



# Science in the City

Building Participatory Urban Learning Community Hubs  
through Research and Activation



This project has received funding from the European Union's  
Horizon 2020 research and innovation programme under grant  
agreement No 824466

## DISCOVER PART 1: THE STORY

# NATURE IN THE CITY USED TO BE ENTIRELY NORMAL!

The waterfront used to be a natural and lively region within a bustling city. Land and water came together in a natural way and provided an environment that was attractive for lingering and enjoying leisure activities. Meanwhile the river provided a means of transportation and the hinterland supplied us with food and water.





## RESILIENT AND ADAPTIVE

Wet and dry areas, fresh and salt water, plant and animal diversity: the city was appealing, a highly pleasant place to be that was healthy to live in and resilient. Not being overburdened, the environment could adapt easily to new developments.

## WE LOST OUR WAY...

On the way to the future, our lives were made easier by technology. Almost without thinking, we abandoned our links with the river and with nature. The city became more urbanised, and more built-up. It was as though the old valuable assets had drifted further and further away on the waters of the river.







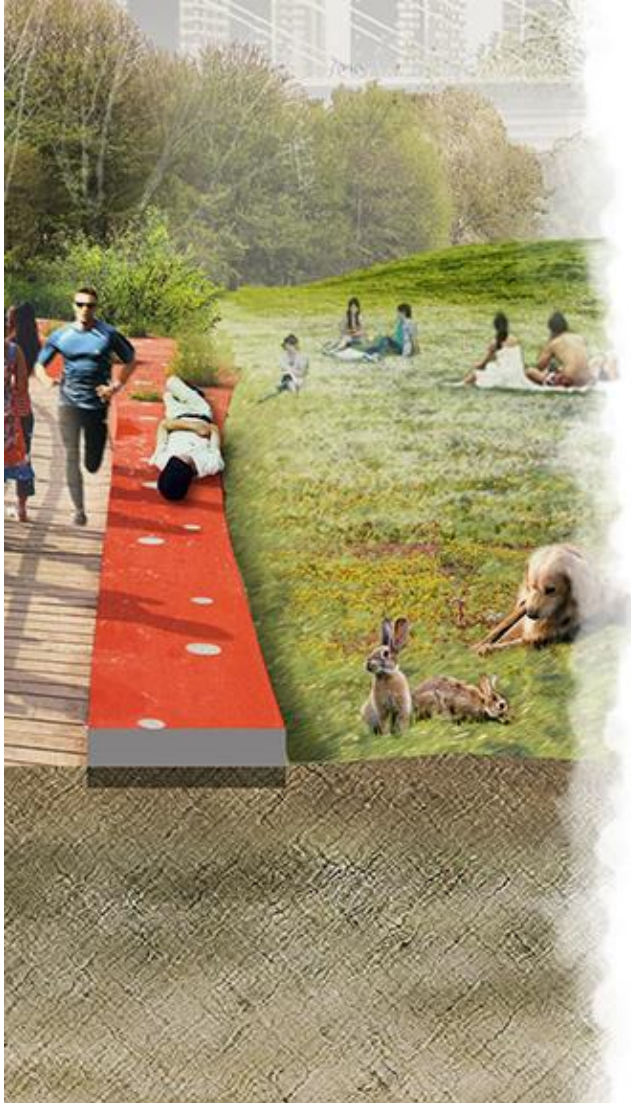
## PROGRESS COMES AT A PRICE

Things are busy in cities now, and that won't change. By 2030, 80% of the global population will be living in delta cities and coastal areas. Climate change means our cities are sometimes too warm and sometimes too wet, severely impacting society and the economy. The choices we make now will affect our lives later.

## BACK TO THE ROOTS, FORWARD TO THE FUTURE

The symbiosis between the forces of nature, the multifunctionality and the use of the water-rich locality is at the heart of resilient, attractive and healthy cities in delta areas. Building with Nature in the city embraces the river again as the lifeline it once was. And that is urgently needed.





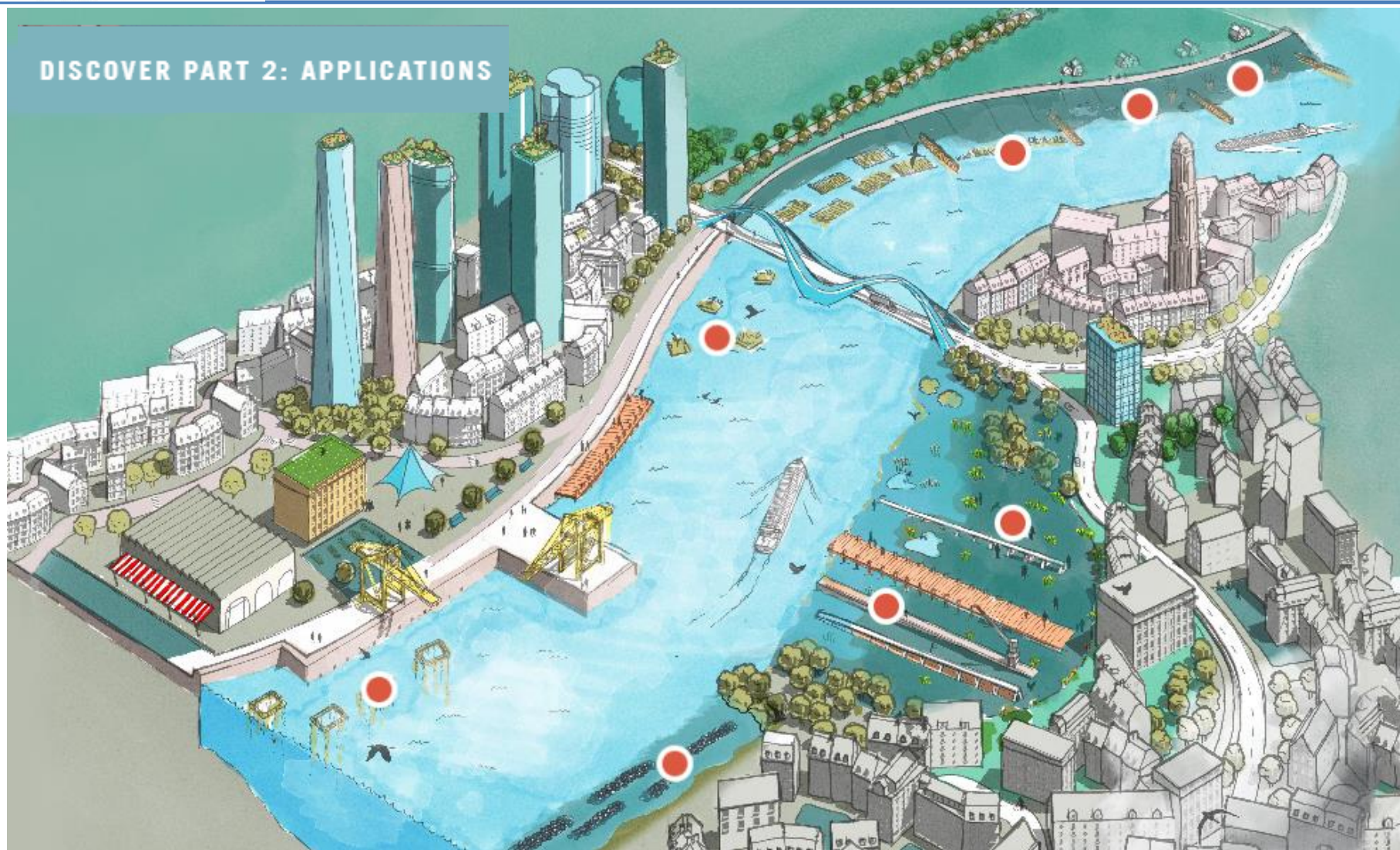
## BUILDING WITH NATURE IS THE SOLUTION

BwN in the city makes intelligent use of all the wonders that nature offers us, and the ingenious systems involved. We use willow trees to break waves and prevent flooding. Tidal parks mitigate flood risks. These solutions are based on extensive knowledge or extensive research and proven experience.

The smart component is the inclusion of ecological and leisure value in risk management: with solutions of this kind, animals and plants flourish and give cities extra allure. They make life, work and leisure pleasant and healthy. Now and in the future.



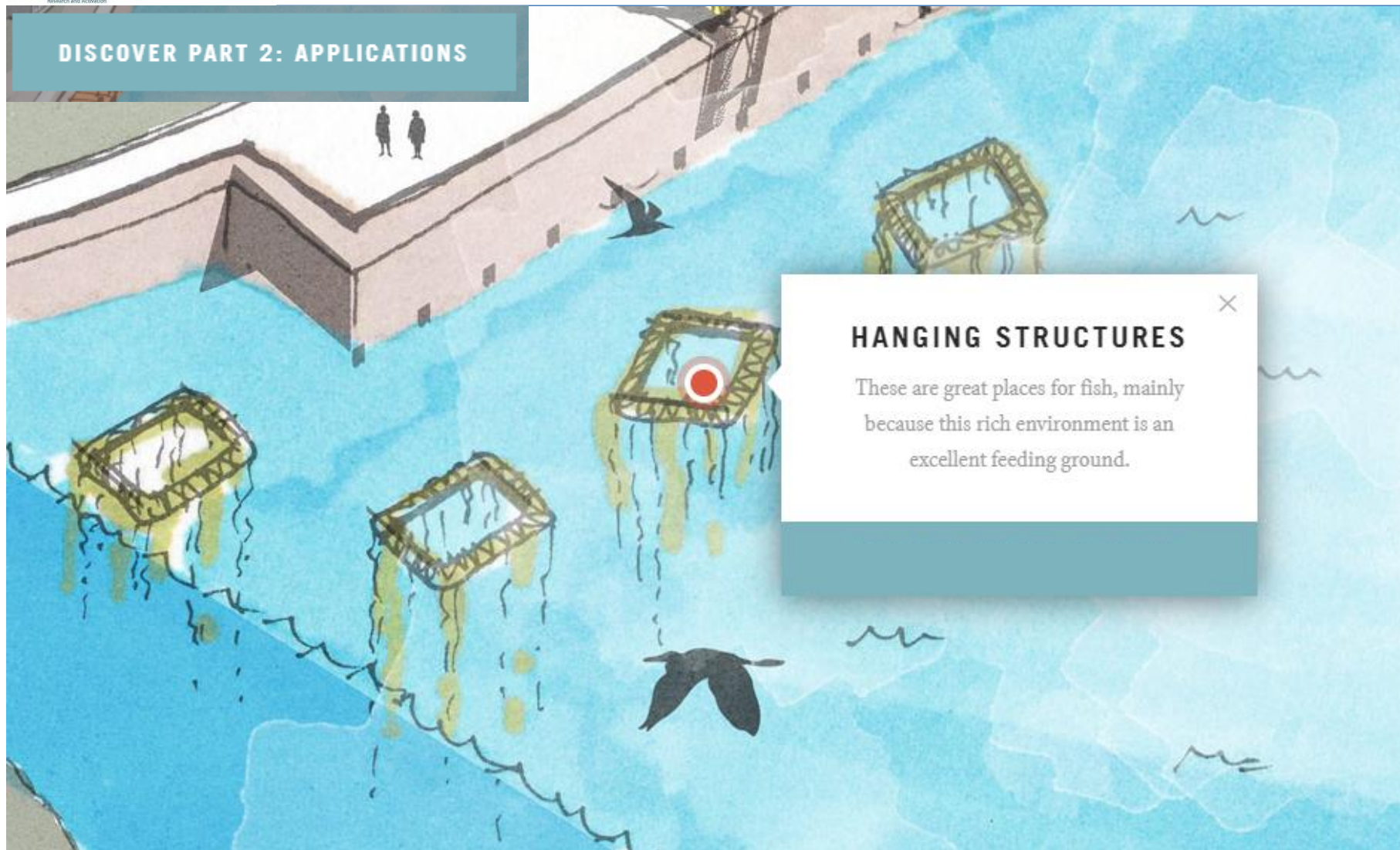
## DISCOVER PART 2: APPLICATIONS



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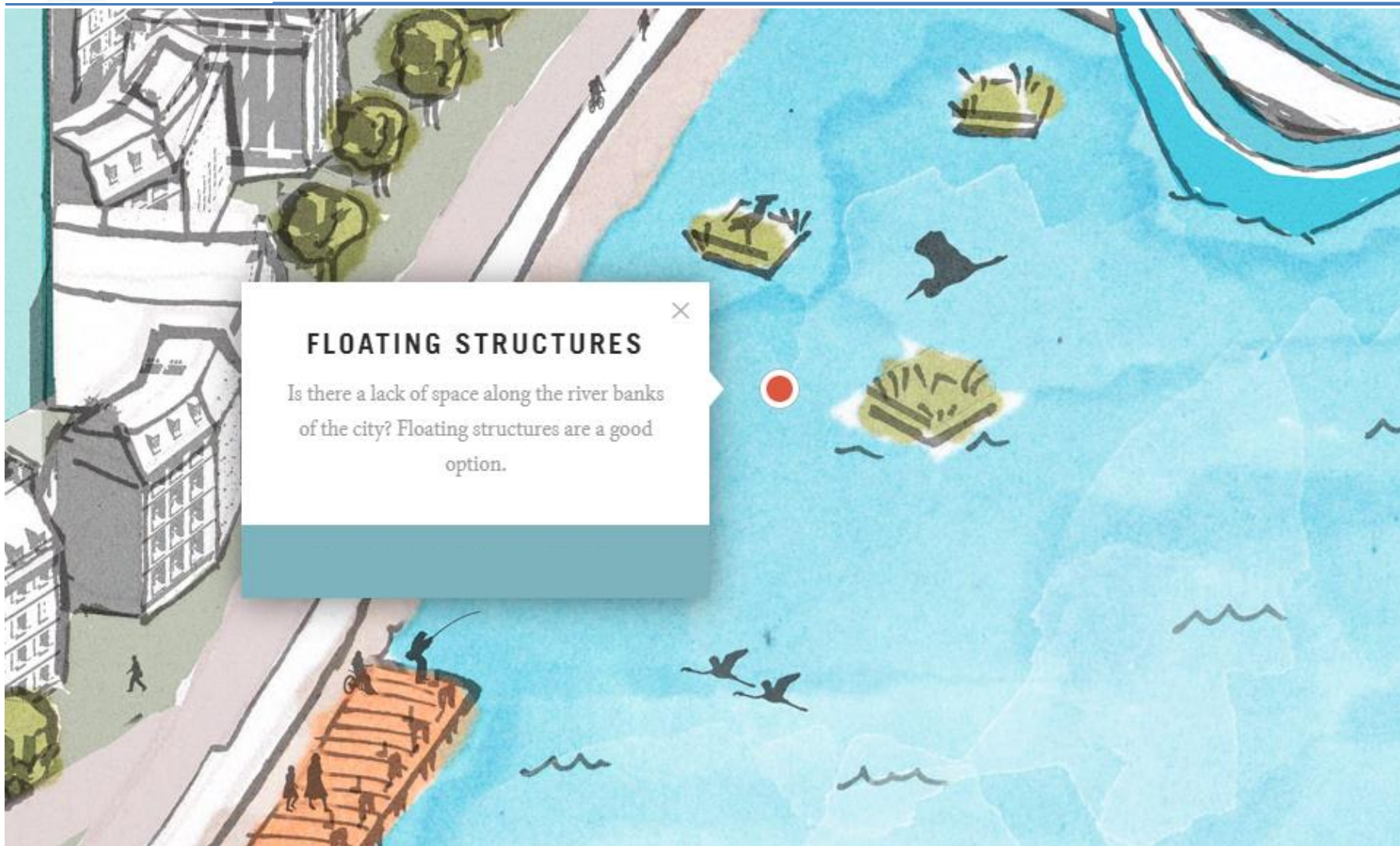


## DISCOVER PART 2: APPLICATIONS

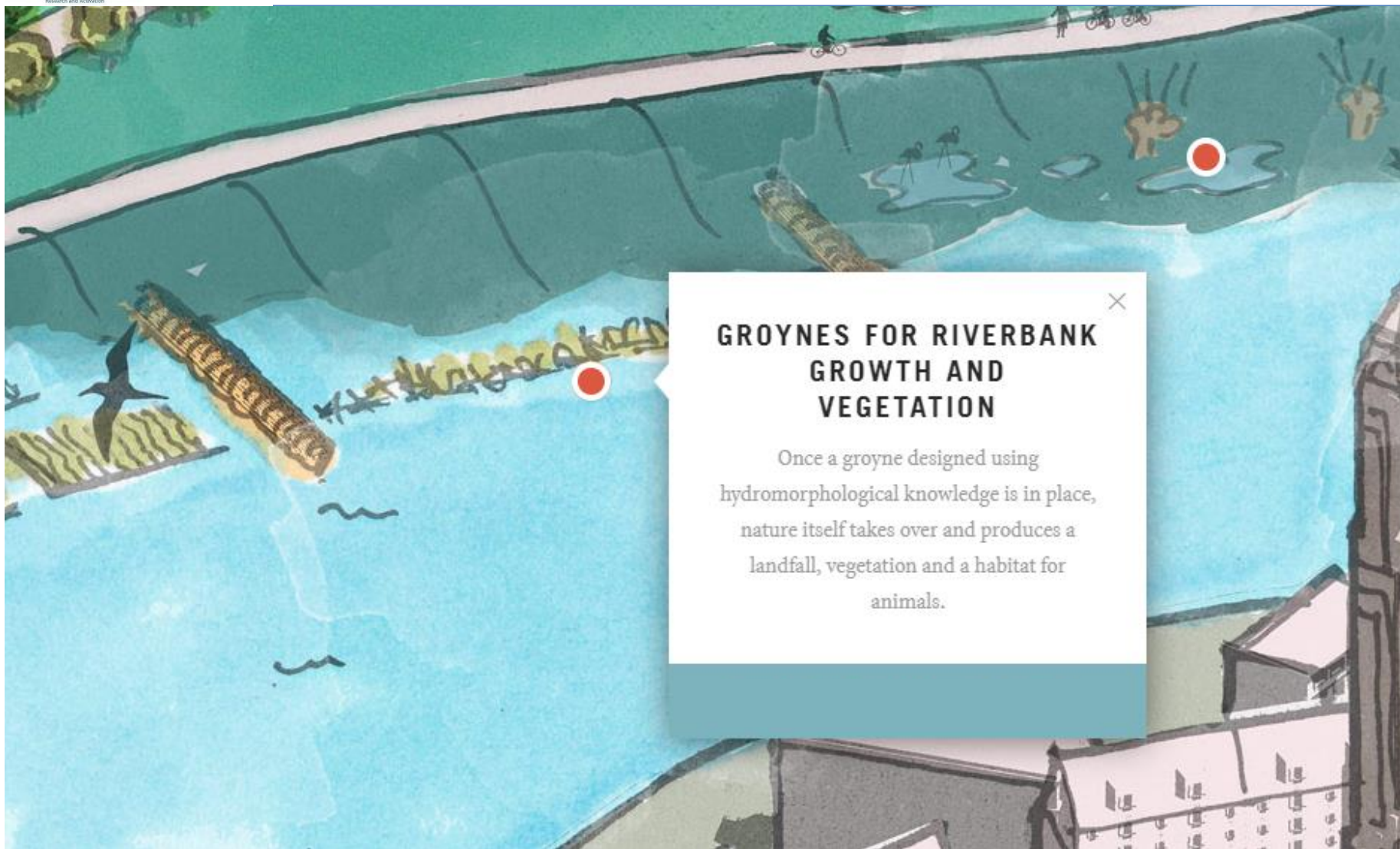


### HANGING STRUCTURES

These are great places for fish, mainly because this rich environment is an excellent feeding ground.





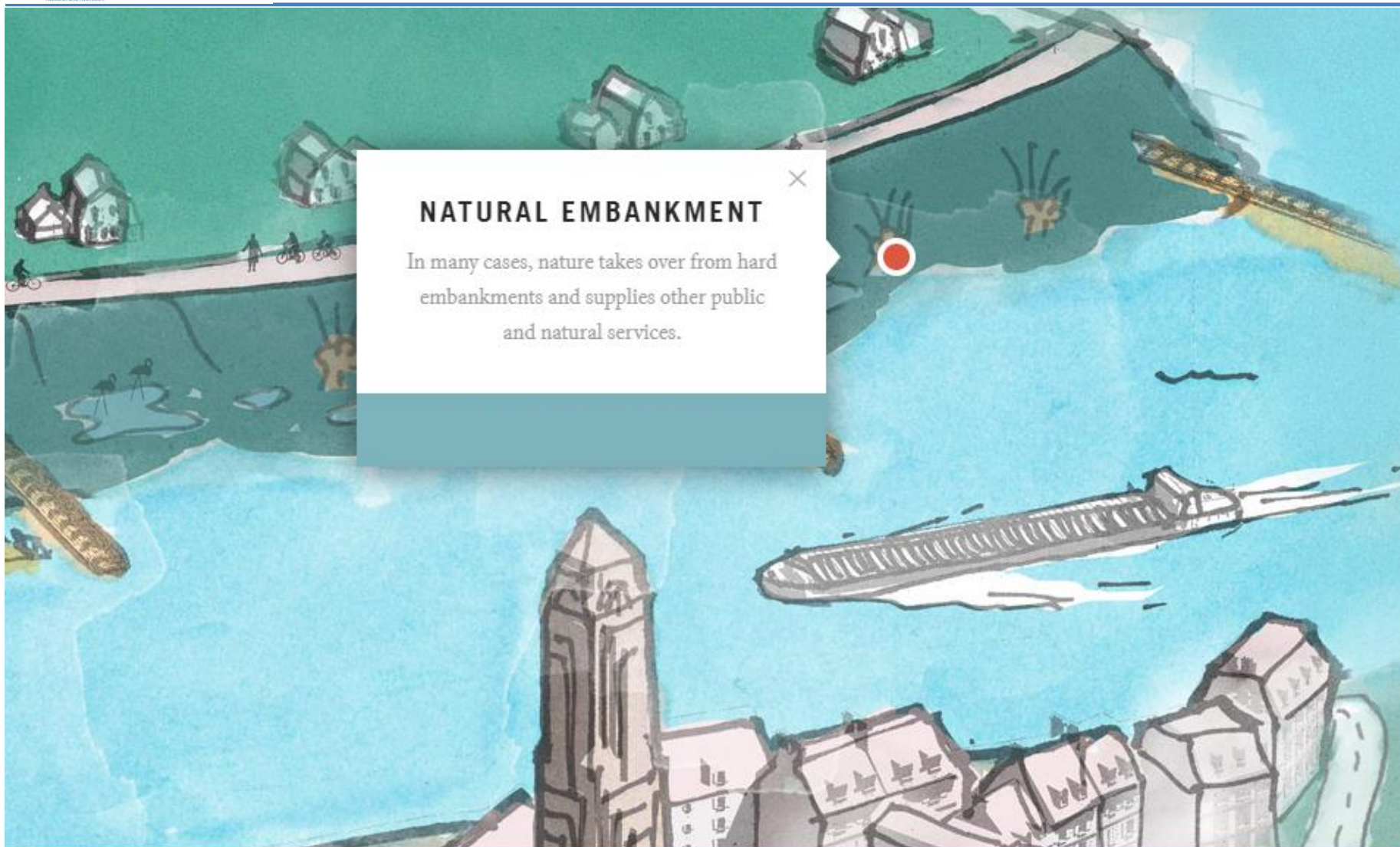


## GROYNES FOR RIVERBANK GROWTH AND VEGETATION

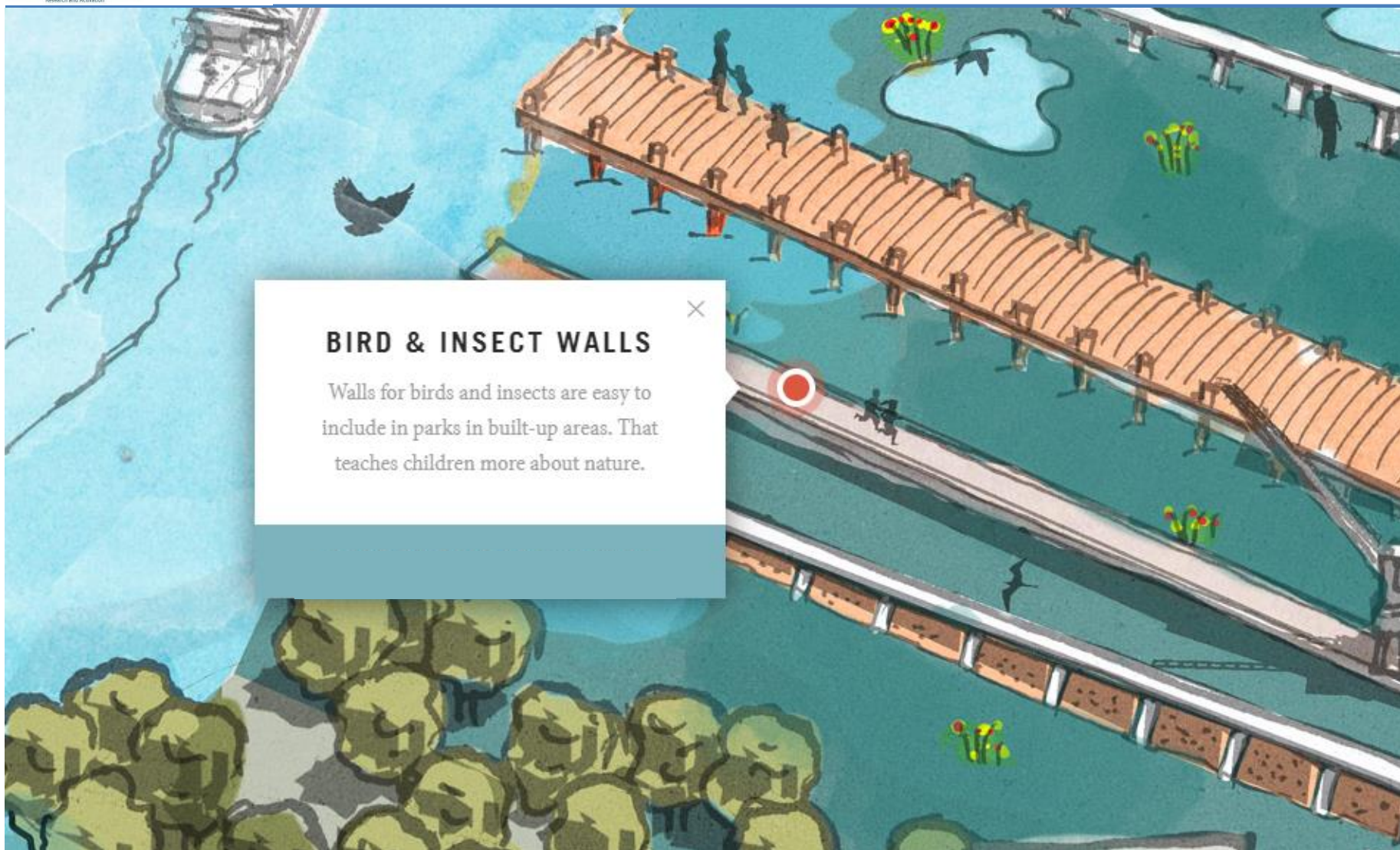
Once a groyne designed using  
hydromorphological knowledge is in place,  
nature itself takes over and produces a  
landfall, vegetation and a habitat for  
animals.



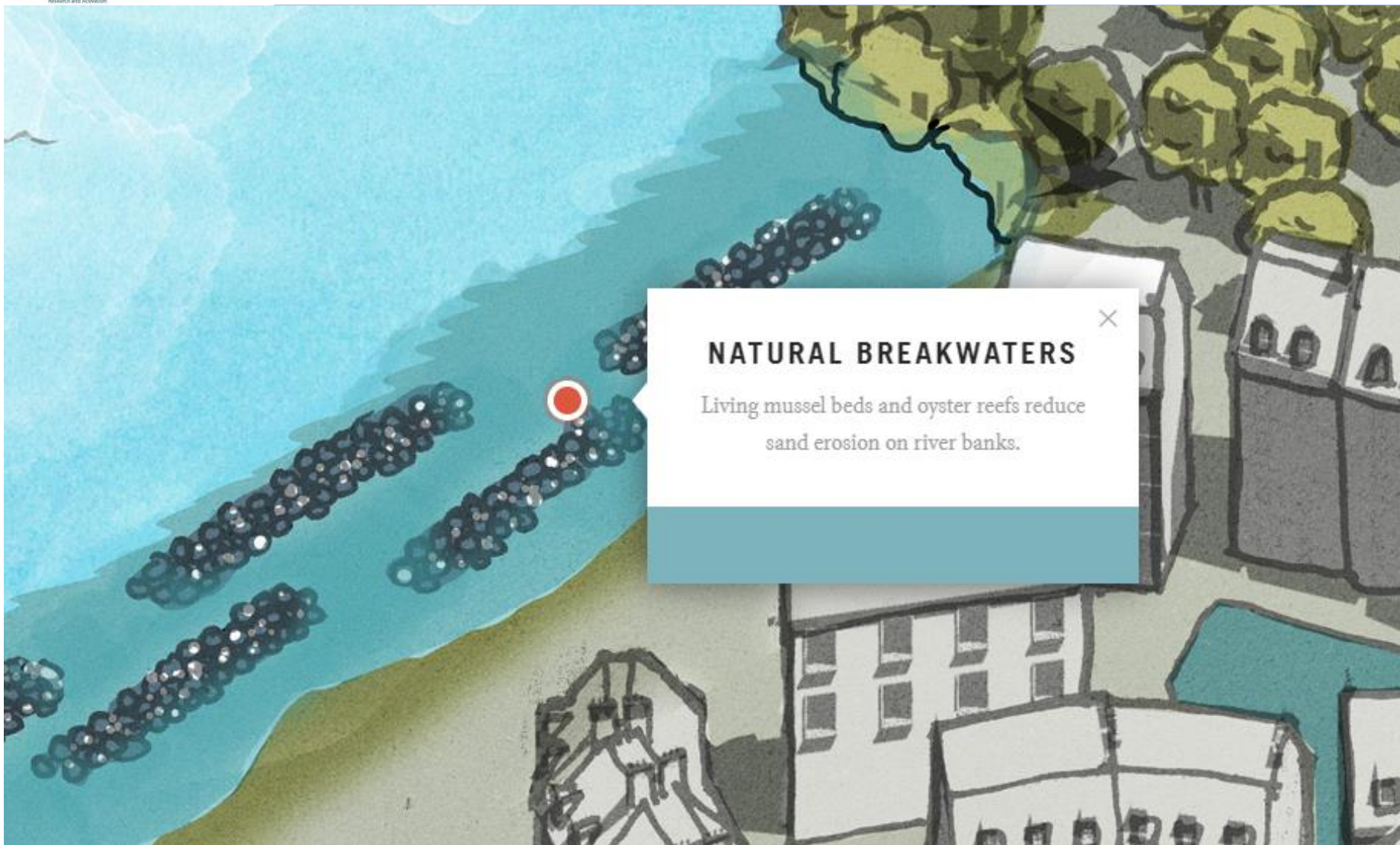












## SOFTENING THE RIVER BANKS OF ROTTERDAM

The 'River as Tidal Park' programme is introducing, where possible, BwN measures to soften the river banks. In the Mallegat Park, a dam will be built to create a natural tidal area covering 1.5 hectares. The dam creates the conditions for a tidal area that will be formed by the natural dynamics. In the Nassau dock, a long river bank that is still being designed will combine different functions. The proposed bank will be made from sediment taken out of the dock. It will include the different zones seen in a tidal bank. There are opportunities on the New Waterway and the New Maas to launch restructuring projects.

SEE HOW IT WORKS IN PRACTICE







## WHAT ARE THE BENEFITS?

The benefits include the enhancement of natural values and the relationship with the tidal system. The general public will become aware once again that, in a tidal system, the struggle to keep out the water is unremitting. The local projects will enhance regional natural values by attracting fish and birds and by creating mud flats and salt marshes. However, there are other important reasons for the implementation of these projects: leisure, improved flood risk management, improvements to water quality by, for example, making water clear, knowledge development in the field of Building with Nature and the exploitation of regional natural cycles. A range of stakeholders are involved in the 'River as Tidal Park' programme.



## DORDRECHT STADSWERVEN FRESHWATER TIDAL ZONE

The Stadswerven is a former shipbuilding site where homes will be built. It is located on the peninsula between the Merwede and Wantij rivers. Land will be dug away on the banks of the Merwede, allowing tidal nature to take hold. The tidal zone – which will be created in the early stages – will be an eye-catching asset for the residential area. Rushes, reeds and willows will grow here. An appealing habitat for birds, fish, amphibians and insects will also take shape. Walls for insects and sand martins will be created in the slopes. Dordrecht will leave the existing concrete pile foundations in place as a breakwater. The tidal zone will be an ecological stepping-stone linking Dordrecht to the Biesbosch nature reserve. Dordrecht is planning to use BwN solutions for other developments in the Stadswerven.





## WHAT ARE THE BENEFITS?

An attractive area for walking. Raising awareness that the residents are living outside the dikes because they are in touch with the tidal nature. Contact with the flora of the Biesbosch and a closer relationship with the river. Education, since the nature in the park will be used to teach children more about the environment and nature.

Reference:

<http://www.buildingwithnatureinthecity.com/>



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