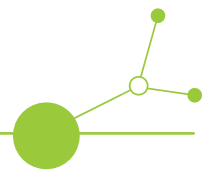


Urban Bathing Water Action Plan Prague, Czech Republic



Final version





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1. Introduction

With an increasing number of summer and tropical days, bathing and other surface water-related activities have become more popular, particularly in urban environments. A healthy lifestyle has also sparked interest in bathing, even outside of the bathing season (including the winter months). This has also led to greater interest in bathing in rivers, which form the backbone of most cities. However, opportunities for healthy bathing in the flowing parts of rivers are often limited due to faecal pollution. In contrast, stagnant waters such as ponds and reservoirs are often negatively affected by eutrophication, which is characterised by the mass growth of planktonic cyanobacteria and algae. Bathing in some stagnant waters is affected by the causative agents of cercarial dermatitis.

The Transnational Strategy was prepared as part of the UrbanBlueHealth project. This joint document outlines improvements in risk identification and monitoring methodologies, as well as the prevention of exposure through early warning systems and the mitigation of pollution sources. These elements have also been reflected in the pilot projects. This action plan provides a practical roadmap for implementing the UrbanBlueHealth results in Prague and, to some extent, across the whole of the Czech Republic.

The National Bathing Water Groups have been established in all UrbanBlueHealth project partner countries. Discussions among members of the Czech group have revealed several topics that should be addressed in future, including the scope and current methods of monitoring, bathing water legislation, and communication gaps.



2. Local Context and Key Challenges

All designated bathing waters in the Czech Republic are situated in stagnant waters including reservoirs, ponds, sandpits and quarries, which are often affected by Cyanobacteria proliferation. According to data from the national bathing water database, approximately 40% of designated bathing waters in the Czech Republic have annual problems with cyanobacteria proliferation (average for the period 2015-2024). The problem is more apparent in hot years. Bathing waters at risk of mass proliferation of Cyanobacteria must be sampled every two weeks (or weekly if the limit is exceeded) for chlorophyll-a and phytoplankton analyses (incl. cyanobacterial counts). However, this frequency is often insufficient to detect rapid changes in Cyanobacterial distribution, and the analytical methods are tedious and do not provide representative results.

In Prague, the largest city in the Czech Republic with a population of over one million inhabitants, opportunities for natural bathing are limited to four designated bathing waters in reservoirs and ponds. There are also three other designated localities with the status of natural bathing water but which are actually non-natural (two man-made bathing ponds with biological water purification and one non-disinfected swimming pool). There are also non-designated waters situated partly in small stagnant waters (usually far from the city centre) and in the Vltava and the Berounka rivers.



3. Synergies of the Action Plan

As part of the implementation of the European Urban Wastewater Treatment Directive and related Czech regulations, a key priority for Prague is the modernization of the sewer system with the aim of reducing the negative impact of combined sewer overflows on the quality of surface water. These structures, which during heavy rains discharge excess mixtures of stormwater and sewage directly into the Vltava River and its tributaries, represent a significant source of flash pollution.

Prague is addressing this problem through a strategy of increasing the network's retention capacity, for example by constructing large-capacity retention basins and trunk sewers capable of capturing the first, most polluted wave of rainfall and subsequently transporting it in a controlled manner to the Central Wastewater Treatment Plant. This reduces both the frequency and volume of untreated wastewater discharges, leading to a better oxygen balance in watercourses and the protection of aquatic ecosystems from bacterial contamination and mechanical pollutants.

Other Czech cities will take a similar approach to the issue of the adverse impact of combined sewer overflows on surface water quality.

The City of Prague's Climate Change Adaptation Strategy is closely linked to water quality in the Vltava River, as it focuses on measures that affect both the volume and pollution levels of stormwater runoff in the city. The strategy supports the development of blue-green infrastructure, such as green roofs, retention basins, and infiltration strips, which slow down stormwater runoff and reduce the discharge of pollutants into the river. This reduces the load on the sewer system and the frequency of overflow from the combined sewer system, which has a direct positive impact on water quality in the Vltava River. At the same time, measures such as vegetation restoration, shading of watercourses, and water retention in the landscape help stabilize water temperature and improve ecological conditions for aquatic organisms. The strategy thus links adaptation to climate change with the protection of water resources and the long-term improvement of their quality.

River basin management planning process under Water Framework Directive is a key strategic tool that translates theoretical nature conservation goals into concrete on-the-ground measures, which have a direct impact on improving the condition of surface waters. Their main benefit lies in a systematic approach to pollution, where attention is not focused solely on large industrial sources but also on eliminating nutrient inputs from diffuse sources, primarily from agriculture. Thanks to these plans, river channels are gradually being revitalized, natural floodplains are being restored, and water retention in the landscape is being promoted, which increases the self-purification capacity of watercourses. Strategic investments in the modernization of wastewater treatment plants and the construction of sewer systems in smaller municipalities, which coordinate these plans, then lead to a measurable reduction in phosphorus and nitrogen concentrations, thereby effectively preventing eutrophication and improving conditions for aquatic ecosystems as well as recreational use of water bodies.



4. Objectives of the Action Plan

This action plan is intended for two levels of bathing waters in the Czech Republic. Firstly, it covers very specific activities related to both designated and non-designated bathing waters in Prague. The second level of the action plan involves systemic changes that will affect bathing waters through the whole country.

The plan aims to:

- Improve monitoring scope and reliability through additional microbiological and chemical parameters for better understanding of health and environmental risks.
- Support the designation of new bathing sites on surface waters.
- Improve monitoring and management of bathing waters with respect of climatic change
- Enhance cooperation and communication among institutions, stakeholders, decision-makers and the public.
- Increase the knowledge and skills of bathing water related professionals.
- Monitor and support activities leading to improvements in the water quality of bathing sites (measures on a combined sewer network).



5. Action areas and measures

5.1. Improved Risk Identification and Monitoring

Activity:

- The use of Sentinel 2 satellite data in practice will provide faster information on the quantity and, moreover, much more comprehensive information on the spatial distribution of cyanobacteria and algae in the monitored reservoirs. It will be used as a supplementary tool not only for Prague's bathing water and for the whole of the Czech Republic.

Responsibility: SZU

Timeframe: Bathing season of 2026 and 2027

Resources: UrbanBlueHealth project budget (until October 2026), SZU internal funds (after October 2026)

Indicative funding: approx.: 5 000 EUR for evaluation of results and preparation of training courses.

Activity:

- Detection of selected pathogens and opportunistic pathogens (e.g. *Campylobacter* spp., *Clostridium perfringens*, *Leptospira* spp., *Acinetobacter* spp.) in water and shallow sediments will be performed. Detection methods (mainly for sediments analyses) were optimized and information about their occurrence is obtained (including positive detections). Soon, we expect to expand the SZU's portfolio of services for investigating problematic locations (e.g. based on a public questionnaire or requests from the public health authority) to include these analyses.
- Monitoring of Cyanobacteria and algae using fluorescence methods (both in-situ and in the laboratory) can significantly accelerate monitoring, in addition, training of analysts is less time demanding (in comparison with microscopic methods) and the uncertainty of determination is also much lower. These methods would be very appropriate for use by laboratories in the monitoring of bathing waters. Appropriate guidelines for this purpose need to be prepared.
- Discussions with members of the National Bathing Water Group have resulted in recommendations to revise the monitoring of cyanobacteria and other legislative changes, it will be necessary to amend Decree No. 238/2011 Coll.
- According to discussion with project partners (mainly Vienna University) and members of the National Bathing Water Group change of legislation requirements for man-made bathing ponds is necessary.



Responsibility: SZU, hydro analytical laboratories, Ministry of Health.

Timeframe: 2026-2030

Resources: UrbanBlueHealth project budget (until October 2026), SZU internal funds, national funds (e.g. Technology agency), Ministry of Health budget,

Indicative funding: approx.: 1 000 EUR for organization of meetings, approx. 5000 EUR for maintaining new methods at SZU and minimum 25 000 for further examination of man-made bathing ponds. Partners from National Bathing water Group/hydro analytical laboratories will pay the participation from their own funds/budgets.

Activity:

- According to the good results obtained during UBH project, a new bathing site will be established on Vltava River in Prague (Branická pláž). This locality will be include to the official list of the Czech bathing water (with all legal obligations - regular monitoring, information of public, reporting to European Commission)
- Monitoring water quality in Vltava River in Prague has been realised and will be continued in 2026 to better recognize risk.

Responsibility: Regional Public Health Authority, Ministry of Health, SZU, Povodí Vltavy s.p.

Timeframe: bathing seasons of 2026 - 2030

Resources: UrbanBlueHealth project budget (until October 2026), Regional Public Health Authority budget, Ministry of Health budget, Povodí Vltavy s.p. budget

Indicative funding: approx.: 1 000 EUR per year for monitoring, reporting, bathing water profile preparation etc.

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5.2. Climate Change Adaptation

Activities:

- Coordination of activities related to the designation of new bathing sites with the 2025-2029 Implementation Plan of the City of Prague's Climate Change Adaptation Strategy

Responsibility: Bathing Water Group members

Timeframe: 2025 - 2029

Resources: Available national funds,

Indicative funding approx.: 1000 EUR for coordination, Partners from National Bathing water Group will pay the active participation from their own budgets.



Activities:

- Inclusion of bathing water issues into the preparation of the 2030-2034 Implementation Plan for the City of Prague's Climate Change Adaptation Strategy

Responsibility: Bathing Water Group members

Timeframe: 2027 - 2029

Resources: municipal budget

Indicative funding approx.: 1000 - 10000 EUR

5.3. Public Awareness & Communication

Activities:

- Web pages of SZU with information on bathing intended for general public will be adapted according to information and knowledge gained from UBH experimental work and experience exchange between project partners. Self-reporting web questionnaire for diseases from bathing will be updated
- Prague's non-designated bathing water browser prepared and operated by Water Research Institute (WRI) will be updated with water quality results and bathing site mapping which has been analysed / generated during the UrbanBlueHealth project.

Responsibility: SZU, CzWA, members of National Bathing Water Group, WRI

Timeframe: 2026-2027

Resources: UrbanBlueHealth project budget, SZU internal funds, budget of WRI

Indicative funding approx.: 4000 EUR for both activities

5.4. Capacity Building

Activities:

- The Czech Bathing Water Group meeting in April 2026 to discuss implementation of action plan and propose solutions
- Training will be organized for public health authorities, operators and local authorities to mitigate health risks and raise awareness (according to the training materials raised from the UrbanBlueHealth project on risk based management)
- An on-line training on using of satellite data for bathing water quality management for Czech users (regional public health authorities, public health laboratories, various hydro-analytical and environmental laboratories, other water-related professionals) will be organized



- Articles professionals on urban bathing water issue will be published in suitable journals (Bazén a Sauna for bathing water operators, Hygiena for regional public health authorities, Vodní hospodářství for other water professionals)
- Development of guidelines for improved monitoring requirements

Responsibility: SZU, CzWA

Timeframe: 2026-2027

Resources: UrbanBlueHealth project budget (until October 2026), SZU and CZWA funds

Indicative funding approx.: 4000 EUR



6. Expected Results

Successful implementation of the Action Plan will bring significant improvements in many aspects of bathing in urban freshwaters, both in Prague area and the Czech Republic.

A designation of a bathing along the flowing part of the Vltava (Braník) will be a pioneer activity from the national perspective. Improved knowledge of the water quality in urban rivers certainly will help to better identify health risk from bathing and can encourage possible followers.

Expanded monitoring and improved risk identification will enable earlier detection of microbiological hazards and risk from Cyanobacteria and Algae, reducing public exposure to contaminated water.

Improved communication tools and public awareness campaigns will enhance transparency, promote safer behaviour among bathers, and increase overall trust in bathing water quality. Capacity-building activities will ensure that local authorities, operators, and health institutions have the skills needed to apply WHO-aligned risk-based management. It is assumed (with the consent of the members) that the National Bathing Water Group will continue. If necessary (e.g. expansion of scope to the entire Czech Republic), it will be expanded to include additional members

Communication with public will increase general knowledge about risk from bathing in urban areas, ensure safer behaviour of bathers and also increase confidence in the quality of bathing water. Capacity-building activities will provide regional public health authorities, bathing water operators, laboratories and other water professionals skills needed for risk-based management in line with current WHO guidelines.

Overall, the Action Plan will lead to more coordinated governance, including amendment of the national legislation, better protection of public health, and long-term sustainability of Prague and the Czech Republic bathing environment.



7. Abbreviation and Acronyms

CZWA.....	Czecz Water Association
WIR.....	Water Research Institute