Research Proposal

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Contents

Abstract

The benefits of urban nature on people's health, for fostering community, and for climate change adaptation are widely acknowledged. Within the discourse of environmental justice (EJ), these benefits have been used to demonstrate that equitable access to healthy, unpolluted environments is a human right, with scholars like Anguelovski and Agyeman arguing that marginalised and vulnerable populations are disproportionately affected by lack of access to such spaces.

Despite extensive studies on the accessibility of urban green spaces (UGS), urban blue spaces (UBS) have not been given the same attention. Moreover, research on UGS accessibility has focused on geographical accessibility, such as proximity to home, and has seldom considered subjective experiences as influencing access. However, accessibility is a multidimensional and complex concept which cannot be reduced to spatial distribution. As Wang, Brown and Liu put forward, perceived accessibility that addresses subjectivities, socio-personal characteristics, and the quality and diversity of the space, must also be considered.

My research addresses the issue of perceived accessibility to UBS by looking at the extent to which subjective experiences and perceptions shape how (un)fairly accessible high-quality, public UBS interventions are, and what this means for the environmentally just city. I will pay special attention to socio-economic and personal characteristics such as age, gender, income, ethnicity, cultural practices, and general preferences for infrastructure and aesthetics.

Specifically, I will be looking at three blue spaces in Copenhagen located in neighbourhoods with varying socio-economic and demographic profiles. A combination of observations of human activity, surveys with users, and interviews with experts will allow me to study a variety of perspectives on UBS. I will discuss the extent to which the city of Copenhagen offers equitable opportunities for people with different backgrounds and preferences to enjoy UBS, and juxtapose this against the ideal of the environmentally just city. Given the availability of UBS in Copenhagen and the importance the city is giving to harbour baths and urban beaches, it will be particularly useful to evaluate whether Copenhagen's UBS caters to everyone's needs.

I argue that perceived accessibility is an important dimension of EJ, because public UBS are places of community, attachment, and well-being. Ignoring subjective experiences that differ from the mainstream can contribute to social inequalities, discrimination, and displacement.

In conclusion, my research will closely examine how perceptions shape accessibility to UBS. It will serve to understand what perceptions and experiences those who control access (city planners) must take into account if UBS are to be usable by everyone.

Literature review

This section reviews the academic literature on urban blue spaces (UBS), and incorporates literature from wider fields like urban ecology. It also introduces concepts that are central for understanding equity with regards to UBS, namely environmental justice and accessibility.

The benefits of urban blue spaces

In an urban context, UBS have undeniable positive effects which Gascon et al. (2017) summarise as "stress reduction, increased physical activity, promotion of positive social contacts, increased place attachment and the reduction of extreme temperatures". These benefits fall under three broad categories: health and well-being, community, and climate adaptation. First, being exposed to water makes people feel better, happier, and be more active. There is an extensive repertoire of quantitative studies demonstrating these effects on people's health and well-being (Gascon et al. 2017, Britton et al. 2020). Qualitative studies also show that exposure to UBS improves mental health, regardless of how people interact with it (Garrett et al. 2019, van den Bogerd et al. 2021). Second, UBS give people the opportunity to connect with each other and with nature. UBS revitalisation projects can be an opportunity to create community bonds by engaging residents in the design and implementation process. For example, the small-scale waterfront intervention in a deprived area of Plymouth, UK, revealed that residents who participated in the project reported a greater sense of well-being and life satisfaction due to feelings of community belonging and safety (van den Bogerd et al. 2021). Lastly, in the context of climate change, UBS can naturally alleviate pollution, heat stress, flooding or drought, and increase the climate resiliency of cities (Lin et al. 2020, O'Donnell et al. 2021).

Given the potential of UBS, and that public space is highly valued commodity in the city, revitalising unused UBS into attractive environments helps make the most of all urban areas.

The social and environmental consequences of blue urban renewal

Despite the undeniable benefits of water in the city, transforming UBS into high-quality public space can have harmful consequences on people Two mechanisms of action are exclusionary planning, and neoliberal urban renewal. These reinforce socio-spatial inequalities by discriminating against people on the basis of socio-economic and cultural differences, or by way of racist and sexist practices.

First, in contrast to the social bonds that can be fostered when residents are involved in revitalisation projects, connections between people and with nature can be disrupted if UBS are revitalised without considering the local community's perceptions. As Toomey et al. (2021) demonstrate, people do attach meaning to degraded or polluted UBS, and it can't be assumed that these hold no value for the local community. However, marginalised or stigmatised communities may find it hard to communicate their experience when consulted by planners, because they lack a common language to articulate their reality. And vice-versa: wealthy, white, males may not be capable of understanding the experience of 'others' (Anguelovski, Brand, et al. 2020). To this end, Toomey et al. (2021) propose using language like "place-disruption" and "place-protection" to promote mutual understanding and avoid privileging the values of mainstream groups over those of marginalised communities.

Second, cities are prioritising economic growth over well-being and community. Local governments are exploiting nature-based solutions to brand their cities as green and liveable, and to promote greening (which includes blue space) as a win-win strategy where "no one is left behind by the trickle-down of benefits from green infrastructure" (Anguelovski and Connolly 2021). Anguelovski et al. (2021) explain that with "glitzy green" renewal projects, cities try to attract a new creative class rather than addressing public UBS as a common good and prioritising the concerns of existing residents (Wessells 2014, Anguelovski, Brand, et al. 2020). These strategies perpetuate inequalities by privileging the values of white, environmentally privileged upper classes who can afford to live near nature. This phenomenon is referred to as green gentrification, where upgrading green space causes the exclusion and displacement of residents, who are priced out to a neighbourhood with less attractive nature. Given the similarities in benefits and attractivity of living near blue space, it is not farfetched to assume that *blue gentrification* also takes place.

The environmental justice principle

To articulate the phenomenon whereby natural spaces provide social and environmental benefits but at the same time discriminate against vulnerable populations, scholars have used the concept of environmental justice (EJ). EJ has evolved into the principle that everyone should have equal opportunities to access clean, healthy, unpolluted spaces, and in turn, share environmental burdens. As Agyeman et al. explain (2016), it started as a social movement in the US in the 1980s at a time when it became obvious that ethnic minority and low-income populations were disproportionately exposed to polluted and degraded land.

Since then, EJ has concretised into an academic discourse and is typically broken down into three categories: distributional justice, procedural justice, and recognition justice. Applied to public blue-green space (BGS), distributional justice refers to where these are situated in the city. Procedural justice deals with questions of discrimination in public participation and decision making. Recognition justice addresses individual and community perceptions and preferences which may influence how people interact, or not, with the space.

The applications of EJ on blue spaces are limited in comparison to green space. One study that stands out is Raymond et al.'s (2016) research on the diversity of people, activities and perceived unpleasant experiences in Helsinki's blue spaces. The wide range of opinions they find show the importance of considering a multitude of perceptions when planning UBS, because people of different age, income, gender, ethnicity, etc. have varying preferences.

It follows that environmental (in)justices take place in public space. Although there is no direct economic barrier to public space (there is no entrance fee), rarely is it fairly accessible to everyone. There exists both physical and non-physical barriers which can prevent individuals, or whole communities, from benefiting from urban nature.

Geographical vs. perceived accessibility

To date, studies that evaluate the degree to which people can make use of BGS have focused on measuring geographical accessibility, such as spatial distribution and proximity to people's homes. However, this ignores the fact that accessibility is a multidimensional concept which cannot be reduced to purely a physical dimension (Wang, Brown, and Liu 2015). Perceived access is also important to consider when studying social benefits of BGS. Are people happier and healthier because they live near nature, or because they can afford to? As Anguelovski et al. (2020) put forward, environmental justice must go further in understanding "how [...] people's experiences of place shape their perception of access".

To this end, Wang et al. (2015) suggest focusing on perceived accessibility, ie. "the quality, diversity, and size of the green spaces or socio-personal characteristics including age, income, safety, and cultural concerns", and suggests that perceived accessibility is a better determinant of green space use than proximity to home (Wang, Brown, Liu, and Mateo-Babiano 2015). This shows that in the context of environmental justice, recognition can be more influential than distributional justice in detecting unequal access to nature.

TODO: explain perceived accessibility more?

Research intention

Although evidence shows that perceived accessibility is significant in determining use of parks, there are limited studies that translate this idea to UBS. However, UBS are particularly interesting because natural water bodies like rivers or lakes are relatively immobile and cannot be planned in the same way as public parks. Thus, when it comes to providing equal opportunities to access UBS, perceived accessibility becomes more relevant than geographical distribution. This makes it worthwhile to explore the subjective experiences of UBS users, in order to understand the barriers to achieving environmental justice.

Problem Statement

The principle of environmental justice entails equitable access to clean, unpolluted environments, such as high-quality public UBS. This is important because exposure to water bodies improves people's health and well-being, and being at the waterfront can build relationships within a neighbourhood or community. In reality, a multitude of barriers exist which may prevent individuals or communities from visiting UBS even if they live nearby. The barriers include physical characteristics like preferences for the quality, size, or infrastructure of the site; and non-physical characteristics like socio-economic and personal factors including income, age, gender, ethnicity or cultural concerns. Understanding this phenomenon is important because public UBS are places of community, identity, attachment, and well-being. Ignoring subjective experiences that differ from the mainstream can contribute to social inequalities, discrimination, and displacement.

Given the above, my research aims to answer the following question: **to what extent do subjective experiences and perceptions shape how (un)fairly accessible high quality, public blue space interventions are, and what does this mean for the environmentally just city?**

Research design

The main questions I need to address in order to answer the question **to what extent subjective experiences shape how (un)fairly accessible high quality, public blue spaces are, and what this means for the environmentally just city**, are:

1. Who is using the UBS, for what purpose, and how they feel about it
2. Why they choose to visit the space, what enables or inhibits their visit
3. How UBS across the city compare in terms of uses, perceptions, preferences, barriers, etc.
4. Whether, given the above, there are fair opportunities in the city for different groups to enjoy UBS

My research will be explanatory because I aim to explain whether or not there seems to be equal opportunities for people to access UBS. I will take an inductive approach, whereby my theory will emerge from the data I will collect on the people's uses and perceptions of UBS, and on the quality and diversity of UBS available. The theories framing the research are environmental justice (everyone should have equal opportunities to access clean, unpolluted, healthy environments) and perceived accessibility (the subjective, socio-personal, preferential characteristics that shape access).

To assess whether the city offers equal opportunities to UBS based on perceived accessibility, I will conduct a qualitative comparison of at least three cases in the city of Copenhagen. Comparing UBS to understand elements of environmental justice has been done by Raymond et al. (2016) when they studied activities and perceptions of users in over 100 UBS in the Helsinki Metropolitan Area.

The data collection method should allow me to gather information on the uses and perceptions people hold of UBS, and to compare UBS across the city. To this end, Raymond et al. used Public Participation GIS (PPGIS). PPGIS is recommended as research method which "might uncover local spatial knowledge and perceptions" (Anguelovski, Brand, et al. 2020), and has been used by BlueHealth researchers to "uncover spatial aspects of people's relationships with blue spaces" (BlueHealth n.d.).

Wang, Brown and Liu (2015) have taken a different approach, ...

Another method employed for studying people's interactions with UBS are social impact assessments. In their research, Toomey et al. (2021) triangulate three methods to analyse people's place making practices at a UBS: observations, short interviews with users, and ¡?¿.

Methods of data collection and analysis

Data collection

My methods are based on the ones used by Toomey et al. (2021) in their research on people's attachment to degraded UBS. They use a combination of observations and short interviews as social assessments, which are "designed to gather information on a specified geographic area through quantitative counts of human activity and signs of human use, coded interview data tagged to specific locations, and qualitative field notes capturing participant observations" (Toomey et al. 2021).

Field observations will consist of structured quantitative data and qualitative data, and people will be categorised roughly by age (under 18, 18-65, 65 and above). They will be made on three things. First, the type of **activity** people are carrying out - what people are doing when they are at the UBS. For example, walking, sitting, swimming, fishing, etc. Second, the **sociability** of people - whether they are on their own, in pairs, small or large groups. Third, **signs of human interventions** which might influence perceptions of the UBS and give insights into the attachment people have to the space - signs of activities and events, signs of care or neglect, art and writings, environmental stewardship, and more.

Observations will be combined with rapid interviews with UBS users. The aim of these interviews is to gather more personal data, to gain more insights on people's perception of UBS. Specifically, I will ask users what they are doing at the site, or what they usually like to do; why they choose to come here; how often they visit and how far they travel; if there is anything preventing them from accessing the site; where else they like to go that is close to the water; what do they particularly enjoy at this or other sites; when was the first time they visited the site, and if they have noticed changes since; and on a scale, how safe/clean/attractive the space is.

Data analysis

Observational and survey data to be categorised into quantitative and qualitative data.

Analysing the qualitative and quantitative data from observations of UBS and short interviews with users will allow me to understand:

- The quality and diversity of the sites
- The activities people choose to carry out

Method	Data to be collected	Knowledge it will bring
Observations at the UBS	Activities carried out; sociability of users; signs of human activity and attachment	Who is using the space, how; what activities are taking place and/or encouraged
Short interviews with users of the UBS	Purpose and frequency of visits; barriers to access; visits to other UBS; perceptions of safety, cleanliness, attractivity	Reasons for choosing this particular space; perceived accessibility barriers; how people feel about the space; how people feel this space compares to other UBS they know

Figure 1: A summary table of the data collection methods, what data they will help collect, and the purpose of collecting this data for the research

- The attachment people have to space???
- How accessible people feel the space is to them
- On a scale, how clean/safe/inviting do they think the space is

Case study

The context of Copenhagen

To assess the opportunities for accessing UBS in everyday life, the sites should be located in a single city. Copenhagen makes for an interesting case for the following four reasons. First, Copenhagen is located on the Kattegat strait and has 92 km of coastline (**Comertler2017**) and water features prominently in the urban landscape. Second, due to the amount of shoreline in Copenhagen and the city trying to position itself as a world leader in sustainability, there have been many blue space rehabilitation projects since 2002. Today, there are four harbour baths (Island Brygge, Fisketorvet, Sandkaj and Sluseholmen) and various urban beaches (Amager Strandpark, Svanemølle) (VisitCopenhagen n.d.). Third, Copenhagen is experiencing an increase in poverty and ethnic segregation (Moller and Larsen 2015), as well as a growing racist discourse in the media and politics. For example, through the classification of some neighbourhoods as 'ghettos' (Simonsen 2008). This evolving socio-economic landscape and its surrounding discourse

make it important to understand who feels like they can access UBS, and who might not. Finally, Copenhagen's reputation as "the most liveable city" (VisitDenmark 2021), due in part to the swimming spots in the harbour, begs the question - for whom is the city liveable?

Potential cases

With Copenhagen as a location for the research, specific units of analysis must be defined. Every UBS and neighbourhood will have a different set of social, economic, political, cultural or environmental conditions which influence who uses the space, why, and how they feel. In order to uncover these conditions, the units of analysis should be scoped to specific locations on the water where people can carry out a multitude of activities like sitting, swimming, XX. The sites should have been rehabilitated by the city, be public and free to use. Since my research is focusing on perceived accessibility, which is rooted in socio-economic, cultural and personal characteristics, the UBS should be located in neighbourhoods distinct socio economic status. Social economic status (SES) is recognised as influencing perceived access to UGS, with scholars like Wang, Brown and Liu showing that people in neighbourhoods with lower SES have lower perceived accessibility to parks (2015).

The maps below (ref. figure 2-3?) represent income and citizenship statistics of neighbourhoods in Copenhagen retrieved from Denmark's statistic bank (of Copenhagen n.d.). These statistics and the list of harbour baths and beaches on the VisitCopenhagen website (**visitcopenhagen**) served to shortlist five UBS: the Sandkaj harbour bath, the Svanemøle beach, the Sluseholmen harbour bath, the Amager beach and the Kastrup sea bath (see Figure 4). I will most likely not be able to collect on all five spaces, but at this stage a more detailed neighbourhood analysis and a visit to the spaces is required to make a final decision. I also considered inland UBS such as lakes or rivers, which would be interesting to compare with the high-profile harbours and beaches. However I could not identify any that seemed like places that people considered particularly valuable (ie. not possible to linger, swim, play sports, fish, etc.). Visiting these places might change my this interpretation.

¡Figure 2: map of copenhagen neighbourhood income statistics¿ ¡Figure 3: map of copenhagen neighbourhood population statistics¿

Sandkaj Harbour Bath is open for swimming year-round. It is located in the Nordhavn neighbourhood of the Østerbro district, which is referred to as "the newer part of town", a new and exciting area where cafes and restaurants keep opening and create a buzzing feel around the bathing zone" (**visitcopenhagenSandkaj**). Indeed, the population of Nordhavn has grown

significantly since 2015, and ¡income?¿ (of Copenhagen n.d.).

Svanemøle Strand is also located in the Østerbro district north of the Sandkaj harbour, the Svanemøle beach opened in 2010. It has sand, a pier, and a promenade. Swimming is allowed to take place year-round.

Sluseholmen Harbour Bath is the latest harbour bath to open in 2012, after the city decided to clean up the harbour and make it accessible for swimming to the public. It is a "protective lagoon" (**visitcopenhagenSluseholmen**) with four different pools for children, youth, exercising, diving. It is supposedly used mainly by families living in the relatively quiet and new neighbourhood XX (Bak 2015), due to it being out of reach compared to more popular harbour baths in the centre. This site is interesting because so far, it is intended for the local community and is not (yet?) attracting a wider crowd. Plus, both the neighbourhood and baths are relatively new. This makes it a good location to understand how people are shaping the area, as it develops

Amager Beach has, of course, a beach with sand, and also grassy lawns, sports facilities, and many waterfront activities including XXX. There is a bathhouse open year-round with a wooden deck on one end of the beach.

Kastrup Sea Bath is just south of Amager beach, with views of Saltholm Island and Sweden, equipped with an award-winning architectural structure made of African azobe wood highly resistant to weathering and pests. It is equipped with changing rooms, showers, lockers, swimming facilities, and people can dive from the structure. The water around the structure is deep and thus not ideal for children or those uncomfortable in such waters.

Timeline and feasibility

UBS visits are highly dependent on the weather, meaning that people spend much more time at the water in summer than winter. Therefore, I aim to collect my data starting in August and going up to November. This should allow me to capture a wide range of users and uses, especially given that swimming culture is big in Denmark and people do use UBS all year. I will also be collecting data at different times of the day (morning, afternoon, evening) and week (weekdays, weekend, holidays).

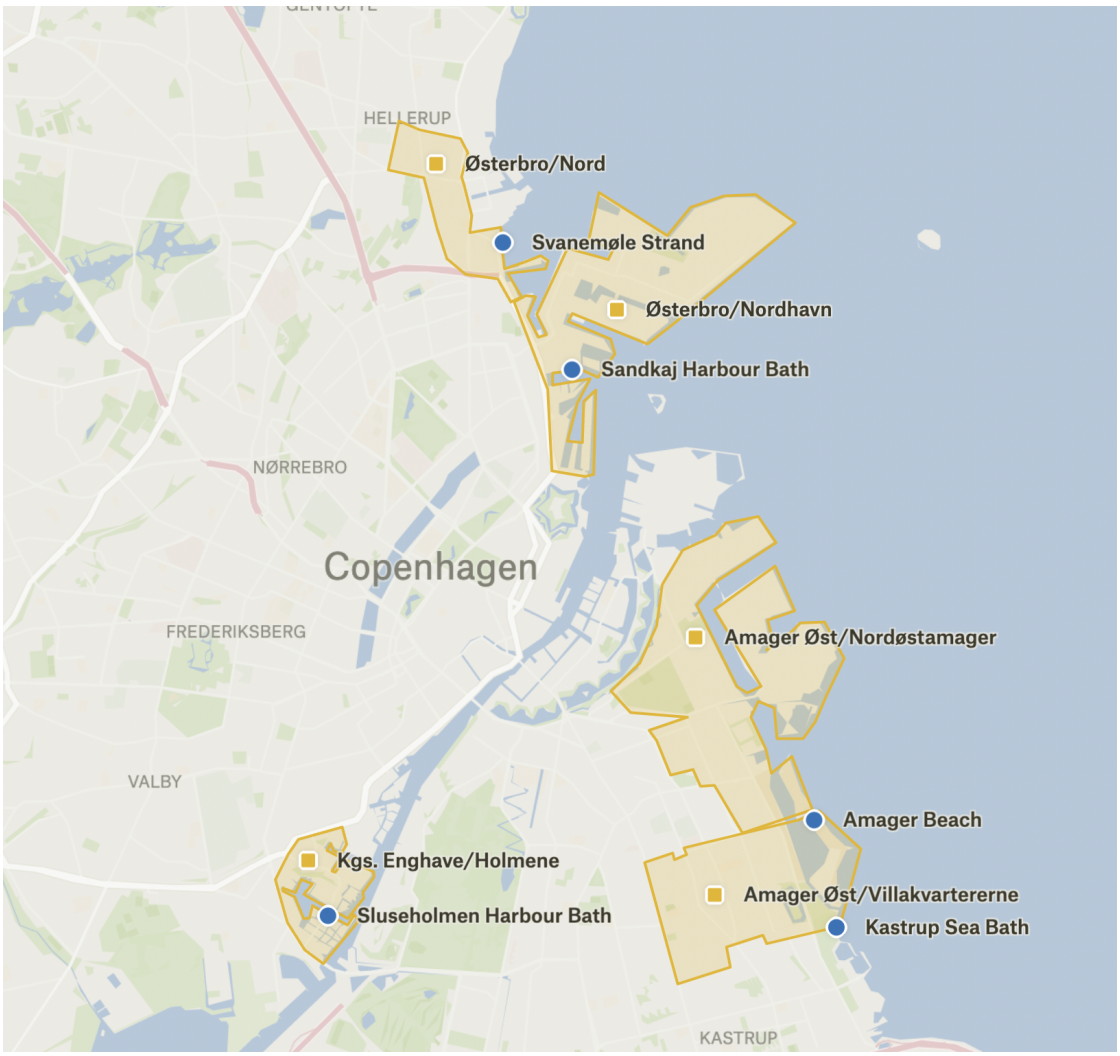
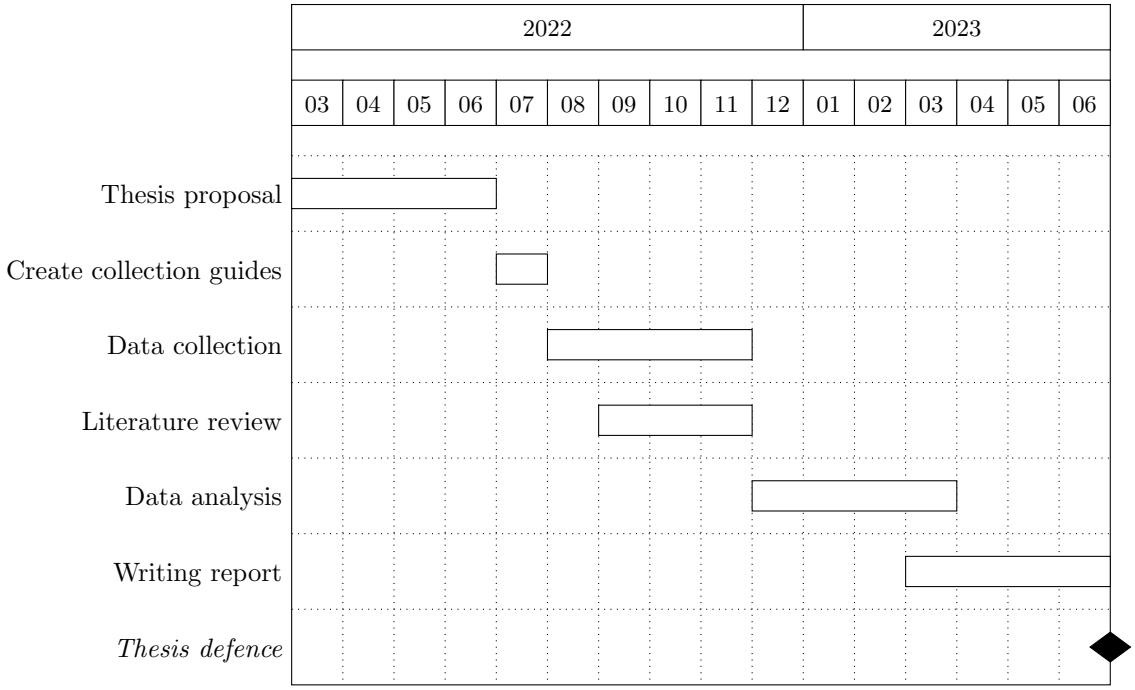


Figure 2: A map of Copenhagen with the shortlisted blue spaces (blue dots) in their respective District/Neighbourhood (yellow areas labelled with yellow squares)



Conclusion

References

Agyeman, J., Schlosberg, D., Craven, L., & Matthews, C. (2016). Trends and directions in environmental justice: From inequity to everyday life, community, and just sustainabilities. *Annual Review of Environment and Resources*, *41*, 321–340.

Anguelovski, I., Brand, A. L., Connolly, J. J., Corbera, E., Kotsila, P., Steil, J., Garcia-Lamarca, M., Triguero-Mas, M., Cole, H., Baró, F. et al. (2020). Expanding the boundaries of justice in urban greening scholarship: Toward an emancipatory, antisubordination, intersectional, and relational approach. *Annals of the American Association of Geographers*, *110*(6), 1743–1769.

Anguelovski, I., & Connolly, J. J. (2021). *The green city and social injustice: 21 tales from north america and europe*. Routledge.

Bak, A. (2015). Copenhagen: An outdoor swimming tour – the best pools and sea baths. https://www.theguardian.com/travel/2015/jul/31/outdoor-swimming-copenhagen-denmark-best-pools-sea-baths

BlueHealth. (n.d.). Softgis. https://bluehealth2020.eu/projects/softgis/

Britton, E., Kindermann, G., Domegan, C., & Carlin, C. (2020). Blue care: A systematic review of blue space interventions for health and wellbeing. *Health Promotion International*, *35*(1), 50–69.

Garrett, J. K., White, M. P., Huang, J., Ng, S., Hui, Z., Leung, C., Tse, L. A., Fung, F., Elliott, L. R., Depledge, M. H. et al. (2019). Urban blue space and health and wellbeing in hong kong: Results from a survey of older adults. *Health & place*, *55*, 100–110.

Gascon, M., Zijlema, W., Vert, C., White, M. P., & Nieuwenhuijsen, M. J. (2017). Outdoor blue spaces, human health and well-being: A systematic review of quantitative studies. *International journal of hygiene and environmental health*, *220*(8), 1207–1221.

Lin, Y., Wang, Z., Jim, C. Y., Li, J., Deng, J., & Liu, J. (2020). Water as an urban heat sink: Blue infrastructure alleviates urban heat island effect in mega-city agglomeration. *Journal of Cleaner Production*, *262*, 121411.

Moller, I. H., & Larsen, J. E. (2015). The socioeconomic and ethnic segregation of living conditions in copenhagen. *Revista Critica de Ciencias Sociais*, (108), 7–30.

O'Donnell, E. C., Netusil, N. R., Chan, F. K., Dolman, N. J., & Gosling, S. N. (2021). International perceptions of urban blue-green infrastructure: A comparison across four cities. *Water*, *13*(4), 544.

of Copenhagen, C. (n.d.). City of copenhagen: Statbank. https://kk.statistikbank.dk/statbank5a/SelectTable/Omrade0.asp?SubjectCode=301&PLanguage=1

Raymond, C. M., Gottwald, S., Kuoppa, J., & Kyttä, M. (2016). Integrating multiple elements of environmental justice into urban blue space planning using public participation geographic information systems. *Landscape and Urban Planning*, *153*, 198–208.

Simonsen, K. (2008). Practice, narrative and the 'multicultural city' a copenhagen case. *European Urban and Regional Studies*, *15*(2), 145–158.

Toomey, A., Campbell, L., Johnson, M., Strehlau-Howay, L., Manzolillo, B., Thomas, C., Graham, T., & Palta, M. (2021). Place-making, place-disruption, and place protection of urban blue spaces: Perceptions of waterfront planning of a polluted urban waterbody. *Local Environment*, *26*(8), 1008–1025.

van den Bogerd, N., Elliott, L. R., White, M. P., Mishra, H. S., Bell, S., Porter, M., Sydenham, Z., Garrett, J. K., & Fleming, L. E. (2021). Urban blue space renovation and local resident and visitor well-being: A case study from plymouth, uk. *Landscape and Urban Planning*, *215*, 104232.

VisitCopenhagen. (n.d.). Copenhagen's harbour baths and beaches. https://www.visitcopenhagen.com/copenhagen/activities/baths-and-beaches

VisitDenmark. (2021). Copenhagen is 'the most liveable city' 2021. https://www.visitdenmark.com/press/latest-news/copenhagen-most-liveable-city-2021

Wang, D., Brown, G., & Liu, Y. (2015). The physical and non-physical factors that influence perceived access to urban parks. *Landscape and urban planning*, *133*, 53–66.

Wang, D., Brown, G., Liu, Y., & Mateo-Babiano, I. (2015). A comparison of perceived and geographic access to predict urban park use. *Cities*, *42*, 85–96.

Wessells, A. T. (2014). Urban blue space and "the project of the century": Doing justice on the seattle waterfront and for local residents. *Buildings*, *4*(4), 764–784.