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*Editorial*

# Identifying Urban Waterfront Value and Building a Livable "Back Bay" Urban District: A Case Study of Tianjin Tanggu Bay New Town

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**ABSTRACT:** Against the background of new-type urbanization and high-quality development, waterfront areas have become crucial in en-hancing urban spatial quality, overall competitiveness, and functional integration [1,2]. As a national-level new area, the Haihe River estuary in the Tianjin Binhai New Area holds strategic significance for regional coordination, ecological restoration, and urban transformation. This study conducts a systematic evaluation of the waterfront value of the Haihe River and identifies key challenges related to development stages, spatial configuration, and waterfront utilization in Tanggu Bay New Town. Drawing on the planning experience of Boston's Back Bay, this research proposes the concept of a "Back Bay High-Quality Living District," which integrates New Urbanism–inspired spatial organization, ecological landscape systems, networked public spaces, enhanced transportation connectivity, and optimized public service provision [3]. The proposed planning framework provides a replicable model for the development of livable, ecologically resilient, and culturally integrated waterfront new towns, offering both theoretical insights and practical guidance for similar urban transformations aimed at achieving high-quality development and improved livability.

**KEYWORDS:** waterfront area; urban waterfront value; back bay concept; new town construction

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## 1. Introduction

### 1.1 Re-evaluating Waterfront Space Value under High-Quality Development

Guided by the principles of high-quality development, urban growth in China is undergoing a fundamental transition from an extensive model characterized by scale expansion and functional allocation toward a more intensive stage that emphasizes spatial quality and the improvement of living environments. In recent years, urban waterfronts have received growing attention not only for their ecological and recreational potential, but also for their contributions to urban resilience, cultural identity, and economic revitalization. Waterfront spaces function as ecological corridors, repositories of cultural heritage, and key nodes supporting multifunctional urban activities. The multidimensional nature of their value necessitates a holistic planning approach that integrates environmental restoration, high-quality public space provision, and refined urban design.

A systematic evaluation of waterfront value requires comprehensive assessment across ecological, social, cultural, and economic dimensions. Ecological evaluations focus on flood regulation capacity, habitat connectivity, and improvements in water quality. Social assessments emphasize accessibility, inclusiveness, and the provision of diverse public recreational opportunities. Cultural and historical analyses examine heritage conservation and creative placemaking strategies aimed at reinforcing local identity. Functional evaluations assess the integration and coordination of residential, commercial, cultural, and transportation uses [1,2,11]. By synthesizing these interrelated dimensions, urban planners can formulate evidence-based strategies that promote sustainable waterfront development while effectively balancing multiple, and at times competing, objectives.

### 1.2 Transformation of the Haihe River Waterfront under Regional Coordination and Quality Enhancement

With the continued implementation of the Beijing–Tianjin–Hebei Coordinated Development Plan Outline and the promulgation of policy documents such as the Tianjin City Territorial Spatial Master Plan (2021–2035), regional and urban development strategies increasingly emphasize high-quality spatial provision and environmental enhancement as central drivers of urban transformation [6]. These policies explicitly advocate the coordinated governance of river and lake systems, waterfront shorelines, and urban spatial structures, with the objective of establishing a continuous, open blue–green public space network that promotes the integration of natural systems with urban functions [7].

Rivers and waterfronts are no longer viewed solely as infrastructure for flood control, drainage, or ecological management; rather, they are now recognized as strategic spatial resources that support public activities, reinforce urban identity, and enhance overall livability. The Haihe River, which flows through Tianjin's core urban area and discharges into the Bohai Sea, embodies a composite value as an ecological corridor, a public space framework, and a functional integrator in the development of both Tianjin and the Binhai New Area [4]. Within the "Two Zones, Three Belts, Multiple Nodes" spatial configuration for modern service industries, the Haihe River serves as a comprehensive urban service belt that links major public service nodes, including Tianjin Port, the Yuxiang Business Center District, the Development Zone MSD, and the historic urban core. Moreover, as Tianjin's mother river, its waterfront encompasses a rich cultural legacy, forming a distinctive landscape that interweaves history,

modernity, culture, and function [9]. Accordingly, the systematic identification and holistic planning of the Haihe River waterfront are essential for optimizing urban spatial structure, strengthening ecological and public space networks, and guiding areas such as Tanggu Bay New Town in their transition from function-oriented development toward high-quality, livable urban environments that support sustainable urban growth.

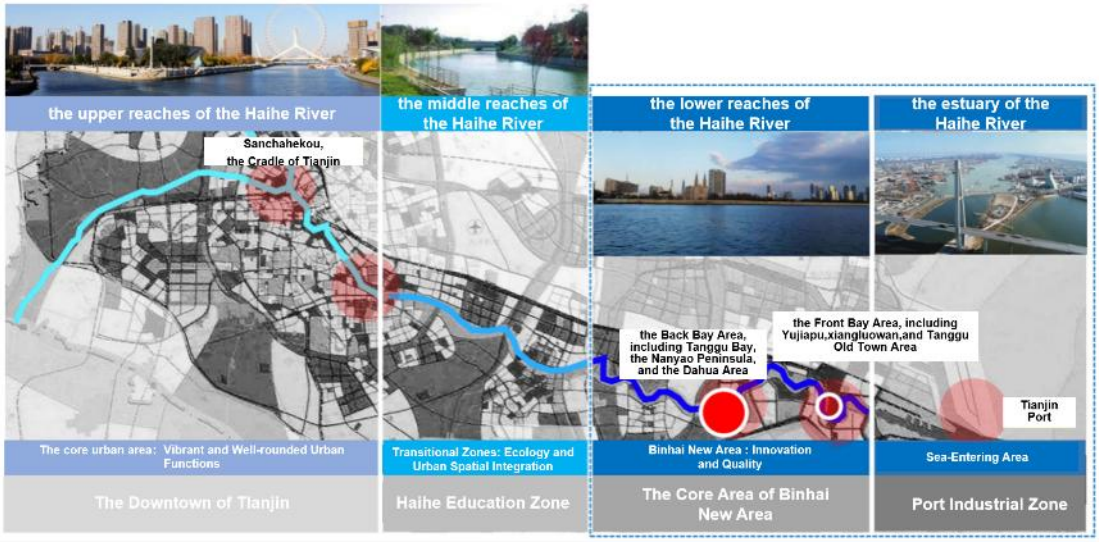


**Figure 1.** Analysis Diagram of Functional Planning and Layout along the Haihe River (Drawn by the author)

## 2. Analysis of Development Status and Challenges in Binhai New Area and the Coastal Haihe River Region

### 2.1 Characteristics of Current Development

Waterfront areas along the Haihe River display pronounced heterogeneity in their development patterns. Core zones, including Tanggu Old Town and Zhongjian New Town, have developed relatively complete residential and public service facilities, supporting high population densities and vibrant urban activities. By contrast, peripheral areas, such as Liangzi Village, the Nanyao Peninsula, and the southern agricultural zone, remain at an early stage of development. These areas are characterized by extensive land reserves but constrained by inadequate transportation connectivity and a relatively weak industrial foundation. At the same time, the coastal section of the Haihe River contains abundant historical, cultural, and industrial heritage resources, including the Daliangzi Ferry and former chemical industrial sites, which offer significant potential for the creation of distinctive waterfront spaces and place-based urban design. In addition, the dense water networks in the southern agricultural zone and the Nanyao Peninsula provide favorable ecological conditions, establishing a solid foundation for ecology-oriented spatial planning and sustainable waterfront development.

### 2.2 Development Challenges

Despite the locational and ecological advantages of the Haihe River waterfront, several challenges remain:

- Inadequate Transportation Connectivity and Accessibility: Peripheral areas, including Liangzi Village and the Nanyao Peninsula, lack sufficient cross-river transportation links, which constrains land-use efficiency, weakens spatial integration, and limits overall development potential.
- Demolition, Resettlement, and Social Pressure: Areas such as the New Town Camp and northern Zhongjian New Town are subject to significant redevelopment pressures, requiring a careful balancing of residents' livelihoods, social stability, and the objectives of urban renewal.

- Industrial Heritage and Environmental Risk Management: Sites such as the Daguku Chemical Plant possess substantial industrial heritage value but are simultaneously affected by environmental pollution and brownfield remediation challenges, necessitating integrated strategies that combine heritage conservation with ecological restoration.
- Spatially Unbalanced Development Patterns: While core urban areas exhibit high levels of vitality and functional concentration, peripheral agricultural and waterfront zones remain underdeveloped, hindering coordinated regional growth and spatial equity.
- Insufficient Historical and Cultural Preservation Mechanisms: Historical ferry facilities, industrial structures, and traditional villages face risks of deterioration, loss, or functional marginalization, underscoring the urgent need for systematic preservation frameworks and adaptive reuse strategies.

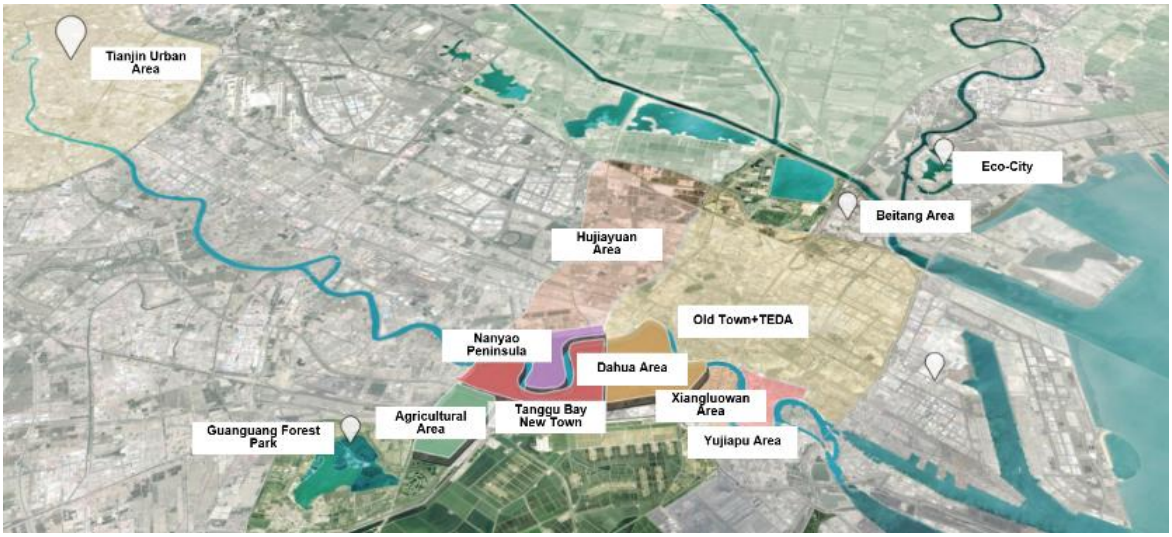


**Figure 2.** Analysis Diagram of Spatial Layout Planning for Binhai New Area and the Coastal Haihe River Region (Drawn by the author)

## 3. Proposing the "Back Bay Concept" Based on Boston's Back Bay

### 3.1 Comparable Development Conditions

The Haihe River basin traverses the core development zone of the Binhai New Area, with the planning area addressed in this study located along the coastal section of the Haihe River estuary. Along this shoreline, key functional clusters of the Binhai New Area have gradually taken shape, forming an important spatial interface between urban development and the coastal environment. The extensive waterfront zone is endowed with favorable natural conditions for cultivating a distinctive urban identity and delivering high-quality public spaces, thereby demonstrating considerable potential for regional development.

Similarly situated within a major river estuary, Boston's Back Bay successfully capitalized on its locational advantages to establish a high-quality living district characterized by functionally mixed development. In Back Bay, high-standard residential neighborhoods, cultural and educational institutions, commercial services, and publicly accessible waterfront spaces were developed in a coordinated and integrated manner, resulting in a synergistic urban model that combines ecological systems with residential and economic functions [3,5]. Tanggu Bay exhibits closely comparable environmental and geographical conditions, making the Back Bay experience a valuable reference for the planning and design of a high-quality waterfront living district in the Haihe River estuary context.

### 3.2 Concept of "Back Bay High-Quality Living District"

The "Back Bay Concept" emphasizes high-quality waterfront spatial design, livability enhancement, functional integration, and the preservation of cultural heritage. Drawing on the development experience of Boston's Back Bay high-quality living district, this concept applies principles of New Urbanism to organize urban space in a people-oriented and human-scaled manner. Particular attention is given to the design of tree-lined boulevards, urban parks, distinctive waterfront zones, and characteristic streetscapes. Planning strategies prioritize the creation of a continuous and publicly accessible waterfront landscape along the river, integrating wetlands, ponds, and green spaces to form interconnected ecological corridors and urban green axes. Concurrently, waterfront promenades, public squares, and leisure piers are incorporated to enhance both the functionality and experiential quality of public spaces.

The waterfront district is designed to accommodate a diverse mix of residential, commercial, educational, and cultural functions, thereby promoting a high degree of functional integration. Historical elements, including ferry facilities and former industrial buildings, are adaptively reused to conserve urban memory and reinforce cultural identity. Through the coordinated integration of cross-river bridges, pedestrian and slow-traffic systems, and public transportation networks, a continuous, accessible, and inclusive public space network is established. This integrated spatial framework strengthens connectivity among urban functions and enhances the regional influence of the waterfront living district, ultimately achieving an organic synthesis of ecological, residential, commercial, and cultural functions. Accordingly, the Back Bay Concept offers both a theoretical foundation and a practical planning framework for the development of a high-quality, livable waterfront district in the Tanggu Bay area.

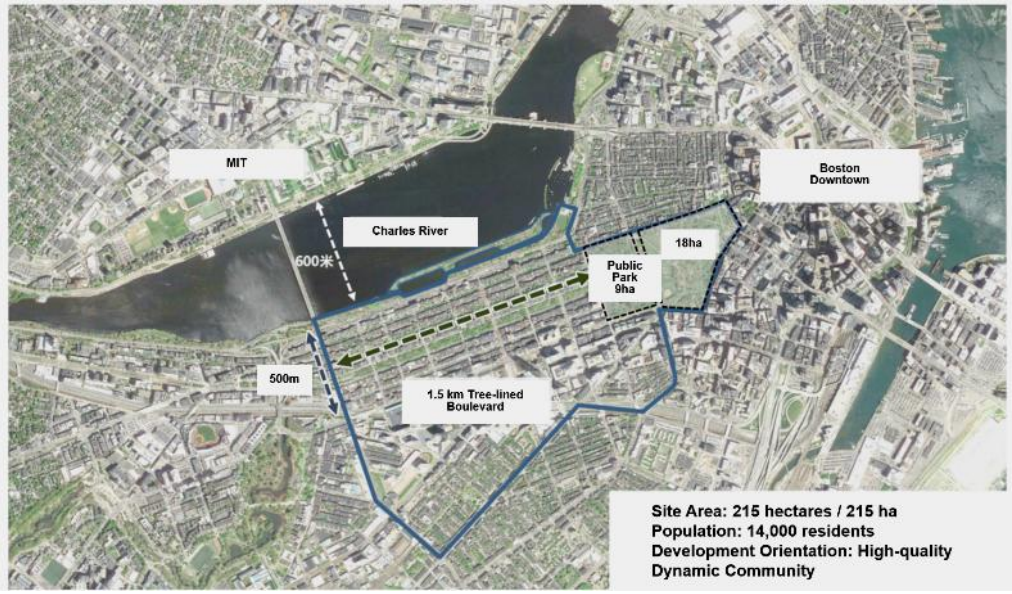


**Figure 3.** Spatial Analysis Diagram of Boston's Back Bay Area (Drawn by the author)

## 4. Tanggu Bay New Town Planning and Construction Strategies

Guided by the Back Bay Concept, the planning of Tanggu Bay New Town adopts a comprehensive set of strategies encompassing spatial organization, ecological landscape construction, transportation connectivity, and public service provision, with the aim of creating a livable, ecologically sustainable, functionally integrated, and culturally vibrant waterfront new town.


**Figure 4.** Analysis Diagram of Tanggu Bay New Town Planning Strategies (Drawn by the author)

**Figure 5.** Aerial View of Tanggu Bay New Town (Drawn by the author)

### 4.1. New Urbanism-Oriented Spatial Organization

Urban spatial organization should be structured around a human-scale framework to enhance residential comfort and improve accessibility to public spaces. This approach prioritizes the creation of pedestrian-friendly waterfront streets and appropriately scaled public facilities, fostering a livable urban environment that effectively integrates everyday urban functions with close proximity to the waterfront. In addition, the multifunctional and mixed-use characteristics of waterfront areas should be reinforced to promote the integration of ecological landscapes with urban activities, thereby avoiding functional homogenization and supporting a dynamic and sustainable urban lifestyle. By embedding human-centered design principles into both the built

environment and the public realm, planners can ensure that waterfront spaces function as vibrant, inclusive, and resilient urban environments that simultaneously support ecological integrity, social interaction, and diverse urban activities.

### 4.2. Ecology-Priority Waterfront Landscape:

A continuous and publicly accessible waterfront landscape belt should be established along the Haihe River, integrating wetlands, ditches, ponds, and green spaces to form interconnected ecological corridors and urban green axes. The design should incorporate public squares, waterfront promenades, and leisure nodes to create a comfortable and uninterrupted pedestrian environment, thereby enhancing both accessibility and recreational value. The green space system should adopt sponge city principles, implementing low-impact development measures such as grassed swales, sunken green areas, permeable pavements, rainwater wetlands, and ecological embankments. These interventions are intended to generate synergistic benefits in water retention, water quality improvement, and landscape ecological functionality, while mitigating urban flood risks. Furthermore, a city–landscape integrated ecological network should be developed by organically connecting large waterfront parks with neighborhood green spaces, ensuring continuity of ecological functions, enhancing biodiversity, and strengthening the overall resilience and environmental quality of the urban waterfront [2,10].

### 4.3. Characteristic Streets and Public Spaces:

Tree-lined boulevards should be designed along the river to establish comfortable, shaded, and visually engaging pedestrian corridors. By integrating community parks with waterfront green spaces, continuous and interconnected urban green belts can be created, enhancing ecological connectivity and providing a variety of recreational opportunities for residents. At the neighborhood scale, design strategies should emphasize visual coherence and coordination between building facades and adjacent streetscape elements. Waterfront cultural identity can be reinforced through careful control of building scale, thoughtful facade articulation, and the strategic placement of landscape nodes, fostering a distinctive sense of place. This integrated approach not only improves pedestrian comfort and aesthetic quality but also strengthens the cultural resonance and overall identity of the waterfront environment.

### 4.4. Public Space Networking and Transportation Connectivity:

The waterfront area should be effectively integrated with core urban zones and surrounding functional sectors through the coordinated development of cross-river bridges, pedestrian networks, slow-traffic pathways, and public transportation systems. Establishing a continuous and accessible public space network enhances waterfront connectivity, strengthens functional integration, and increases the regional influence and reach of the living district. These interventions directly address development constraints associated with limited transportation accessibility, ensuring that the waterfront functions not only as a local recreational amenity but also as a well-connected, dynamic, and integral component of the broader urban system.

### 4.5. Hierarchical Public Service Facilities:

The planning strategy advocates the development of a three-tier public service system, comprising a Major Public Service Core, District Public Service Cores, and Specialized Public Service Cores, organized into a cross-shaped, interconnected framework that maintains functional linkage with Tanggu Old Town and the Yuxiang area. Drawing on the model of neighborhood centers in the Tianjin Sino-Singapore Eco-City, which typically occupy approximately 15,000 square meters, have a floor area ratio of 1.5–2.0, provide commercial spaces on the first and second floors along the street, house community service functions on upper levels, and include underground parking and large supermarkets, this framework enhances daily convenience for residents while reinforcing community cohesion. By strategically distributing neighborhood centers and public service facilities

throughout the waterfront district, the plan promotes accessibility, facilitates social interaction, and supports the creation of a well-connected, service-oriented urban environment that integrates residential, commercial, and public functions [6,8].

## 5. Planning Implications

### 5.1 Innovation

The most notable innovation of this planning initiative lies in the localized adaptation and practical implementation of the "Back Bay" concept. It provides a transferable conceptual framework for waterfront new towns seeking to transition from function-oriented development toward a high-quality, livability-driven paradigm, thereby addressing the challenges of homogenized development models and the declining effectiveness of conventional waterfront planning approaches. At the conceptual level, the plan leverages the locational advantages of the Haihe River estuary in Tanggu Bay. Drawing inspiration from the experience of Boston's Back Bay, without direct replication, it responds to the strategic objectives of the Beijing–Tianjin–Hebei coordinated development agenda and the spatial optimization requirements of Tianjin. A four-dimensional core concept is established, integrating waterfront spatial formation, high-quality living environments, functional diversity, and cultural continuity, achieving an organic synthesis between international precedents and local conditions. At the methodological level, the plan applies principles derived from New Urbanism, organizing urban space around human needs. This approach addresses long-standing imbalances in traditional waterfront planning, which often prioritize ecological symbolism over everyday life or development intensity over spatial quality. At the strategic level, a multidimensional and synergistic urban development framework is proposed. By implementing mixed land uses and diverse building typologies, ecology-first landscape design in accordance with technical guidelines, networked public spaces combined with enhanced transportation systems, and the adaptive reuse of historical assets, the plan directly addresses key development bottlenecks while promoting the harmonious coexistence of cultural value and urban functionality.

### 5.2 Constraints

Despite the insights gained from this planning practice and the empirical context of waterfront development in the Tianjin Binhai New Area, the present study is subject to several limitations that warrant further refinement through subsequent research and implementation. First, limitations in data support remain evident. The study primarily relies on existing-condition surveys and comparative case analyses, while long-term monitoring data and quantitative evaluations are lacking. Key indicators, such as waterfront space utilization efficiency, resident satisfaction, and the performance of ecological restoration, have not been systematically measured. This constrains the robustness of the empirical justification for the proposed planning strategies and limits their applicability for post-implementation assessment. Second, alignment with higher-level plans and implementation frameworks requires further elaboration. Although the "Back Bay" concept and associated urban development strategies are conceptually consistent with overarching and sectoral plans, such as the Tianjin Territorial Spatial Master Plan (2021–2035), the mechanisms for integration remain insufficiently specified. In particular, operational standards for mixed land use, development intensity control, and regulatory guidance have yet to be fully translated into implementable planning instruments, reducing their capacity to effectively guide subsequent development. Third, challenges at the implementation level have not been fully addressed. While the plan proposes targeted responses to pressing issues in the Binhai waterfront area, including resettlement pressures, the complexity of remediating pollution associated with industrial heritage, and the relatively lagging development of peripheral districts, practical considerations related to funding mechanisms, multi-stakeholder coordination, and equitable benefit distribution are only briefly discussed. These unresolved operational factors may significantly influence the feasibility and long-term effectiveness of plan implementation.

## 6. Conclusion and Outlook

Against the backdrop of intensive urban development and regionally coordinated transformation, this paper systematically examines the value of waterfront spaces and the strategies for developing livable urban districts, using Tianjin's Tanggu Bay New Town as a case study. By analyzing the current development status and key challenges of the Haihe River waterfront, and drawing lessons from the successful experience of Boston's Back Bay, the study proposes the "Back Bay Concept," which emphasizes waterfront spatial design, high-quality living environments, functional integration, and cultural heritage preservation. Building on this concept, the research develops a comprehensive set of town-building strategies encompassing spatial organization, ecological landscape development, transportation connectivity, and public service facility planning. The study underscores that the high-quality development of waterfront areas requires moving beyond single-function planning approaches. By prioritizing ecological sustainability, functional diversity, cultural revitalization, and multimodal transportation, planners can achieve a deep integration of natural and urban systems, generating new momentum for urban transformation. The planning practice of Tanggu Bay New Town thus provides both theoretical insights and practical guidance for the high-quality development of similar waterfront districts.

Future research on waterfront planning and development should prioritize multidimensional coordination and implementation-oriented optimization, providing more targeted theoretical and technical guidance for the creation of livable waterfront districts. Strengthening ecological resilience requires prioritizing ecological security, adhering to relevant technical standards, and enhancing the provision of resilient infrastructure with both daily and emergency functions, thereby increasing the capacity of waterfront spaces to respond effectively to extreme weather events and flood risks. Cultural continuity should be advanced through the adaptive reuse of historical assets, particularly by innovatively integrating industrial heritage with contemporary consumption spaces and cultural experiences, enabling the coexistence of historical memory and modern urban life. At the technical level, digital planning tools, including big data analytics and GIS, should be employed to quantitatively assess spatial utilization efficiency and resident activity patterns, enhancing the scientific rigor and precision of planning decisions. From a governance perspective, collaborative multi-actor frameworks involving government, market participants, and the public should be established to support joint participation in planning, development, and operational management. Additionally, systematic evaluation of implementation outcomes and dynamic adjustment of strategies are essential to improve the long-term effectiveness and practical relevance of waterfront planning research.

**Author Contributions:** In this paper, Mengjiao Liu contributed to the conceptualization, methodology, data curation, formal analysis, visualization, and drafting of the manuscript, while also participating in the review and editing processes. Yuzhe Hu was responsible for the investigation, validation, resource provision, and also contributed to the drafting, review and editing of the manuscript. Fengyu Bao, as the corresponding author, supervised the project, managed its administration, and was heavily involved in writing, reviewing and editing the manuscript. All authors organized the paper structure. All authors have read and agreed to the published version of the manuscript.

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**Informed Consent Statement:** Informed consent was obtained from all subjects involved in the study.

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## References

1. Zhu, ZQ. Exploration of Urban Waterfront District Planning and Design. International Architecture, 2025, 4(4): 76–78.
2. Cheng, S. Evaluation and Analysis of Urban Waterfront Interface Morphology Based on Dynamic Visual Attention of Crowds. Landscape Architecture, 2024. 31(2), 58-66.
3. Yang, Z.; Luo, TQ. Urban District Character Creation and Preservation, Analysis and Reference of Boston Back Bay Urban Desig. Urban Planning Research, 2020. 44(6), 95-102.

4. Qin, C. Waterfront Development and Urban Revitalization: Tianjin Haihe Case Study. StadtKultur International, 2013. 19(3), 41-48.
5. Wikipedia. Available online: https://en.wikipedia.org/wiki/Boston_Harborwalk (Accessed 2025-12-16).
6. Tianjin Municipal People's Government. Tianjin City Territorial Spatial Master Plan (2021–2035); Tianjin, 2024.
7. Tianjin Binhai New Area Planning Bureau. Special Plan for Site Selection and Layout of Cruise Ship Terminals along the Haihe River and Coastal Zone in Binhai New Area; Tianjin, 2024.
8. Tianjin Hedong District People's Government. Special Plan for Urban Renewal in Hedong District (2022–2035); Tianjin, 2024.
9. Tianjin Municipal Culture and Tourism Bureau. Tianjin City Cultural and Tourism Integration Development "14th Five-Year Plan"; Tianjin, 2024.
10. Jiang, B.; Huang, J. A New Approach to Detecting and Designing Living Structure of Urban Environment. 2021. 48(8), 2147-2163.
11. Lynch, K. The Image of the City, 1st ed.;:MIT Press: Cambridge, MA,USA, 1960; 1-194.