The EU LIFE DICCA project

A good climate for the Danube Island

Stadt Wien

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The project in a nutshell

42 kilometres of beaches, nature conservation zones and sports facilities: the Danube Island is a quintessential waterside recreation area. As a model climate city, Vienna pursues the goal of mitigating the negative impacts of climate change in a sustainable way. And that also includes innovative measures to climate-proof existing leisure hotspots like "the Island" for the future. From grazing sheep to cool pergolas and new pond biotopes – visitors to this gem of a place can discover and experience them all, first-hand and free of charge!

Ulli Sima

Executive City Councillor for Innovation, Urban Planning and Mobility

The Danube Island is a valuable ecological niche and an important habitat for animals and plants. At the same time, the New Danube with its excellent water quality ensures that visitors to this recreational hotspot can enjoy a refreshing swim. Hand in hand with far-sighted waterway management, a sustainable climate change adaptation strategy for the Danube Island calls for a combination of good ideas, experience and incorporation of new findings. The primary aim of the EU LIFE DICCA project was to help us develop future strategies for adapting further inner-city ecosystems to climate change.

Gerald Loew

Head of Municipal Department MA45 – Water Management

Videos about the project

LIFE DICCA (Part 1)

LIFE DICCA (Part 2)

LIFE DICCA (Part 3)

LIFE DICCA — film marking the conclusion of the project

Reports and info material

Monitoring

Final report: Development and evaluation of measures to support wild bees on the Danube Island (8.7 MB PDF)
Climate monitoring report, July 2021 (1 MB PDF)
Phenological gardens — tree and shrub species (280 KB PDF)
Inclusive climate action plan Danube Island (3 MB PDF)
Ecological monitoring of sheep grazing on the Danube Island – Final report and summary (3,1 MB PDF)

Studies

Life-cycle assessment of alternative water supply systems for ponds (2.5 MB PDF)
Summary report: Detailed evaluation of resistance/resilience of ecosystems on the Danube Island to climate change (1 MB PDF)
Socio-economic impact study – Final report (2,2 MB PDF)
Ecological assessment for climate change adaptation measures of the Danube Island ecosystem (2,3 MB PDF)
Feasibility study Ulm Friedrichsau (5,8 MB PDF)

A good climate for the Danube Island

The negative impact of climate change on the Danube Island, Vienna's recreation hotspot

The kingfisher (Alcedo atthis), a rare visitor to the Danube Island

The Danube Island functions as a fresh air corridor, bringing cool air into Vienna from the north-west to the south-east. The adjacent Danube and New Danube waterways have an additional cooling effect on hot days. Nevertheless, as scientific data confirm, the negative effects of climate change are making themselves felt on the Danube Island. Both native species and biodiversity in general are threatened by these changes. Invasive, non-native plant species are proliferating, and long heatwaves and extended periods of drought are also drying out meadows, woodland and ponds.

The water quality of the New Danube is excellent

An overview of the EU LIFE DICCA project

The EU LIFE DICCA project implemented targeted measures to counteract the negative impacts of climate change on the Danube Island. The acronym "DICCA" stands for "Danube Island Climate Change Adaptation".
In the hope of mitigating the impacts of advancing climate change, in the period from 2018 to 2024 a range of different measures was developed by the City of Vienna's Municipal Department MA45 – Water Management, in close cooperation with external experts, and implemented on the Danube Island. The project area comprises the entire Danube Island, the immediately adjacent bodies of surface water and the connected groundwater system.

Goals and measures

The primary aim of the EU LIFE DICCA project was to develop a strategy for adapting inner-city ecosystems to climate change using the Danube Island as an example.

The measures were designed to help protect the Danube Island, firstly as an ecosystem and secondly as a local recreation area.

Key data

Full project title: Climate Change Adaptation of the Ecosystem Danube Island
Short project title: LIFE DICCA
Duration: September 2018 to September 2024
Budget: approx. EUR 2 million, around 50% co-funded by the EU
Implementing body: City of Vienna, Municipal Department MA45 – Water Management

Measures

Care and maintenance

The higher temperatures resulting from climate change are leading to more intensive use of the Danube Island as a recreation area. In turn, this is increasing the costs and resources required for irrigation, care and maintenance.
Under the auspices of the EU LIFE DICCA project, innovative concepts were implemented to strengthen the resilience of the island's ecosystem. These included sustainable mowing of grassland areas to protect and enhance biodiversity and strengthen their function as an ecological stepping-stone.

Sheep grazing on the Danube Island

Since 2019, a flock of sheep have been performing the role of "living lawnmowers" on the Danube Island. The animals, which are tended by a shepherd, replace motor-powered mowers on the near-natural northern section of the island. The sheep are protected by a mobile, waist-high electric grazing fence that can be moved as and where necessary. They take about a week to fully graze a particular piece of meadow, and are then moved on to another spot.

Sheep always leave some plants untouched when grazing, producing meadows with a mix of taller and shorter vegetation. The remaining plants provide food and shelter for a wide range of insects, enhancing biodiversity and helping to link up different biotopes. Sheep grazing also protects smaller animals that would be killed by heavy mowing machines.

The sheep feed on lush meadow herbs

Parallel monitoring of grassland areas

A parallel monitoring exercise was launched in 2019 and has been carried out every year since. The results show a strong increase in the number of insect species such as butterflies, mantises and grasshoppers compared to mechanically mowed grassland. Between 2019 and 2024 the sheep grazed around 60 hectares of meadow on the Danube Island.

Habitats for wild bees

Different species of wild bee require specific types of nesting site and a suitable food supply. The Danube Island has seen a raft of different measures to support species-rich habitats and wildlife niches over the past few years, and these have been particularly beneficial for insects. The measures include sowing of species-rich wildflower meadows, creation of steep banks, and establishment of orchards and climate gardens with native trees and shrubs. In addition, grassland is extensively managed and deadwood left in place to create new habitats for wild bees.

Pollen and nectar on their way to becoming Danube Island honey

Organic beekeeping on the Danube Island

The island's diverse vegetation allows it to support a wide range of bee species. In the period from 2021 to 2024, the Danube Island was home to up to 50 colonies of bees. Honeybees and wild bees are responsible for pollinating the majority of all plants and are therefore vitally important to the Danube Island ecosystem.

Overview of sites

- 10 beehives at Inselinfo service centre
- 8 beehives at Wehr 1 barrage

Diverse habitats for wild bees

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Parallel monitoring of wild bee populations

A study conducted by Vienna University of Natural Resources and Life Sciences (BOKU) looked at populations of wild bees on the Danube Island. The targeted measures to support insects are having an effect. A recent study recorded 136 species of wild bee on the Danube Island.

In the springtime the fruit trees produce blossom, which serves as a food source for insects

Orchards on the Danube Island

New orchards and meadow orchards have been planted on the Danube Island. The trees provide food and shelter for insects and birds, and birds also enjoy the fruit. The fruit will also provide a tasty natural snack for human visitors to the Danube Island in years to come!

Overview of sites

- 22nd district, near KaisermlÃÆen Bridge
- 22nd district, beside main footpath between Prater Bridge and Eastern Railway Bridge

Two new meadow orchards

Back in May 2020, 5 sweet chestnuts and 25 wild fruit trees were planted on a piece of grassland on the Danube Island with an area of over 2,000 square metres. All of the wild fruit trees are ancient species: crab apple, rowan, rock cherry, and white and black mulberry, which makes them especially valuable in ecological terms. A further orchard of 30 fruit trees was planted on a 4,300-square-metre meadow in autumn 2022.

The cooling effect of graduation walls is based on ancient technique that has stood the test of time

Greened wooden pergolas

In autumn 2020, five wooden pergolas with seating were erected on the Danube Island, overlooking the River Danube. With their greened roofs and graduation walls, the pergolas provide shade and create a cooling microclimate in hot weather. USB charging stations were added to the pergolas in July 2021.

Overview of sites

- Three pergolas are situated on the Danube side of the island near KaisermÃhlen Bridge
- Two further pergolas are situated on the edge of the grassy area next to the splash park

Graduation walls — a cool feature with a cooling effect

Each wooden pergola has two graduation walls. These consist of oblong steel frames containing a lattice stuffed with bundles of brushwood on both sides. The bundles are made of fine blackthorn twigs. Water is trickled down over the brushwood bundles, forming small droplets that quickly evaporate and thus draw heat out of the surrounding air. The excess water is then drained away.
The graduation walls are digitally controlled, with the water supply switching off automatically at night and when it is raining. Climbing plants have been planted alongside the corner posts of all the pergolas, and will grow to cover the entire roof and sides of each structure. On-site information boards inform visitors about the innovative natural cooling system.

Overview of sites

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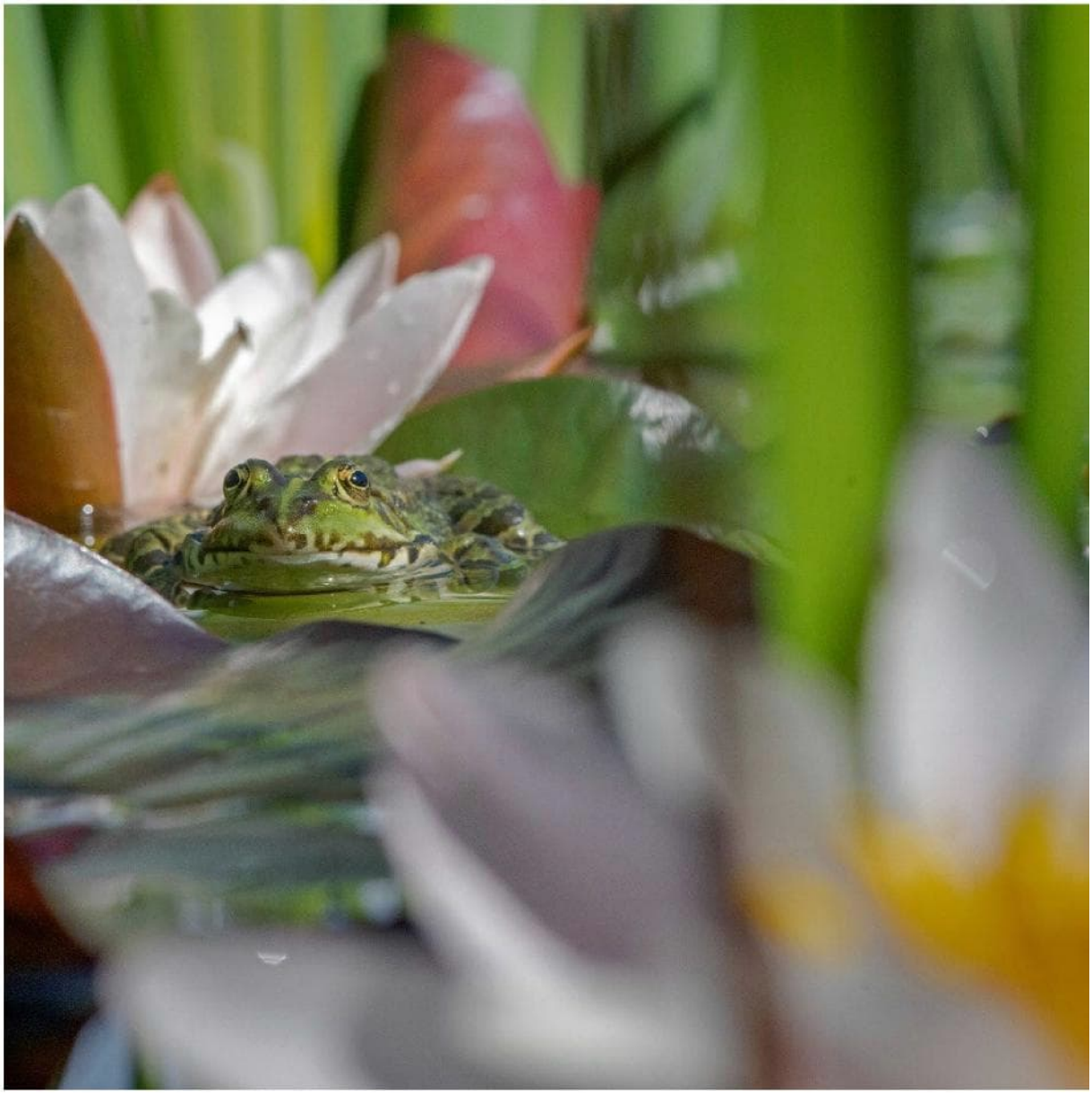
Bodies of water and their use

When the Danube Island was landscaped in the 1970s and 1980s, a number of oxbow lakes formed by the Danube were deliberately preserved and numerous smaller ponds were artificially created. However, smaller ponds on the Danube Island are now in danger of drying out as a consequence of climate change. Numerous measures were implemented under the auspices of the EU LIFE DICCA project in an effort to counteract this negative trend. Further new pond biotopes were created, for example, each with a climate-proof water supply. Bays along the Danube were also revitalised, incorporating additional semi-natural refuges to support the resident flora and fauna.

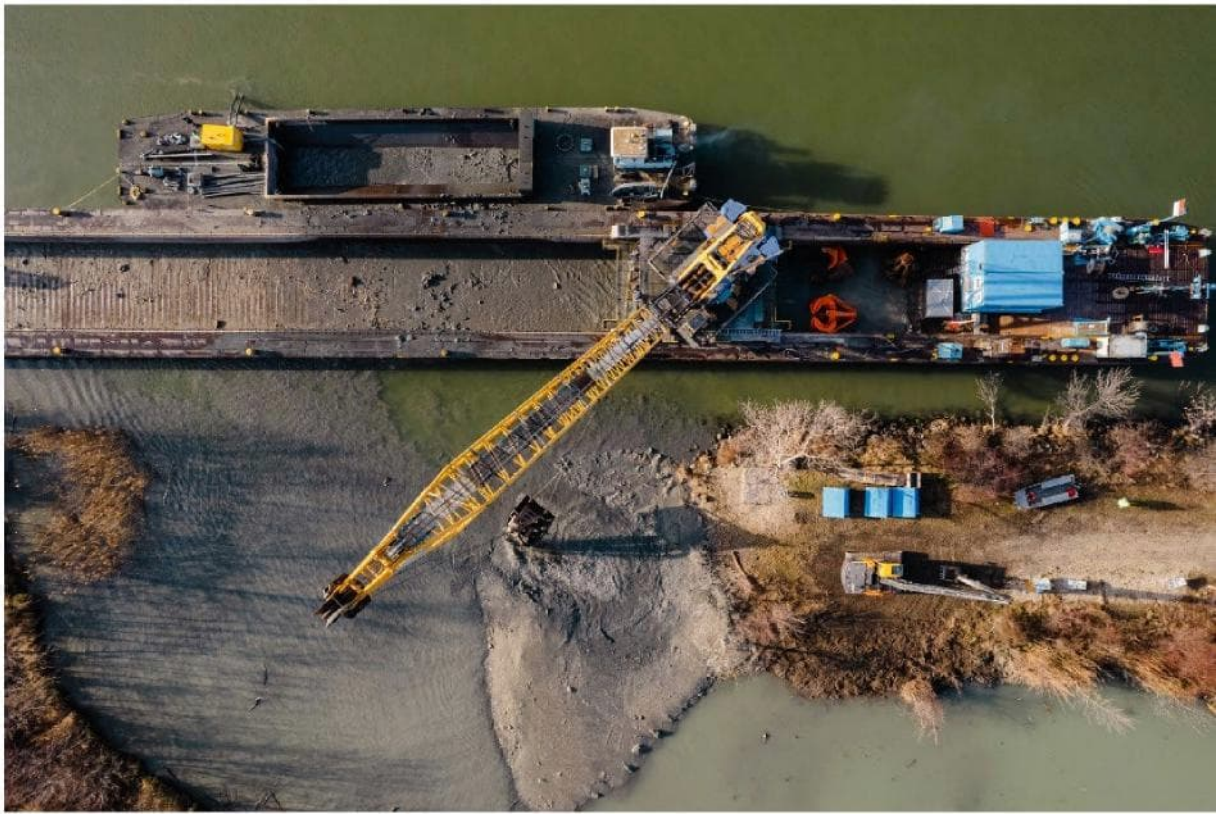
New pond biotopes on the Danube Island

A small pond biotope for Triops crustaceans was already created on the grassy area next to the Inselinfo service centre back in spring 2019.
Amphibians, in particular, need pond biotopes for spawning. A second, larger pond was thus completed in April 2021, hidden away on a near-natural stretch of riverbank between Brigittenau Bridge and ReichsbrkeĀĀbridge. With a surface area of around 100 square metres planted with typical native pond vegetation, the new water feature helps to preserve and improve biodiversity on the Danube Island. Willow saplings were planted beside the pond, together with waterlilies in the pond itself and wetland plant species such as bulrushes, purple loosestrife and bur-reed around the margins. Wildflower species native to the Danube Island were planted on the embankments, including Carthusian pink, sage, mullein and evening primrose.



European pool frog (Pelophylanx lessonae) colonising a semi-natural pond biotope

A second new pond biotope is located on the northern section of the Danube Island: the Windradteich. With a surface area of around 450 square metres, this pond is fed by an open ditch and therefore boasts various ecologically valuable zones that benefit rare plant and animal species. Plants such as water mint, meadowsweet and marsh marigold can be found around the margins of the pond and in the periodically wet zones, and with luck you might also spot animals such as the European fire-bellied toad, the European grass snake, smooth newts and pond snails.



20,000 cubic metres of fine sediment were dredged out and deposited in the Danube as part of the revitalization measures

Revitalization of bays along the Danube as habitat for fish and amphibians

Near-natural stretches of riverbank and side arms with bays, peninsulas and shallows extend over several kilometres on the Danube side of the Danube Island.
Over the years, periods of extremely high water have brought in quantities of sediment that have gradually caused these bays and side arms to silt up. This problem is being exacerbated by climate change and the resulting more frequent periods of extremely high water on the Danube. Between mid-January and mid-March 2022, a number of the bays and side arms on the Danube Island were dredged out and some 20,000 cubic metres of sediment were deposited in the Danube. The new deeper sections provide habitat and spawning grounds for fish and amphibians.

Monitoring of bay revitalization measures

A monitoring project carried out by scientists from Vienna University of Natural Resources and Life Sciences (BOKU) showed that these habitats are especially biodiverse: 38 species of fish, over 60 species of macrophytes and numerous dragonfly species were recorded there.

A climate-proof water supply for ponds on the Danube Island

The ponds are artificially irrigated with water to prevent them from drying out in the summer months. To ensure a sustainable, climate-friendly water supply, a pump system was installed to irrigate the Tritonwasser, Endelteich, Wiesenteich and Windradteich ponds on the Danube Island.

Four pond biotopes supplied with water from the New Danube

With a surface area of 2 hectares, the Tritonwasser is the largest artificial pond on the Danube Island and a haven for a large number of animal and plant species, some of them rare. The Tritonwasser has been artificially irrigated for many years, previously by means of a diesel pump that fed in water from the New Danube via an underground pipe.
In spring 2024 a new wind-powered, zero-emission pumping system was installed that is able to supply the Tritonwasser with up to 7,000 litres of water per hour.

The new Tritonwasser irrigation system proved to be workable, prompting the City of Vienna's Municipal Department MA45 – Water Management to instal a second wind turbine on the northern section of the Danube Island. Since that date, the Endelteich, Wiesenteich and Windradteich ponds have also been irrigated using environment-friendly wind power.

The Tritonwasser wind turbine is 18 metres high

An appeal to all visitors:

- Please refrain from releasing any other animals into the pond, especially ornamental fish such as goldfish or other non-native species!
- Please keep your dog out of the pond!

Public awareness and outreach

Awareness-raising measures

The EU LIFE DICCA project was accompanied by awareness-raising measures under the subheadings "Climate", "Ecosystems" and "Biodiversity".
To this end, a diverse programme of events was organised and experience-based workshops and international networking meetings were held in collaboration with a range of project partners. Great importance was attached to involving and engaging people who use the Danube Island for leisure and recreation, so throughout the project there was a strong emphasis on presenting the basic principles and rationale behind the different measures in an interactive, readily understandable and hands-on way for visitors.

An information board explains how the climate gardens work

Climate gardens on the Danube Island

Three so-called phenological gardens featuring native trees and shrubs were planted on the Danube Island in April 2021.
The gardens are used to study the interaction between the climate and the seasonal life cycle of plants. Visitors are invited to observe the plants in the gardens and help with the collection of data.

Overview of sites

- 22nd district, Nordbrke bridge (kiloĀĀmetre 16)
- 22nd district, Kaisermlen ĀĀBridge (kilometre 11.5)
- 22nd district, Wehr 1 barrage (kilometre 9.9)

Weather stations on the Danube Island

In autumn 2019, five weather stations were installed and put into service on the Danube Island. The data collected from the stations allowed detailed records to be kept of of weather, atmospheric conditions and microclimatic conditions on the Danube Island throughout the project timeframe.

Overview of sites

- 21st district, festival field, near Floridsdorf Bridge
- 22nd district, Inselinfo service centre, near Reichsbrke ĀÆbridge
- 22nd district, opposite Brigittenauer Bucht bay
- 22nd district, Tritonwasser pond
- 22nd district, near KrĀÆenlacke pond

Events and workshops

Diversity Day

Diversity Days were held in 2021 and 2022, with free guided walks and info stands to showcase the Danube Island and its flora & fauna to the numerous nature-loving visitors.
The programme also featured DICCA bike tours to a climate garden and other nearby measures implemented as part of the EU project.

Climate Days for school groups

Four Climate Days each were held in autumn 2020 and autumn 2021 for groups of schoolchildren from lower secondary schools in Vienna. The participating youngsters had the opportunity to learn about the importance of measures to mitigate the effects of climate change.
The Climate Days met with a great deal of interest, with around 150 schoolchildren and their teachers participating in the activities at the Inselinfo service centre on the Danube Island in 2020 and 2021.

Scythe mowing courses

Sustainable grassland management practices help to preserve and enhance biodiversity in ecologically sensitive zones and are also suitable for use on the Danube Island.
In 2022, staff from Municipal Department MA 45 – Water Management und Municipal Department MA 22 – Environmental Protection thus took part in two workshops on scythe mowing under the auspices of

of the LIFE DICCA project.

Experts led a programme of guided tours at the 2022 Diversity Day

International networking

- **2019** – Participation in the Covenant of Mayors Investment Forum – Energy Efficiency Finance Market Place, Brussels, Belgium
- **2019** – Participation in the 28th International Conference of Climate Alliance, Rostock, Germany

- **2019** – Participation in the 17th European Week of Regions and Cities, Brussels, Belgium
- **2021** – Participation in the IUCN World Conservation Congress networking event, Marseille, France
- **2022** – Study tour, Nijmegen, Netherlands
- **2023** – Participation in ECCA, the 6th European Climate Change Adaptation Conference, Dublin, Ireland
- **2024** – Participation in the Conference on Translating the Green Deal into Action, Brussels, Belgium
- **2024** – Networking event with other cities facing similar situations, Toulouse, France

Audioguide tour of the Danube Island

Visitors can use the free "Hearonymus" app to discover the Danube Island. The audio guide "Things to see on the Danube Island" offers a circular tour providing fascinating insights and information about the island:

- The Danube Island's flood protection function
- Leisure and recreation facilities
- Flora and fauna
- Oxbow lakes and hidden ecological niches
- History of the Danube in Vienna
- Climate change and its impact on the Danube Island
- The climate gardens

How it works

Download the "Hearonymus" app to your smartphone from Google Play or the iOS App Store. Then launch the app, search for the keyword "Danube Island" and download the guide "Things to see on the Danube Island".

The downloaded guides will be stored on your smartphone, so the guide can also be used without an internet connection.

Download app

History of the Danube Island

The Danube Cut

Until the first major regulation works at the end of the 19th century, the Danube near Vienna consisted of countless main and subsidiary channels. Vienna was repeatedly hit by devastating floods.
The territory now occupied by the New Danube and the Danube Island was once a constantly changing riverine wetland landscape. Then, from 1870 to 1875, the Danube was regulated with the construction of the so-called Danube Cut. A 450-metre-wide flood plain and protective dykes along the left and right banks were designed to protect Vienna from flooding.

The New Danube flood relief channel

Subsequent periods of high water and flooding soon revealed the limitations of these flood protection facilities. However, it was not until after the fatal floods of 1954 that a new Danube regulation plan was drafted, and other options such as raising the height of the dykes or widening of the Danube riverbed were ruled out.
In 1969 the City of Vienna passed a resolution approving the "Improved Flood Protection for Vienna" project, which foresaw the construction of a new flood relief channel, today's New Danube.

Construction of the Danube Island

Between 1972 and 1988, 38 million cubic metres of material were excavated and two million cubic metres of armourstone were used to secure the bed of the channel and its enclosing embankments.
The Danube Island was effectively a side-product, formed by depositing the excavated material between the flood relief channel (New Danube) and the main river (Danube). Today, three barrages on the New Danube – the inlet barrage at Langenzersdorf, Wehr 1 and Wehr 2 – serve to control the throughflow when the river is in flood and regulate the water level outside periods of high water.

A "green lung" for leisure and recreation

With a length of 21 kilometres and a surface area of around 4 square kilometres, the Danube Island is Vienna's largest waterside recreation area. Not only is the island a vital part of Vienna's flood protection infrastructure, it also has much to offer for people, animals and plants alike.
The landscape of the northern and southern sections of the island was designed to be near-natural in character, to create habitats for native flora and fauna. Oxbow lakes previously formed by the Danube, such as Zinkerbachl and Toter Grund, were preserved and embedded into the landscape design. The Danube Island boasts a total of 135 kilometres of footpaths, and idyllic bays with flat beach areas make the bank along the New Danube a paradise for bathers with free public access.