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# **Urban nature does not stop at the waterfront, neither should urban planning: A case study of street fishing in Stockholm**

## Abstract

While research on *green* urban spaces has established their important values and functions, less attention has been given to *blue* urban spaces and its importance for wellbeing of urban residents. With the project “Blue Urban Commons” (2020-2023) we wish to gain more knowledge about these blue spaces through a case study of Stockholm, Sweden. The aim with this project is to understand how urban dwellers use and depend on city waters for recreation, food, and general well-being, with a specific focus on recreational fishing. This paper consists of four parts highlighting research strands, preliminary findings and reflections concerning what issues are important for planning blue urban spaces. The first part provides an understanding of the various conditions that enables Stockholm to be an attractive city for fishing. In the second part, we present some preliminary findings regarding the diversity of fishers in Stockholm, using an ideal typical distinction between fishing for fun and fishing for food. The fact that many people fish for food in Stockholm raises several questions, such as e.g. on water pollution and their potential health consequences for fishers and the fish, which we present in the third part. We conclude with some reflections on the various goals of planning urban waterfronts and the trade-offs that it includes between food safety and security, equal access, and human and non-human wellbeing.

## Introduction

The notion that urban nature has important values and functions for people living in cities is by now well accepted (Andersson et al., 2014). Nevertheless, most attention so far has been paid to *green* urban spaces; we know comparatively less about *blue* urban spaces despite their value and function for urban sustainability (Beatley, 2014; 2018).

The aim of the research project “Blue Urban Commons” (2020-2023) is to gain more knowledge about blue spaces in cities: the condition of these spaces, but also how urban dwellers use and depend on them for recreation, food, and for their wellbeing. The project studies fishing in the city of Stockholm, Sweden, as a paradigm case to investigate how fishermen and fisherwomen make use of the many opportunities for fishing. Questions that are asked include:

- How is aquatic biodiversity in urban blue space influenced by street-fishing, and vice versa?
- Why do urban dwellers fish in the inner city?

- How is access to and control over urban blue space distributed and organized amongst different social and cultural groups of fishers?
- How can planning and use of urban blue space (better) contribute to a sustainable and just city?

The case study of (recreational) urban fishing can elucidate as an example how access to and control over urban waters as a common resource can be sustainably managed. The project is funded through FORMAS, a Swedish Research Council for Sustainable Development, and involves researchers at Uppsala University, Stockholm University, and the Swedish University for Agricultural Sciences.



### Fishing in Stockholm

Just like many other capitals, Stockholm lies at the coast. But the city also borders one of the largest lakes in Sweden – lake

Image 1: Two fishermen fishing in Stockholm. Illustration by Tessa Joosse

Mälaren. The brackish water in the center of the city forms a habitat for more than 30 fish species (Figure 1), including salmon, bream, trout, pikeperch, European perch, Northern pike, smelt, herring, and roach among others. Hence fishers and fishing have always been an important feature in the city since long (Boonstra et al., 2019, p. 5). Nowadays a very diverse group of people fish throughout the year, but especially during the warmer months. The group consists of mostly (but not exclusively) men with very different social and cultural backgrounds. They include e.g. tourists, IT professionals, families on a day out, kids and teenagers, seasonal workers, and refugees (Joosse et al., 2021, pp. 4-5).



To understand why so many and such a diverse group of people fish in Stockholm, it is important to understand Sweden's "Allemansrätten" (the right to roam) and citizens' relationship to accessing green and blue commons. Ideas and practices around "friluftsliv", i.e. being outdoors in nature and cultural landscapes for well-being and recreation, emerged in the 1800s, and gradually became an important aspect of Swedish national and cultural identity, until this day (Sandell & Sörlin, 2008).

During the 1930s and 1940s when the Swedish urban population grew, the notion of Allemansrätten gained popularity (Sandell & Svenning, 2011), to make it easier for urban dwellers to leave the city and engage with nature. Since then, Allemansrätten has been legislated and today it entails amongst others the right to access, walk, cycle, ride and ski, and camp (though a limited time) on any land, with the exceptions of private gardens, the immediate vicinity of a dwelling house and land under cultivation, in addition to specific restrictions for nature reserves and other protected areas (Naturvårdsverket, 2018). It also gives the right to pick wildflowers, mushrooms, and berries (provided they are not legally

Figure 1: Fish species in Stockholm city, created by Rebecka Svensson

protected), but not to hunt in any way (Naturvårdsverket, 2018). Though Allemansrätten gives people the ability to roam freely, it is stressed that with rights comes responsibilities, and an important phrase of Allemansrätten is “Do not disturb, do not destroy” (Bengtsson, 2004).

When it comes to fishing, Allemansrätten is more restricted, and fishing requires licenses in most lakes and certain parts of the coast. However, if using standard recreational fishing gear (such as angling with rod and reel), there are no required fishing licenses in Sweden’s five largest lakes (Vättern, Vänern, Mälaren, Hjälmaren, and Storsjön), or along the coast of the Baltic Sea, The Sound, Kattegat, and Skagerrak (Swedish Agency for Marine and Water Management, 2018a). Sweden has a relatively high number of recreational fishers compared to other countries. Whereas global recreational fishing is approximately 11.5 % of the global population (Cooke & Cowx, 2004), while 13,6 % of Sweden’s population fish recreationally (Swedish Agency for Marine and Water Management, 2018b), and Sweden attracts a growing number of recreational fishers from abroad.

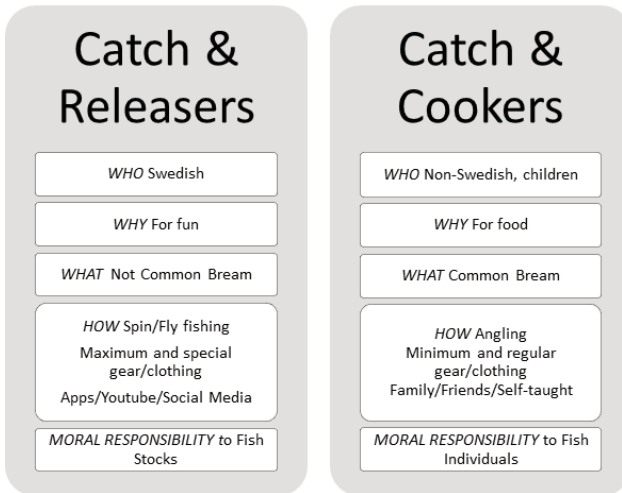
When it comes to fishing in Stockholm, the earliest records of commercial fishing started in 1436 (Svedäng & Rolff, 2021). In the 1970s water treatment in Stockholm drastically improved the water quality and in 1985 “Fritt handredskapfiske” was introduced, which allowed fishing without licenses if one is angling with rod and reel. Certain regulations, however, still apply concerning bag limits, size limits, gear restrictions, and angling restrictions during the reproductive period (Andersson et al., 2017). In the 2000s the City of Stockholm also started releasing farmed fish in the city waters to help sustain recreational fishing while preserving the wild populations. Today the city is releasing approximately 140 000 sea trout, 12 000 salmon, 22 000 pikeperch, and 5000 pikes each year (Stockholm City Fish Welfare, 2020). The combination of restocking with farmed fish; the blend of fresh water and the brackish water creating species-abundant aquatic ecologies; and lenient regulation, make fishing in Stockholm a popular activity for many people.

In recent years, the city and fishers have noted a decline in fish in the city waters, which can be attributed due to several factors, such as climate change; growing populations of seal and cormorants (both eat fish); pollution and eutrophication; an increase of certain diseases and syndromes (e.g. the thiamine deficiency syndrome M74 that reduces salmon’s reproduction); an increase of the three-spined stickleback fish that eats both certain fish species that eat algae and eats the eggs of certain predatory fish, influencing greatly the ecosystems; construction in the protected “beach” areas close to the water; and lastly due to overfishing of both commercial fishers and recreational fishers.

## Fishers of Stockholm

Fishing is a rather broad term encompassing many different styles and methods (Boonstra & Hentati-Sundberg, 2018, pp. 80-81). It is common when talking of fishing to distinguish between recreational fishers and subsistence fishers (Young et al., 2016, p. 115). Recreational fishers are generally considered as fishing for leisure and release their catch back into the water when caught, so-called “catch & release”, while subsistence fishers are fishing for food and livelihood reasons (Cooke et al., 2018, p. 203). Many studies of fisheries often fail to notice that both fishing styles are also performed in city environments (Boonstra et al., 2022).

Building on this common distinction between recreational fishers and subsistence fishers, and our data of interviews with urban fishers in the Stockholm area, we created a typology of *catch and releasers* (C&R) and *catch and cookers* (C&C). While this distinction is anchored in the literature, the typologies of C&R and C&C are treated as two ideal types to help interpreting our data (see Figure 2). Ideal types are heuristic tools for data analysis, they do not provide an accurate model of empirical reality. Indeed, as others have emphasized already, the distinction between fishing for subsistence or fishing for leisure can often not be drawn very clearly (see, e.g., Nyboer et al., 2022). For this reason, we stress the ideal-typical character of our typology. Many C&R fishers we spoke to also, from time to time, keep some of their catch to be eaten later, and similarly C&C fishers would also release catch back, e.g. whenever they found the species unpalatable or too small. This is to demonstrate that a rather fluent boundary separates fishing for food from fishing for fun.



The fishers of Stockholm present a great diversity among them. In our data, all but two were men, though these men represent a wide range of age groups, ethnic and cultural backgrounds,

Figure 2: Ideal types of Catch & Releasers and Catch & Cookers.

and socio-economic positions within society. While fishing seems to be a rather male-dominated activity there is evidence that shows a growing female participation in fishing (Fennell & Birbeck, 2018, p. 504; Burkett & Carter, 2019, p. 1013). The easy access to fishing, whether for food or fun, in Stockholm might well be one of the factors contributing to this diversity among the fishers, but the freedom of access comes with certain governance challenges as to how the waters of Stockholm are and should be administered. Recreational fishing is usually regulated by restricting the amount of fish that is allowed to be kept per day and size limits of fish imposing the need for a catch & release practice (Ferber et al., 2013, p. 1320; Cooke et al., 2018, p. 204). Fishers and scholars argue that releasing catch, due to regulation or voluntary, they are contributing to conservation of fish stocks (Arlinghaus et al., 2007, p. 161). Yet, worth noting is that mortality rates post-release differs between species and are hard to estimate precisely, which implicitly also affects fish stocks in the end (Ferber et al., 2013, pp. 1324-1326). Moreover, there is also a heated debate on the question whether fish feel pain, and what this implies for the practice of catch & release (Vettese et al. 2020). The practices of catch & release and catch & cook therefore also create moral and ethical concerns among fishers and outside the fisher community (Arlinghaus, 2007, p. 161; Cooke et al., 2018, p. 206).

### **Waters of Stockholm**

Water in cities is always a major concern because the density of human activities risk pollution with contaminants (organic pollutants such as PCBs and dioxins, and inorganic pollutants such as mercury and other heavy metals) and pathogens (such as bacteria and parasites). Moreover, pollution is especially accumulating in predatory fish like pike, or in fatty fish, such as herring.

In Stockholm water quality has improved in certain aspects, but pollution is nevertheless still a problem. Also because there constantly appear new pollutants. The Stockholm City Council (*Stockholm Stad*) has as its aim to improve the water quality in its 21 water bodies before the year 2027 according to 'good ecological and chemical status' (EU water directive). For this purpose, the city launched the 'environmental barometer' which includes a number of analyses of water quality in terms of PFOS, mercury, PCB, PBDE, HBCD (Petterson, 2022). They also analyze pollutants in bottom sediments, including copper, cadmium, lead, anthracene, fluoranthene and TBT (Nordlund et al., 2020). These studies demonstrate that the quality of the water cannot yet be labeled as 'good ecological and chemical status'. The situatedness of water bodies, e.g. close to industries or busy transport, is responsible for the different levels of pollution.

From a public health perspective the relatively high level of pollutants make consumption of fish caught in the waters of

Stockholm risky. The Stockholm City Council as well as the Swedish Public Health Authority (*Livsmedelsverket*) therefore advise to limit consumption of locally caught fish to 2-3 times per year. As a consequence, the authorities thus recommend catching and releasing the fish instead of eating it.

Despite these analyses and recommendations there is a considerable number of fishers who consume the fish they catch (see previous section). In some cases it seems that fishers are unaware of the quality of the water, in other cases this information is not considered relevant, as exemplified in the following recurring observation we made during an interview around the city center:

*I ask what he thinks about the water quality? He tells me that there used to be this known politician that would go down by Parliament and take a cup in the water and drink it, to show other European countries how clean our water was. But he smiles and says this probably is not done anymore, and tells me that he thinks pregnant women and women should be careful with eating fish from here, but old boys ("grabbar") like him can eat fish frequently! (Swedish man in his 50s, fishing at Strömmen next to the Old City).*

Pollution, and information about pollution, is thus an important concern that city planners need to address to safeguard ecological and public health (Knuth et al., 2008; Fisher et al., 2010; Bingham et al., 2014; Lauber et al., 2017; Lucas & Polidoro, 2019). Some add that catch-and-cooking fish can be preferred over catch-and-releasing fish from a perspective on animal wellbeing (Arlinghaus et al., 2012) and local food security (Embke et al., 2022). This makes the reduction of pollution in urban waters imperative for making cities both ecologically and socially more sustainable and resilient.



## Planning for humans and non-humans on and under water

Global data analysed by Embke et al. (2022, p. 1) show that consumption of fish caught in urban settings is increasing globally.

Image 2: Fishers at Nacka Strand, a popular spot to fish herring. Image by Tessa Joosse



It is still unknown, however, how much fish caught in the city contributes to food security (Drakopoulos et al., 2020, p.3), because the amount and availability of harvest data is lacking, making it hard to produce accurate estimations (Joose et al., 2021, p.5; Embke et al., 2022, p. 1).

Nevertheless, development of urban environments and its blue spaces requires attention to safeguarding food safety and security as well as equal access. These aspects can be incommensurable and therefore hard for planners to achieve at the same time. Not in the least because of their interrelatedness, which means that if planners address one issue, (e.g. food safety) it will often have (unplanned and unanticipated) repercussions for the other issue, (e.g. equal access).

Some of these incommensurabilities and trade-offs were raised by the interviewees in our data, where they expressed concerns about current city development and how this affects the aquatic ecologies and the fish. Regular fishing spots are disappearing due to housing, industry or service developments on waterfronts in Stockholm. Interviewees e.g. highlighted how fish associations, ornithologists and environmental organizations protested against the new flood gates at Slussen due to its perceived consequences for life in and on the water.

The ecological knowledge that fishers in Stockholm have could be a valuable source of information to be used for making legitimate and prudent trade-offs between various planning goals and objectives. Yet, the question remains how to integrate such knowledge when planning for sustainable urban environments (see also Joosse et al., 2021), especially since much of that knowledge is tacit and embodied (Garavito-Bermúdez & Boonstra, 2022)

Moreover, food security is only one of the aspects urban blue spaces can contribute to. Urban blue space also offers people in the city an opportunity to engage with and experience an alternative and hidden urban reality. Making experiences of urban blue space possible, especially under the water, is a challenge. Fishing is certainly one way, but there are a number of innovative ideas that rely on other means as well. An example from the Netherlands can be used to illustrate ways of connecting people with the urban aquatic environments and its inhabitants. The projects “De paling is ook een Amsterdammer” (trans: The eel is also a citizen of Amsterdam) and “Stem voor de paling” (trans: Vote for the eel) tries to harmonize seemingly incommensurable needs of human and non-human dwellers. Here follows their description:

*“The contrast between 'city' and 'nature' is no longer tenable. We are discovering more and more how rich the city is in non-human life and we also realize that we cannot live without it. It is essential that we learn to reconcile the city and its ecology and that we design in a*

*nature-inclusive way – also for the non-human city dweller. But to find out what the wishes of non-humans are, we will have to make an effort and learn to listen.”* (taken from: <https://www.ambassadevandenoordzee.nl/projecten/in-gesprek-met-de-niet-menselijke-stedeling-stem-voor-de-paling-ii/>)

Another example that supports the needs of fish while also creating a place for humans to connect with nature and its non-human dwellers, is a project just north of Stockholm city with the primary aim to support then Northern pike population. During the project’s opening the initiators, consisting of the Stockholm City Council, WWF, and The Royal Djurgården Administration, explained how they had built a half-meter dam by a field called Lillsjön, enabling them to flood the field during the spring, creating a warm vegetational aquatic environment perfect for Northern pike to spawn in (i.e. lay their eggs). The water is let out in June and the pikes swim out, while ruminants graze there during the summer. The main goal has been to support pike populations, but the initiators see that from the project’s first year the wetland has also contributed to an increase in biodiversity, by attracting other fish species, birds (e.g., ospreys), and various insects. In addition to this, the wetland also serves as a carbon sink and enhances the land’s capacity to hold water during heavy rainfall, which is more frequently occurring in Stockholm. Wetlands in general can with time sometimes experience plant succession, requiring more tending and management to avoid overgrowth. However, in Lillsjön where the water will be drained every June, the initiators reflect that they will most likely avoid this problem of succession. As for the social aspect, the initiators have built an impressive patio for people to be able to easily observe the fish and birds in the wetland (and the grazing animals during the summer) (see image 1). At the official opening of the project, the day was introduced with a trumpeter’s song, various speeches, and nature guides, while day-care children from the area stood proudly with their cut-out pike paper figures, representing the pikes in the wetland they had “adopted”. The opening attracted a variety of people, locals, politicians, fishers, non-fishers, and birdwatchers, many keen and interested in the project.

It can be a challenge for us to create meaningful relationships with life below water. Yet, projects such as the one at Lillsjön or on the Amsterdam eel can help create an interest in the non-human dwellers living close to us. To do so, Driessen (2013) suggests we should tap into feelings of “awe” for fish and their mysterious life, instead of searching for similarity and familiarity with humans, which often can be the case when trying to connect with non-humans. Driessen (2013) proposes that adopting instead an “ethics of awe” can help recognize there is much with non-humans that is beyond humans, and by nurturing this awe and curiosity it can create respect and care for fish.



## Conclusion

Just as planners some decade ago discovered the ‘goods and services’ that nature in the city provides, they are now discovering that urban nature does not stop at the waterfront (Beatley, 2014; 2018). It continues in, on and under the water. Although it is much harder to observe and understand what goes on there, we have highlighted in this paper that there are ways to get to know the blue urban commons. One of these is observing and talking to people that spend time by, on and in the water, such as fishers. But next to fishing, we have to also consider alternative ways of connecting. New ways of thinking about species as fellow city inhabitants, new technologies (e.g. underwater cameras), and the creation of new nature places can help to relate city dwellers to urban blue space. These experiences might allow us to handle the incommensurable goals of urban planning and to have us co-exist in and engage sustainably with our environment.

*Image 3: Opening of the project at Lillsjön in Stockholm, and image of the newly built patio. Top images taken by Anja M. Rieser, the bottom image taken from the Stockholm City Fish Welfare Facebook page (<https://www.facebook.com/fiskevard>)*

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