

Revitalising hidden harbours

Exploring Design Strategies for Maritime Traces and Identity of Former Small-Scale Harbours in the Water Triangle

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1. Abstract

Aim: This paper aims to explore various design strategies for revitalising former small-scale harbours and reinforcing maritime identity in the Water Triangle area, located in the south-western Netherlands.

Problem: The Water Triangle area has a rich maritime history, but its maritime identity has faded over time. Many former harbours in the region have disappeared or become 'hidden harbours,' where traces of maritime heritage still exist. Despite their historical significance, these small-scale harbours have not been extensively studied.

Methodology: The research uses several methods, including a literature review, an analysis of a reference case, and a conceptual design process. These methods help identify and test potential design strategies.

Findings: The study presents nine design strategies, generalised to be applicable to other contexts. Strategies are tested through a conceptual design process applied to the hidden harbour of Papegat, demonstrating how they can be adapted within a small-scale context.

Research Limitations/Implications: This research focuses on a specific geographical area and one case study, which may limit its direct applicability to other regions. However, the design strategies offer a framework that can inform similar revitalisation efforts in other historically significant maritime environments.

Value: By addressing the overlooked small-scale harbours, this study contributes to the broader knowledge on revitalisation of maritime heritage and identity, and provides a framework for integrating maritime traces into contemporary architectural design.

Keywords: *Maritime heritage, Maritime identity, Hidden Harbours, Revitalisation Strategies, Design Strategies, Water Triangle, Netherlands*

2. Introduction

The aim of this paper is to establish strategies designers can employ when faced with the task of revitalising maritime identity with the traces of former small-scale harbours. More specifically, this paper explores an area rich in maritime heritage called 'the Water Triangle', located in the South-Holland province of the Netherlands. One particular former small-scale harbour in this area is Papegat, Dordrecht. It offers a backdrop within the framework of this paper, and illustrates the problem and possible design strategies. Papegat was once a bustling harbour in wood production, of which mere traces remain today. Alongside maritime heritage, its local maritime identity is also threatened with extinction. This is unfortunate, as these places played significant roles in regional development. This results in the main research question of the paper.

RQ: *'In what ways can the regional maritime identity of a hidden harbour in the Southern Water Triangle be revitalised through architectural design, using its remaining traces in the current built environment?'*

The mentioned 'hidden harbours' are herefrom defined as a former harbour, leaving only traces in the present-day built environment. Another important notion in the research is the emphasis on the small scale of the hidden harbour, reflecting a research gap. While most articles touch on larger, operational harbour areas, this paper attempts to relate these strategies to the smaller scale, by employing them in the context of Papegat. This creates a new and refined position within this field, and starts to fill the research gap. Continuing the introduction, contextual information is provided in sections 2.1 through 2.3. This has been researched separately, based mostly on analyses of maps dating back to 1500 AD, and is available in the appendices.

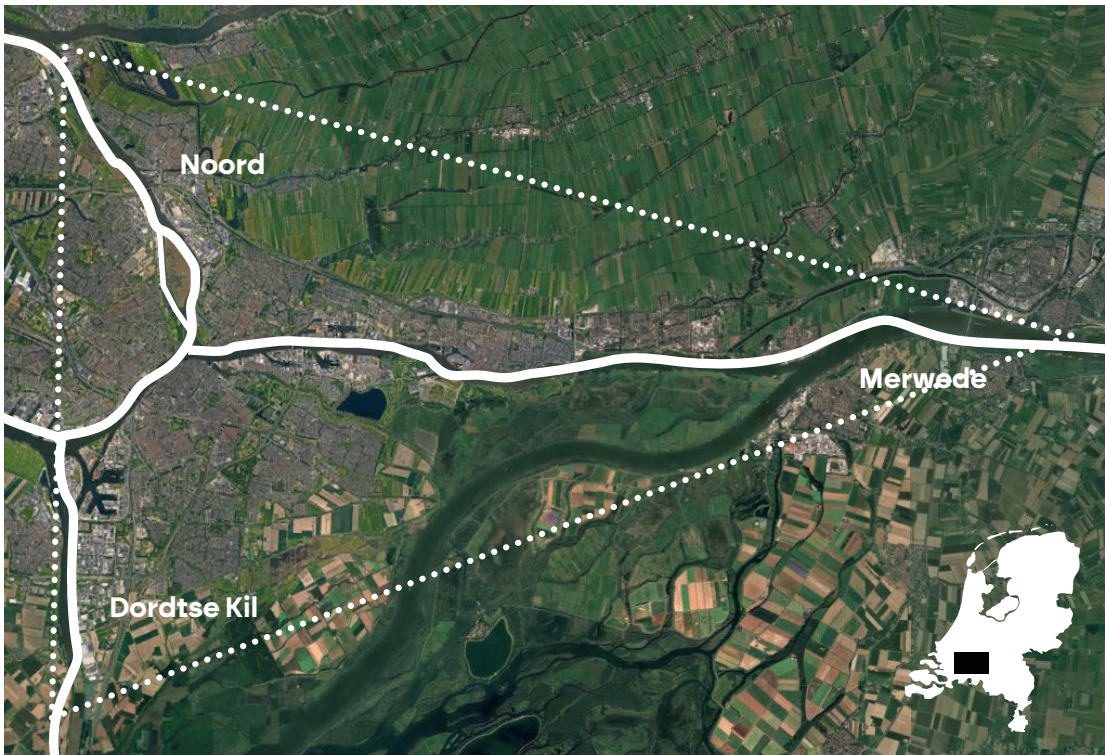
2.1 Maritime Identity

A vital element of the research question in this paper is maritime identity. The continuous history of the connection between people, land, and water, facilitated by small-scale harbours, has left a great impression on the regional identity. This is true for both tangible heritage structures as intangible stories and names. It is important to understand what maritime identity means.

Identity is deeply connected to cultural heritage. Ounanian et al. (2021) cites Kluckhohn (1954): *"culture is to a society as memory is to a person."* Despite arguing how difficult it can be to distinguish identity and culture within heritage, citing Holtorf (2011) they mention that cultural heritage was to *"support an exclusive collective identity for each nation, by providing it with a distinctive origin and evolution to the present day."* Essentially, cultural heritage provides identity.

One form of specific cultural heritage is maritime heritage, which is founded in ships and boats that expand the cities to other waterfront towns, bringing not only goods but also culture. Clemente (2013) approaches maritime heritage as the relationship with the sea that is expressed by the form of architectures and urban spaces which are situated on the water.

Since cultural heritage provides identity, maritime heritage does the same. It can be stated that maritime identity is based on maritime heritage. The maritime identity of hidden harbours is rooted within the heritage traces still present on the site. Because much of the maritime heritage is often faded, leaving merely traces, so too does the maritime identity. Revitalising these traces in a design can support a fresh collective maritime identity for inhabitants of the region, by providing them with a distinctive common development story, ensuring that society's memories do not fade into oblivion.



1: Water Triangle within the Netherlands

2.2 Water Triangle

Located in South-Holland province, the Netherlands, the Water Triangle takes its name from the shape of a triangle of waterways. Here, the *Merwede* river flows into the *Noord*, and *Dordtse Kil*. Within the area is one of the province's Heritage Lines: Maritime Industry. It is characterised by the dynamic and tumultuous relationship between people, land and water. These forces have influenced each other for centuries, resulting in floods, land reclamation, dyke construction, agriculture, and trade. Located centrally within the triangle is the city of Dordrecht. The old city thrived on its position near the river and easy access to the North Sea, becoming a centre of trade because of exclusive trading rights. After the catastrophic *St-Elisabeth Flood* of 1420, a large part of the Water Triangle was submerged, altering the physical expression of the land for the centuries to follow. Dordrecht found itself isolated on an island, where it thrived again because of booming trade and access by water, continuing its prominent position.

2.3 Papegat: Brief History

One of these areas that was positioned along the water and a centre of trade is Papegat, located just south of the old city boundary of Dordrecht. Its urban shape can be recognised in maps dating back to the 1600's, being a '*Balkengat*' (*Beam Hole*) for most of its history. Here, logs were kept under water before being sawn into planks. However, it got its name from its initial function as a meadow for the local orphanage. '*Paap*' was a vulgar word for a Catholic person. From the 17th century onwards, logs were transported directly in the water from Germany and the Nordics, before being stored in Balkengaten for several years. This ensured the fluids and possible illnesses to be flushed out, resulting in a more resilient and stable product. Ten windmills functioning largely as sawmills were constructed within the Papegat boundary, with another dozen in the direct vicinity. The remaining elevated dyke surrounding the harbour protected the low-lying area from flooding.

Despite being an impressive sight, as apparent from *Van Gogh's* sketch, around the second half of the 1800's, the windmills were eventually either replaced or refitted with steam-powered sawmills. This marked the beginning of the disappearance of these iconic structures. The final windmill was demolished in 1959, almost 400 years after the first windmill was constructed. Gradually, access from the sea to inland Dordrecht diminished through shallow waters, plummeting the wood industry. A viaduct was constructed through the middle of the site, and a single sawmill remained to use the harbour until the 1970's. Hereafter, it was landfilled because of under-use and bad water. The area became an industrial estate, of which most functions have been abandoned today. The hidden harbour is marked as an open, voided space, with only the 1950s sawmill hall and office buildings still standing. Plans are in place to redevelop the area into a high-density residential neighbourhood, which mostly ignores the historic value of the site. This paper offers an alternative approach, and presents strategies designers can use when dealing with similar small-scale hidden harbours and their traces. The two small remaining buildings, the dyke outline, the voided space, and *Weeskinderendijk* (*Orphans Dyke*) name, are the only traces reminiscent of history, and can be used to help revitalise the local maritime identity, inspiring and educating local residents on the significant developments of their regional past.

2: Wood rafts in front of Papegat around 1675



4: Van Gogh's Papegat sketch 1881



6: Remaining heritage traces: void and industrial sawmill hall & office 2025



3: Papegat in Dordrecht 1620



5: Papegat and context around 1868



7: Papegat in 2025





8: 1936 Papegat aerial photograph



9: Projected future design for Papegat

2.5 Reading Guide

Chapter three explores several revitalisation strategies for designing with maritime traces and harbour contexts in a literature review, organised by scale. The gathered information originates from articles which have clear connections to revitalisation strategies and maritime heritage, along with elements that can be interpreted as traces. Chapter three continues with a reference case analysis on *Kristiansand*, where the emphasis on small-scale is reinforced. Maps based on Kevin Lynch (1960)'s *'The Image of the City'*, present the strategies in generalised and comparable fashion. By relating the strategies to the small-scale Papegat, it contextualises their possible application while filling the research gap. The paper ends with discussion and conclusion in chapter four, reflecting on the findings in chapter three. Besides the conclusions, challenges and further research is presented.

3. Results

3.1 Literature Review: Strategies for Maritime Heritage Traces

Because the available studies mostly explore larger, operable harbours, this section organises the strategies from relatively large to small: *urban - harbour area - building & material*.

Urban

On this scale the harbour area is interconnected and relative to the urban fabric surrounding it.

For example, Hein's (2020) collection of papers offers insights in the chapter by Pagés Sánchez and Daamen '*Using Heritage to Develop Sustainable Port–City Relationships*'. It takes Lisbon's port as a starting point, which is still a functioning port but also contains remaining traces of past uses in the form of maritime heritage structures. The industrial era has created disconnection of the port and urban fabric, whereas the two used to be more intertwined. More space was needed to execute tasks efficiently, creating distance between the urban fabric and water. Harbours within the port were made wider and further from the urban context. Revitalising such the maritime identity of these areas for this border to be removed where possible, reconnecting the traces and urban area with the water.

This point is reinforced in Alex Krieger's '*Reflections on the Boston Waterfront*' published in Marshall's *Waterfronts in post-industrial cities* (2004). While Boston does not reflect the small-scale harbour central in this paper, key strategies can still be explored. Krieger explains the general development of the oncesignificant harbour central to the city, becoming a hidden harbour. After people realised its potential and significance, remaining wharves and warehouses went through adaptive reuse, bringing back life to the site while preserving essential heritage and identity. He writes that this kind of waterfront development cannot be seen as a thin line. While the water's edge is exactly that, it is key to expand the thickness of this line. Cities like Amsterdam and Sydney use their complex water structures well to broaden the zone of water and land overlap. Krieger concluded waterfront revitalisation being a daring balance play between preservation and reinvention, mentioning that the tactics of urban planning should be like that of tide; "*scouring, reshaping, yet miraculously sustaining the shore*" (p.181).

Since water forms an integral part of a harbour's operation, re-establishing the presence of water in a former harbour after this may have disappeared, adds to its maritime identity. Sweijen (2019) '*Het Doorbraakplan en de cityring van Breda*' exposes the developments of 20th century city planning in relation to the disappearance of water in the city of Breda. Planning & Grendelman (2007) mention three Dutch cities where this development has taken place in their study '*Herstel van gedempte stadswateren*'. In the case of Breda, both highlight that the former harbour has been reinstated. This was done in combination with recreating the city's former river Mark. Merely reinstating the harbour would have been too incidental and lacking a proper foundation. The combination of the two helped create a solid argument, which helped restructure the inner city altogether. In initial plans, the water of the harbour and river Mark took the shape they originally had, which left little space for traffic and development. Therefore, a compromise preserving the general shape and course of the water, made the original water outlines less significant, favouring access and circulation. Because of land elevation, part of the river running through the centre was made artificially shallow, contained within a concrete box, disconnected from the natural water system.

Harbour area

On this scale, the harbour area is a collection of facilities that work as a whole.

Pagés Sánchez & Daamen in Hein (2020) describe the revitalisation strategy used in Lisbon and offer improvements for this scale. Former waterfront heritage warehouses and factories became isolated due to the expansion and landfilling of the port succeeding decades. To revitalise these structures they were turned into cultural or leisure centres. However, this was done without connecting to Lisbon's maritime history and identity. The object-based approach does not aid successful revitalisation. A more sustainable way of revitalisation is by expanding the approach to a landscape. By integrating multiple structures and the waterfront, a stronger foundation is created, which can revitalise maritime identity better.

Alternatively, Marshall's *Waterfronts in post-industrial cities* (2004) offers several other insights into possible strategies. The chapter Waterfront, Development and World Heritage Cities mentions strategies used by Amsterdam, the Netherlands and Havana, Cuba. These historic cities have former harbour areas and remaining traces. Because of the constant relation to water in the Dutch context, Marshall writes that the Dutch approach is less contextual which believes that every era has its own architecture and identity. Therefore, during redevelopment of former harbour area's it uses '*anchors*' which can be characterised as special (heritage) structures around which development of the general area is sporadically and openly organised. In contrast, novice Havana presents rules to make sure the new buildings fit in with the original context, following a similar rhythm in expression of windows and balconies.

In the chapter by Shaw, *History at the Water's Edge* presented in Marshall's *Waterfronts in post-industrial cities* (2004), the case of the London Docks is mentioned. Similar to Papegat mentioned earlier, remaining traces were mostly reflecting the preceding two centuries while its history and identity extends much further back. Damage from WWII and decline in the 1960's caused the area to become derelict, leaving scattered clusters of maritime heritage. They opted to restore significant heritage buildings and give them a suitable function. Other relevant structures in the harbour context such as cranes and dock walls were restored. Furthermore, water was retained and brought back where possible on the sites of former landfilled harbours. If re-excavation of large bodies of water was deemed impossible, canals reconnected scattered heritage structures such as quay's, locks, and buildings, while keeping a similar character of hard landscaping and water flow. Reclaimed materials were applied. Street patterns and their geometries dating back to medieval times were preserved, highlighting their shape, and former uses could sometimes be returned.

Building & Material

As apparent in this literature review, the focus of existing studies relates to larger scale harbours. It is more challenging to find concrete information on specific strategies that can be applied to buildings within the harbour context. The lack of information calls for a more specific approach, as will be done in this paper's reference case study (3.2). Despite this, it is attempted to organise some strategies on the building and material scales in this section.

The articles previously discussed briefly refer to buildings and structures. Sánchez and Daamen in Hein (2020) mention that Lisbon's warehouses were turned into leisure and cultural centres in the object-based approach, as something that should be avoided. In Marshall (2004), Shaw mentions the London Docks development where buildings and other maritime structures such as dock walls and quay's were restored, and reclaimed materials were used. In the same publication, Krieger discusses the development of warehouses and wharves in Boston which went through processes of adaptive reuse.

A study by Hettema & Egberts (2019) comes closer to the theme of this paper, exploring small-scale ship wharfs. Harbours are not quite the same, but they offer a comprehensive case study based on adaptive reuse strategies for buildings. This paper will build on this in the reference case in section 3.2 relating to one of the adaptive strategies they mention, based on Braae (2018).

3.2 Reference Case: Kristiansand

Since the emphasis on the building and material scale in terms of strategies appears to be limited, this reference case study offers additional insights. Using the strategies and elements discussed previously, this section explores Kunstsilo in *Kristiansand, Norway* as a reference case study. Recent efforts helped revitalise the area and the building in particular, using its heritage traces and embodying maritime identity. Its design strategies will be explored through the framework provided by Hettema & Egberts (2019), and the connection to maritime identity made.

Overview

The former grain storage silo is one of the remaining traces of the small-scale harbour at Odderøya, an area that was initially developed as a naval base, protecting the city of Kristiansand from enemy attacks up until WWII. An interview in 2024 with Jan Henrik Munksgaard explains the reasons for the development of the harbour area. The former director of provincial museum Vest-Agder mentions that around 1930, the need for a deep water harbour emerged to allow large passenger ships to offload more efficiently. The State of Norway also wanted to create an emergency grain storage facility, while local grain mill Møller also needed another place for grain storage. Bringing these desires together, the main building on the quay became the grain silo. The architecture was unimportant, merely its function, becoming the first functionalist structure for the town. When military and main harbour activities moved elsewhere, the area became abandoned and had to be revitalised. Other larger buildings on Odderøya were developed with cultural functions, such as Kilden Theatre, relating to the area's industrial maritime harbour past. The council's decision to preserve the structure in 2010, combined with the generous gift of the country's largest private Scandinavian art (1910-1990) collection by Nicolai Tangen, were motivating factors for redevelopment. He pitched the idea to use the grain silo as a museum.

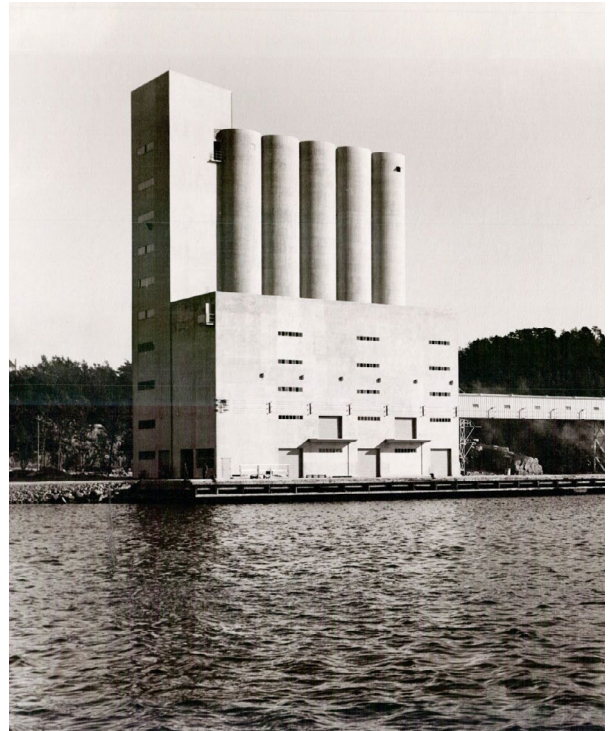
Strategies

The strategies of architectural interventions on the building and material scales are an attempt to relate to the maritime identity of the site and are most closely related to the '*cultivation*' approach found in Hettema & Egberts (2019). The architect, Mestres Wåge Architectes, chose to relate to layers of the past found in its traces, and marry this with something new based on an 2024 interview in DeZeen Magazine.

On the building scale, the new museum function mirrors the vastness of the original purpose. The architect mentions that (maritime) industrial buildings are ideally suited as backdrops for artworks, as working with and relating to something existing gives surprising answers. They have a spatial quality that contemporary art enjoys. Beside its function, another strategy encompasses form. By cutting through the concrete silos, a basilica-like' atrium space was created, adding a certain sculptural energy to the structure. This reinterprets the former function and identity to something abstract and admirable. Contrast can be recognised throughout the structure, and was deliberately created between the concrete silos and the artworks.



10: Kunstsilo 2024



11: Kunstsilo 1936 as grainsilo

Traces of past events were kept in the concrete, keeping the maritime identity on the surface and distinguishable. Furthermore, the structure was opened up from the inside to the outside, making it a place for people, rather than a place for grain while retaining crucial elements of its former maritime identity.

In terms of material and details, the concrete facade was painted white, restoring the state of the silo when it was first constructed. On the eastern side a newly constructed part was cladded with white corrugated aluminium, nodding to forms of the cylindrical silos in an experimental fashion. Elements found in the traces of the former structure's identity were respected and taken as a starting point for reinterpretation, elevating the design to a contemporary expression of the maritime identity. Similarly, glass cylinders on top of the silos act as a continuation of their shape, and relate to lighthouses along the coast of Norway.

Summary

Summing up, Kunstsilo offers valuable insights, despite reflecting a rather specific adaptive reuse strategy. A key design strategy that has become apparent is:

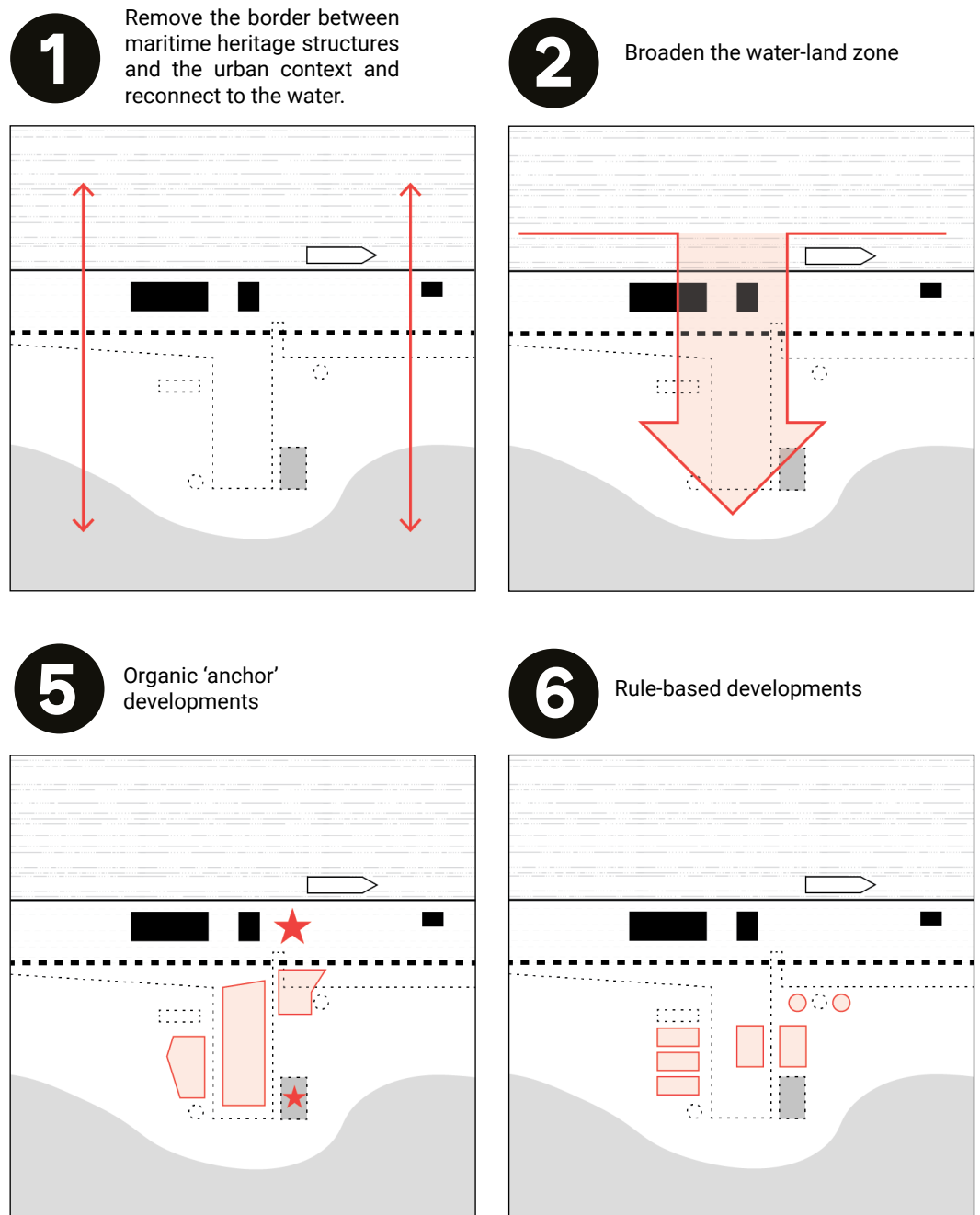
Retain essential elements of maritime industrial past, presenting the raw traces of its usage while integrating contemporary elements that strengthen the relation to maritime identity and human interaction.

This is accomplished by aligning the functionality well to its former use, mirroring the dynamic evolution of the site. Spatially, the exposed cylinders of the structure allow people to understand the former identity more clearly, adding to a comprehensible and honest experience. The materials are respected and are taken as inspiration for experimental and contrasting implementation. Kunstsilo's maritime traces are elevated to form a readable and exciting relation to its locally significant maritime identity.

While Kunstsilo presents a well-balanced possible approach, reference cases reflecting different adaptive reuse strategies (Differential, Continuity, and Optimisation) may offer alternative insights on the building and material scale. However, Kunstsilo remains a compelling small-scale reference case of how maritime traces can be used in strengthening the expression of local maritime identity on the building and material scale.

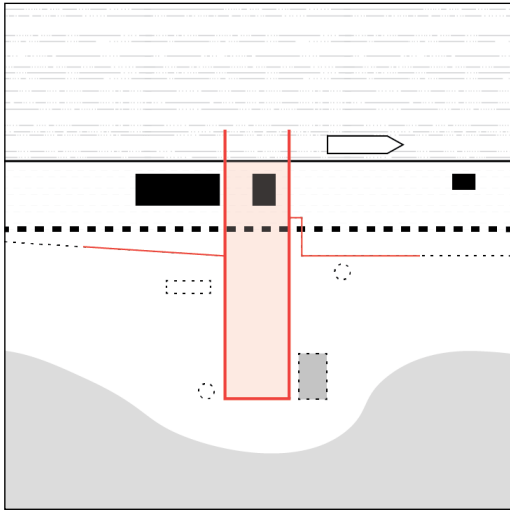
3.3 Overview & Generalisation

The following diagram summarises design strategies for maritime traces in hidden harbours to revitalise maritime identity found throughout the scales.

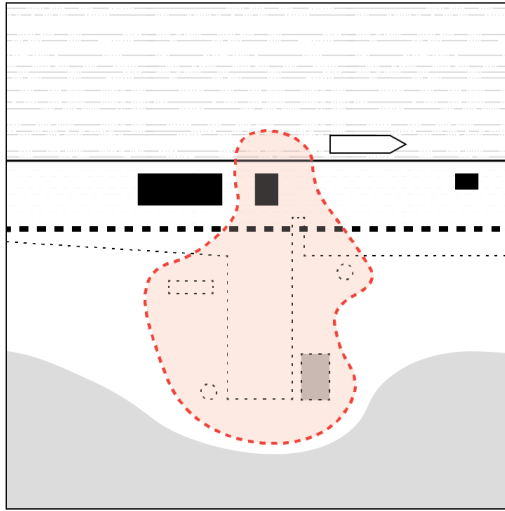


12: Strategies diagram

3 Reintroduce water structures or their outlines

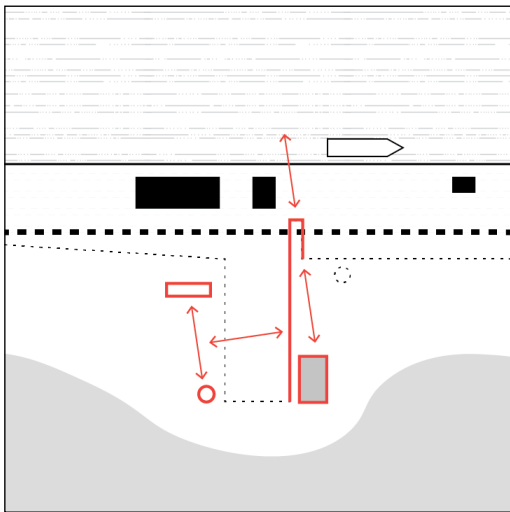


4 Landscape approach: integrating multiple objects in a larger scheme.

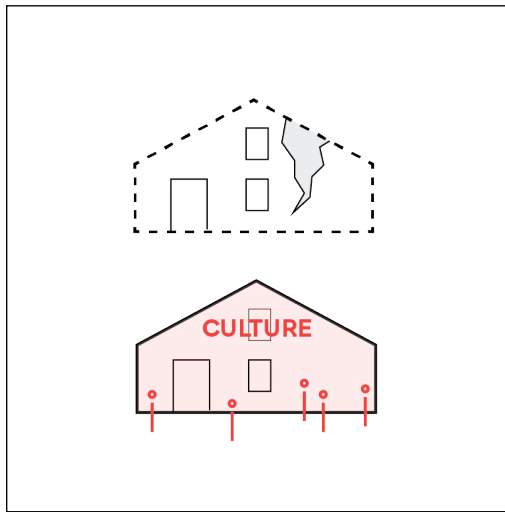


-  water + edge
-  barrier zone
-  urban area
-  harbour traces
-  road
-  connection
-  strategy
-  anchor

7 Reconnecting heritage traces and identity.



8 **9** Adaptive reuse
Using reclaimed materials



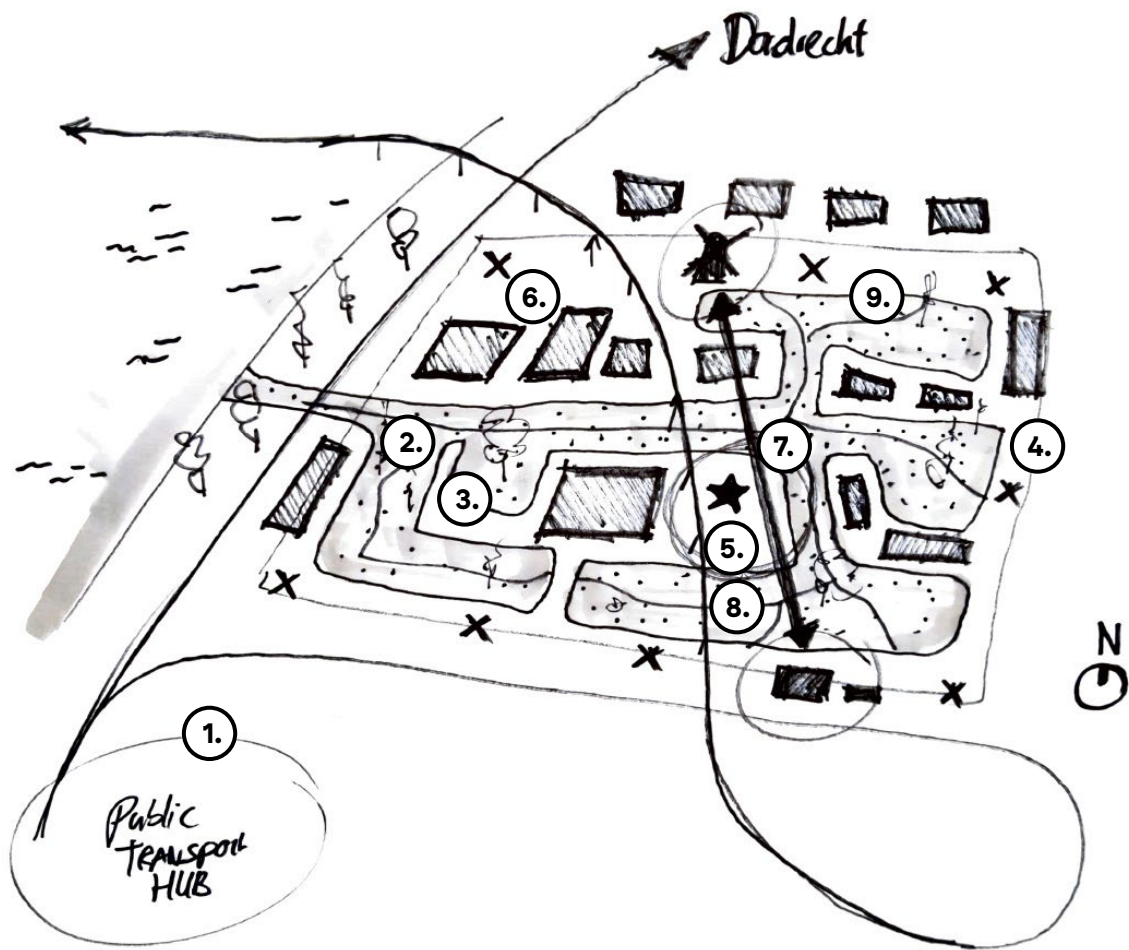
3.4 Contextualisation: Papegat

Finally, the strategies found in the literature review and reference case can be contextualised through revitalising Papegat. The site is approached at the highest scale: the urban area. Papegat is characterised by several maritime traces of heritage. The urban outline the dyke follows, marks a recognisable shape in the landscape, reflecting its historical confines almost directly, while the empty core represents the void the harbour left. Only several small structures reflect the area's past identity.

In the plan, the traffic arteries surrounding the site are redirected and managed through increased public transport connections. Papegat is reconnected to the surrounding area and the river Meuse, making sure it is accessible for locals and visitors **(1)**. The addition of a parking structure and public transport hub at the exits of the motorway prevents cars reaching the direct surroundings of Papegat, allowing roads to become less car-centric and offer more space to pedestrians, cyclists, public transport and greenery, while opening the surroundings to the waterfront and the local maritime identity. The former outline of the harbour is taken as a starting point for the redesign of the area **(3)**. A park resembling the shape of the outline of the harbour reinterprets the intangible heritage and identity of the site's wood processing history. Instead of being stored here, trees now grow from its soil, embodying a new interpretation of the past, in line with the future. This action broadens the zone between the land and the water, but in a conceptual and relevant sense **(2)**. This reflects the conclusion of Krieger about balance between preservation and reinvention: the tactics of urban planning should be like that of tide; *"scouring, reshaping, yet miraculously sustaining the shore"* (p.181).

Stepping down a scale to the direct harbour area, it is approached as a single entity: a landscape **(4)**. This includes the remaining structures but also its open voided space, its urban dyke outline and the intangible traces of its past. Such intangible traces include the water and the harbour that used to be there before landfilling, and the many windmills that operated as sawmills accompanying the harbour's log storage function for many centuries. Within this landscape, several anchor points are positioned to emphasise the site's maritime identity **(5)**. Rules are set up for the character of the landscaping and construction found within and outside the former harbour outline park **(6)**. Beside the harbour outline park, a central axis connects maritime traces throughout the area **(7)**. The relevant scattered heritage structures and locations of windmills of Papegat are reconnected

The main building highlighting the area's history is a museum which takes essential elements of typical construction found in structures of Papegat's past, but integrates them in a contemporary manner **(8)**. The new structure explains the history of Papegat and other hidden harbours in the region, exposing the maritime identity. In the detailing of structures and landscaping in the area, materials that carry the spirit of the place have been utilised **(9)**. This includes the rough granite paving stones that was present in the Papegat area, and reflects its maritime identity.



13: Conceptual Sketch Papegat & General placement of strategies

4. Conclusion & Discussion

In conclusion, this paper found nine strategies that can be employed by architects and designers when attempting to revitalise the maritime identity of a small-scale hidden harbour sit. answering the research question.

Urban

- Remove the border between maritime heritage structures and the urban context and reconnect to the water.
- Broaden the water-land zone.
- Reintroduce water structures or their outlines

Harbour

- Landscape approach: integrating multiple objects in a larger scheme.
- Organic 'anchor' developments
- Rule-based developments
- Reconnecting heritage traces and identity.

Building & Material

- Adaptive reuse
- Using reclaimed materials

Although many of these strategies originate from articles on larger, operational harbours (e.g., Hein (2020) and Marshall (2004)), the core principles remain relevant for small-scale sites nonetheless. By applying them to Papegat, this study contextualised them within a small-scale framework.

Nevertheless, this research also reveals a gap. It found that many of the strategies currently available focus mostly on the urban and harbour scale, while the building and material scale remain underexposed. Hettema & Egberts (2019) offer one of the few studies addressing small-scale interventions, being a valuable reference. This paper builds on that by combining strategies available for larger-scale harbours, and further investigating the building and material scale strategies through a reference case.

Moreover, while other articles often focus on largely intact maritime heritage structures (Hein (2020) and Marshall (2004)), this paper centres on hidden harbours where only heritage traces remain visible. This presents a distinct thematic and methodological contribution by demonstrating how partial remains can inform meaningful revitalisation strategies.

Beyond strategies, this paper actively attempts to connect to maritime identity of the hidden harbours. It establishes that maritime identity is embedded in the heritage traces, making them significant for reconnecting communities with their local maritime past. It strengthens not only the physical revitalisation of the hidden harbours, but also increases their cultural significance, ensuring they remain relevant to contemporary users while honouring their historic narratives.

However, the specific geographical focus central to this paper, combined with a single reference case may limit the direct applicability to other regions and contexts. However, the design strategies offer a framework that can be employed in similar contexts.

Lastly, despite being valuable because of an apparent lack of information, the extensive use of Hein (2020) and Marshall (2004), may present a biased perspective within the strategies this study found.

Further research should be conducted to explore how other adaptive strategies (*e.g., Differential, Continuity, and Optimisation*) can be applied to the building and material scale in hidden harbours. While this paper presents one well balanced approach, alternative methods could expose new insights and broaden the design possibilities for maritime heritage interventions, relating specifically to hidden harbours.

Additionally, small-scale applications of urban and harbour scale strategies could be explored further. Similar to this paper and Hettema & Egberts (2019), research comparing applications of these throughout different hidden harbour contexts, could enhance our understanding of how such specific contexts influence effective revitalisation strategies.

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Images:

- 1:** Water Triangle within the Netherlands
Google Earth (2025), adaptation Marc Kremer
- 2:** Wood rafts in front of Papegat around 1675
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- 3:** Papegat in Dordecht 1620
*J. Kleijn, naar Jacob Jan Symonsz. (1620). Oude Kaarten Dordrecht. (map).
<https://dordrechtplattegronden.nl/Dordrecht-Stad-in-Plattegronden/index.html#img=Dordrecht%201620.jpg>*
- 4:** Van Gogh's Papegat sketch 1881
Rijksmuseum Kröller-Müller. (1990). Vincent van Gogh Tekeningen. (book) p.61
- 5:** Papegat and context around 1868
*Gemeente Dordrecht. (1868). Wikipedia Commons. (map)
https://nl.m.wikipedia.org/wiki/Bestand:Dordrecht_1868.png*
- 6:** Remaining heritage traces: void and industrial sawmill hall & office 2025
Marc Kremer. (2024). (photograph) taken 20.10.24
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- 9:** Projected future design for Papegat
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Crook, L. (2024, May 9). Kunstsilo Gallery opens within "basilica-like" grain silo in Norway. DeZeen. Website, used 01.02.25 <https://www.dezeen.com/2024/05/09/kunstsilo-museum-grain-silo-norway/>
- 11:** Kunstsilo 1936 as grainsilo
*Kunstsilo. (1936). (photograph) Statsarkivet / Agderbilder.no.
<https://www.kunstsilo.no/en/channel/discover-the-history-of-the-silo-building>*
- 12:** Strategies diagram
Marc Kremer (2025)
- 12:** Conceptual sketch Papegat & General placement of strategies
Marc Kremer (2025)

6. Appendices

The information presented here is still subject to further exploration and represents the state as of 21.03.25. Therefore note that it may be incomplete and could entail further enrichment.

1. Water Triangle Map analysis 1400-2025

Marc Kremer (2025)

2. Inventory of Hidden Harbours Southern Water Triangle 1400-2025

Marc Kremer (2025)

3. Timeline of Papegat 1400-2025

Marc Kremer (2025)

1. Water Triangle Map analysis 1400-2025

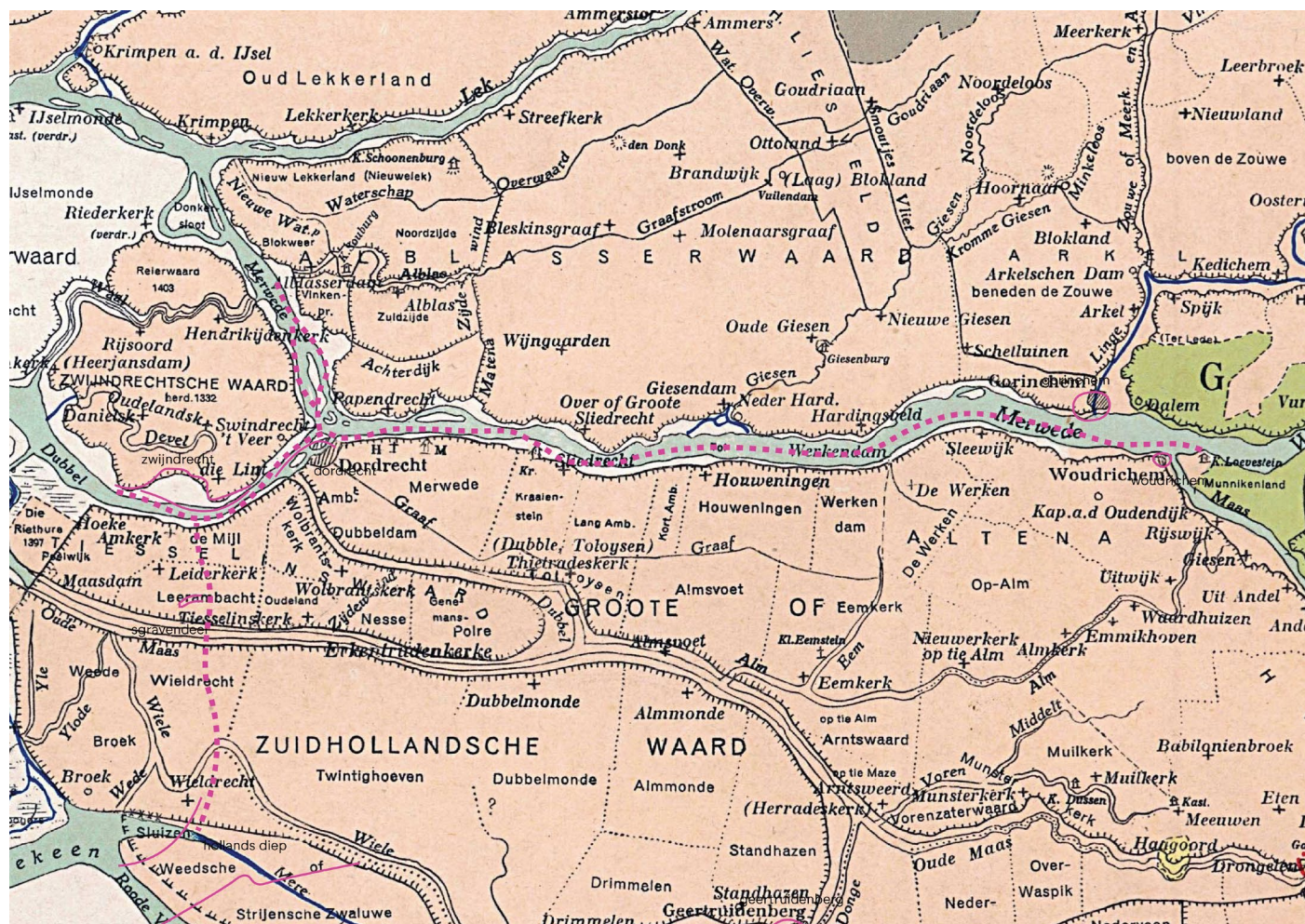
Marc Kremer (2025)

All maps are found at (<https://www.dordrechtplattegronden.nl/>)

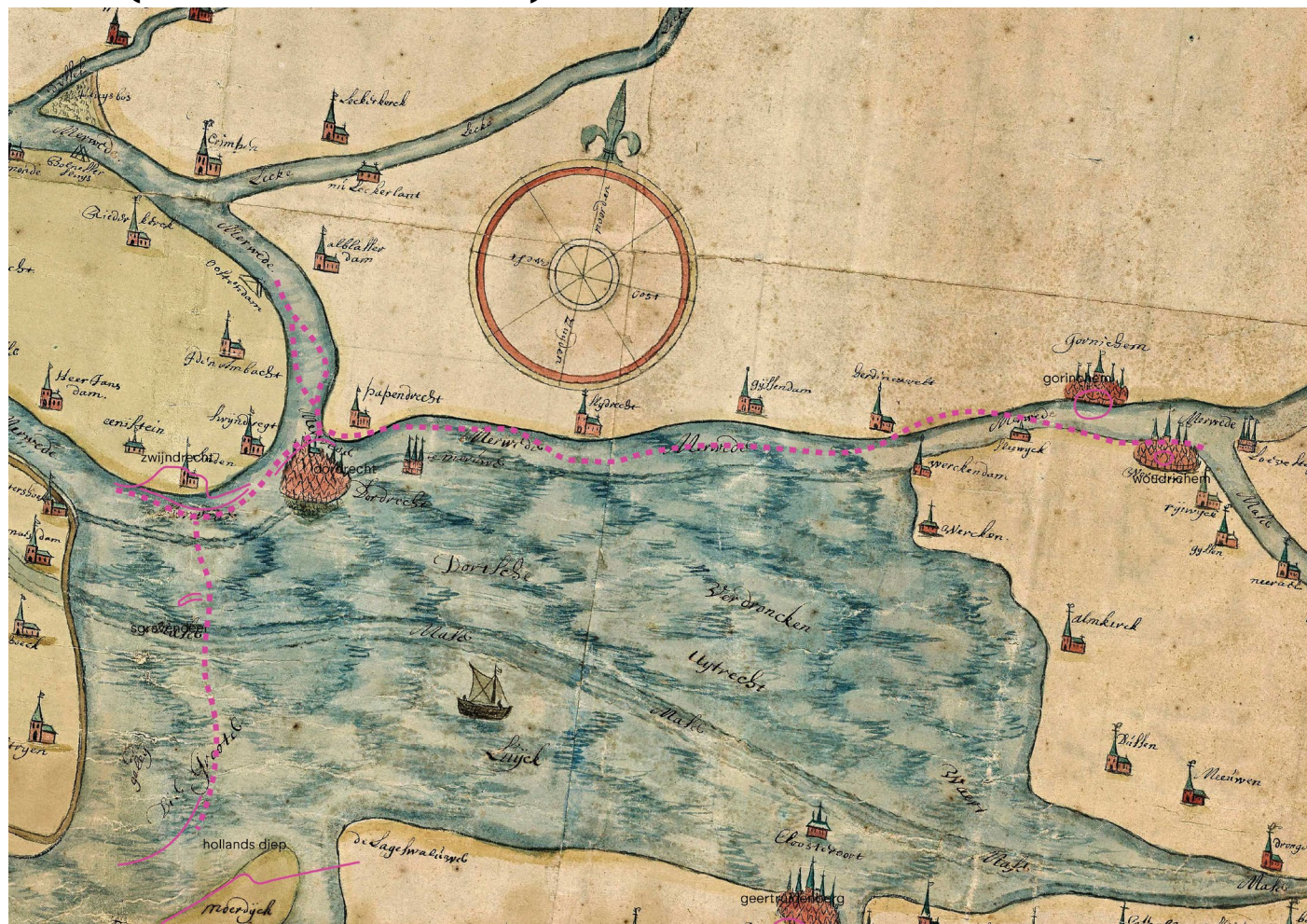
ca. 1300



ca. 1420



1421 (st-Elisabeth flood)

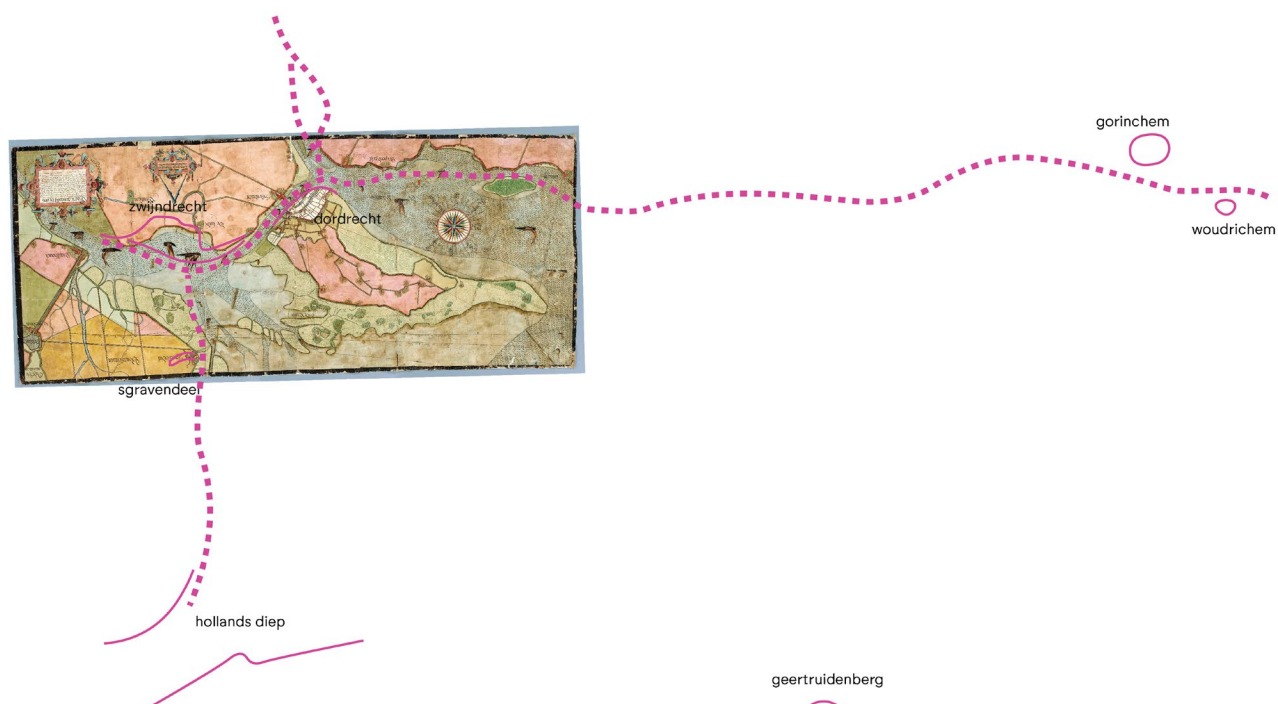


This historical map depicts the coastal area around Dordrecht, including the Oosterschelde and the IJsselmeer. A pink dashed line highlights a specific route or boundary, starting from Zwijndrecht, passing through Dordrecht, and extending towards Gorinchem and Woudrichem, then curving down to Geertruidenberg. Other geographical features labeled include 'sgravenzee' and 'hollands diep'. A red compass rose is located in the lower right quadrant of the map.

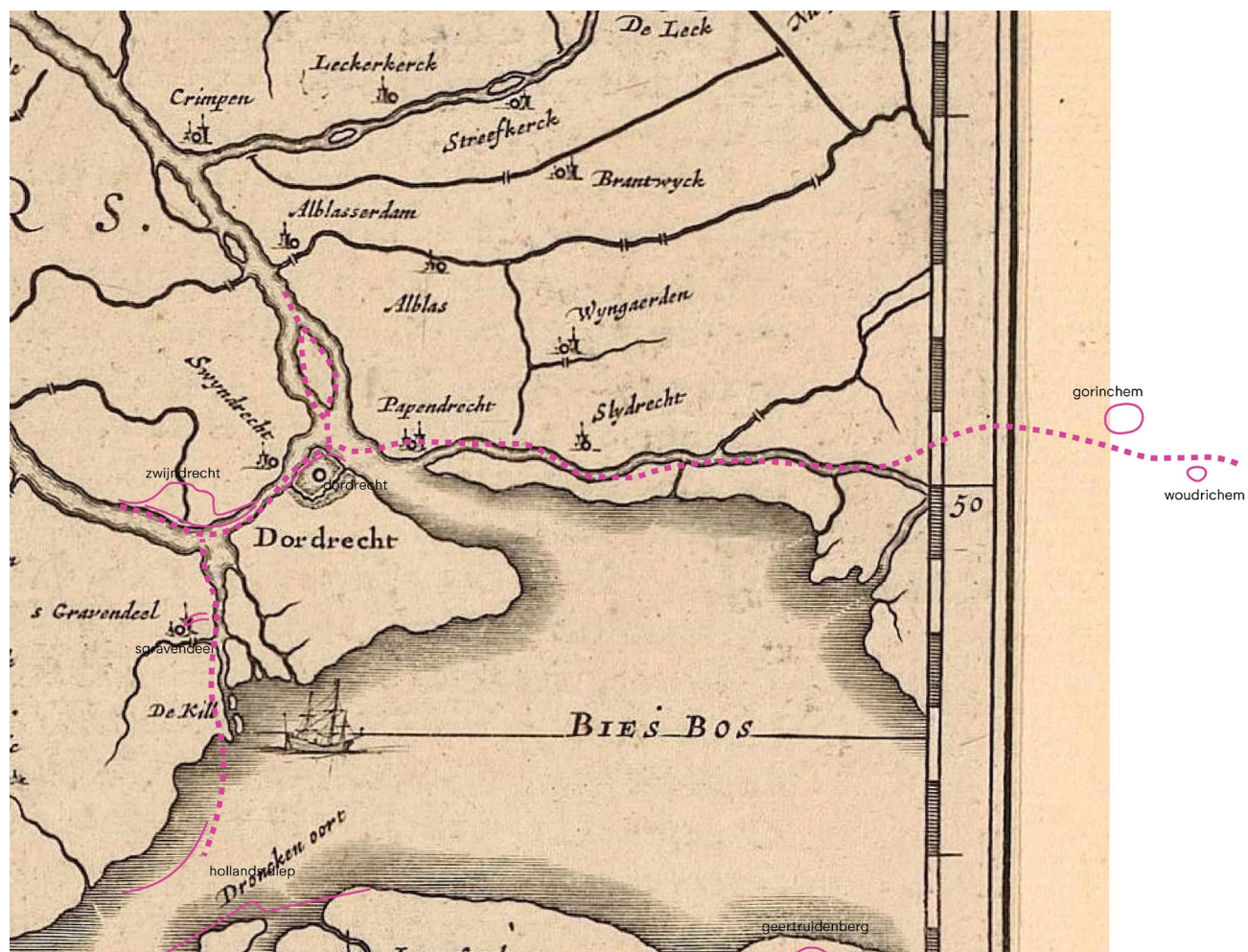
1585



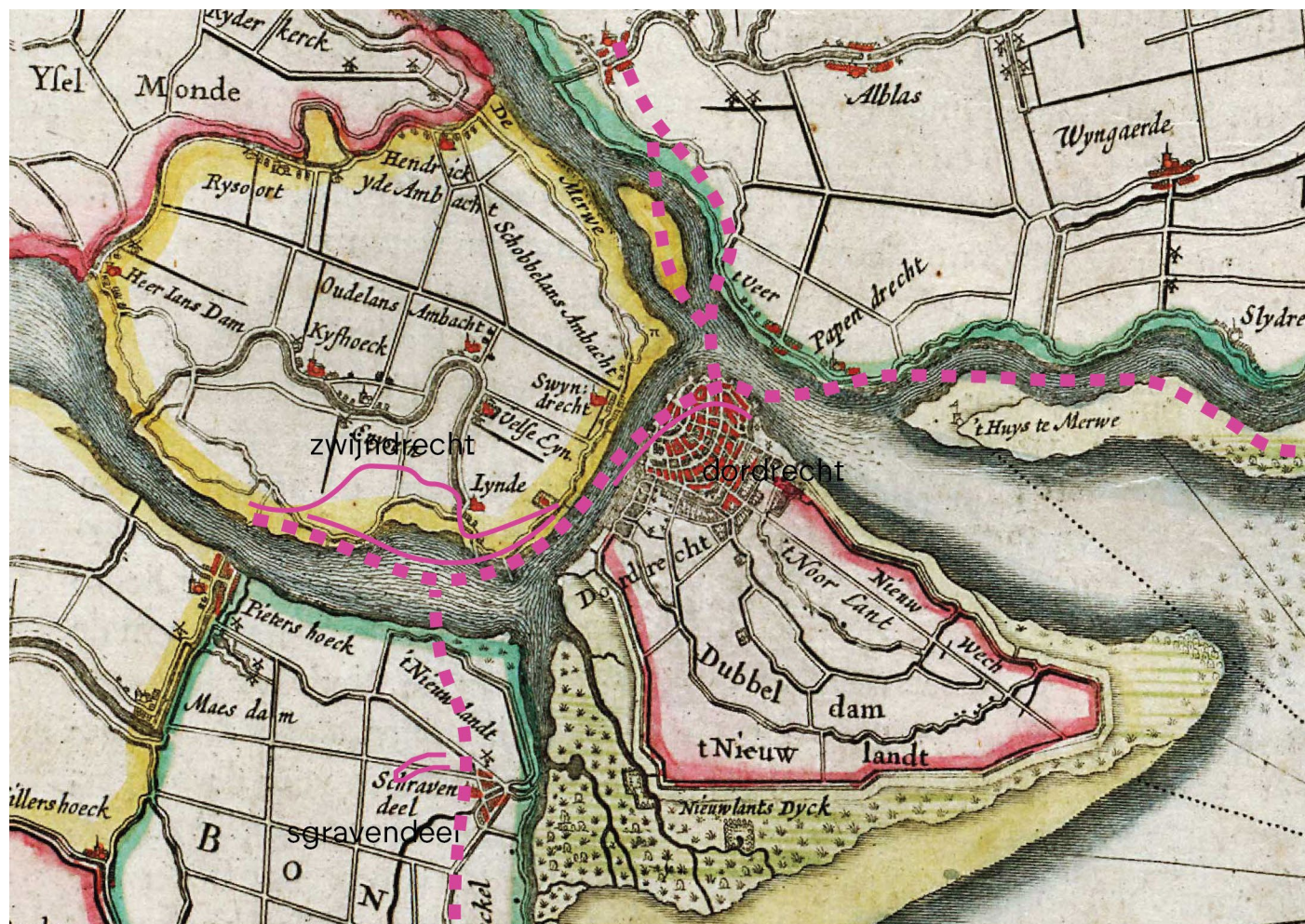
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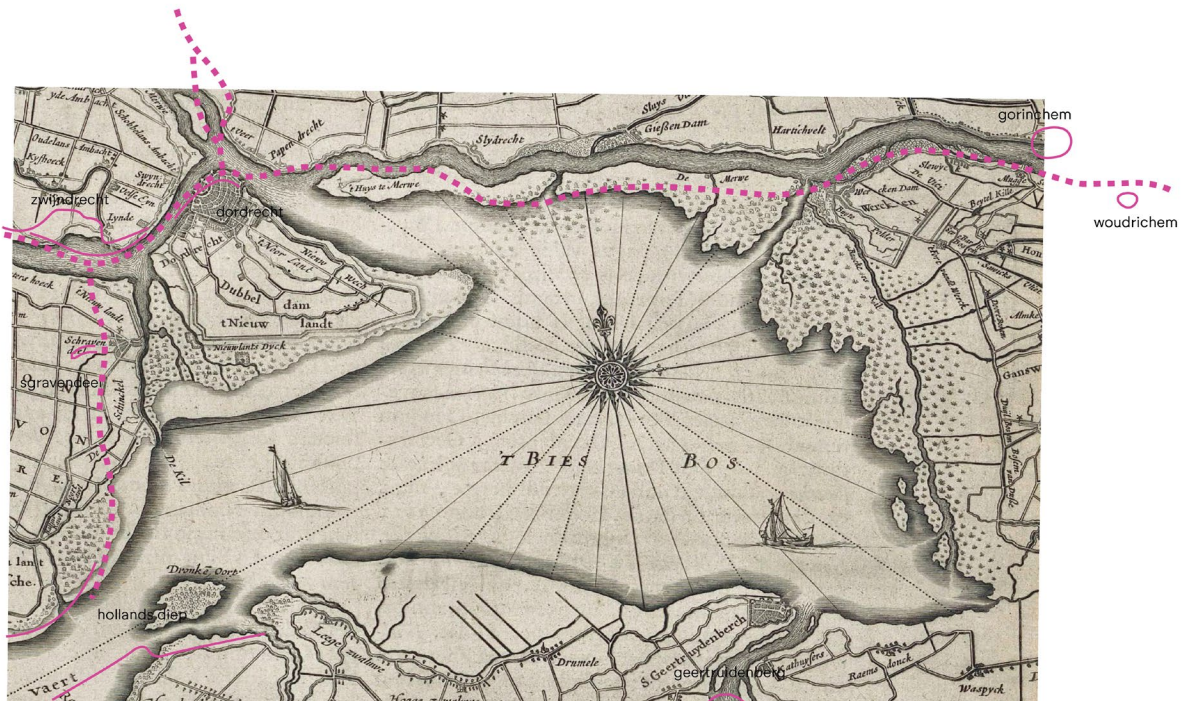
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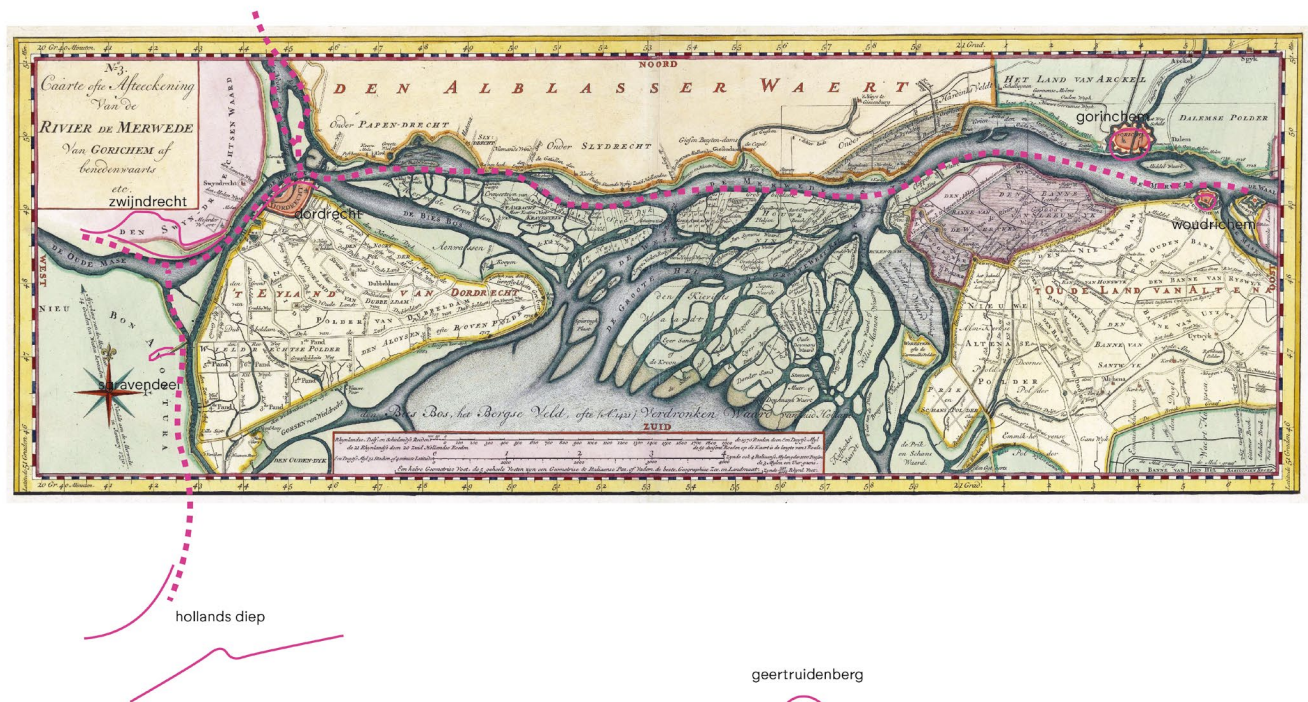
1645



1662



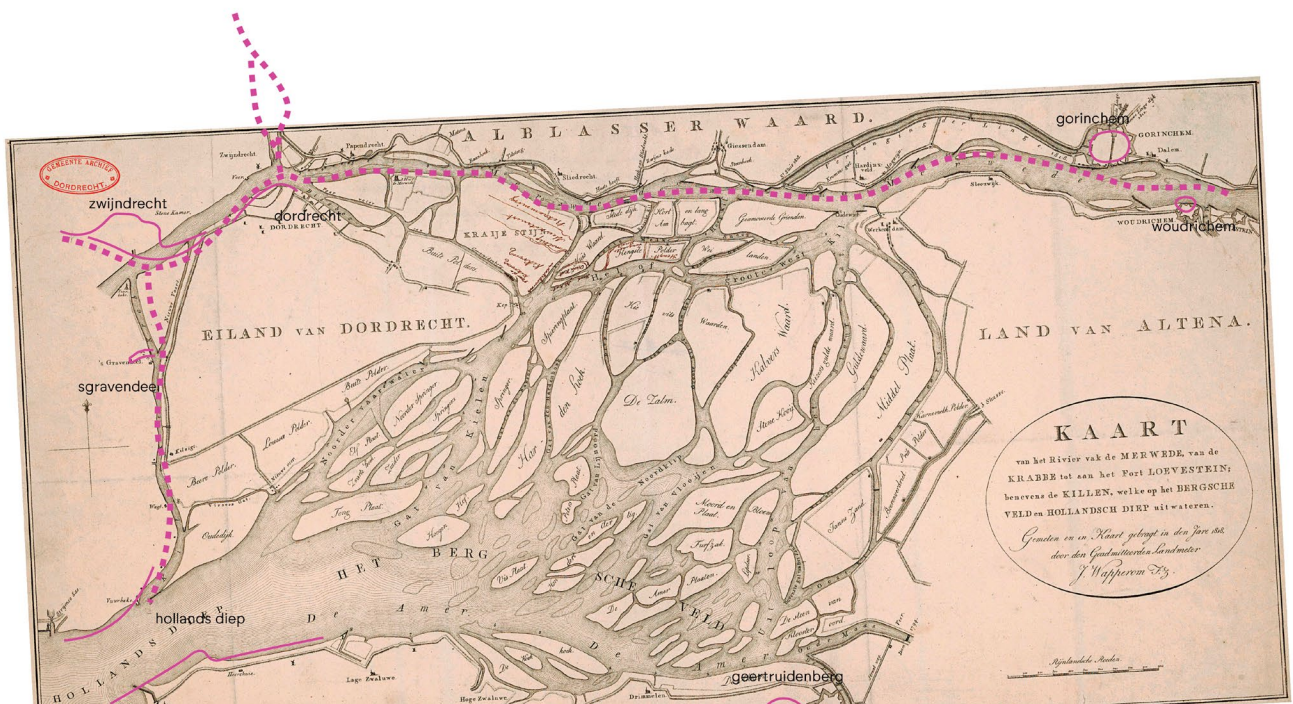
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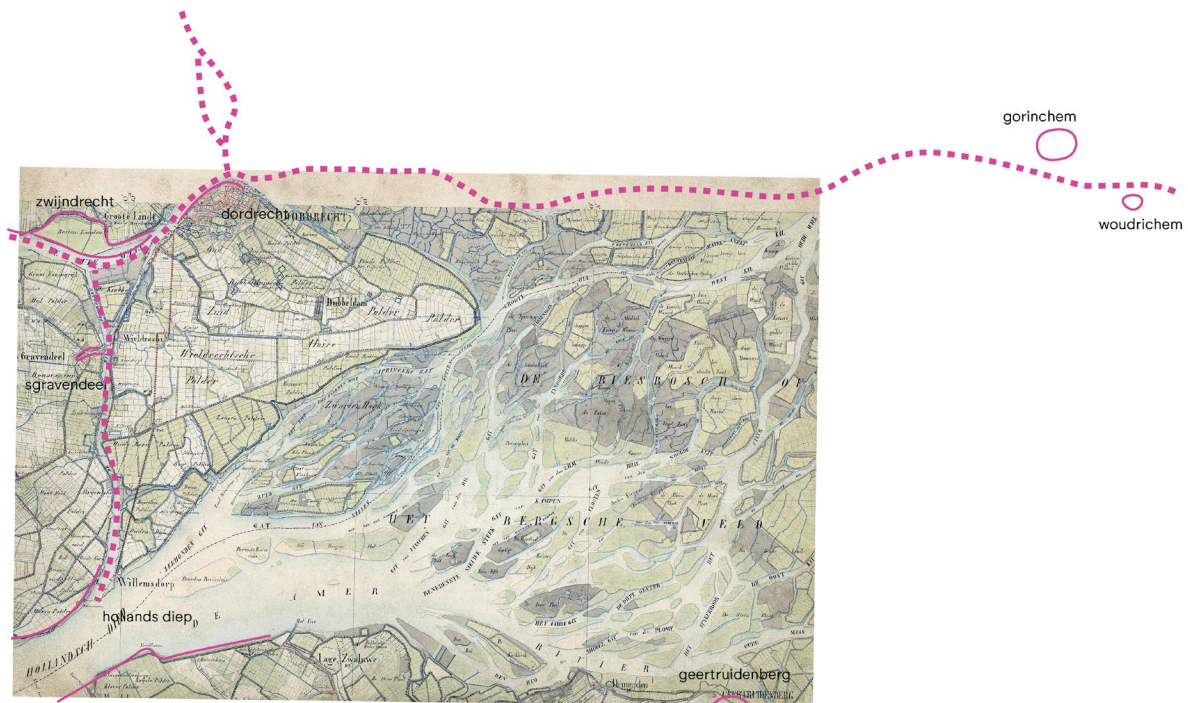
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1818



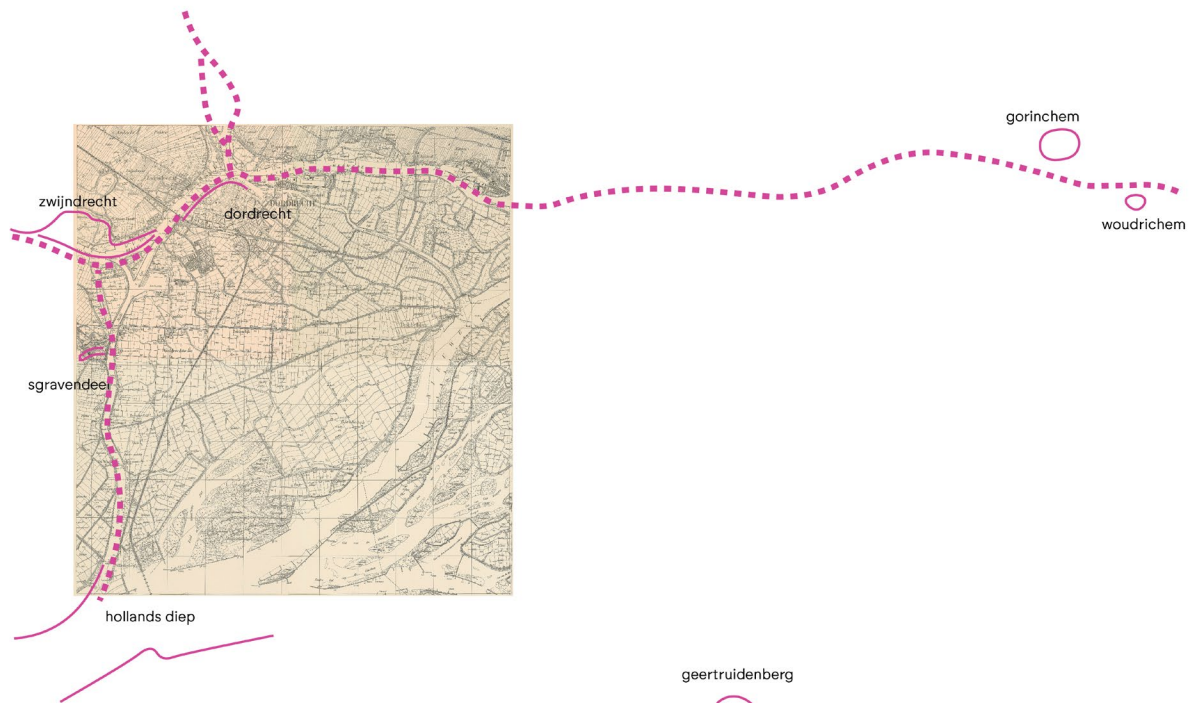
1855



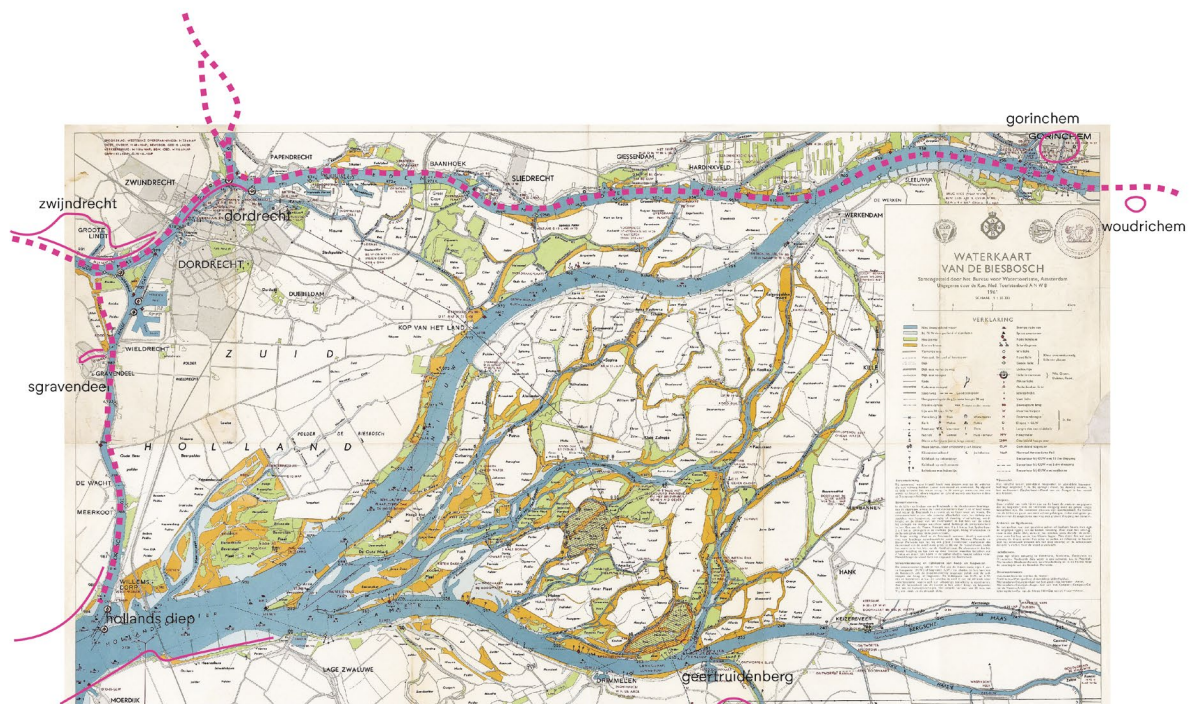
1893



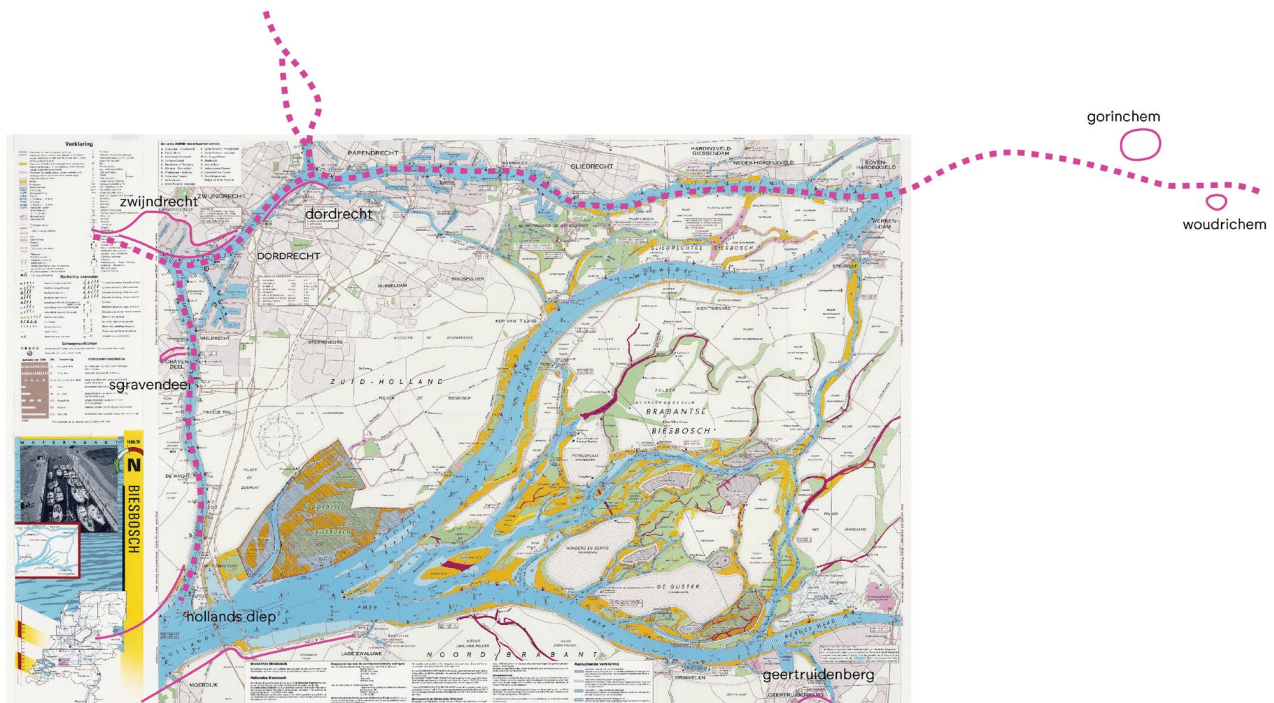
1930



1961



1990



2021



2. Inventory of Hidden Harbours Southern Water Triangle 1400-2025

Marc Kremer (2025)

location		timeframe	function	size	In use?	building remains	Landfilled	urban features
City	Street/Name	Years	Trade, Material	S, M, L, XL	Yes, No	Yes, No	Yes, No	Yes, No
s-Gravendeel	Havenweg	1500-1970	VOC transshipment	S	Partly	Yes	Yes	Yes
Dordrecht	Papegat	1500-1970	Log Processing	M	No	Yes	Yes	Yes
			Brick Production	S	No	No	Yes	Yes
	Spoorweghaven	1800-1980	Transshipment train	S	No	No	Yes	Yes
	Spieringhaven	1500-1970	Log Processing	M	No	No	Yes	Yes
Zwijndrecht	Schipperskade	1850-2025	Log Processing	S	No	No	No	Yes
	Schokkershaven	1875-1950	Log Processing?	S	No	No	Yes	No
	Balkengat	1950-2025	Log Processing	L	No	No	No	Yes
All hidden harbours contain traces to their past in some way: <i>building, ruin, urban shape, void</i>								

Approximate locations (Google Maps, 2025)



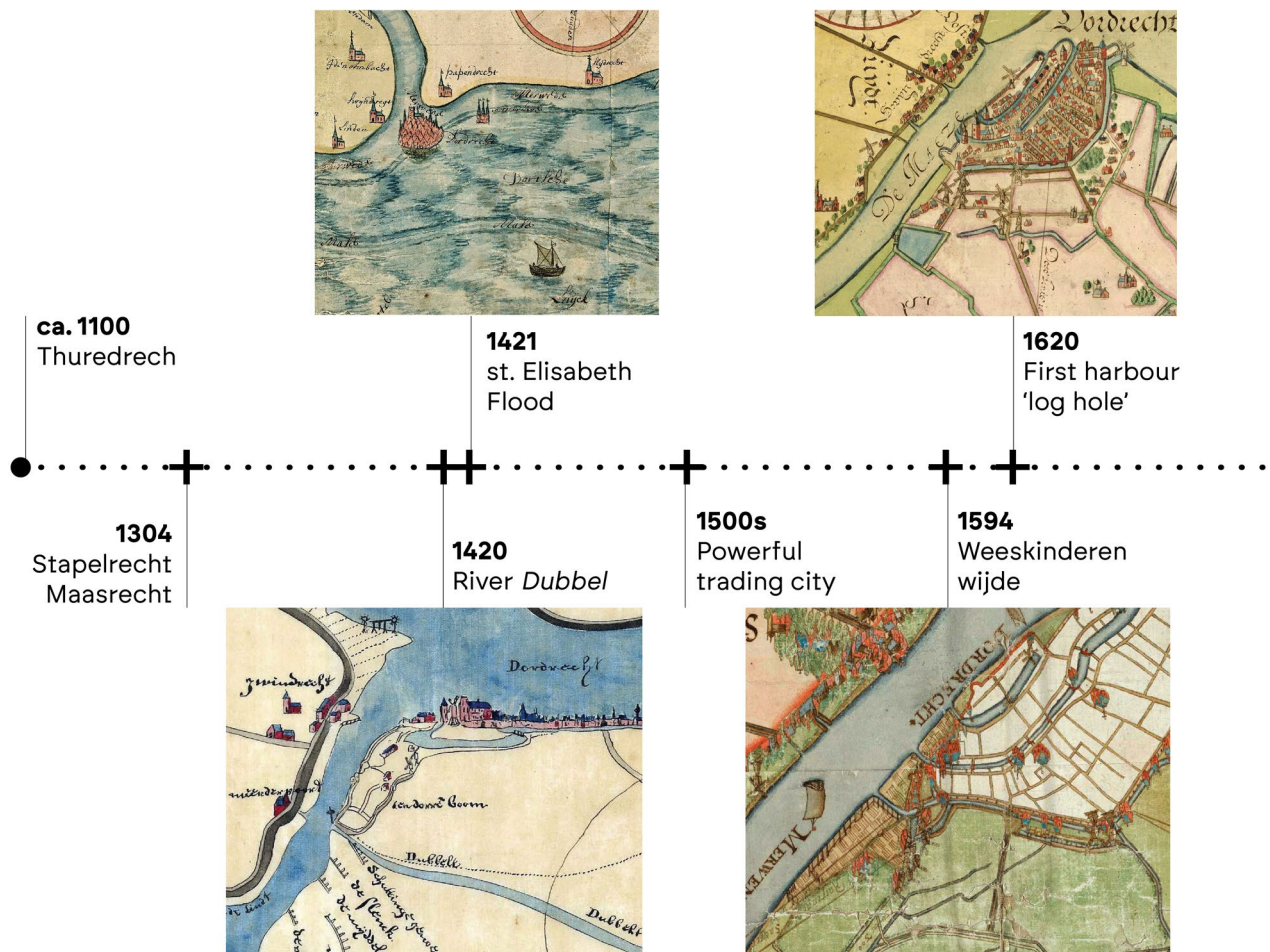
3. Timeline of Papegat 1400-2025

Marc Kremer (2025)

Maps from: (<https://www.dordrechtplattegronden.nl/>)

Images from: Regional Archive Dordrecht &

J.P. Sigmund. (1989). *Nederlandse Zeehavens*. P.123





late 1600's
many sawmills



late 1800's
Harbour shapes

1742
Paepe Gatt



1866
Industrial age





1930s
Viaduct

1980s
Papegat muted &
industrial estate

2025
Maasterras &
current heritage

1950s
Sawmill Berger

