi van Etteger | Joca Jansen |Heleen van Londen | Ifigenia Psarra | Stephan Smeijers

It is not easy to imagine a substantial physical transformation of a landscape with internationally acclaimed undisputable qualities. Nevertheless, that was the issue that was on the table in the program of the Dutch Landscape Triennial event in September 2023.

Climate change will cause an existential threat to the hydrology, ecology, and land use of the Wadden Sea and its shoreline in the coming decades. The inevitable change will occur, whether we like it or not, in an area now protected as a UNESCO World Heritage Site. The paradox of 'dynamic conservation' has thus to be explored. New landscape potentials have

to be developed, presented, and discussed.

The roundtable with representatives from design education and various public authorities in the north of the country made clear that there is an explicit interest in the capacity of young architects and landscape designers to visualize a topography that still needs to be created. All participants were convinced that rethinking the Wadden region requires a farewell to traditional hydrological engineering, large-scale farming techniques, and spatial fixation of natural habitats. All of them agreed that this transition was extremely delicate. In this context, it became clear that the most effective design proposals were the ones with a selective character in scale and agent, with a humane perspective as a starting point and based on an open-ended,

ongoing process as their main ingredient.

Eric Luiten

Landscape Triennale 2023 | Landschapstriënnale 2023

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Section of Landscape Architecture

2.2 | Fieldwork as a Practice

Roundtable

Moderator | Steffen Nijhuis

Panel | Joeri de Bekker | Alex van de Beld | Frits op ten Berg | Clemens Bernardt | Eva Radionova | Saskia de Wit

Striking contrasts in its dynamic geography define the Wadden Sea region. On one side, the intertidal mudflats constantly shift between land and water with the ebb and flow of tides, creating a landscape of change that fosters unique ecologies and biodiversity. This natural rhythm, marked by sedimentation and erosion, is a landscape in flux. On the other side, the dikes stand as rigid lines, marking a cultural landscape where, for centuries, people adapted to these shifting conditions, taking advantage of fertile soils and other resources. Historical terps—dwelling mounds with farmhouses, small villages, and irregular patterns of ditches and

roads—serve as quiet reminders of this history. However, the dikes have fixed the land over time, transforming it into an industrial, agricultural landscape that now struggles to adapt to new challenges: saltwater intrusion, soil subsidence, freshwater scarcity, and rising sea levels.

How can we unravel the intricacies of this multi-layered landscape? And how can we leverage its geological, ecological, hydrological, cultural, and spatial characteristics to tackle modern challenges? These were the pivotal questions of our discourse. Fieldwork emerged as a crucial tool for designers, enabling them to gain a profound contextual understanding and unearth innovative design solutions. The roundtable discussion underscored the significance of a wide range of fieldwork methods for landscape

architects. These methods, including sketching, mapping, sensory transects, tactile inventories, and deep listening, allow designers to engage with the complexity and richness of the region.

Some methods leaned toward scientific approaches, such as mapping landscape systems of soil, water, ecology, and cultural history using GIS and other technologies. Others focused on capturing spatial-visual experiences through systematic sketches and photographs. Phenomenological approaches, like walking as a form of sensory inquiry, traced lines through the landscape or followed transects, recording experiences in various ways. Conversations with local residents, farmers, and policymakers embodied the deep listening method, providing valuable insights into the lived experiences

of the region. Designers even employed imaginative approaches, positioning themselves as representatives of different entities—water, soil, animals, or people—to understand the landscape from multiple perspectives.

The projects showcased diverse fieldwork examples, each contributing unique insights into the Wadden Sea region. The students then channeled the knowledge from these fieldwork methods into a compelling spectrum of speculative design proposals. The consensus from the discussion was clear: more than a singular fieldwork approach is required. Instead, a mixed-methods approach for fieldwork, which fosters the collaboration of all stakeholders in a co-creative design process, is imperative. This design approach not only facilitates a thorough

comprehension of the landscape but also encourages the exploration of potential futures in unison.

Steffen Nijhuis

TU Delft
Faculty of Architecture and the Built Environment
Department of Urbanism
Section of Landscape Architecture

3 | Exhibition

Embracing the Future of the Wadden Sea Landscapes

This section collects the exhibition materials and texts students and docents from TU Delft, Hanzehogeschool Groningen, EMiLA, and the Amsterdam Academy of Architecture prepared for this event.

TU Delft

Master thesis lab coordinator | Laura Cipriani

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Students | Nicolle Cobben | Madelief Dekker | Anna Gorokhova | Aileen Hallie | Xulingyun Ji | Xinjian Jiang | Suihui Kuo | Zhaolei Li | Martine Schüll | Keyan Tang | Wong Yin Wah | Hanneke Wander | Heather Wong | Fudai Yang

TU Delft

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Students | Pjotr Boomgaard | Jantine van Halsema | Ying Han | Jingxuan Tu | Yizhuo Zhang | Borui Xiong

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Students | Sanne Dijkstra | Özgür Yilmaz | Boukje Klaver | Jacob Krol | Marjolein Tolsma

EMiLA | *Amsterdam Academy of Architecture*

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Docents | Nuno Almeida | Andreas Ebert | Lieke Jildou de Jong | Lisa Mackenzie | Luis Maldonado | Lauri Mikkola | Martin Prominski | Giambattista Zaccariotto | Javier Zaldivar

Students | Marith Bos | Babs Brand | Lilli Carr | Julia Chavolla | Luisa Grassi | Diane Le Naour | Ana Sofia Lichtle | Salma Marghich | Lauri Mikkola | Live Victoria Noren | Juan E. Porras | Anthea van Regenmortel | Raidun Schott | Simon Schwarzl Friedrich Wacker | Lisette Woltjer | Felix Zierz

3.1 | Modelling Fluid Soils

Designing Together for the Wadden Sea Landscapes in Transition

Master thesis lab coordinator | Laura Cipriani

The relationship between soil and water is at the center of interest now more than ever. Like many other littoral areas around the globe, such as lagoons, wetlands, islands, and their inland areas, the Wadden Sea territories struggle between two opposing forces: permanence and transformation. The war between man and nature is waged on various fronts (i.e. geo-morphological, climatic, ecological-environmental, architectural, and landscape) and in urban settlements.

Despite being a UNESCO World Heritage Site of extraordinary environmental value and beauty, the Wadden Sea, its territories, and its people

TU Delft Department of Urbanism
BK Bouwkunde

now face an uncertain future while wrestling with latent climatic, economic-productive, and social crises. Subsidence increased by gas extraction and peat oxidation, soil erosion, saltwater intrusion, eutrophication, and agricultural water pollution testify to a territory in the throes of long-term repossession by the sea. Unlike large coastal conurbations, these areas are marginal territories with low levels of urbanization that are characterized by crises and territorial fragility. Notably, these are predominantly rural regions where the countryside becomes the frame within which cities are located. Lands reclaimed from the sea over the centuries now require the radical transformation of agricultural practices and an urgent response to climate change.

Can we (co)design the Wadden Sea landscapes?

How can we transform this crisis into an opportunity? As designers and educators, can we sow hope through the project in its various scales of intervention, from the regional to the most minute? Based upon applied research work in regional scenario-making and local design projects, the studio attempted to imagine the present and future of the Wadden Sea and its hinterland.

Through accurate and concrete plans, we attempt to give life to renewed economies aimed at proposing ideas to close environmental and economic cycles. Starting from the project, the intention is to promote tiny seeds of hope to trigger change. Peatlands, agriculture, energy, and heritage all intersect to encourage economies and social inclusion projects where

the landscapes of soil and water become the driving force to overcome the crises.

Laura Cipriani

TU Delft
Faculty of Architecture and the Built Environment
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The Altitudes of Flatness

No Land is Flat | Territorial Models

Docent | Laura Cipriani
Students | Keyan Tang | Hanneke Wander | Madelief Dekker | Wong Yin Wah | Suihui Kuo

Thinking with Sections and Models Course | Year 2020-21

No land is flat. Every land is dense with bathymetries, topographies, and micro-topographies.

The Wadden Sea is over 500 km long, and 20 km wide and stretches over three countries: the Netherlands, Germany, and Denmark. These countries are experienced as different entities, and crossing a country's border means something. But the Wadden Sea doesn't care about borders; it flows, undefined by the jurisdictions projected by our economic ntional borders.

The continuous tidal flat system of the Wadden Sea is a vast system full of ecological and hydrological processes. It is always changing and houses 39 tidal basins. These intricate interactions facilitate a multitude of habitats.

This 1:500.000 scale level model conveys Waddensea's unbroken system in relation to the contemporary cultural layer added by humans.

Model of the Dutch, German and Danish Waddensea.
Horizontal scale (x) 1:750.000. Vertical scale (y) 1:7500. Model size 500 x 500 mm.

The Wadden Sea landscapes | Bathymetries and elevations

Authors' work

Docent | Laura Cipriani
Students | Nicolle Cobben | Martine Schüll | Fudai Yang | Xulingyun Ji | Aileen Hallie

Thinking with Sections and Models Course | Year 2020-21

Horizontal scale (x) 1:750.000. Vertical scale (y) 1:7500. Model size 500 x 500 mm.
The following model shows the area between the cities Dokkum, Holwerd, and Stiens in the province of Friesland, scale 1:40.000. At first sight, the terps in the dominantly flat landscape, as well as the dike and the bathymetry, will catch the attention. To emphasize the terps, their height is 30 times exaggerated.

When looking at the model in more detail, the water pattern of the polder will provide an extra layer to help us understand the landscape. The bathymetry and the polders' water pattern are shown for two reasons. Firstly, the current condition of the two water directions must be emphasized. Secondly, the location of the model in the landscape must be made more recognizable. The current water pattern of the polder provides insights into the spatial embedment of the terms, such as radial land reclamation patterns.

Model of Dokkum, Holwerd and Stiens in the province of Friesland.
Horizontal scale (x) 1:40.000. Vertical scale (y) 30x. Model size 500 x 500 mm.

The Dutch Wadden Sea landscapes | Dikes, terps and polders

Authors' work

Regression and Progression

Towards a Regenerative Water Landscape in Wadden Coast

Student | Heather Yin Wah Wong
Docents | Laura Cipriani | Mark Voorendt

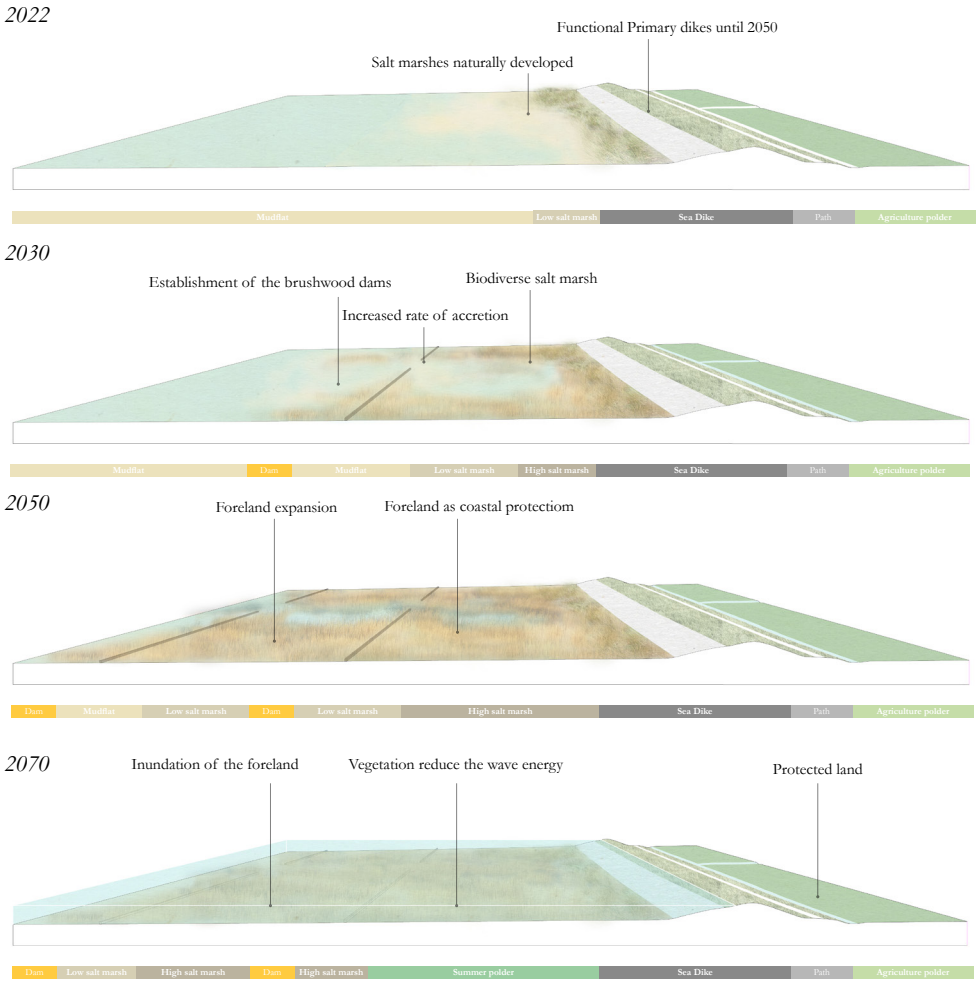
As the world's largest intertidal area, the Wadden Sea Region was recognized as a UNESCO World Heritage site in 2009. In addition to the scenic and ecological values, the Dutch Wadden Sea also serves as an infrastructure to safeguard the coastline of the mainland as a climate buffer, where it is good to live, work, and recreate.

The Dutch Wadden Sea is a dynamic landscape highly vulnerable to future climate change, demographic changes, and increased recreation and tourism. The rising sea level and changing climate will lead to prolonged droughts and flooding, posing a water safety crisis in the area. As an indispensable infrastructure protecting the hinterlands, the Wadden Sea dikes define and fragment the features of the landscape. The Wadden Sea coast is also confronting declining populations and a mono-sector economy.

The graduation project seeks the possible outcomes of the Wadden Sea Coast through in-depth research to analyze, synthesize, and develop a strategic design proposal for a resilient and sustainable landscape infrastructure contributing to the whole system. This project sets up an agenda for exploring the prospective capabilities of design-oriented research and cartography. In-depth research and analysis of the spatial and cultural landscape characteristics identify the spatial dynamics and transformations undertaken on the Wadden Coast. Future scenarios and narratives will be formed based on different climatic conditions.
The design assignment involves an adaptive landscape approach at multiple times and scales and scenarios, making for an integral approach to the climate crisis and small-scale design interventions along the Dutch Wadden Coast.

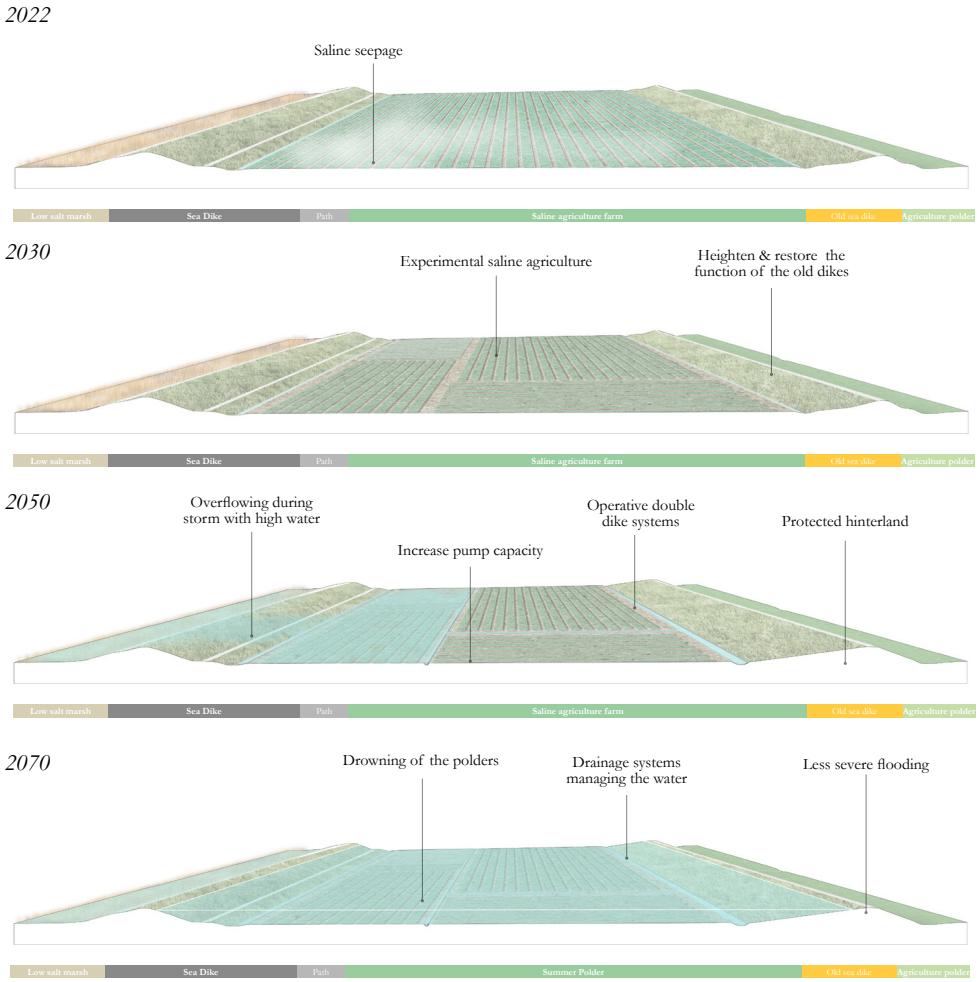
Experiential route of the salt marsh

Author's work



Progression | Salt marsh defense systems

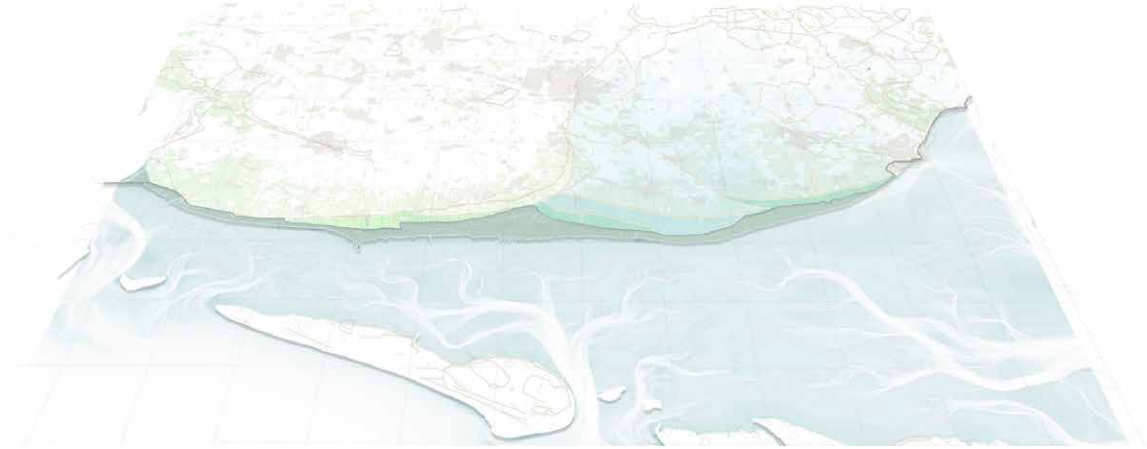
Author's work



Regression | Double dike systems

Author's work

2030



2070

Climate adaptive landscape in the future

Author's work

Mudscapes

Embracing Nature, Feeling Culture in the Ems Estuary

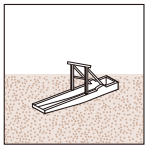
Student | Zhaolei Li
Docents | Laura Cipriani | Bram van Prooijen

External Contributors | Stephan Smeijers | Joca Jansen

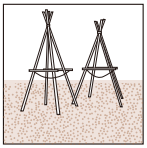
The Wadden Sea region is characterized as a diverse and contradictory area. On the one hand, it is the largest intertidal area globally, supporting a rich and diverse flora and fauna habitat that showcases nature's power and allure. On the other hand, it is a landscape shaped by human habitation and extensive transformations, including establishing numerous polders, reclaimed land, and imposing dikes. The region's history reveals the enduring struggle of its inhabitants against the sea over the past millennium, leaving behind a valuable cultural heritage.

One particular area exemplifying this dichotomy is the Ems estuary, which represents the Wadden Sea's most ecologically compromised section, often referred to as the "yellow river" of Europe. The industrial development occurring along the estuary, including activities like waterway deepening and riverbank embankment, has substantially altered the morphology, hydrology, and ecological composition of the area. Additionally, the area's cultural significance often remains overlooked due to its designation as a natural heritage site. Consequently, the region lacks sufficient allure, resulting in a declining population and an inferior economic state compared to the southern Netherlands and the surrounding islands.

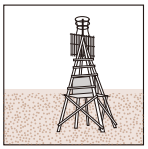
This master's thesis addresses the crisis in the Ems estuary by focusing on the transformative potential of mud as a catalyst. Through a comprehensive study analyzing the status and role of mud and integrating various strategic options, the project explores opportunities for revitalizing the estuary. As the muddiest estuary within the Wadden Sea and the last naturally connected river in the Netherlands, mud plays a vital role in the overall estuarine system. The thesis proposes a spatially dynamic transformation of the Ems estuary through small-scale design interventions and pilot projects by conducting research and analysis in these three domains.



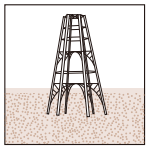
Mud sled



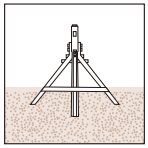
Wad stool ("Wadstoel")



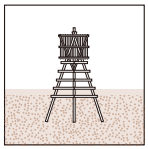
Cape with shelter



Emder kaap van rottumeroog

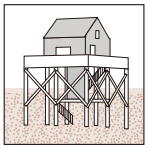


Boundary post

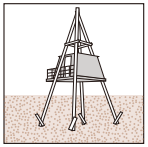


Cape

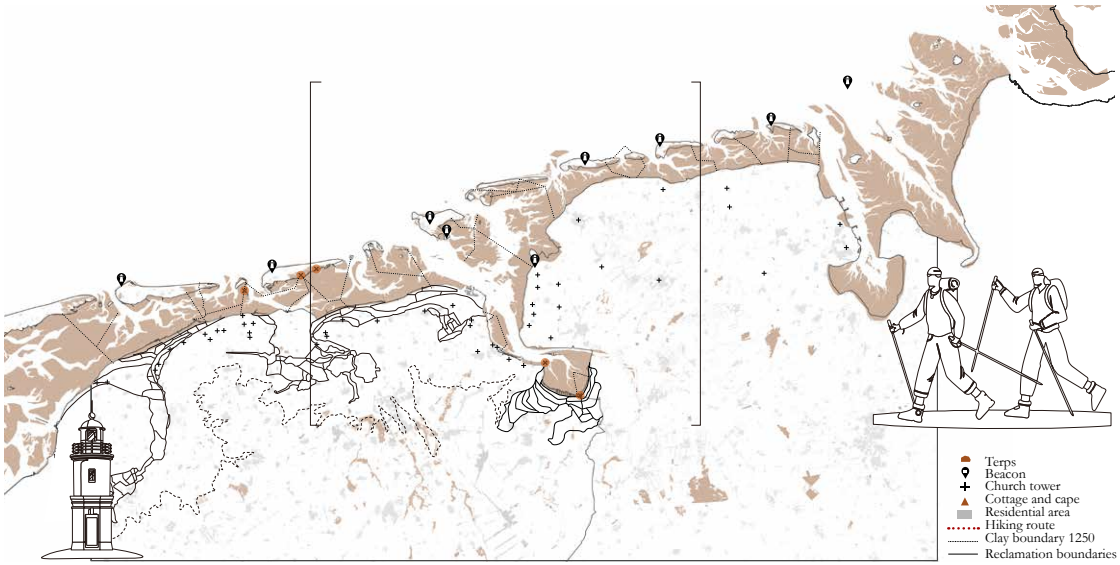
Drowning shelter



Bird watching house

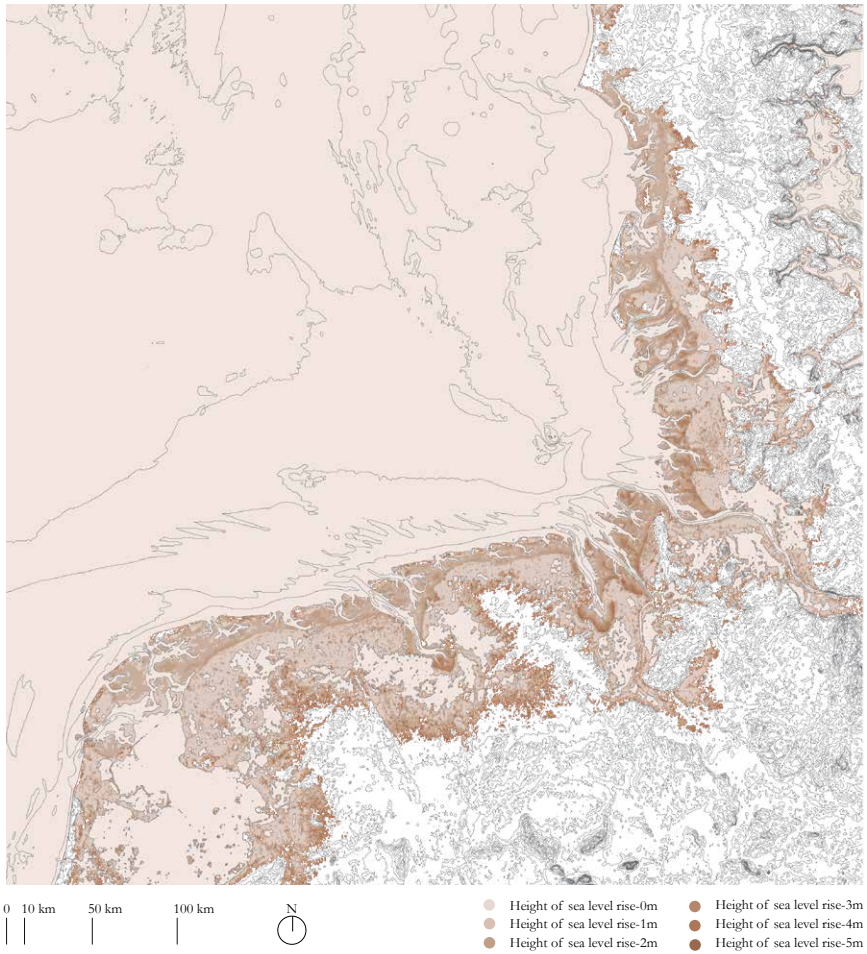


Drowning shelter



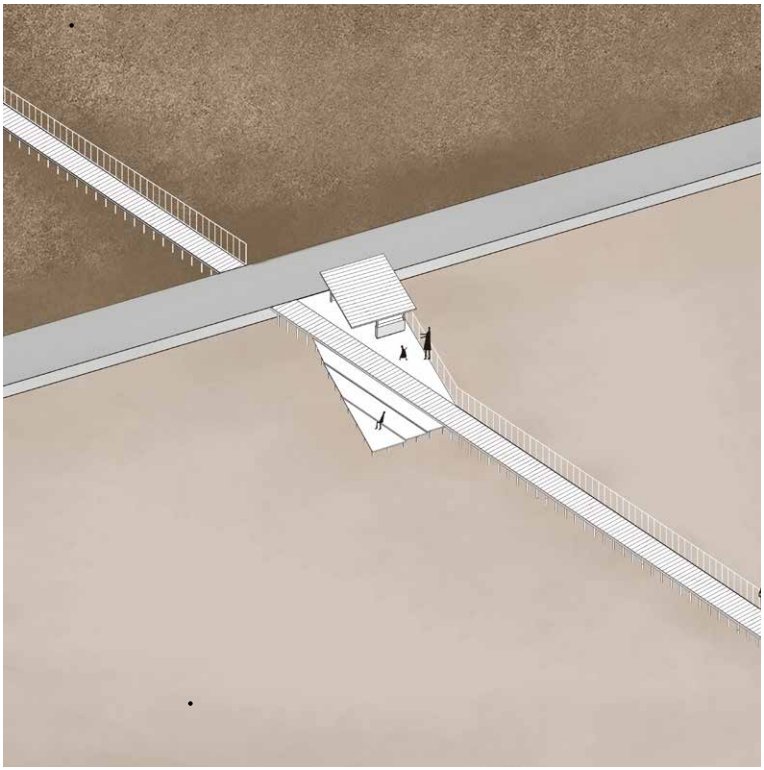
Mud recreation and perception

Author's work



Sea level rise

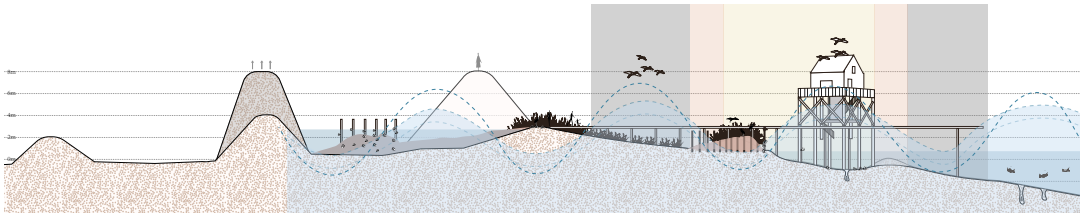
Author's work



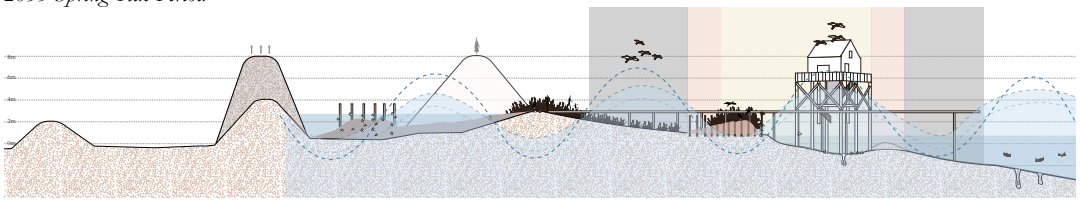
Mud mature pond

Author's work

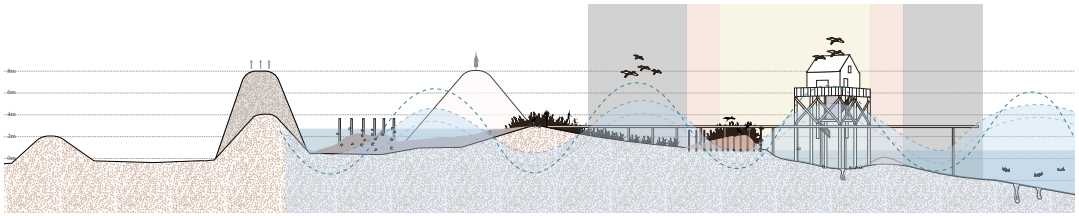
2035 Normal water level



2035 Spring Tide Period



2050



Sections of future scenarios

Author's work

Masterplan 2050

Author's work

Unpaving Nature

Restoring Balance Between Nature and Infrastructure in the Wadden Sea

Student | Xinjian Jiang
Docents | Laura Cipriani | Peter Herman

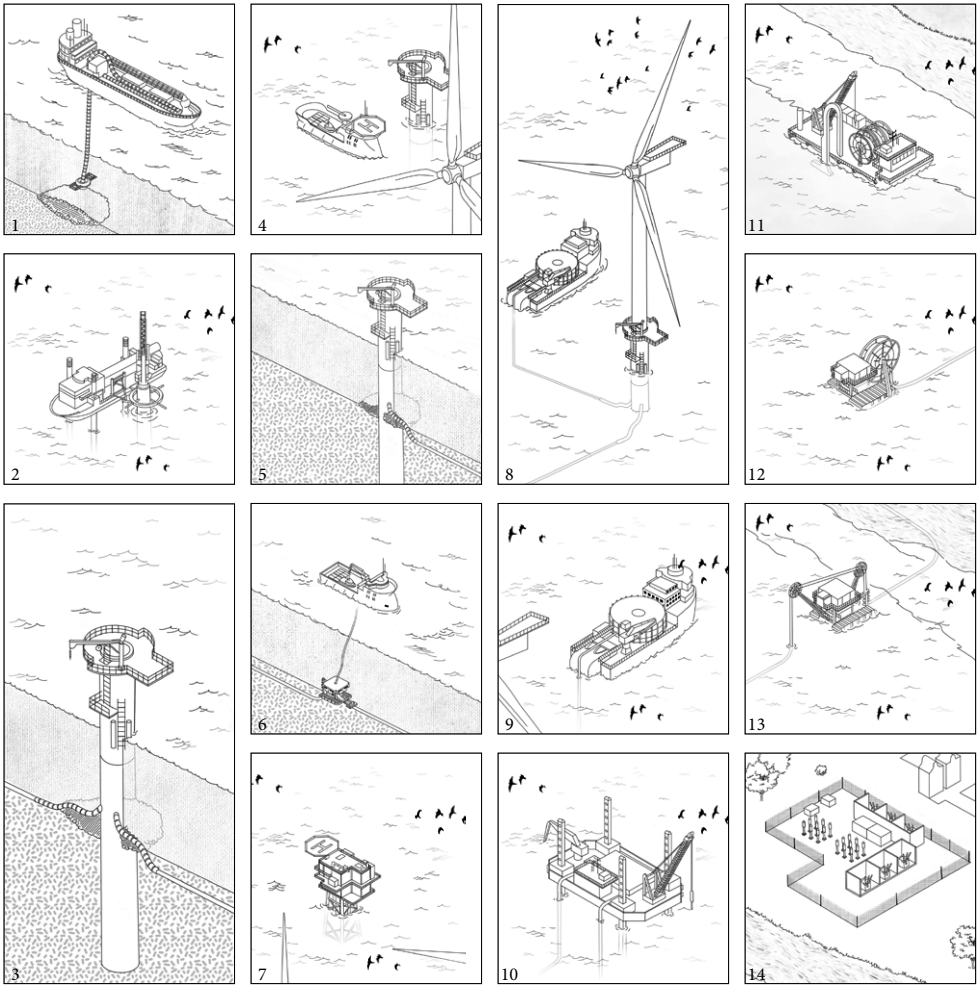
External Contributors | Stephan Smeijers | Joca Jansen

The Wadden Sea is a unique and ecologically important coastal region in the southeastern North Sea, stretching along the coasts of Denmark, Germany, and the Netherlands. It is known for its vast tidal flats, salt marshes, and barrier islands, forming a dynamic and constantly changing landscape and creating rich biodiversity.

The Wadden Sea in the Netherlands comprises the mainland coastal areas and the Wadden Islands (such as Texel, Vlieland, Terschelling, Ameland, and Schiermonnikoog). This area is crucial in protecting the land and supporting the people there. It is a natural defense against storm surges and flooding supports local businesses through fishing and tourism and provides a vital ecosystem for numerous plant and animal species.

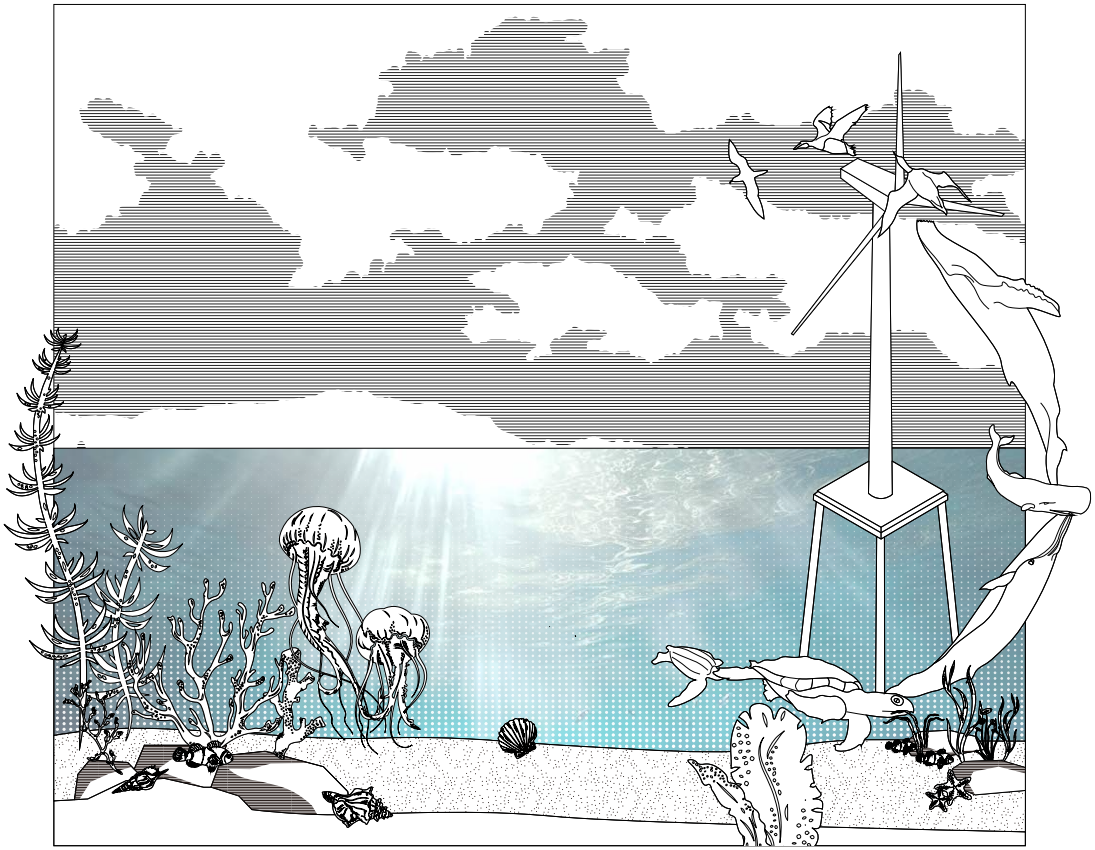
However, infrastructure development in the Wadden Sea area, including offshore wind farms, shipping routes, and coastal engineering, has impacted some ecosystems. The development is necessary for economic growth, such as shipping infrastructure for tourism on the Wadden Islands and offshore wind energy due to the energy crisis. These developments will shape the landscape in the coming years.

In the thesis, data on infrastructure and ecology was collected and analyzed to find conflicts between them and how they affect the landscape. This research formed the basis for the design phase. Then, three strategies were put forward for the territorial scale. Moreover, two sites were chosen to demonstrate how these strategies can be applied to site-specific design. Both sites share the idea of preserving and adapting positive landscape features and restoring the natural process, achieving minimal intervention.



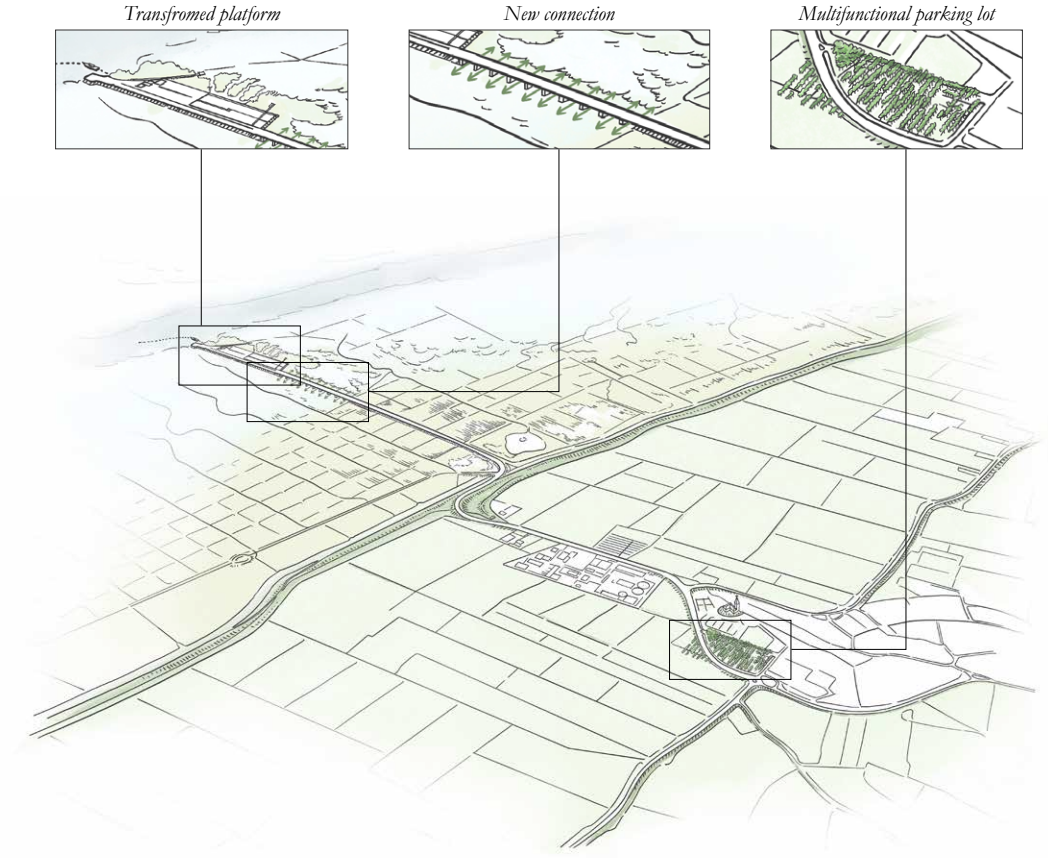
Wind turbine installation steps

Source: The Gemini Offshore Wind Park, 2017. Author's work



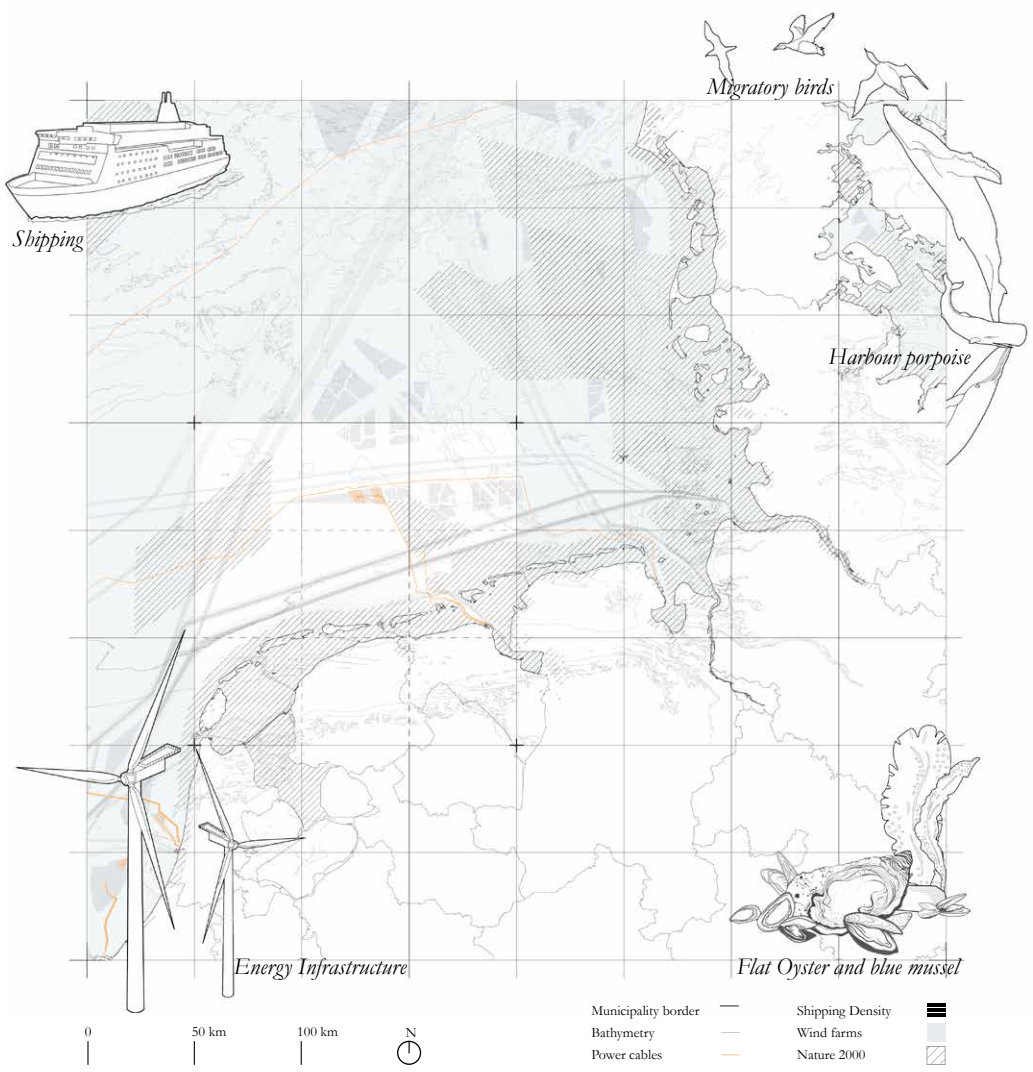
Seabed community

Author's work



Interventions in Holwert

Author's work



Conflict between nature and infrastructure

Data: EMODnet | The European marine observation and data network, 2022. Author's work

Land and Farmers Equilibrium

Restoring Balance Between Land and Humans in Northern Friesland

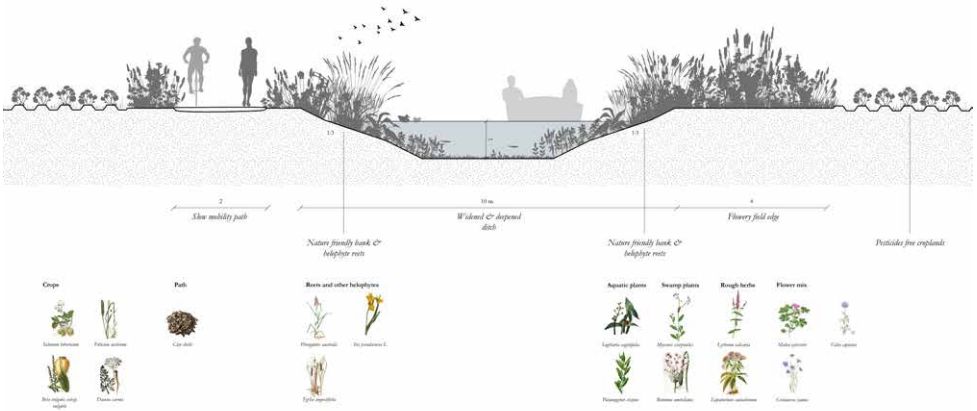
Student | Hanneke Wander
Docents | Laura Cipriani | Luisa Calabrese

External Contributor | Hans Kroodsma

Terps in the Frisian landscape are remnants of the province's rich history and relationship with the sea. With farms on the terps, cattle grazed on the plains when the sea temporarily receded. To this day, Friesland is still characterized by its dairy farming, now guarded by the sea dyke. Agriculture is ingrained in the Frisian landscape. However, it has seen a significant change in the past 70 years. After World War II, government-driven agricultural policies aimed to ensure a steady food supply led to the upscaling of farms, resulting in the loss of small-scale structures and increased agricultural waste in surface water. This change has adversely affected biodiversity, impacting the habitats of animals, including the beloved meadow birds.

The balance between landscape, ecology, and agricultural practice is lost. Nature-inclusive agriculture could be an opportunity. Emphasizing cultural-historical structures, enhancing ecological values, and working with local input and values could promote a better balance between agriculture, ecology, and the topographic landscape. These strategies emerged from multiple conversations with a local farmer transforming his farm into an organic practice.

Introducing nature-friendly riverbanks along waterways strengthens ecological corridors in the area. In addition, flower-rich field edges and farmyards act as stepping stones for biodiversity and create a small-scale farm nature network. A water-purifying helophyte field is constructed on a meadow, which will help filter the runoff of agricultural wastewater. An intertwined recreation network is created on the ecological corridors, which were once an important infrastructure between terps and through the meadows. It lets visitors experience the connection of the present nature-inclusive agricultural practice with the rich cultural history of the Frisian landscape.



Nature-friendly banks along small waterways

An intertwined recreation network is created on secondary ecological corridors which were once an important infrastructure between terps. Author's work

An agricultural nature network

It consists out of flowery field edges along agricultural fields, biodiverse meadows and farms themselves are appointed as stepping stones. Author's work

Build environment
Trees
Historical farmyards
Waterways
Enhanced ecological corridors
Livestock farming
Crop production
Terps
Stinzen, stanzen and churches

0 1 Km 3 km

Main and secondary ecological corridors

Ecological values are enhanced by introducing a network of ecological corridors. Author's work

The Dokkumer Ee as an ecological corridor

Experience the connection of nature-inclusive agriculture with the rich cultural history of Friesland. Author's work

Re-Peating Nature

Ruralities in Transition

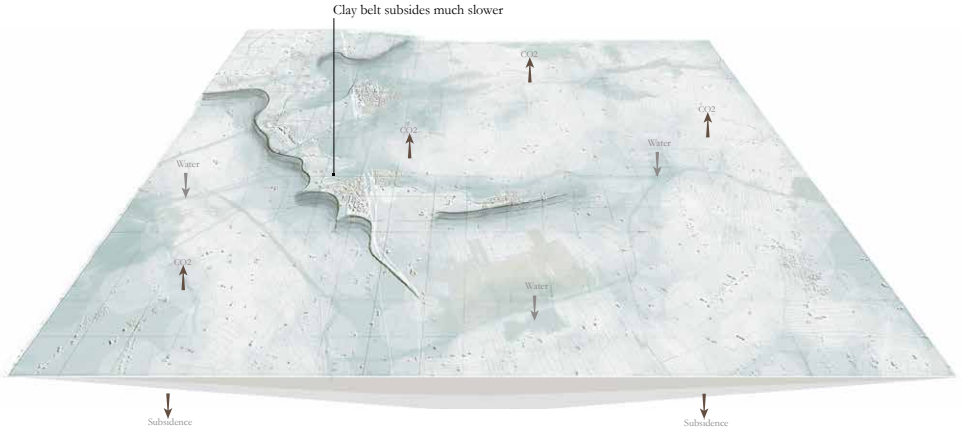
Student | Anna Gorokhova
Docents | Laura Cipriani | Diego Andres Sepulveda Carmona

External Contributors | Stephan Smeijers | Joca Jansen

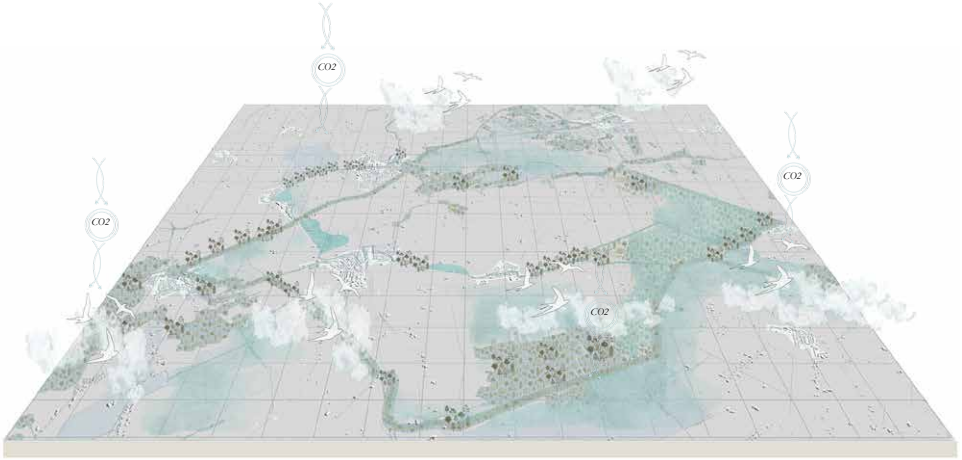
The Wadden Sea Region spans the Dutch, German, and Denmark coasts, creating one of the most culturally and environmentally rich areas. The natural and cultural value of the UNESCO heritage site possesses unique features and characteristics that are important to preserve for future generations. Like many other places in the world, the Wadden Sea region is facing significant uncertainty in the future. Climate change plays a vital role in planning such a vulnerable region. It is a complex landscape that has already been impacted by climate change and is awaiting big decisions and changes for its resilient future.

Years of scaling up and production growth created a situation in which the productive landscape conflicts with Friesland's cultural and natural heritage and contributes to climate change. The Frisian agricultural practice puts immense pressure on the province's peat soils, resulting in significant carbon emissions and likely contributing to water shortages in the future.

The graduation project looks into the past, present, and future of the agricultural landscape of Friesland. It aims to envision an alternative resilient future for its peatscapes, in which the productive properties of Frisian agricultural practices of the landscape are not lost but strengthen the local cultural and natural values. Future scenarios are formed based on different outcomes related to agricultural practices, the most desired of which is explored through design. The thesis results in a strategic design proposal for peat restoration and preservation. The strategies are implemented in close conversation with the local stakeholders on a regional and small-scale design. The alternative scenario involves strategies that strengthen ecological connectivity and cultural heritage while proposing acts for climate mitigation and adaptation. The formation of carbon banks, paludiculture corridors, and people nature is under the proposal for the region's peat restoration, preservation, and long-term carbon sequestration.



What if we do nothing? 2100



What if we develop nature? 2100

Alternative future

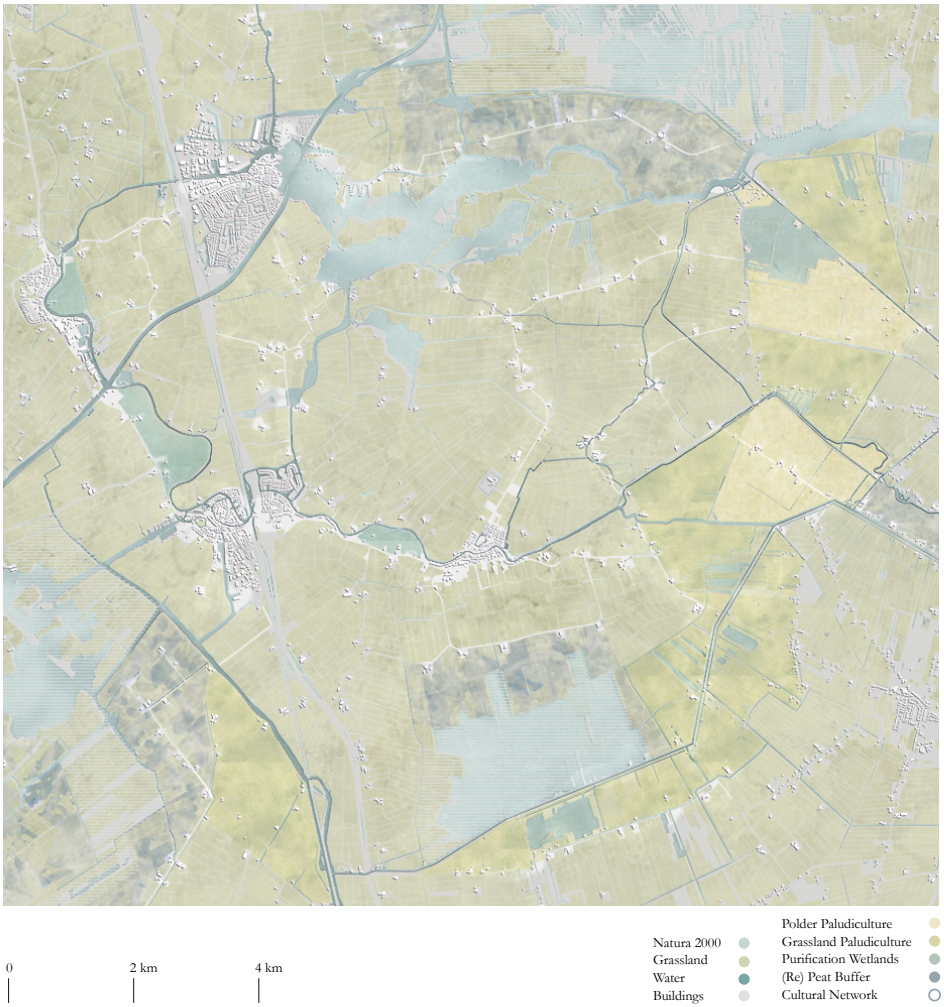
Author's work

Paludiculture

Author's work

People nature

Author's work



What if we develop nature? 2035 vision

Author's work

3.2 | Place and Memory

A Deep Map

Master thesis lab coordinator | Saskia de Wit

"Place and Memory: A Deep Map" is a graduation lab for landscape architecture students at the TU Delft. The lab had no design brief; instead, the place formed the point of departure and inspiration for the programme.

The students were asked to start with an open mind and let the place speak. Their own perception was used as the entrance into a multi-layered understanding of Den Helder, the surrounding North Sea, Marsdiep, and the Wadden Sea and ecologically rich natural landscapes, the rich maritime and military

history, its special light, and its many transitional areas and indefinable residual spaces. This resulted in a "deep map" as an intensive exploration of place with greater information than a two-dimensional image of places, names, and topography, representing a reality that is personal but not fictional, presenting non-linear and layered narratives. From this creative reading of the different landscape layers and their mutual relationships, past and present, meaning, materiality, and function, the students extracted their individual research and landscape architectural design brief.

They saw the ephemerous and undefined character of the Wadden Sea area reflected in the city of Den Helder and embraced it as an intriguing and positive quality. This led to a range

of projects, from addressing the liminal space of the Wadden Sea coast and of the old defense line to the interstitial urban spaces, the decaying process of the bunker ruins, and the role of the urban bench in the perception of place.

Saskia de Wit

TU Delft
Faculty of Architecture and the Built Environment
Department of Urbanism
Section of Landscape Architecture

The Things We Have in Common

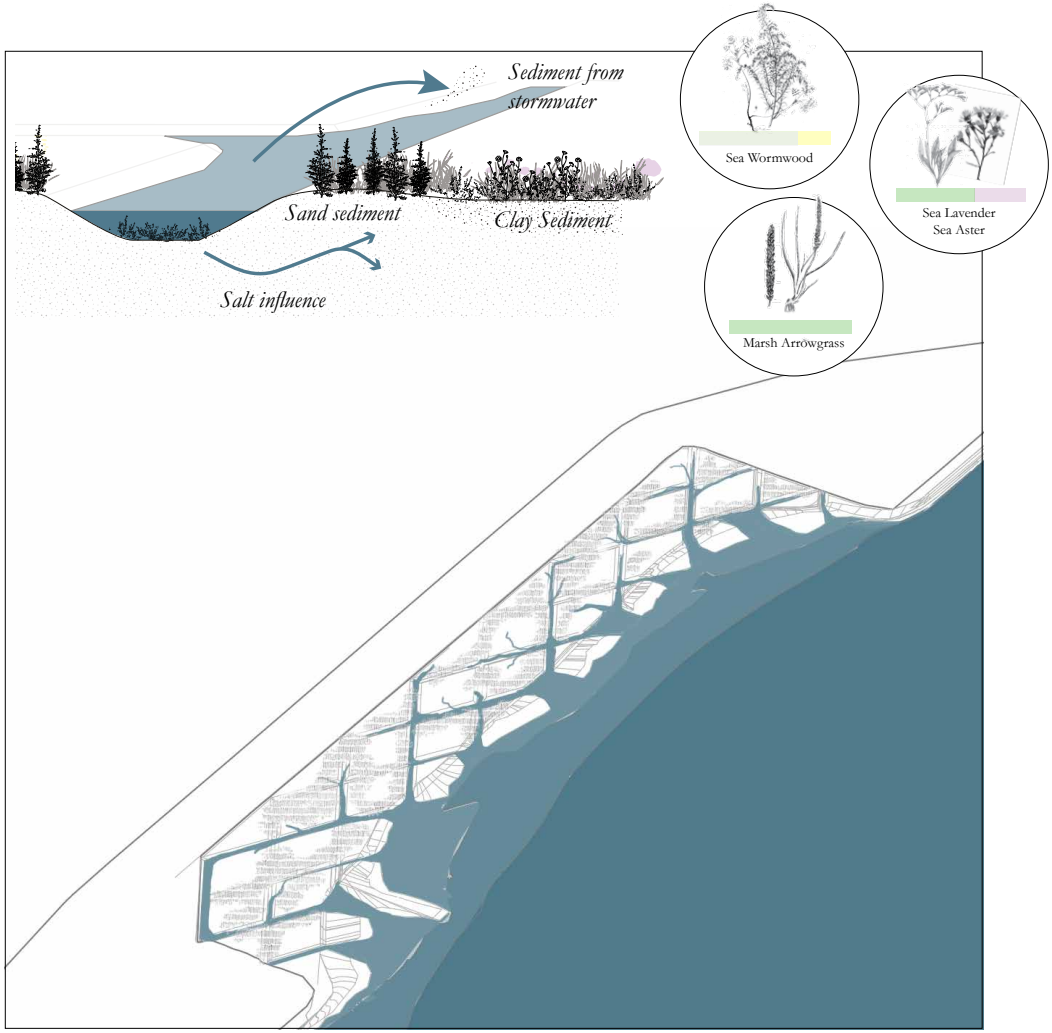
Enriching the Social and Ecological Value of the Land-Water Edge through Landscape Commons

Student | Jantine van Halsema
Docents | Saskia de Wit | Aleksandar Staničić

Den Helder is a small city located in the far northwest end of the mainland of the Netherlands. The city is surrounded by water on three sides, with the North Sea on the North and West side and the Wadden Sea on the East. These special geographical conditions create a varied natural coastal landscape with different characteristics and landscape qualities. However, when tracing and analyzing the actual land-water edge of Den Helder, there seems to be a disconnection and an inadequate response to the social and ecological values of the landscape.

In the past decades, our knowledge about the significance of landscape has increased, ranging from cultural values and physical and mental health for humans to the importance of biodiversity and ecosystem services for climate mitigation and global health and wellbeing for both human and other-than-human communities. At the same time, the pressure on the access, availability, and health of landscapes is increasing, making it an important common resource that is under threat.

This thesis explores how the reframing of landscape as commons within the field of landscape architecture can provide a framework to balance different landscape values, with a focus on enriching the social and ecological values. Thereafter, using the constructed framework of "Landscape as Commons + Commons in the Landscape," a design is proposed that allows both human and non-human communities to (re)appropriate a part of the Wadden Sea coast.

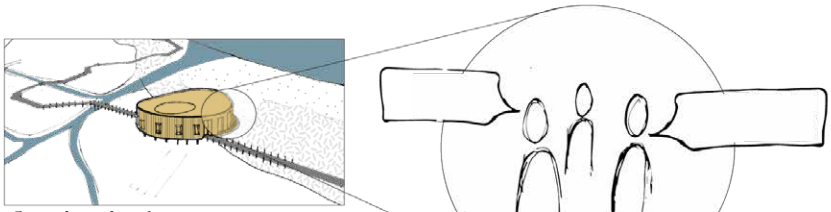


Appropriation of constructed grid by nature

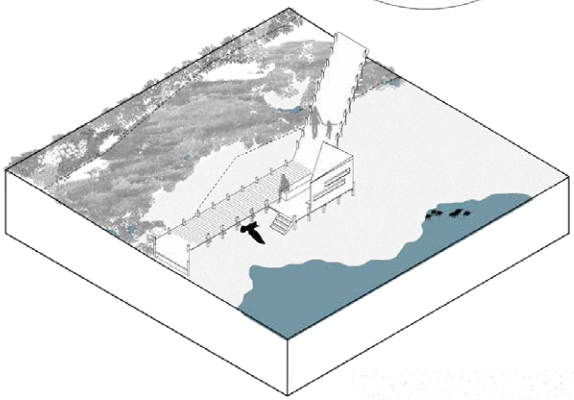
Author's work

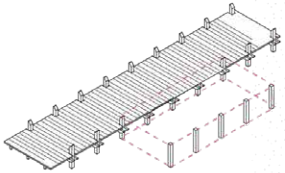
Experiencing landscape qualities

Author's work

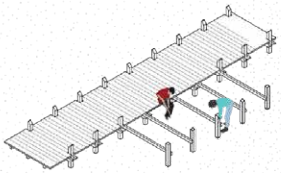


Central pavilion for community engagement

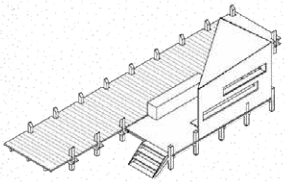




Designated frame



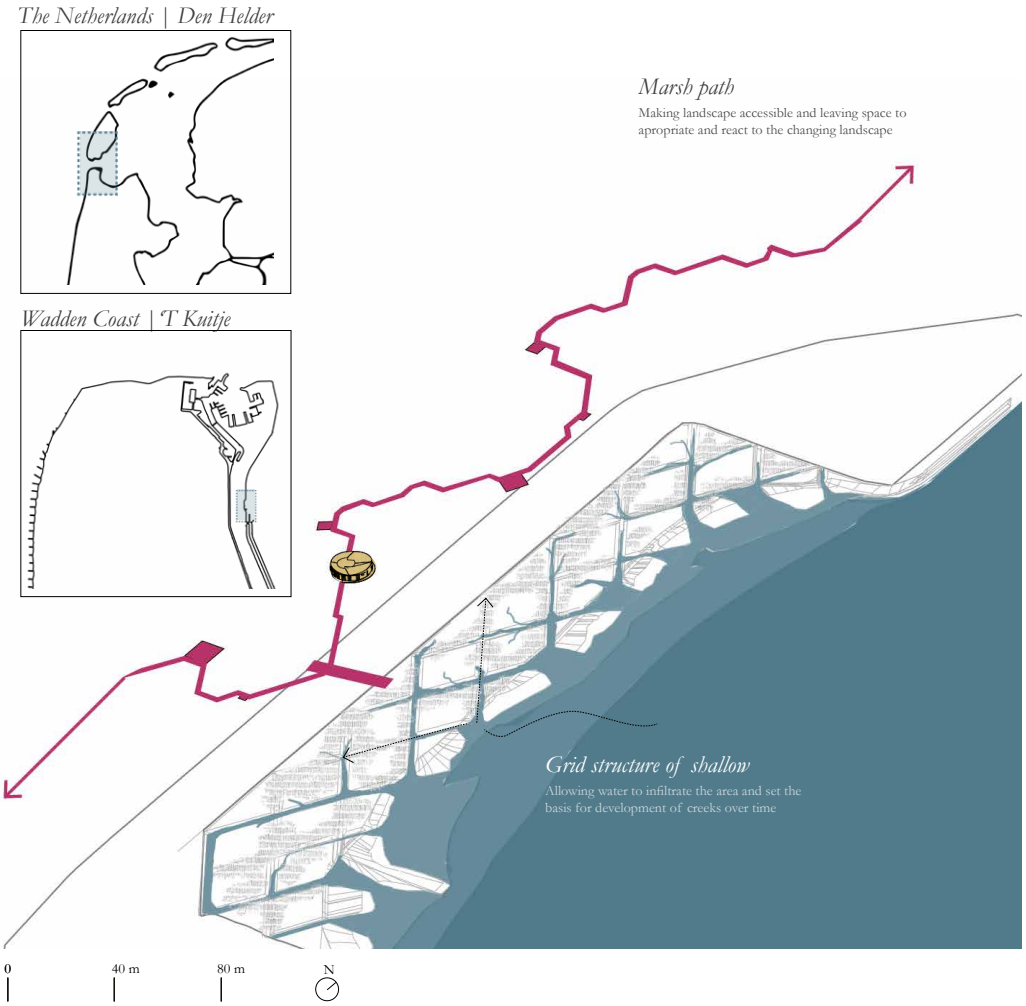
Collaboration process



Space to enjoy landscape qualities

Appropriation of frames by people

Author's work



Commons in the land-water edge of Den Helder

Creating conditions for change and appropriation. Author's work

The Hidden Boundary

Exploring the Spatial and Temporary Continuity in Den Helder's Defence Line Area

Student | Ying Han
Docents | Saskia de Wit | Oscar Rommens

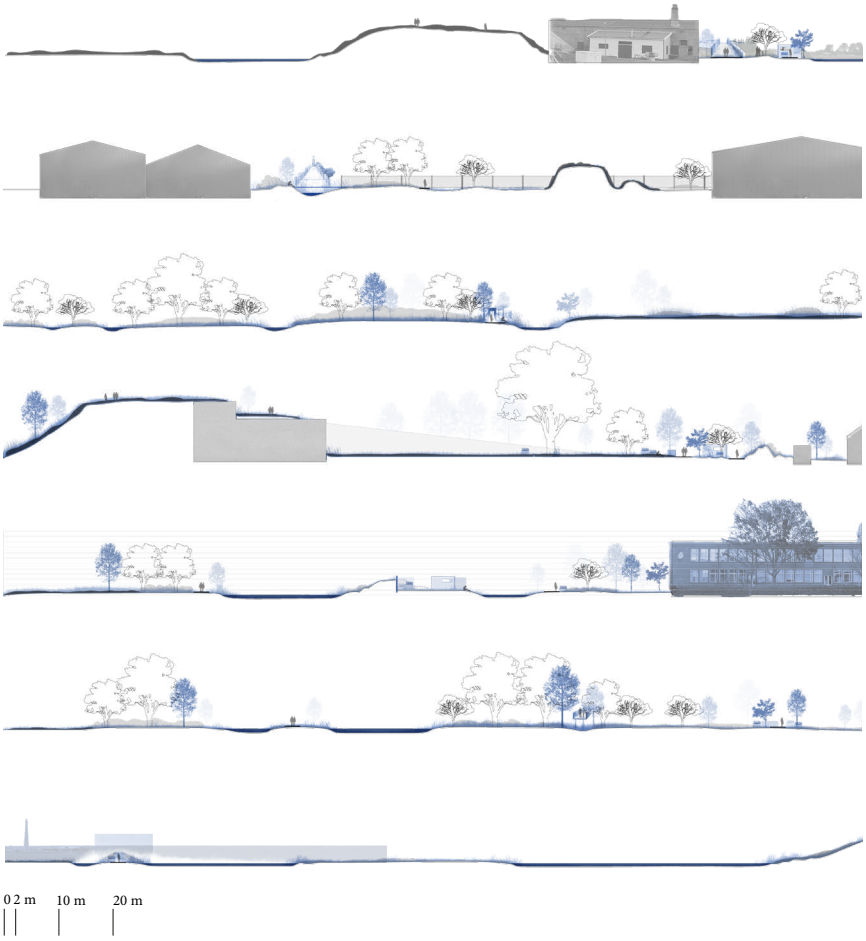
The boundary place is a sort of melting pot where all layers of society (human/non-human) meet: poor, rich, old, children, and so on. When one gets to the thresholds of these places, new worlds emerge. In other words, boundaries are essential for landscape design. They can support multiple uses and are of great experiential and cultural significance.

Furthermore, people need public spaces to socialize. At the same time, meaningful places could be created in the boundary area to provide social opportunities and meet the needs of group socializing.

Den Helder is located on the northernmost coastal border of the North Holland province. It is surrounded by three different seas: the North Sea, Masidip, and the Wadden Sea. Exploring the boundaries in Landscapes is a process of creating meaningful "places."

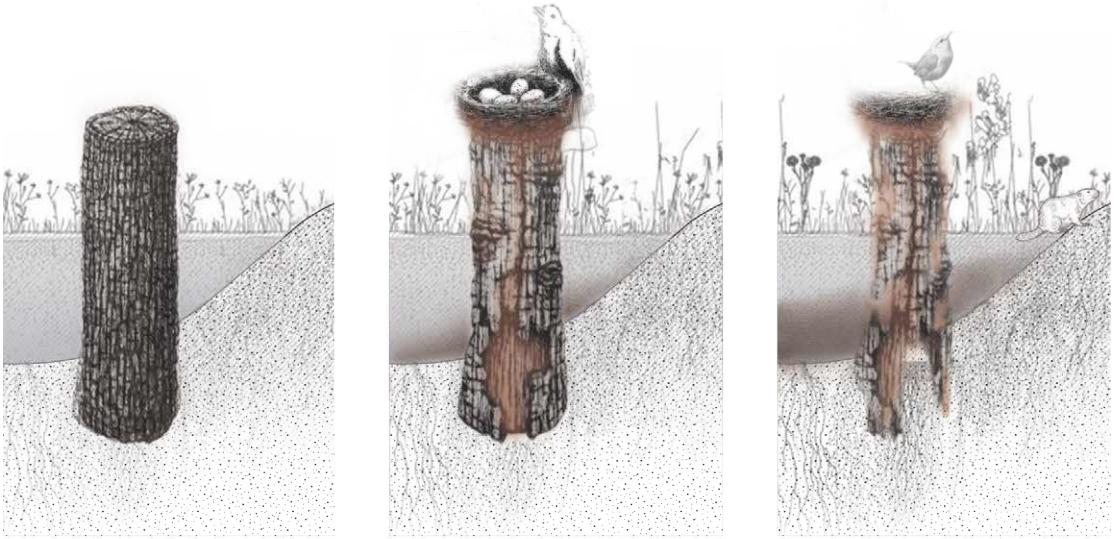
In this project, the Defence Line area was chosen as the hidden boundary of Den Helder to explore the possibilities of the urban landscape. The "Defense Line" area acts as a green corridor or barrier between the city's three main urban built-up areas. With the rapid urban development and construction, this area has gradually become a linear space that is no longer continuous and has a monotonous spatial experience. The aim of the study is to reactivate and develop a multifunctional boundary area and surrounding landscape based on the exploration of spatial and temporal continuity.

After proposing the concept of four-dimensional boundary space, this project divides the boundary spaces into these four dimensions: length, width, height, and time, and proposes strategies for each dimension and integrates them into specific design sites.



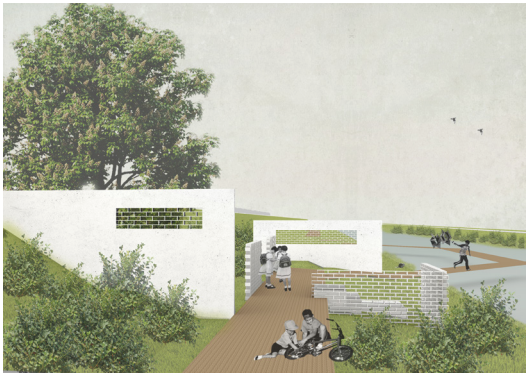
Seven zones design hypothesis

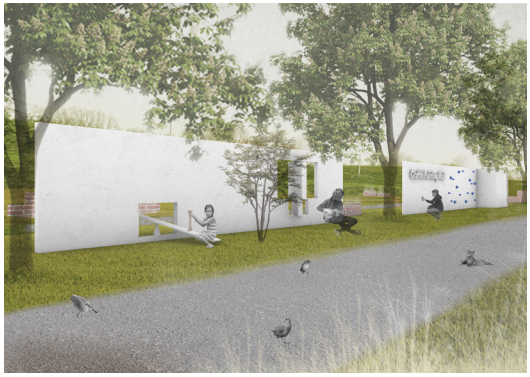
Dealing with the height difference and landscape experience of seven zones in the Defense Line boundary area. Author's work

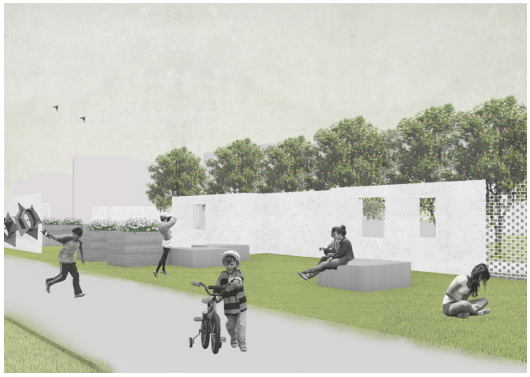


Dynamic landscape A | Wooden piles

As one of the interesting elements that embody the boundary, different materials in the landscape have many possibilities and uncertainties over time, which makes the research on the relationship between materials and nature in time and space interesting. Author's work







Spatial environments in in-between boundaries

Author's work

Seven zones in defense line area

Author's work

In-Completed

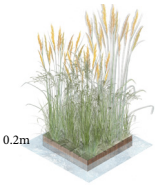
On Going Open-Ended Designed Places in Den Helder

Student | Yizhuo Zhang
Docents | Saskia de Wit | Angeliki Sioli

The urban spaces that arise as a result of urban shrinkage and decay are loosely defined (Franck & Stevens, 2007). The ambiguity of these spaces provides a potential outlet for accidental or spontaneous encounters, informal activities, and alternatives to our increasingly commodified, controlled, and privatized 'open' urban spaces. Many topographic unions, particularly those easily accessible and large enough to contain interesting physical features, can potentially become dynamic "indeterminate spaces" or "slot areas" (free zones).

As undefined, ambiguous places, these sites are highly inclusive of environmental renewal within and outside themselves. This means that interstitial sites temporarily or non-temporarily allow for any movement to take place in the city. The design task begins with an urban memory path based on void and leftover places.

The understanding of the sites as carrying memories depends on the audience. They can be anyone, human or non-human. So, let's make the audience the players. And we, the designers, are the directors.



0 0.5m 2m 4m N

1 New building
2 Framer as telescope
3 Brick garden
4 Pathway to city center
5 Reeds pool
6 Coffee shop
7 Building before WWII

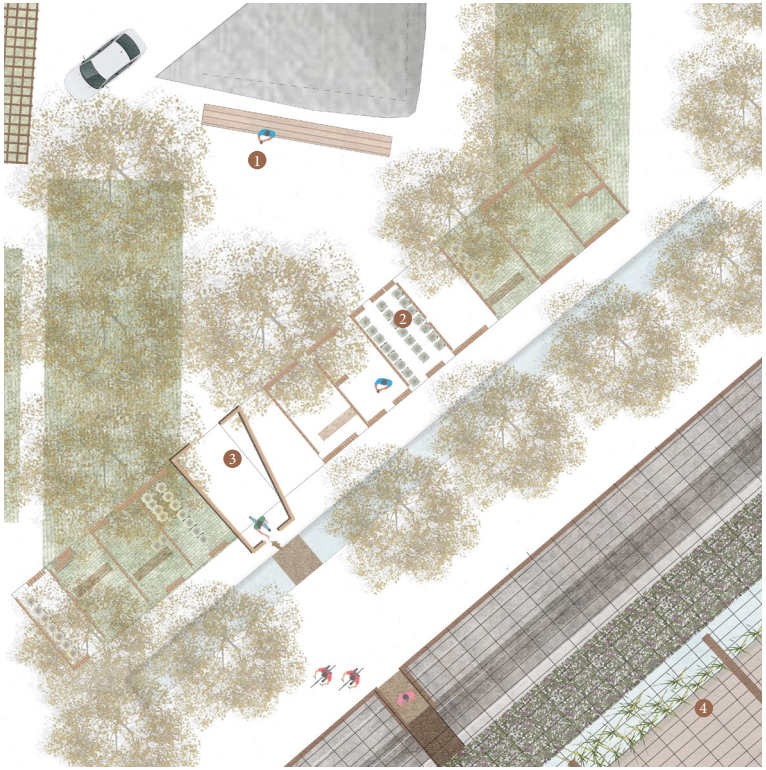
City center renewal void

Author's work

Planting

Exhibition

Carrier



0 0.5m 2m 4m N

1 Stage Viewing Bench
2 Memorial Brick Garden
3 Framer for Coffee Shop Void
4 Dok II Garden

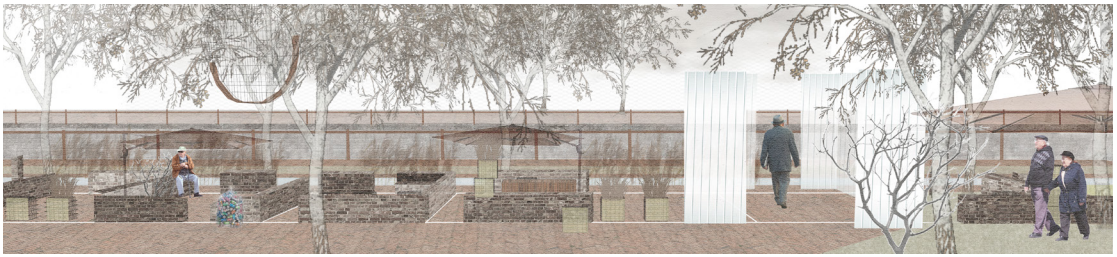
How we move the containers

Author's work

Framer in the Void

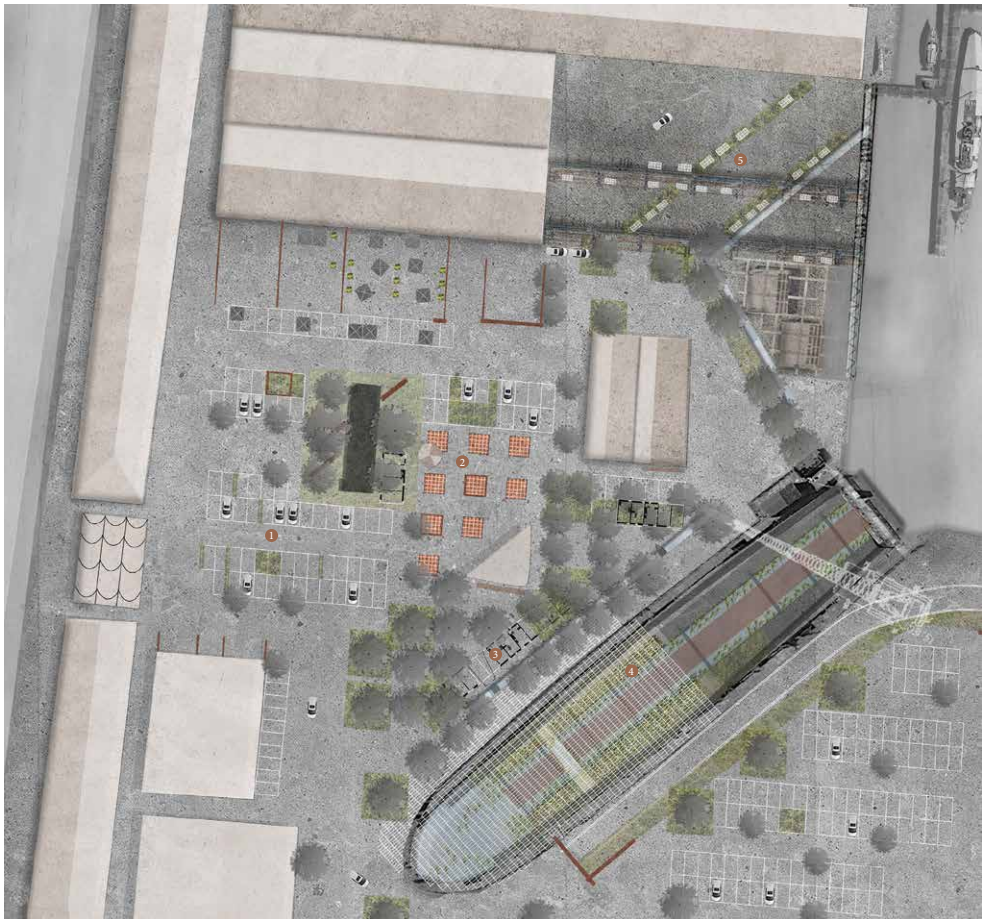
Open Stage

Palimpsest Brick Garden



We dance with the farmers and containers

Author's work



Rijkswerf Willemsoord

Author's work

No-Man's Land

Valuing and Integrating the Qualities of Left-Over Places

Student | Pjotr Boomgaard
Docents | Saskia de Wit | Suzana Milinović

Den Helder is a city of many qualities. It is surrounded by the sea, close to the dunes, and has a rich history. However, the city lacks strong connections to these qualities. The city center can be perceived as somewhat lacking in liveliness and surprise.

Because of its history, Den Helder is a city with many borders and disconnections. Partly due to this disconnection, the city possesses a character of undefinition. A dike that turns its back on the city, a green in-between area filled with inaccessible places, war remnants predominantly grounded in the past, and leftover building plots where the buildings are never erected.

These characteristics of Den Helder reveal the blandness that can be perceived. However, these same characteristics also offer opportunities to visit atypical places. These places can provide a sense of surprise, adventure, and freedom.

This thesis looks at the qualities that left-over places can bring and provides a strategy for approaching them while contributing to the city's porosity and enhancing the ecological value that indeterminate places provide. Specifically, this thesis dives deeper into providing a strategy for (un)building plots to harmonize temporality and permanence.

Indeterminacy in use

Indeterminacy in meaning

Indeterminacy in space

Indeterminacy in temporality

The indeterminate pond

Temporality and permanence within the build site. Author's work

1 | Approaching the site

2 | Entering the site

3 | Cultural side

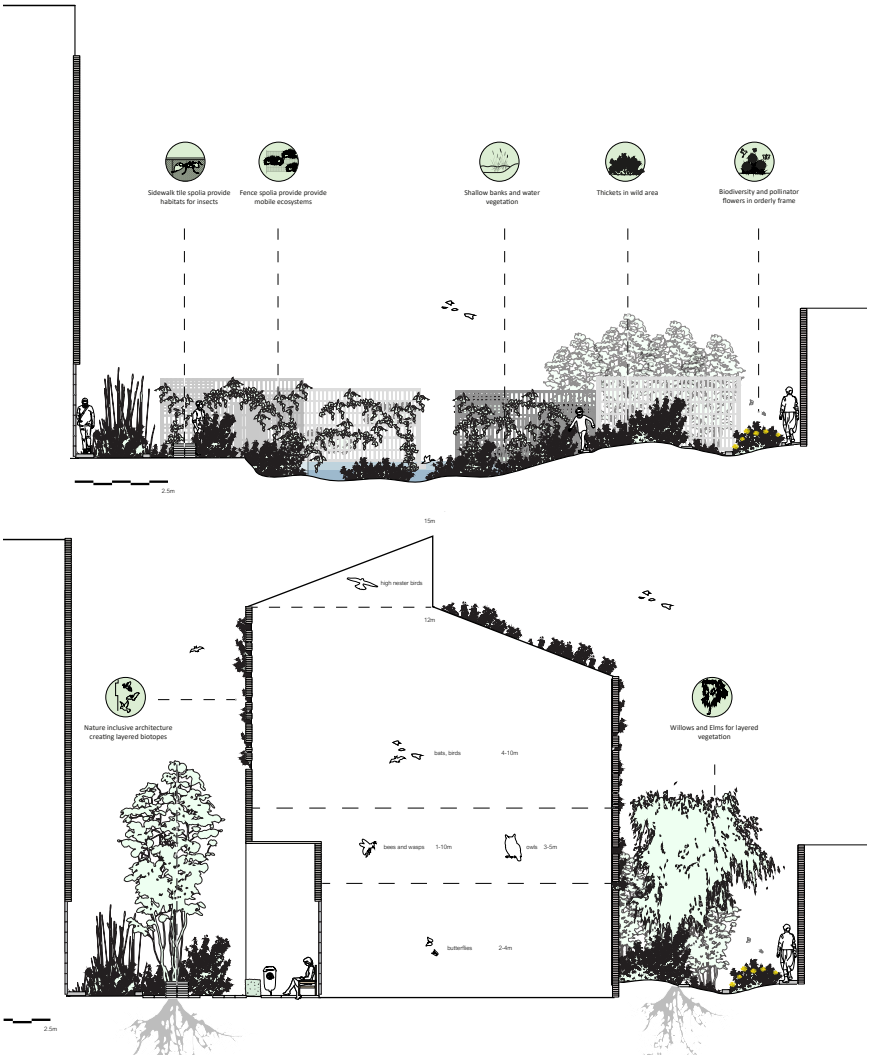
4 | Overlooking the pond

5 | The corner

6 | Walking along the frame

Exploring the pond

Author's work



The indeterminate and determinated site

Author's work

Spontaneous indeterminate routes and places

A porous and nonconfined city. Author's work

The Reveries Before Oblivion

Atlantic Wall Ruins | History and Memory in Den Helder

Student | Borui Xiong
Docents | Saskia De Wit | Aleksandar Staničić

In Den Helder, the Netherlands, as a counterpart to the non-ruins, the Atlantic Wall ruins have the potential to become valuable sites of memory, offering a more vivid and fresh experience for people. So people will have their own memories of the past. The past will exist not only in the museum archives but also in our minds and imaginations.

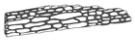
This project proposes to regard post-war ruins as a site of memory, in which history is articulated and commemorated, new memories are generated, and a more open attitude towards ruins is generated. Rather than being redefined as other sites, such as museums or monuments, the idea is to make decaying ruins as the living ruin dynamics. It is not just a symbol, educator, or reminder about history, but a process that allows people to step into history from the ruins, to gain a deeper understanding of the ruinous beauty, the impulse to think and imagine the future relationship of ruins and city. The existing spatial qualities and decay processes of the ruins will be emphasized in order to maintain the intrinsic qualities of the ruins. Meanwhile, people will gradually become aware of the significance of ruins and embrace the idea of decay, allowing ruins to age well.

As a result, the value of post-war ruin will be recognized, and a more rational and open attitude towards controversial ruins and the history behind them will be established. This attitude promotes a new perception and definition of cultural heritage in modern cities: the ruins are understood as a process in synergy with the city rather than merely as a static object. It will provide a more sustainable development approach to deal with the increasingly overloaded cultural heritage.

Concrete wall

Concrete wall

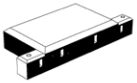
Plant wall



Debris wall

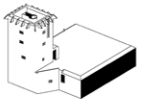
Gabion wall

Gabion wall

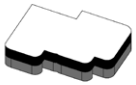


Casemate

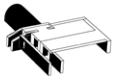
Signal station



Watch tower



Shelter for machines



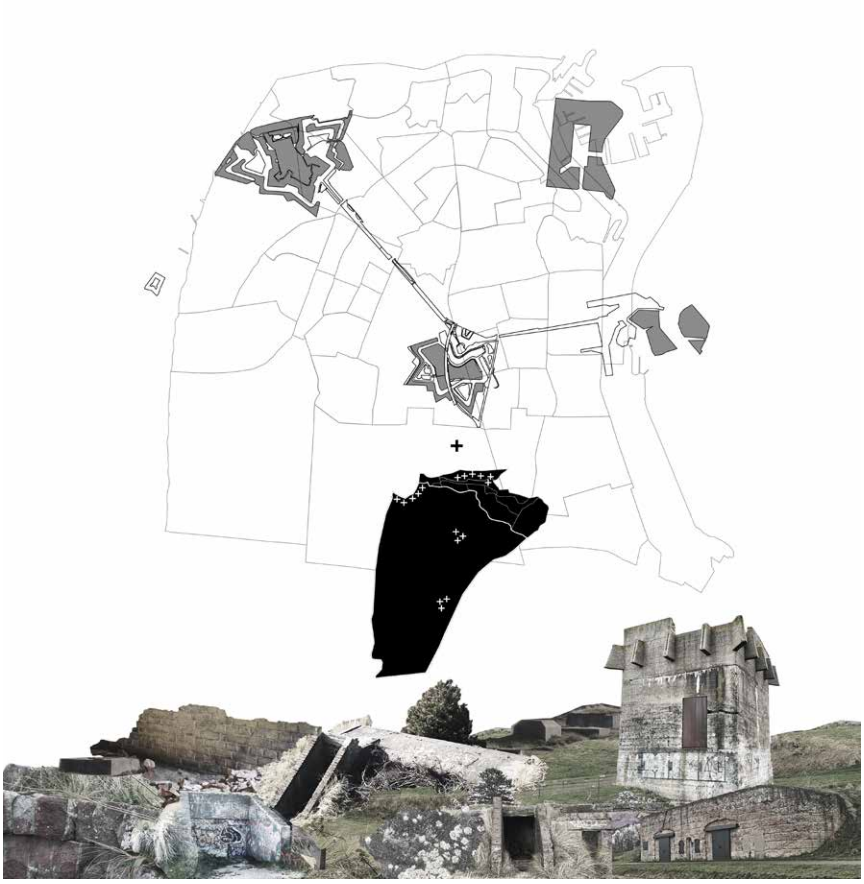
Wash house

Casemate

Sleeping ruin *Growing ruin* *Drifting ruin* *Inaccessible ruin*

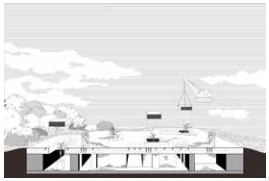
Atlantic wall ruin dynamics

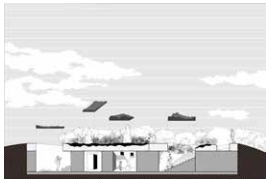
Author's work

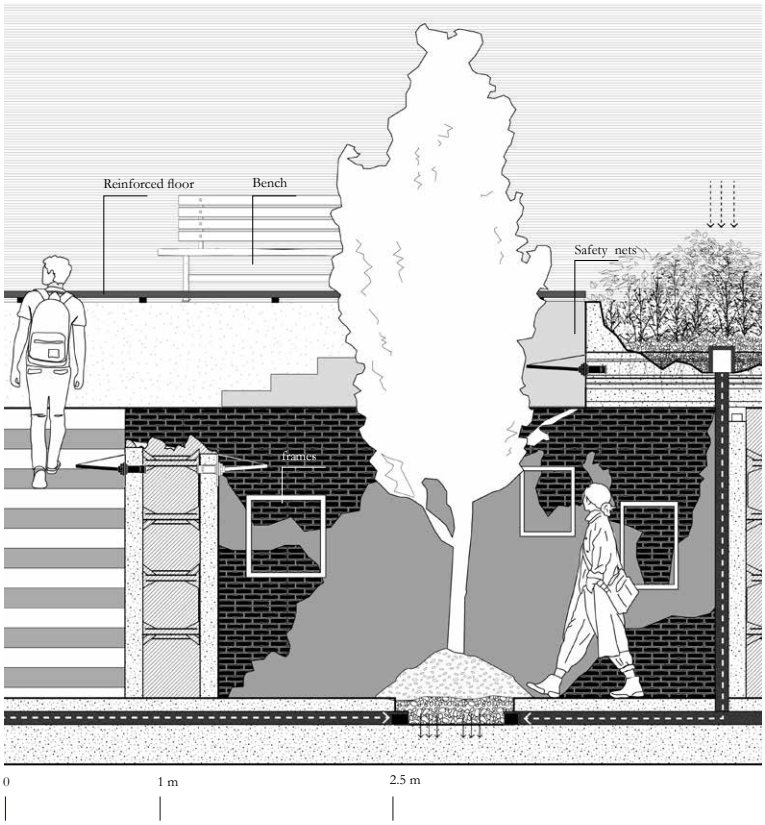


Atlantic wall and Den Helder

Author's work







Growing Bunker 151

Author's work

Bunker 151 | 2073

Author's work

Memorial Benchscape

The Fusion and Collision Between Memory and its Physical Expression

Student | Jingxuan Tu
Docents | Saskia de Wit | Machiel van Dorst

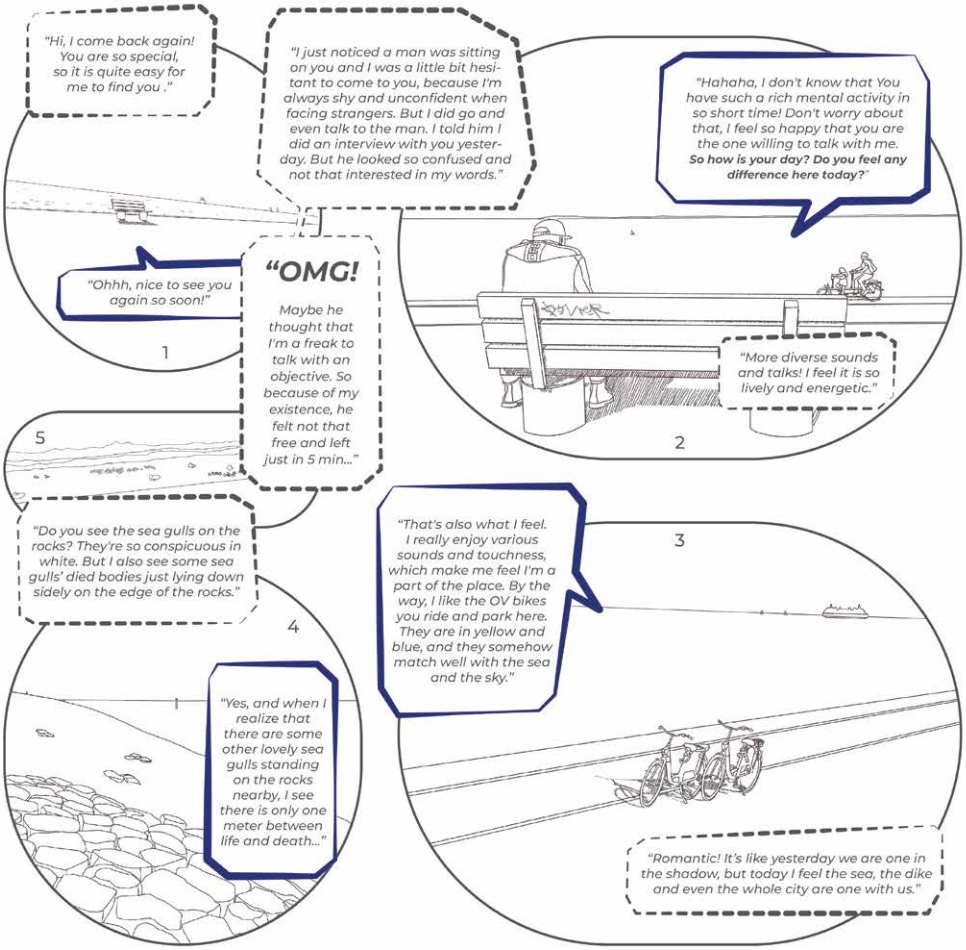
The project's study area is Den Helder, a city in the Netherlands with a rich marine and war history but is losing its city identity. The research investigates the potential for benches, a ubiquitous element of urban landscapes, to be reimagined as living memorials, amplifying public awareness of city identity and creating individual significance.

Through immersive observation, the concept of "benchscapes" is introduced by the "Three-frame Concept," Framed, Frame, and Framing, encompassing both the perceived and conceived dimensions. The design of the conceived benchscape necessitates a comprehensive understanding of urban public space, utilizing the proposed "Four-relation Model," including material, visual, functional, and routing relations.

Drawing inspiration from Avril Maddrell's concept of the "Third Emotional Space," the design framework explores three distinct scales: benchscape as a whole system, benches as key players in benchscape, and benches as living memorials in benchscape.

Furthermore, by considering movement patterns and the specific requirements of different characters, the design seeks to achieve a delicate equilibrium between the perceived and conceived benchscapes, an aspect referred to as benchscape affordance.

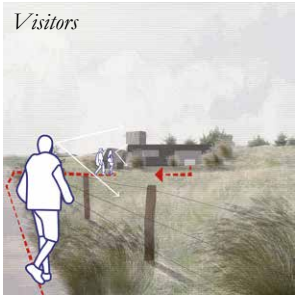
Ultimately, the whole benchscape family design represents a deliberate response to the main research question, demonstrating how memorial benchscapes can effectively frame diverse "Third Emotional Spaces" within partially defined memorial places. By harnessing the power of benchscapes, this approach enables constructing a cohesive network of city memories while evoking or nurturing personal recollections.



Interview with a bench on the dike

Time: 29 September 2022, 15:20 pm. Author's work

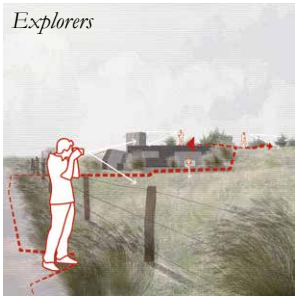
Visitors



“ Cool! There is an open bunker, what is its historial function? ”

“ No idea...Just a shelter? You see, there are two special benches. ”

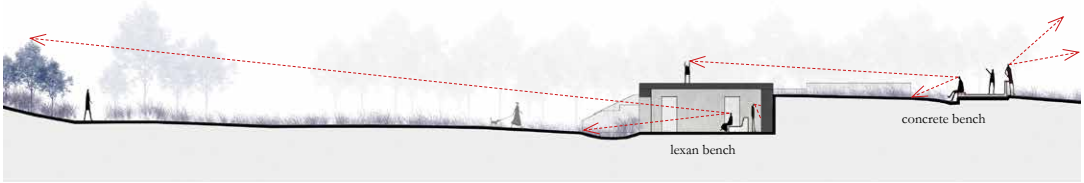
Explorers



“ It is very rare to see such a well-preserved shelter on the ground, and it seems that the two benches implies the functional significance of this shelter during WWII. ”

Node B | Framed bunker benchscape

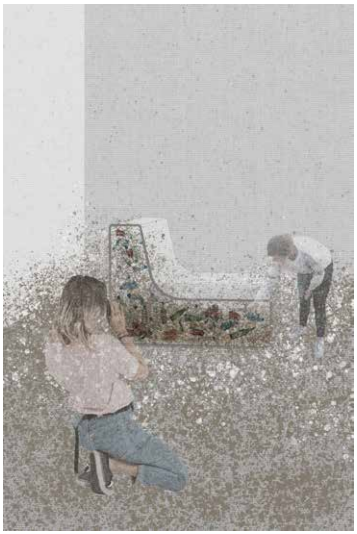
The benches and their surroundings are framed by our eyes or cameras. Author's work



Lexan bench *2023* *2024* *2025*

After bench installation

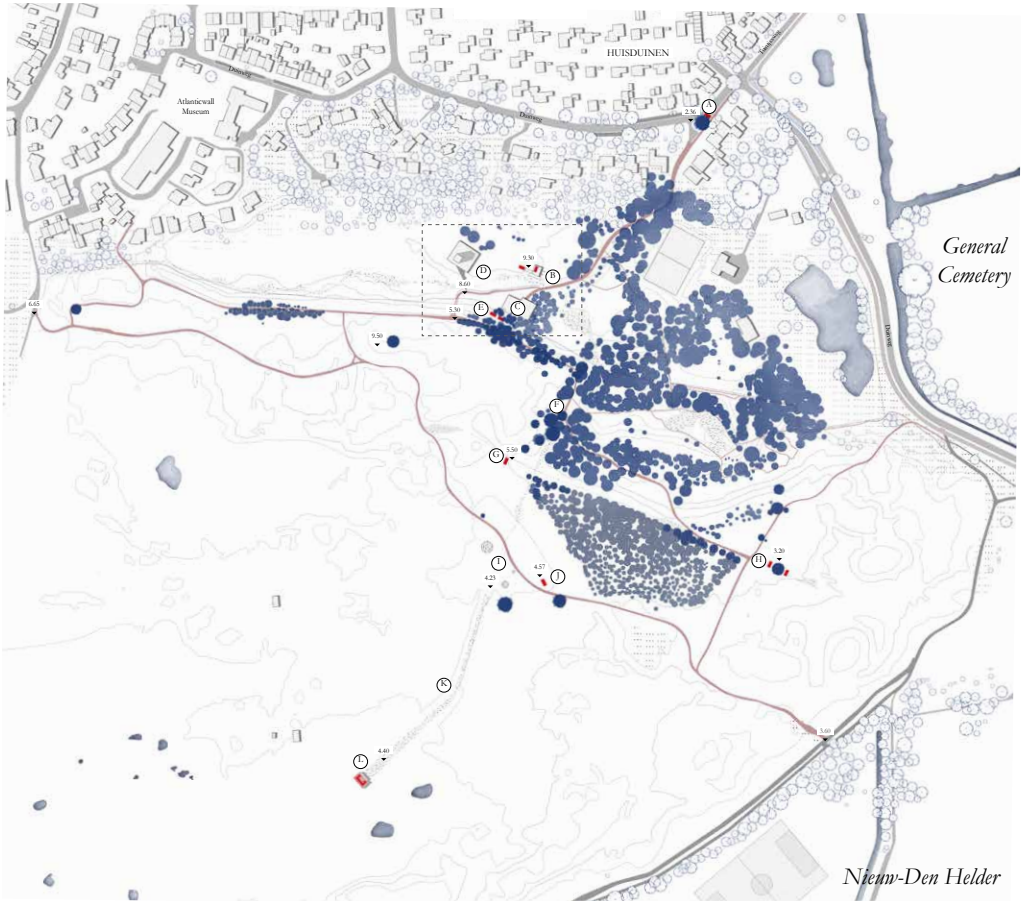
Sand accumulation



Bench as a container

Bench as frame, bench is framing

The benches as view frames frame the outward benchscapes
The benches are framing micro-benchscapes inside through time. Author's work



Historical backyard in Den Helder

Author's work

3.3 | Climate Adaptation in Architectural Education

Research by Design Results from the Academy of Architecture in Groningen

Master thesis lab coordinator | Ifigenia Psarra

Climate adaptation is one of the five overarching themes within the curriculum of the Academy of Architecture in Groningen, the Netherlands. Students explore this theme in research and design studios and graduation projects. The local context of Groningen province and the wider Wadden Sea area often constitute the case study areas of these studios and projects. These regions grapple with pressing climate change challenges, notably heightened risks of flooding due to increased rainfall frequency, rising sea levels, salination, and heat stress.

Hanzehogeschool
Groningen
University of Applied Sciences

Students engage in an iterative research-by-design process, systematically endeavoring to transform climate change threats into opportunities. The main pillars of this process are unraveling the potentials of the study area (by regarding it as a complex adaptive system and also investigating its previous states), analyzing the current ecosystem services (including the cultural ecosystem services), and creating scenarios by exploring the impact of climate change.

This process yields innovative, adaptive design solutions deeply rooted in the specificities of the local context. These solutions address both the physical and the mental sphere of the intervention area. Notably, this booklet showcases indicative outcomes, featuring three graduation projects that focused on rural areas

of Groningen and Friesland provinces, as well as two design studio projects that focused on the future of the Zernike University campus in Groningen.

Ifigenia Psarra

Hanzehogeschool Groningen
Academy of Architecture

De Nieuwe Wierde

Towards a New Relationship Between Humans and Nature in Rural Groningen

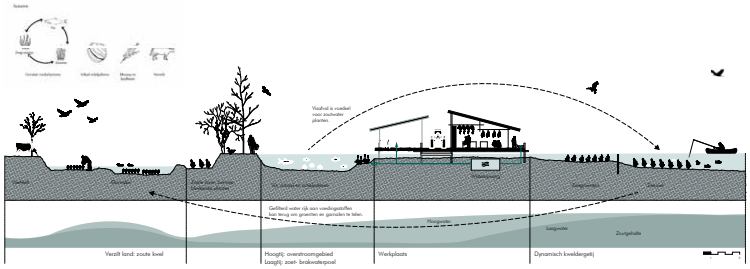
Student | Sanne Dijkstra
Docents | Clemens Bernardt | Raoul Vleugels

External Contributor | Jeroen van Mechelen

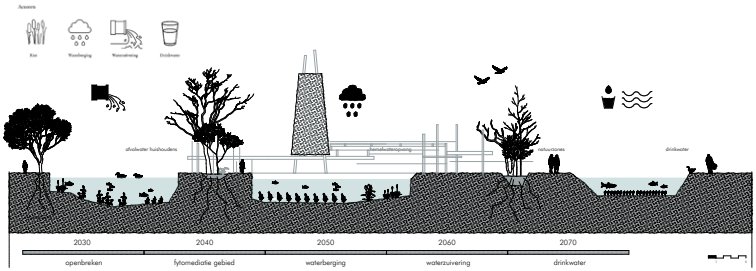
De Nieuwe Wierde is a vision of a renewed relationship between man and nature in rural Groningen. As an autonomously operating area, it is a countryside that stands for its own qualities in connection with the rest of the world. Strong social communities are in balance with nature and have enough productive capacity to live on. Water and (building) materials are recycled cyclically in a closed loop.

The character of the province of Groningen is that it is an agrarian community that arose from the relationship between man, water, and land. With the reclamation of the land, we gradually began to deplete these elements. The original saline crops have led to monoculture agriculture and large-scale natural gas extraction. Small-scale communities have changed in this landscape to large-scale production landscapes focused on the city of Groningen and the global food market. People are moving away from this area, and nature is facing increasing ecological problems: land subsidence, freshwater shortage, and rising sea levels resulting in salinizing coastal areas.
The crucial long-term problem is rising sea levels. Instead of moving or building ever larger dikes, this scenario assumes soft and more dynamic transitions between land and sea. Seawater is allowed in, and sandbars, dunes, and islands form. The area around the old mound village of Leermens is transformed into a rich salt marsh and marsh area with a saline climate, where new opportunities arise to develop economic functions, such as the cultivation of saline vegetables, algae, fish, and shrimp.

This transition does not happen overnight. Step by step, key moments occur in the lives of local people, shaping the new rural life. To keep rural life viable, a new, circular, and site-specific network will eventually emerge using available local resources in relation to the three designed buildings. It is not a new elevation in the landscape but a completely self-sufficient network of food, water, (building) materials, and energy inspired by the life of the early mound dwellers: De Nieuwe Wierde.



The workshop



The meeting place with the watergardens

Author's work

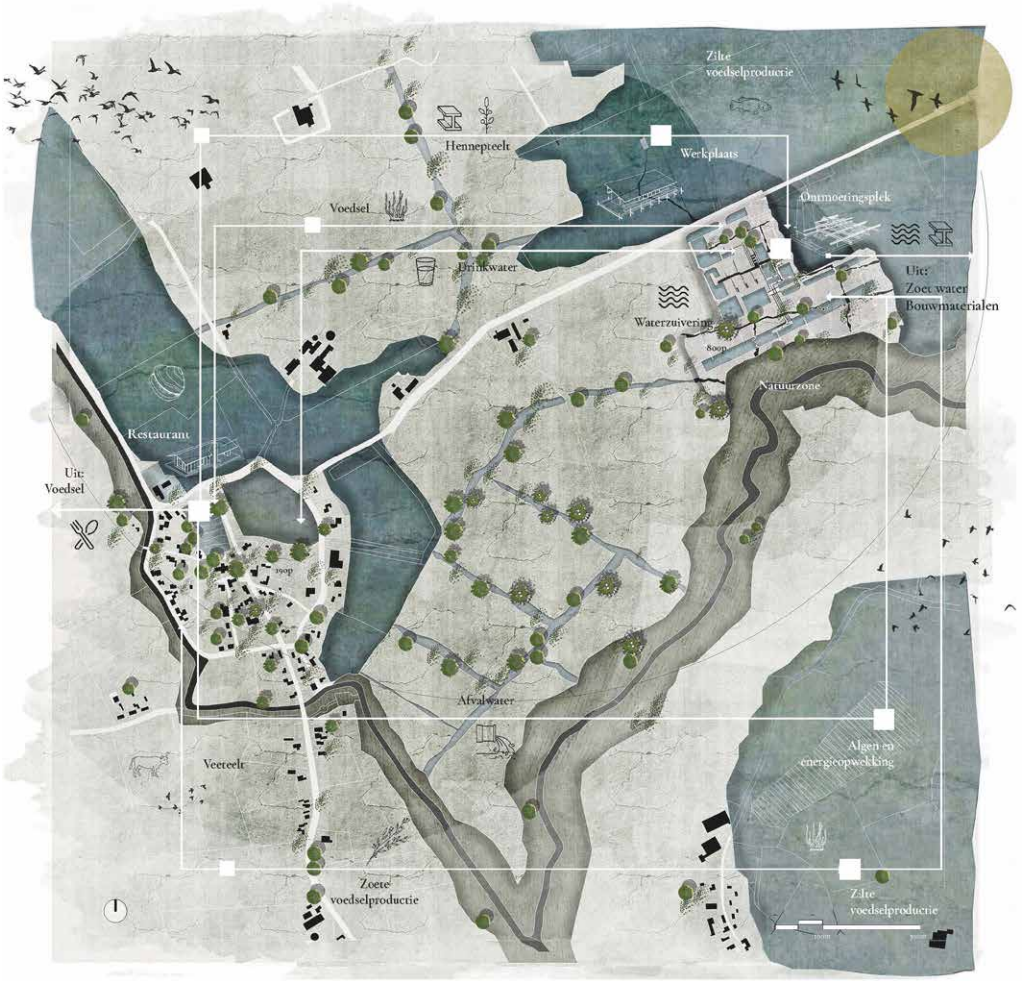
The workshop
in the marsh land

The meeting place
on the old gaslocation

The restaurant
in the village

Three buildings in and around Leermens

Author's work



The new Wierde network

Author's work

Dancing with the Water

Architecture in Adaptive Landscapes

Student | Boukje Klaver
Docents | Clemens Bernardt | Rob Hendriks

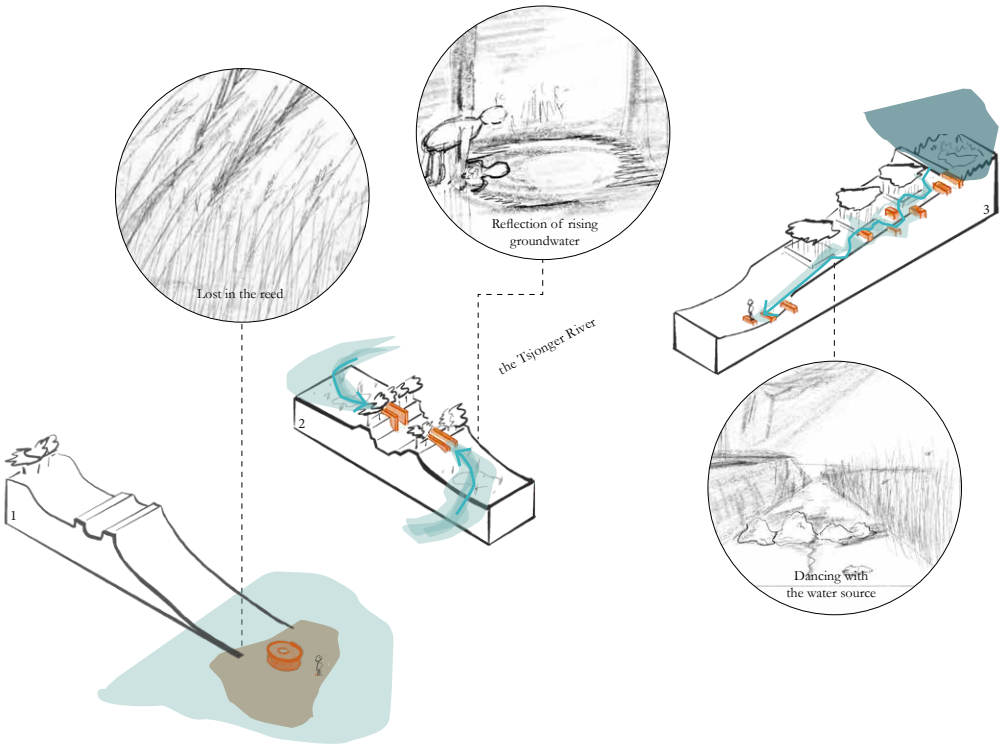
External Contributor | Nikol Dietz

The landscape in Friesland is subtle due to the current water system and is under control with the technical approach to date. Which leads to peat oxidation, depletion of biodiversity, and dehydration in many natural areas. Therefore, a different water system is needed. An adaptive landscape that makes the water system more resilient by giving it room to cope with extreme fluctuations. Making buffers for water does not have to mean that humans have to step back. Allowing humans to play a role in this can result in harmonious cooperation between the two.

The dynamics created by water fluctuation change the environment and thus also determine the architecture's condition. This is an architectural design assignment calls for a different approach, an inclusive approach in which the dynamics become part of the design. In this approach, people are not shielded from the dynamics but can possibly interact with them. This creates a collaboration that results in a humane adaptive landscape.

The project "Dancing with the Water" shows how water buffer zones are created at three sites along the Tsjonger River in Friesland. Ech site has its own sensory characteristics that also bring three different experiences and interactions for people. A walking route starts at the first buffer, where you can find shelter in the wet crops of the peat meadow area. This shelter is highly subjected to the height of the water level, and here, you can witness the subtle differences in the water. At the second buffer in the middle of the Tsjonger River, you can experience the water flow and descend into the rising groundwater. Along the Tsjonger River, you walk up to the river's source, where an even more direct interaction is possible by building the water buffer and letting the peat slowly develop.

Three places are created from area-specific materials, and in time frames of a moment or decades, the places transform and begin to interact with humans. This allows humans to increasingly connect with the condition of the place. Moving along by following the flow of water or, on the contrary, taking the freedom to improvise. Dance!



1 | *The shelter*
Water inlet for a new water buffer with reed cultivation

2 | *The Swirl*
Water outlet with water weirs for two new water buffers

3 | *The Source*
Human-made dams to delay water and to strengthen the existing dike

Water buffers along the Tsjonger River

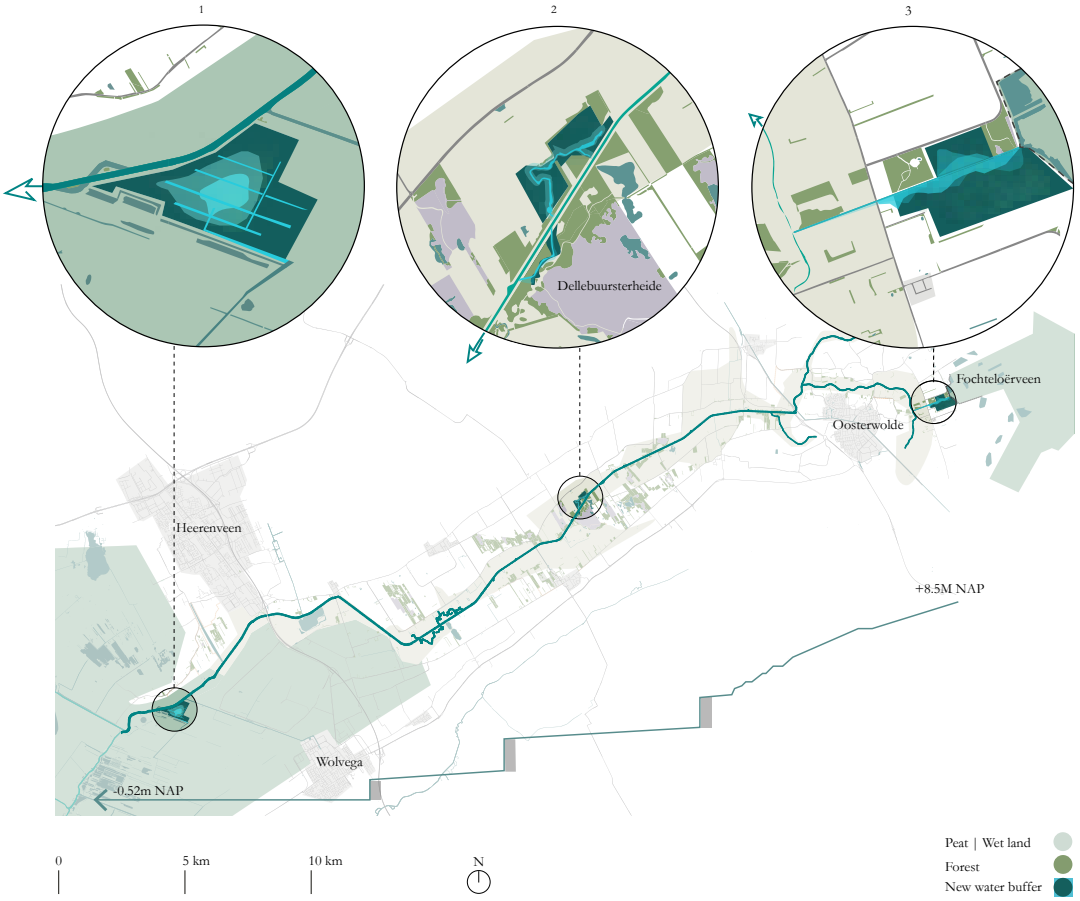
Three types of landscapes, three different experiences. Author's work

The swirl

Reflection of rising groundwater. Author's work

The source

Dancing with the water. Author's work



New water buffers along the Tsjonger River

Author's work

Between Fresh and Salt

Strengthening the Dutch Polder System with De-salinization Strategy

Student | Jacob Krol
Docents | Nynke Rixt Jukema| Luc Willekens | Clemens Bernardt

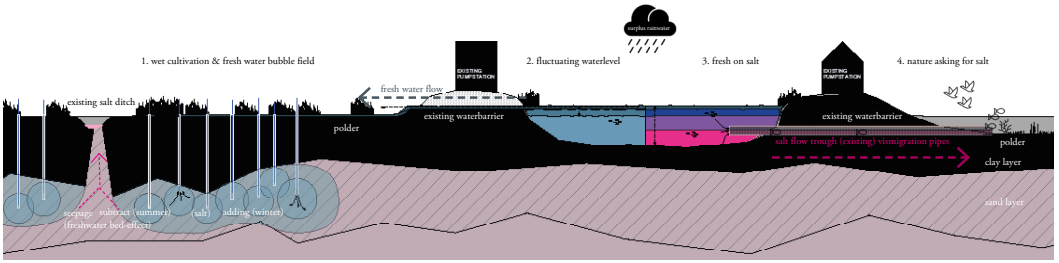
External Contributors | Jouke Velstra | Joca Jansen | Jeanet Bijleveld | J.J Jongsma

Friesland is the province with the most agricultural land in the Northern region.
This region is characterized by intensive arable farming. The success of arable farming is due to the fertile sandy and clay soils that the Wadden Sea has brought ashore over time. The agricultural sector is confronted with salinized groundwater due to autonomous development. As Dutch people, we have been used to relying on the ingenious polder system for many years. Ditches are constantly flushed with fresh water to get rid of excess salt. Due to sea level rise, land subsidence, and groundwater extraction, the pressure on the dikes is increasing; spouts are becoming more complex. Freshwater is becoming scarcer, and salt is increasingly gaining a grip on our soil. The agricultural heritage is in danger of becoming salinized.

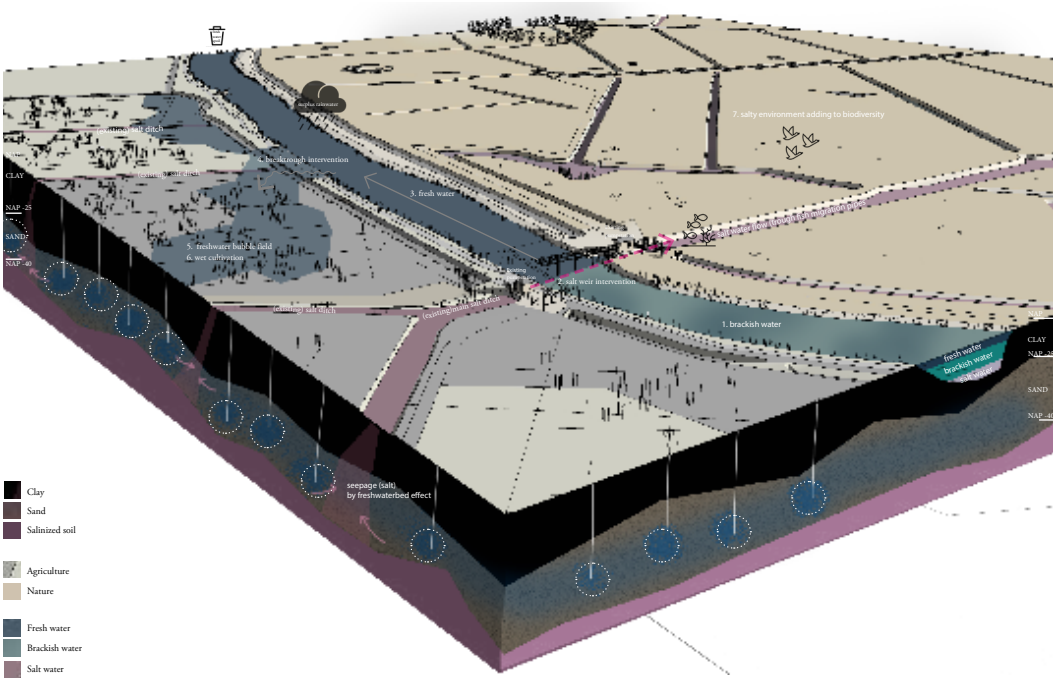
The agricultural sector has defined very different regional identities. Farmers have lived and worked here on and by the land from generation to generation. The negative effects of salinization must be counteracted. How can we separate salt and fresh streams in our water system? Are we able to collect salt in places where nature allows/requires it? Is it possible to efficiently store the winter freshwater surplus until the summer for the farmer? As water masters, we should be able to modify the system to push the salt back into the soil, stabilize the freshwater lens in order to prevent salinization and preserve our agricultural heritage.

This graduation research focuses on (future) salinization in Noardeast-Fryslan. A search for cohesion between the local agricultural identity and the (future) saline climate. Conversations and interviews have shown that the interests and decision-making of the water board, LTO, and nature management are sometimes at odds. The architecture, the program, and the context create connections and dialogue between these parties. The plan concerns a landscape intervention in which the surplus of freshwater is captured from the Sud Ie, separating fresh water for the farmer and salt flow for nature. The solution between sweet and salt.

De-salinization concept

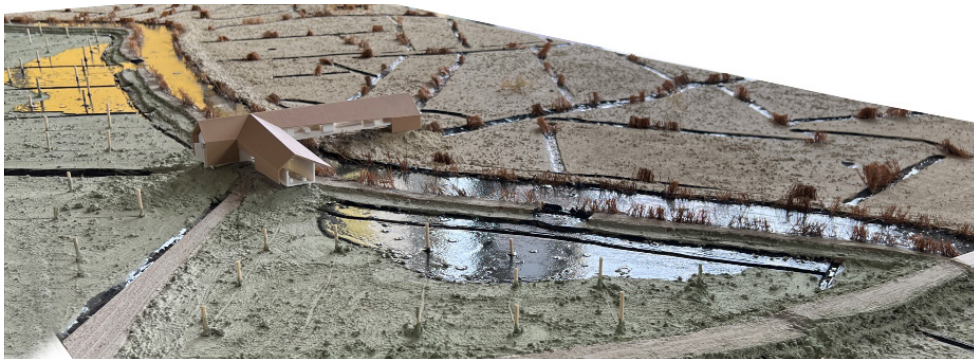


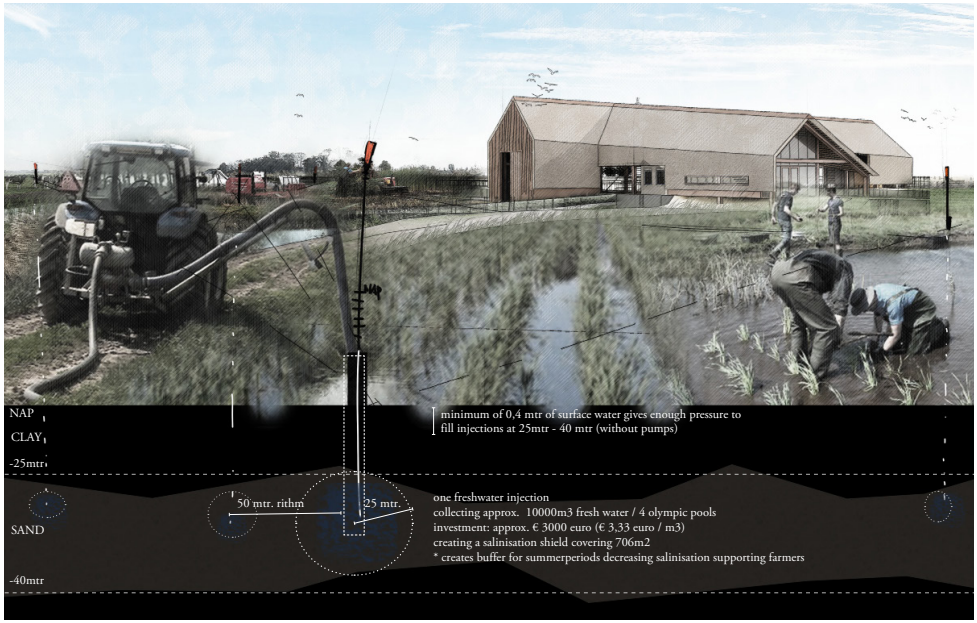
Pilot Anjumer Kolken (Friesland)



Fresh on salt

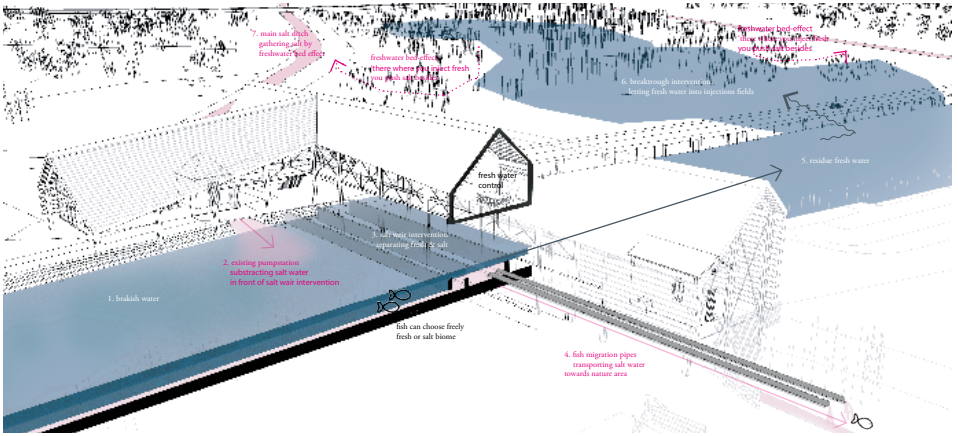
Author's work





Freshwater

Author's work



Saltwater

Author's work

Between fresh and salt

Author's work

Autonomous Zernike

2200

Student | Özgür Yilmaz
Docents | Ifigenia Psarra | Elan Redekop van der Meulen

External Contributor | Rachel Tillotson

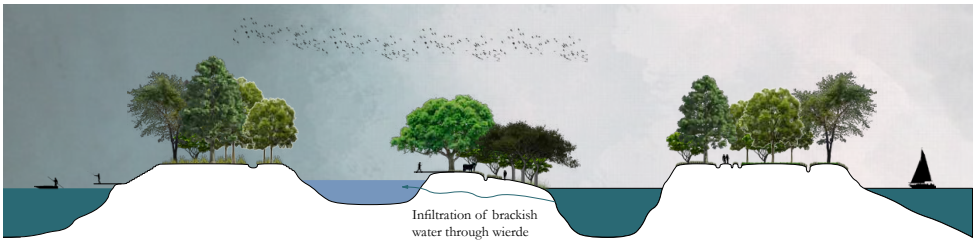
Future climate problems, such as drought and sea level rise, were the focus points for the design proposal of the autonomous Zernike 2200. According to research, Zernike will face a situation in the future of demographic growth and food shortage due to drought and salinization. The biggest danger will be the rise of the sea level. Without proper interventions, Zernike could be lost under the sea in 2200. Climate events are life-endangering and will affect people socially due to the limitations of their usual habits. The problem in this situation is Zernike's lack of independence.

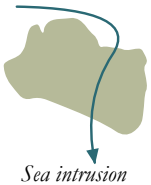
Because we are dealing with a landscape with a rich history of climate adaptive design solutions, we must use this knowledge to create a design proposal specifically fitting for Zernike. Aside from human interventions, we can learn from nature; resisting it showed its futility many times in the past; nature is known for its protective layer, making way for this in a controlled manner; climate events create opportunities for life sources, including people, who can benefit. That was the reason for choosing the intrusion of the sea in Middag-Humsterland as a guiding theme besides the "wierden" used to protect people against flooding. Using local resources is one of the key elements of an autonomous area. Rising sea levels and salinization are seen as opportunities for a new environment, local economy, and food sources.

The independence of Zernike should not only be on the landscape level; to make this more radical, one of the guiding themes besides the "wierden" was the Cistercian monastery Sint Bernardus in Aduard, which had a major influence on the water management of Middag-Humsterland. The monastery grew into the richest abbey in the Northern Netherlands. Abbeys provide a complex of buildings and land for work, housing and religious activities. Abbeys are often self-sufficient, using abundant produce or skill to provide care to the poor and needy, refuge to the persecuted, or educate the young.

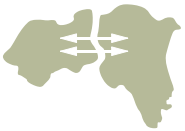
Masterplan autonomous Zernike 2200

Author's work

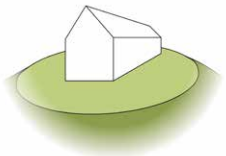




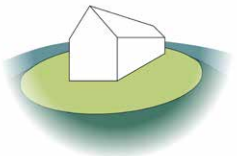
Sea intrusion



Humsterland
Middag



Wierde

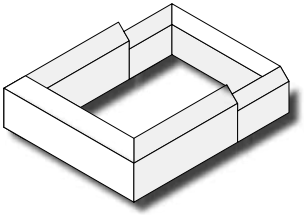


Wierde | Flooded

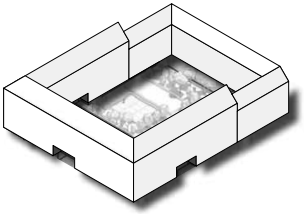
Section and guiding theme

Author's work

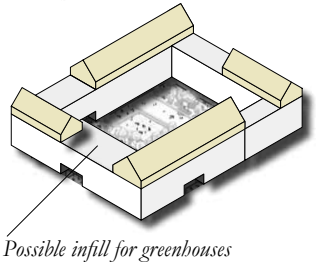
Abbey



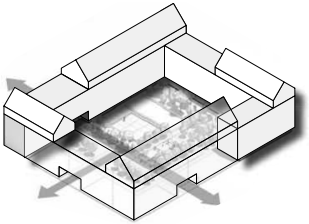
Communal farming



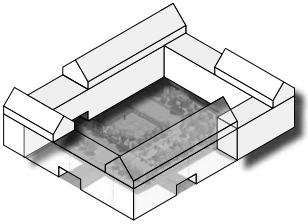
Openings for rooftop gardening along housing plus light and air



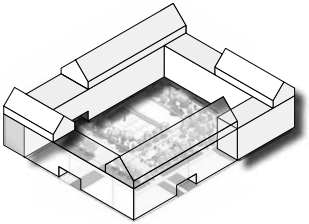
Passages for people and animals



Socializing



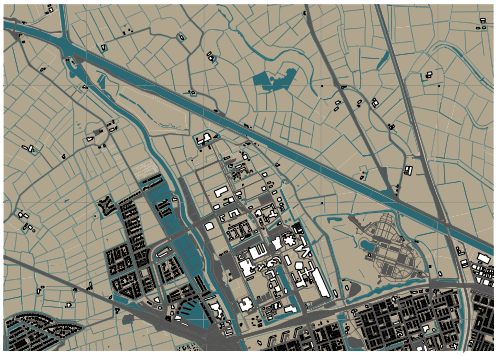
Working



Independent community

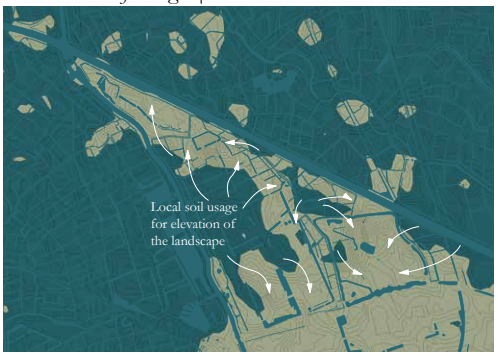
Author's work

Current state

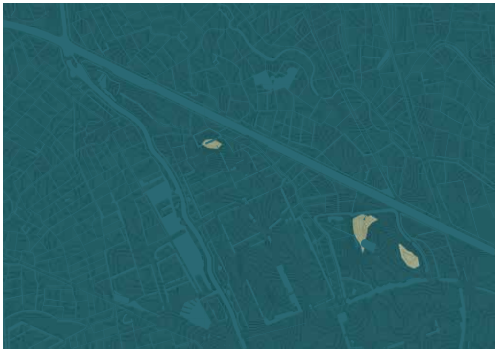


3 meters sealevel rise

Natural base of design | 4 meters sealevel rise



Zernike in 2200 | 8 meters sealevel rise



Zernike now and in the future

Data: Hoe goed is Nederland beschermd tegen het water? | Atlas Leefomgeving, 2020. Author's work

Grow with Trees

Restoring the Relationship Between Humans and Nature

Student | Marjolein Tolsma
Docents | Ifigenia Psarra | Luc Willekens

External Contributor | Berte Daan

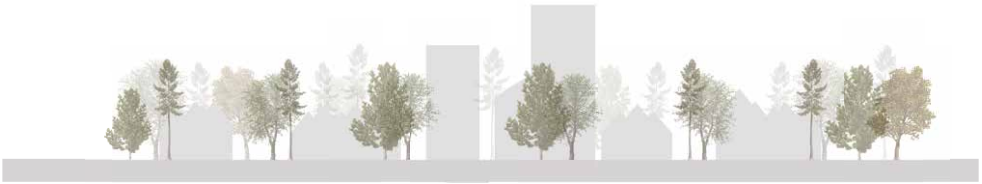
In 2100, sea levels will rise, and when the dykes break, part of Groningen will be flooded. Zernike will then be almost at sea. All residents in lower-lying areas will seek the safety of higher parts like Groningen. Therefore, I designed a strategy in which we can work in steps towards a nature- and climate-adaptive expansion of the city. As the city grows, Zernike will also become part of the city.

I designed a master plan for the Zernike campus in 2100, incorporating all possible climate changes. 2100 seems so far away but to have an impact, we have to start acting now. In the master plan, I want to restore the relationship between humans and nature.

Studies show that spending 120 minutes in nature (or a city park) makes people happier and healthier. Greening the city has other benefits, such as cooling it, collecting rainwater, making soil more fertile, and, depending on the tree species, building furniture or houses from the wood.

The master plan is based on the structure of a tree trunk, with a core and different layers around it with functions. This principle, combined with the 15-minute city, is the basis for the plan. Due to its radial design, all functions can be reached within walking distance. If we expand the city in this way, it can grow endlessly.

Nature *City*

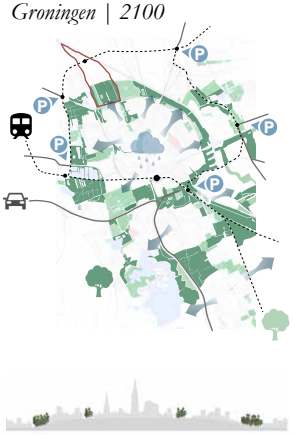


Forest City

Groningen | 2025

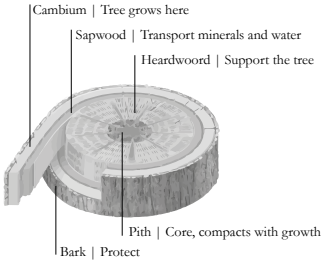
Groningen | 2050

Groningen | 2100

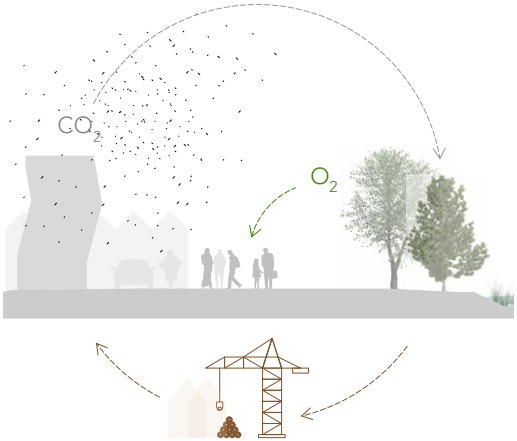


Steps for greening the city in years to come

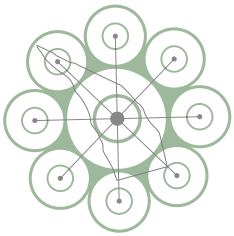
Author's work



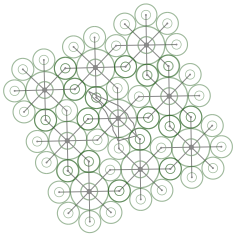
Tree structure as base of masterplan



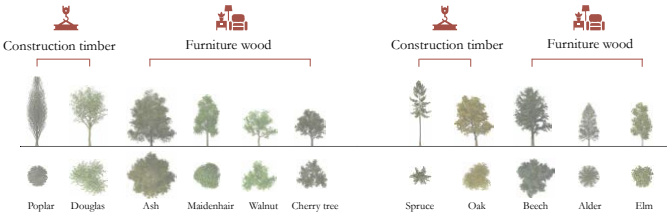
Circular city



A walk friendly city - 15-minute city



Endless expansion possibilities

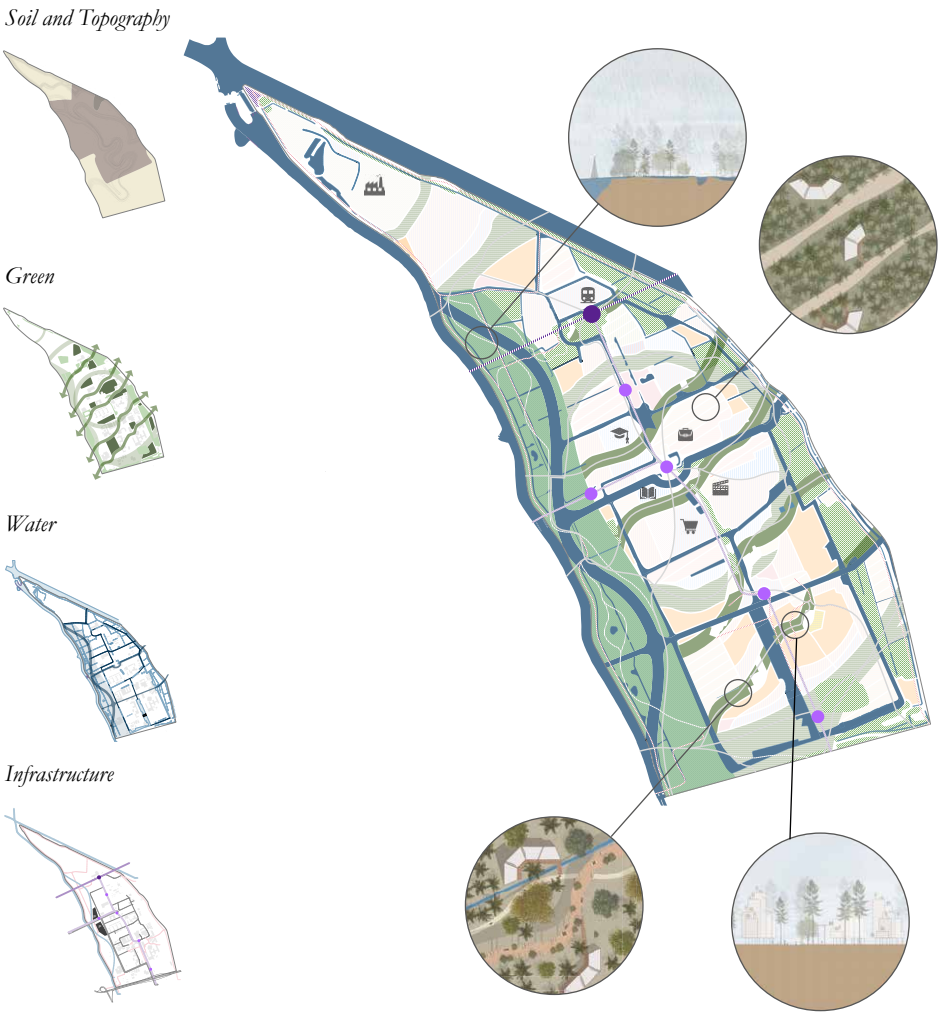


Trees clay

Trees sand

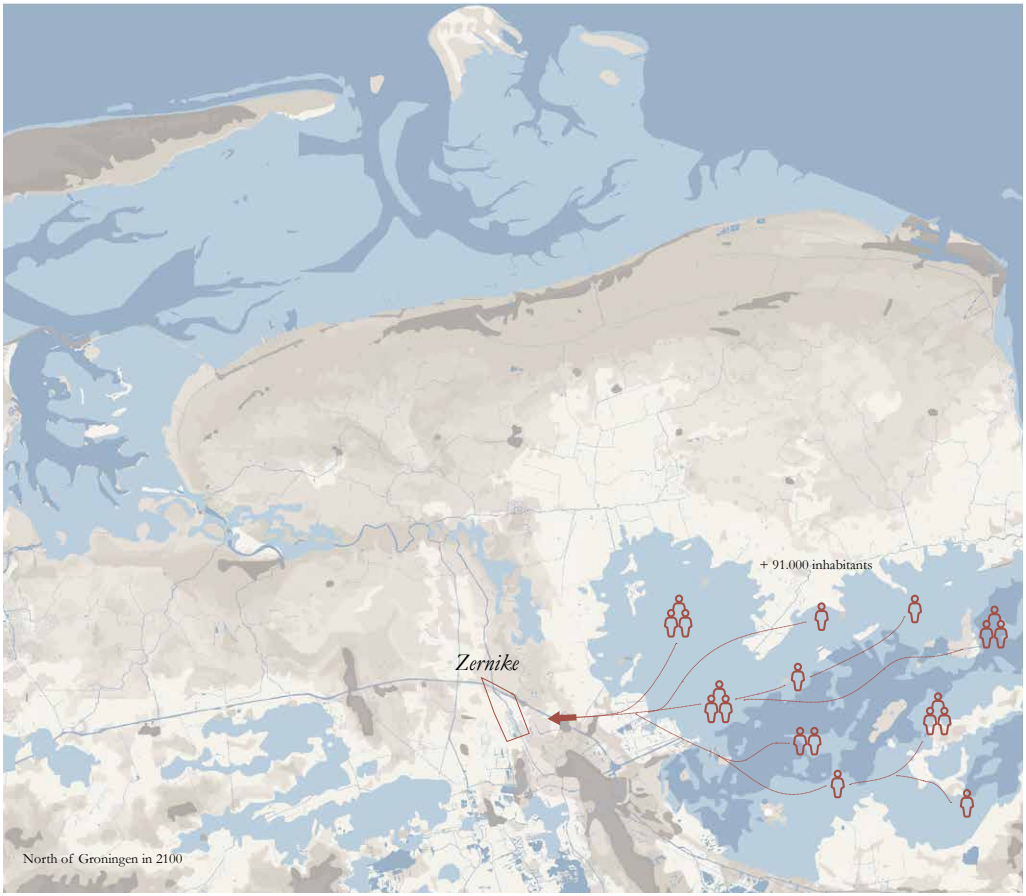
15-minute walk- and self-sufficient city

Author's work



Masterplan Zernike 2100

Author's work



Rising sea in 2100

Data: KNMI; Klimaatsignaal, 2021. Author's work

3.4 | Wadden Sea: a Laboratory for Living with Nature

EMiLA Summer School 2023

Summer school coordinators | Maike van Stiphout | Eva Radionova
Docents | Nuno Almeida | Andreas Ebert | Lieke Jildou de Jong | Lisa Mackenzie | Luis Maldonado | Lauri Mikkola | Martin Prominski | Giambattista Zaccariotto | Javier Zaldivar
Lecturers | Bart Beijloos | Joost Emmerick | Karin Helms

The habitats of the Wadden Sea form a complex system which provides an invaluable record of past and ongoing adaptations of plants, animals, and their coastal environments to global change. It is a unique laboratory for learning to design with nature.

The summer workshop organized by the Academy of Architecture of Amsterdam and the EMiLA school focused on a small area of the Wadden Sea, where participants explored the diverse ecotopes and the many animal and plant species that inhabit them.

EMiLA
European Master in Landscape Architecture

Academie van Bouwkunst

This summer school provided a unique opportunity to explore the Wadden Sea's delicate balance between humans, animals, and plants. Participants learned the role landscape architects can play in shaping the future of the landscape amidst changing physical circumstances while meeting the needs of people and animals. Through mud walks, field trips with artists, lectures, and workshops, the program allowed participants to engage with experts and collaborate with peers from diverse backgrounds.

Students explored questions such as: How can we balance the needs of humans and nature in the Wadden Sea? What new approaches can we use to protect and restore the ecosystem? How can we promote the sustainable use of the Wadden

Sea's resources while safeguarding its ecological value? Should we let the Wadden Sea drown to protect our agricultural land? Are we giving up agricultural land so the Wadden community can expand inland? Should we build dikes between the islands to create an artificial water level? What are the scenarios for biodiversity, and which includes people as part of the Wadden community?

By the end of the summer school, participants had developed a deeper understanding of the relationship between humans and nature. They created concrete proposals for the future of the Wadden Sea landscape. They learned to become active agents of change, fostering a sustainable and equitable relationship between humans and nature by seeing the landscape through the "eyes" of animals, understanding the interplay

between nature and culture, and adopting animal perspectives to create designs that enhance the Wadden Sea's ecological health. Additionally, they developed observation and perception skills to recognize the ecosystem's fragility and achieve balance through design.

Eva Radionova and Maike van Stiphout

Amsterdam Academy of Architecture

ReCLAYming WAD

Re-clay-ming Salt Marsh Territory through the Process of Sedimentation

Students | Ana Sofia Lichtle | Anthea van Regenmortel | Simon Schwarzl | Lisette Woltjer
Docents | Luis Maldonado | Andreas Ebert | Lieke Jildou de Jong

External Contributors | Eva Radionova | Maike van Stiphout

Before people started building dikes, the tides had all the space and freedom to give and take clay and sand to shore. The sand sinks faster because it is heavier and more extensive than the clay particles. Therefore, the clay particles could travel further from the sea. Then, everything changed when people built dikes. The dike forms a barrier parallel to the shoreline. This causes a linear sedimentation process. After a thousand years, it has resulted in a pattern of heavy clay soil next to the dike, followed by heavy sandy clay until the high tide line and light sandy clay up to the low tide line, which was visible in the soil samples we took from the coastline to the sleeper dike. This has resulted in a monotonous landscape, which is excellent for efficient farming with big machines but not for biodiversity and resilience.

This monofunctional agricultural landscape is currently catering to the needs of sugar beets and seed potatoes. But sea levels are rising, and salinization is coming. There are two ways to deal with salt seepage: fighting it or embracing it. Diversifying the soils and topography in this landscape can help to do both.

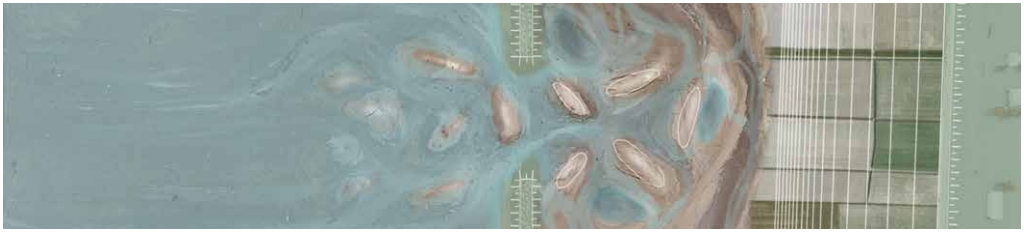
We embrace it by placing small dikes in different directions before the dike. This way, the sedimentation process can become more dynamic, resulting in new islands with diverse soil types. These different soil types allow different microhabitats to flourish. Over time, the same process can be repeated on the other side of the main dike. This way, we reconnect the land and sea, but it will significantly impact how we use the land. Reconnecting means appreciating the native herbs and vegetables that thrive in salty environments, like sea beet, glasswort, sea purslane, and sea lavender—but also developing innovative ways of farming, like salt potatoes. This can be accomplished by including the community in celebrating salt marshes food, as is now done with the potato festival.

We fight salinization by putting a thick layer of heavy clay that the salt water cannot seep through almost all the way up to the old sleeper dike, with a layer of light sandy clay on top to give enough growing space and air to the crops. With this, we create a gradient from land to sea, opening up the shore to be dynamic with free-flowing water, soil, and salt once more.

High tide in the current situation

High tide right after the intervention

High tide short after the intervention (first decade)



High tide in the long rerm after the second intervention

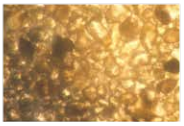
Process of re-clay-mation

Authors' work

Tidal Mudflat

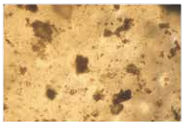
Light sandy clay

Salt marsh

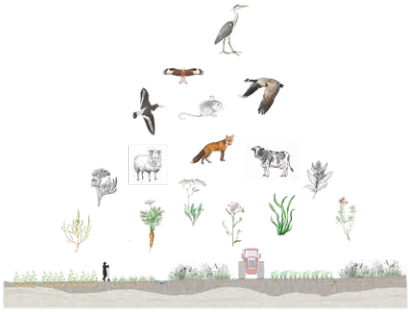


heavy sandy clay

Salt meadow



Heavy clay



Agriculture

Heavy clay and light sandy clay

Microhabitats per soil type

Authors' work

Cultural repurposing

Authors' work

Awakening the Sleeper

A Case Study on the Reutilization of the Dike System at the Wadden Sea

Students | Friedrich Wacker | Juan E. Porras | Luisa Grassi | Marith Bos
Docents | Lisa Mackenzie | Javier Zaldivar

External Contributors | Eva Radionova | Maike van Stiphout

The Wadden Sea borders the northern part of the Netherlands and is called Groningen. Over the past decades until now, the Netherlands has been battling the waters of the Wadden Sea. The Dutch built several dikes and devised numerous new technics to protect the country from the sea and reclaim land. This is well reflected in Hornhuizen, a small town in Groningen. In the village lies the oldest dike called "The Dreamer." Around the village, after the first grasslands, lies the second dike, "The Sleeper." After this dike comes intensive agriculture protected by the last dike, "The Waker." The naming of the different dikes comes from history and is applied locally in the area.

Intensive agriculture, land reclamation, and high dikes have drastically reduced the habitats of various animal species. This project looked at different animals from different perspectives. Where do they live now? And how could they get more space?

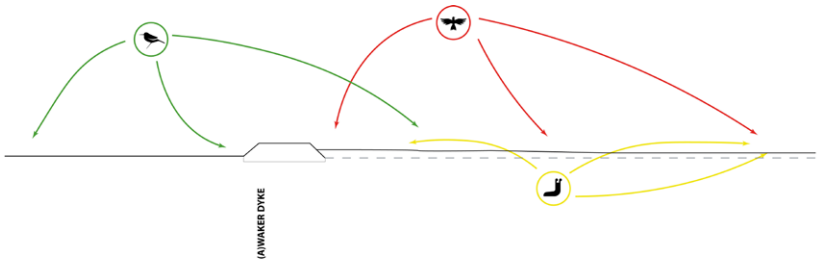
In the landscape between the Wadden Sea and "The Waker" dike is a brackish water creek structure. This is the area where most animal species live. It is a diverse landscape with different vegetation, making it attractive for animals. It was necessary to break open "The Waker" dike to enlarge this landscape. As the salt water of the Wadden Sea flows into the freshwater agricultural area, a landscape of salty water and sedimentation creates stratification. The water naturally slowed down through the landscape of different creeks and stratification, protecting it from the seawater. It was chosen not to remove the entire "De Waker" dike to regulate the water further but only to create openings in certain places. The different tides, i.e., the alternation of high and low water, make the landscape dynamic and increase (in part) the habitat of animal species. By breaking open, the "The Waker" dike is no longer the country's most excellent guardian against the seawater, but rather, the dike observes the seawater in the landscape. The name of "The Waker" dike will be "The Observer." "The Sleeper" dike will be awakened and will have to protect the village from the water, so this will become the "A-Waker" dike.

Eventually, the space humans took away decades ago will be returned to the species. Man will give up space for their footprints, and the animal species will have more space to place them.

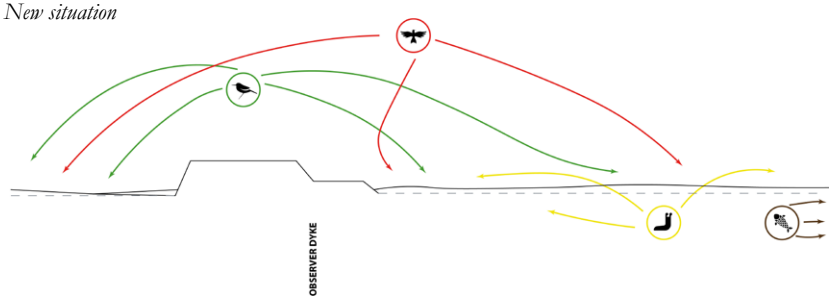
The identities of the animals

Authors' work

Current situation

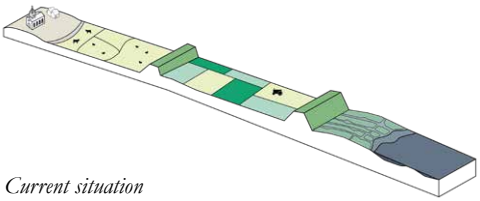


New situation

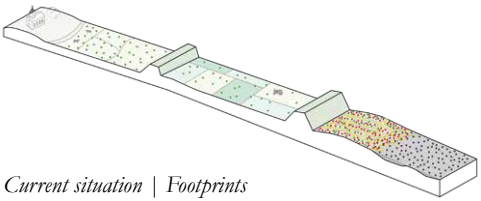


The animal habitats now and in the future

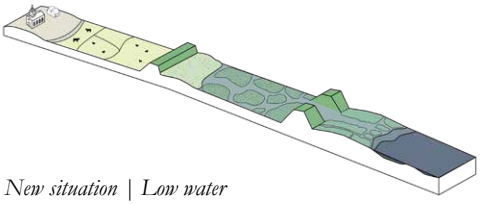
Authors' work



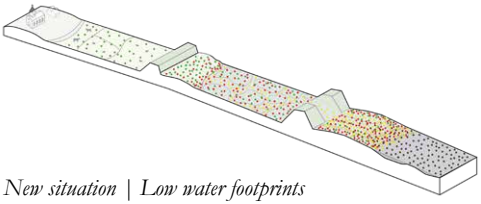
Current situation



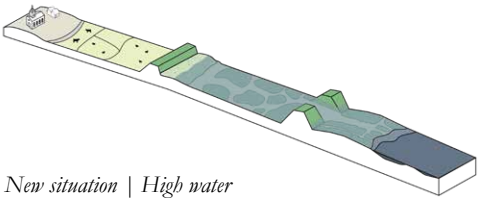
Current situation | Footprints



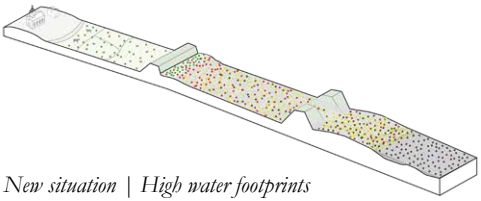
New situation | Low water



New situation | Low water footprints



New situation | High water



New situation | High water footprints

Landscape and footprints in different situations

Authors' work

La Machine Sensible

A New Understanding of Our Surrounding Species through a New Human-non-human

Students | Julia Chavolla | Raidun Schott | Felix Zierz | Live Victoria Noren
Docents | Lauri Mikkola | Giambattista Zaccariotto

External Contributors | Eva Radionova | Maike Van Stiphout

The Wadden Sea is a specific and important coastal region stretching along the coasts of Denmark, Germany, and the Netherlands. Within this region, the landscape is continuously shaped by the dynamic processes of tidal water, creating a constantly changing landscape. These processes additionally contribute to the area's rich biodiversity, which is affected by the dynamics in the area.

The biodiversity of the Wadden Sea in the northern region of the Netherlands consists of species thriving on land, in the sea, and in the spaces between the two. Today, the area of Hornhuizen, a small village next to the Wadden Sea, separates humans from coastal biodiversity through two dikes. These two dikes were formally arranged as barriers to protect and conquer land for human agricultural interests and generate a larger harvest for the human population in the area.

The machine of building the new territory was set in place through the method of building the dikes. This machine was constructed on behalf of humans, creating an area beneficial to the population inhabiting the space in front of and behind the dikes. This machine did not question the existing components and species on the other side, which were being further pushed out to the sea.

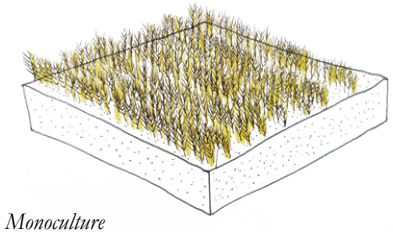
The project stresses the topic of the sensible machine, which is, in other words, a machine that considers the different species in the area. The idea behind this new machine is to create a territory built on an agreement between the non-human species and humans. The future parliament of 2050, where humans and animals can communicate, will construct a different set of rules for how the area is developed through everyone's public participation.

The first changeset of land agreed upon

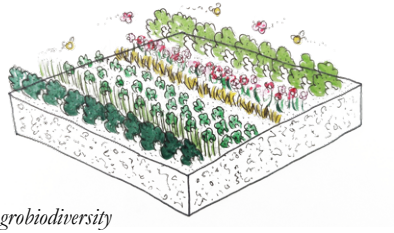
Photo: Giambattista Zaccariotto

The future parliament

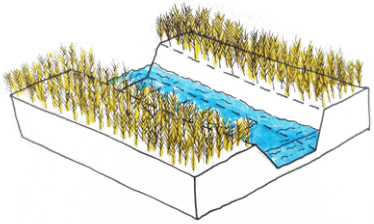
Source: Midjourney AI generator



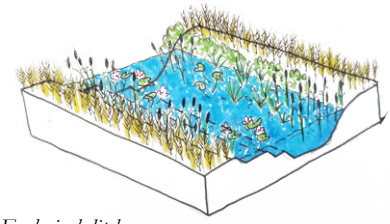
Monoculture



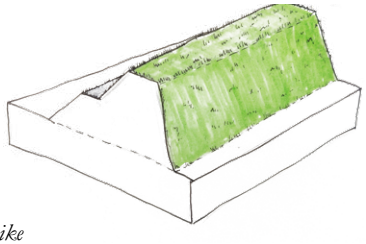
Agrobiodiversity



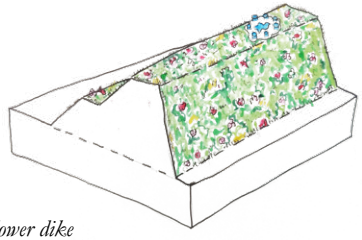
Trench



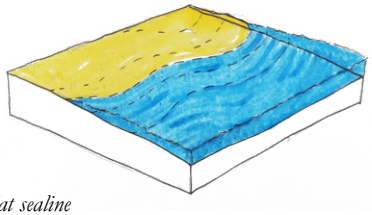
Ecological ditch



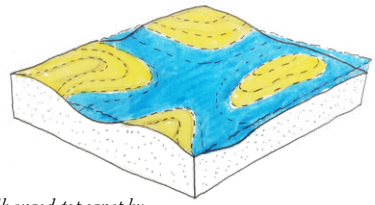
Dike



Flower dike



Flat sealine



Changed topography

Interventions before and after the dike

Authors' work

Immersions

Into the Wadden Sea

Students | Babs Brand | Diane Le Naour | Lilli Carr | Salma Marghich
Docents | Martin Prominski | Nuno Almeida

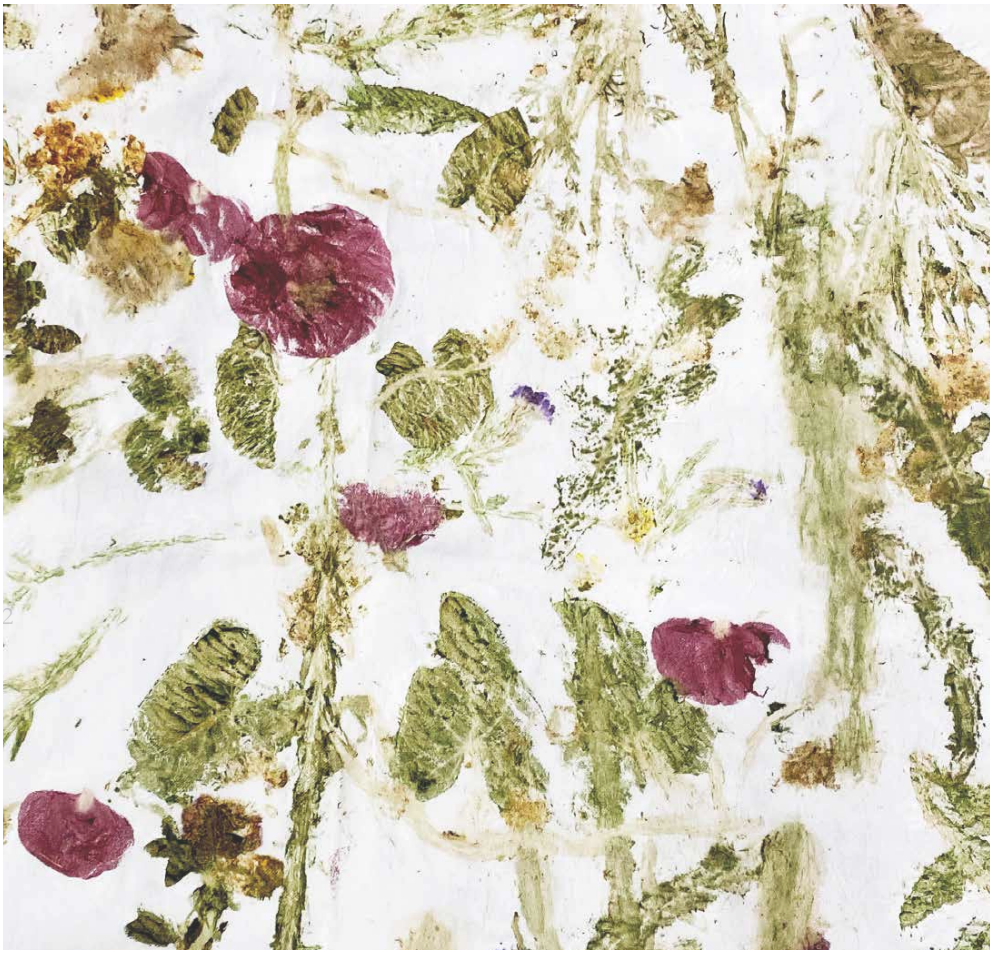
External Contributors | Eva Radionova | Maike Van Stiphout

The Wadden Sea is a remarkable and ecologically significant coastal region nestled in the southeastern North Sea, spanning the shores of Denmark, Germany, and the Netherlands. Its expansive tidal flats, salt marshes, and barrier islands create a dynamic and ever-changing landscape that fosters a thriving biodiversity.

The Wadden Sea is more than just a beautiful and rich coastal region; it is a sensory experience lived by all. We believe that transforming this landscape, which currently only produces food for one species, into a diverse habitat for a wide range of species is crucial for its preservation and a balanced coexistence within ecosystems.

To accomplish this, we propose a change in our approach to the landscape. From the farming areas, over the dyke, and into the salt marsh, we envision interventions focused on senses stimulation, habitat diversification, species connection, new water management, nature wild expression. We aspire to create an immersive in which one would be stimulated by the endless view, the smell of the mud, the touch of the water, the buzzing of mosquitoes, the taste of foraged plants surrounded by a hybrid environment and diverse species.

This work enhances the potential of the Wadden Sea to be a transformative landscape that supports diverse ecosystems and sensory experiences. By changing our approach to the landscape, the dyke, water, and food production, we can create a harmonious coexistence with nature, preserving its beauty and rich biodiversity for generations to come.

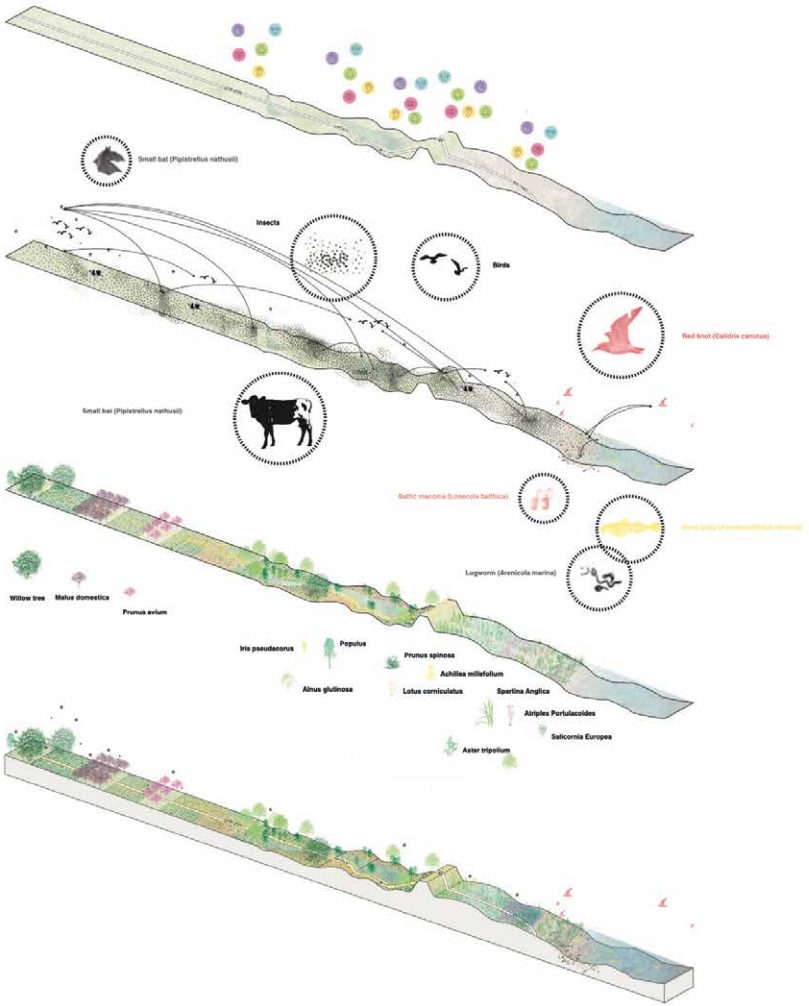


Landscape analysis through plant study, printing and distillation

Authors' work

To what extent might we immerse?

Authors' work



A landscape of infinite possibilities to immerse inside out

Authors' work

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