SANCTUARY & SWEAT
Thermic Bathing as an Instrument for Systemic Health

Jessica Walz

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Abstract

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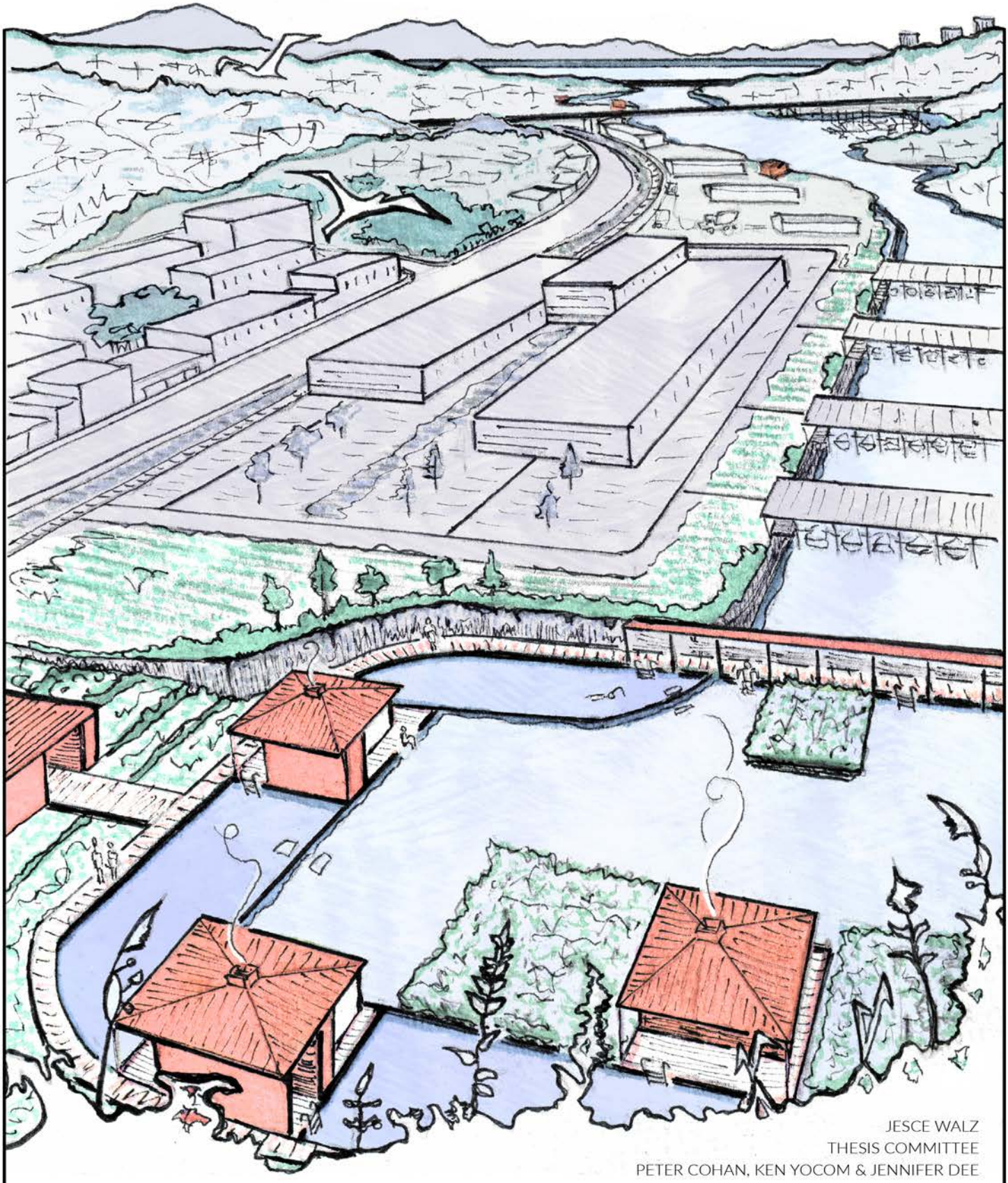
This thesis examines two purification processes in tandem: public bathing and stormwater filtration. It posits that mind/body relationships are analogous to social/ecological relationships, and proposes a thermic bath and stormwater treatment park in Seattle, Washington to examine this idea.

A thermic bath, or sweat and cold bath, is a ritual cleansing space with impacts that extend beyond the bath itself, into each the interior mind and the exterior world. Consistent thermic bathing supports physical health and integration between mind, body, society, and ecology. Waterfront thermic baths invite the public to physically engage the urban-ecological threshold of city shores. Yet in Seattle, many shorelines are armored and industrialized, and water quality is degraded by stormwater runoff. Swimming is deterred and watershed health is continually damaged.

The design investigation of this thesis proposes a network of measures to intercept, filter, and infiltrate stormwater runoff, culminating in a shoreline thermic bath. Together, a waterfront thermic bath and publicly-visible efforts to achieve swimmable waterways form a positive feedback loop. Each initiative promotes increased awareness of and engagement with self, society, and the greater body of ecology.

SANCTUARY & SWEAT



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THERMIC BATHING AS AN INSTRUMENT FOR SYSTEMIC HEALTH

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FOREWORD

One September afternoon in Malmö, Sweden, I ventured down a long boardwalk, purchased a sauna day-pass for 65 Kronor, and stepped through a steel door into an expansive set of open air bathing docks. Little did I know, I had entered another world: Ribersborgs Kallbadhus. The docks were filled with women relaxing, quietly talking and lying in the sun. They moved in procession between the sweat of a wood-fired sauna and the chilling waters of the Øresund. Each person was there for their own reasons, yet all shared in the ritual of purification through sauna and cold bath.

This experience led me to study public sauna. By "public," I mean a sauna/bath that is accessible for a person of any gender to visit at a reasonable cost, can be reached from a residential area by foot or transit, and is open year-round. This kind of empowering space is rare, even in Nordic contemporary culture. Finland, however, remains renowned for its sauna culture, and public saunas are experiencing a resurgence in popularity in Sweden and beyond. In preparation for this thesis, I've studied and visited fourteen such sauna and cold bathing spaces in Finland, and another sixteen in Sweden. Each of these is public; many invite communities of bathers who return to the same sauna throughout their lives.

This investigation began as a fascination with a practice that is connected to mind, body, society, and ecology. It has continued as I've grown to understand sauna as an experiential and living ritual, one that is passed down over time, ever-adapting to cultural change. Bathing rituals vary by context, community, geography, and era, forming a spectrum of sweat bathing traditions around the world. Through this thesis, I intend to affirm the value of bathing rituals and to demonstrate ties between public bathing and systemic health.

Fig. 1.1: Bathers visit Ribersborgs Kallbadhus at sunset, Malmö, Sweden, September 2016

Fig. 1.2: Outdoor changing rooms line the docks at Ribersborgs Kallbadhus, Malmö, Sweden

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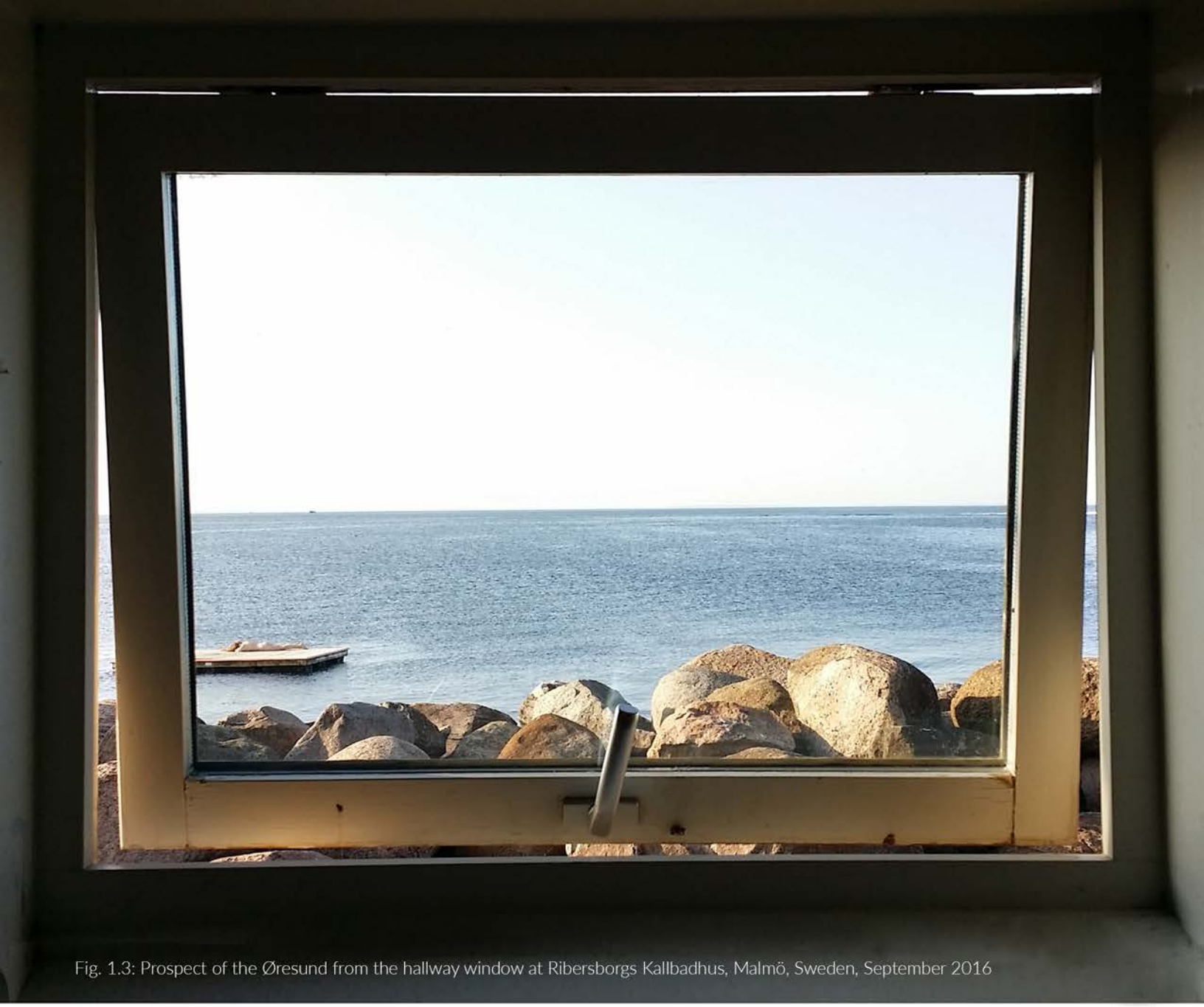

Fig. 1.3: Prospect of the Øresund from the hallway window at Ribersborgs Kallbadhus, Malmö, Sweden, September 2016

OVERVIEW

IN SAUNA VERITAS
"In sauna, there is truth"[1]

Sweat bathing is an ancient ritual that has been understood by many as a form of purification, associated with sacred space. Architect Lisa Heschong writes, "The hearth was commonly considered the domestic sanctuary of a fire god… the sauna presents an example rather closely related to the hearth." [2] The practice of sweat-bathing predates recorded history as an avenue for engagement with individual health, society, ecology, and contemplation. Sweat was sometimes associated with the creation of humankind or with rebirth. Rites of passage were tied to sweat bathing.[3] While contemporary bathing practices tend toward the secular, the bath maintains space for mystery and transformation. An old Finnish saying persists today, "Saunassa ollaan kuin kirkossa" (One should behave in the sauna as in a church). Its intention is to align the ideals of the sauna with "a nonreligious cleansing of body and soul."[4]

Sigfried Giedion outlines two primary reasons for bathing in "Mechanization Takes Command: A Contribution to Anonymous History:"

> "THE BATH and its purposes have held different meanings for different ages… Some periods have viewed bathing as part of a broad ideal: total regeneration. Other periods have seen it as a mere ablution to be performed in swiftest routine. One age may weave bathing into the well-being of the whole man. Another age may see it as an isolated act, or neglect it almost altogether."[5]

[1] This phrase has been popularized in Sweden by the Svenska Bastuakademien, or Swedish Sauna Academy
[2] Heschong, L. *Thermal Delight in Architecture*. MIT Press, Cambridge, MA, 1979, p.53.
[3] "Sweat Bathing and the Body." *Mikkelaaland.Com*, 1 Jan. 2018, https://www.mikkelaaland.com/sweat-bathing-and-the-body.html.
[4] Gannon, Martin J., and Rajnandini, Pillai. "The Finnish Sauna," *Understanding global cultures: Metaphorical journeys through 29 nations, clusters of nations, continents, and diversity*. Sage, 2010, p. 159.
[5] Giedion, Sigfried. "THE MECHANIZATION OF THE BATH." *Mechanization Takes Command: a contribution to anonymous history.* New York: Oxford University Press, 1948, p. 628.

Giedion emphasizes the value of "total regeneration," tracing bathing through a long history of cultural, social, and plumbing systems. Giedion concludes that modern plumbing and efficiency favor bathing as *ablution*. Anthropologist Ivan Lopatin later defines ablution in bathing as a focus on "cleanliness of the body." This differs from cleansing for purification, pleasure, rites, or medicine.[6] Lopatin and Giedion agree ablution has historically been considered a "strictly private affair," whereas regenerative forms of bath, such as sauna, value "communal life." [7]

When understood as a shared and regenerative practice, bathing retains potential to serve as a space of sanctuary that transcends class and stereotype to stimulate health across individual, social, and ecological realms. This type of bath can inspire healthy selves and healthy systems, yet its authenticity depends on equitable access, community interaction, and collective understanding of its value. Given these requirements, can a tradition like sauna take root in a contemporary and non-Nordic setting as an authentic public amenity? Giedion continues:

> "The role that bathing plays within a culture reveals the culture's attitude toward human relaxation. It is a measure of how far individual well-being is regarded as an indispensable part of community life… This is a social problem. Should society assume responsibility for guarding health and promoting well-being, or is this a private matter? Is it a duty of the state to provide the agencies of relaxation regardless of cost? Or should it regard its people as mere components of the production line, leaving them to their own devices as soon as they have finished their work?"[8]

These questions remain vital in our time.

[6] Lopatin, Ivan "Origin of the Native American Steam Bath." *American Anthropologist*, vol. 62, no. 6, 1960, pp. 977.
[7] Lopatin, 986. Giedion, 711.
[8] Giedion, 628.

THERMIC BATHING

"Thermic bathing" is a term formally proposed by Dr. Jack Tsonis at the first meeting of the International Journal of Sauna Studies (IJSS) on June 9th, 2018 during the XVII International Sauna Congress.[9] Tsonis describes the word thermic as "useful because it points to the common factor amongst a variety of similar-but-different bathing modalities: heat."[10] Thermic differs from "thermal," a word commonly associated with hot springs. This term is inclusive of sauna without co-opting it or excluding other traditions. Thermic bathing incites fresh cognitive space around sweat bathing, which is helpful as IJSS works to launch an international research initiative.

IJSS itself, and its first meeting, were inspired by Dr. Tsonis's 2017 paper, "Sauna Studies as an Academic Field: A New Agenda for International Research."[11] The paper notes that various groups (especially in Finland and Germany) have conducted and recorded sauna research, yet this work is scattered, not in English, offline, and generally unavailable to the rest of the world. This will not do for Tsonis, an Australian academic, writer, and avid promoter of sweat bathing.[12] He calls for a formal initiative to survey, condense, translate, and build upon existing studies of sauna and sweat bath, and defines three categories of investigation: "Health Science, History and Culture, and Technology and Design." In this paper, I use the term "thermic bath" interchangeably with custom-specific terms like "sauna," "contrast bath," "bastu," and "kallbadhus."[13]

[9] International Journal of Sauna Studies (IJSS) Business Meeting #1 - Meeting Summary, internal .pdf document
[10] "Thermic" is derived from the Greek *thermē*, or 'heat; direct quote from correspondence with Tsonis in Jan, 2019
[11] Tsonis, Jack. "Sauna Studies as an Academic Field: A New Agenda for International Research." *Literature & Aesthetics* 26.1 (2017). -- This piece is factual, humorous, and illuminating. If you're a sauna nerd like myself, I highly recommend reading it at: https://openjournals.library.sydney.edu.au/index.php/LA/article/view/11424/0
[12] Dr. Tsonis is also the founder of the Australian Sweat Bathing Association (ASBA), for which he has made sweat proof business cards. He is working alongside others to "spread the good heat" in Australia, *a practice he calls "thermovangelism"*.
[13] *Bastu* and *kallbadhus* are Swedish for sauna and cold bath house respectively

SYSTEMIC HEALTH

"Thermic Bathing as an Instrument for Systemic Health," implies that the regenerative impacts of thermic bathing can translate to health throughout a larger system. This capacity is present because a thermic bath is a dynamic place for self-reflection, socialization, practicing vulnerability, and connecting with universal elements like fire, water, timber, and stone. Ritual bath can be a powerful reminder that humans are one part of a complex network of systems, and can help an individual bather to find new perspective on their place within a manifold reality.

I developed the understanding of sauna and cold bath as contributors to systemic health while conducting on-site research in Autumn, 2017. During that year I was fortunate to receive a grant from the Valle Foundation, enabling me to visit fifty-seven saunas, cold baths, and thermal pools. I travelled between Norway, Finland, and Sweden, and Iceland, focusing primarily on Finland and Sweden. I developed particular interest in publicly accessible bathing spaces in cities or small towns, as these are rich intersections of introspection, social life, and ecological access. Of these public baths, not one is a standalone feature. Rather, each is connected to its adjacent community, acting as a vital part of a larger system. This is especially true where thermic baths are located on swimmable waterfronts, inviting bathers to venture beyond the city grid to experience sweat and a cold plunge at the water's edge.

The diagram of systemic health is dynamic. It is networked, cyclical, and multi-scalar, rather than being linear or hierarchical. Inspired by this diagram of vitality, this thesis employs research, sketches, site exploration, and structural design to explore the relationship between bathing as a purification ritual and systemic health.

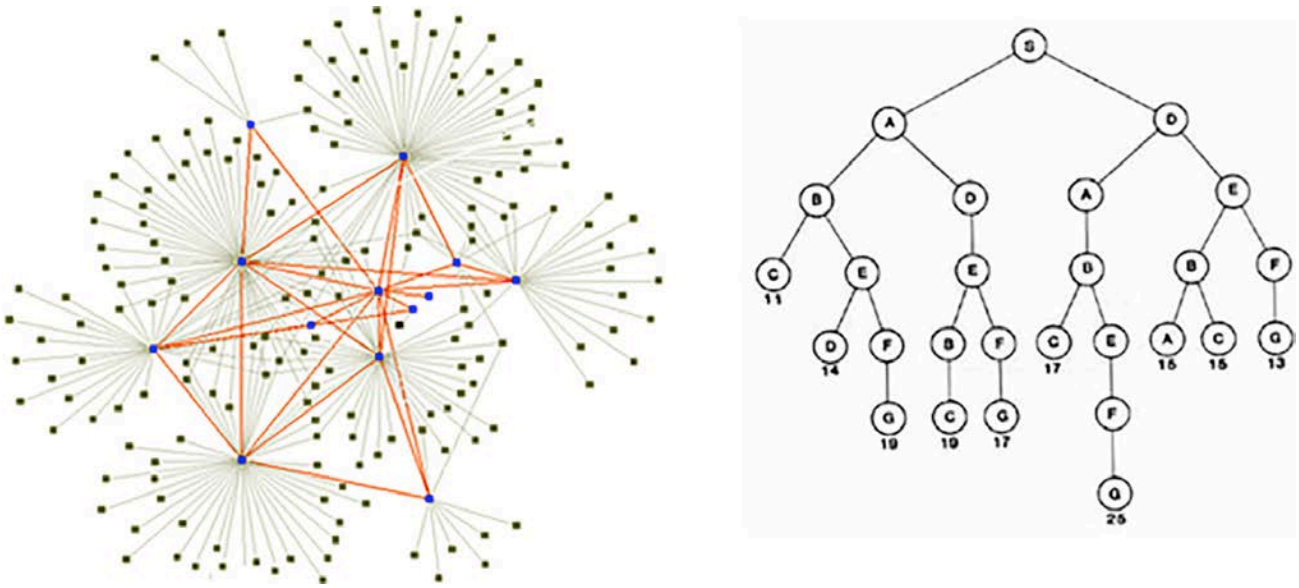

Fig. 1.4. A diagrammatic comparison of networked and hierarchical systems (Michael Paskevicius)

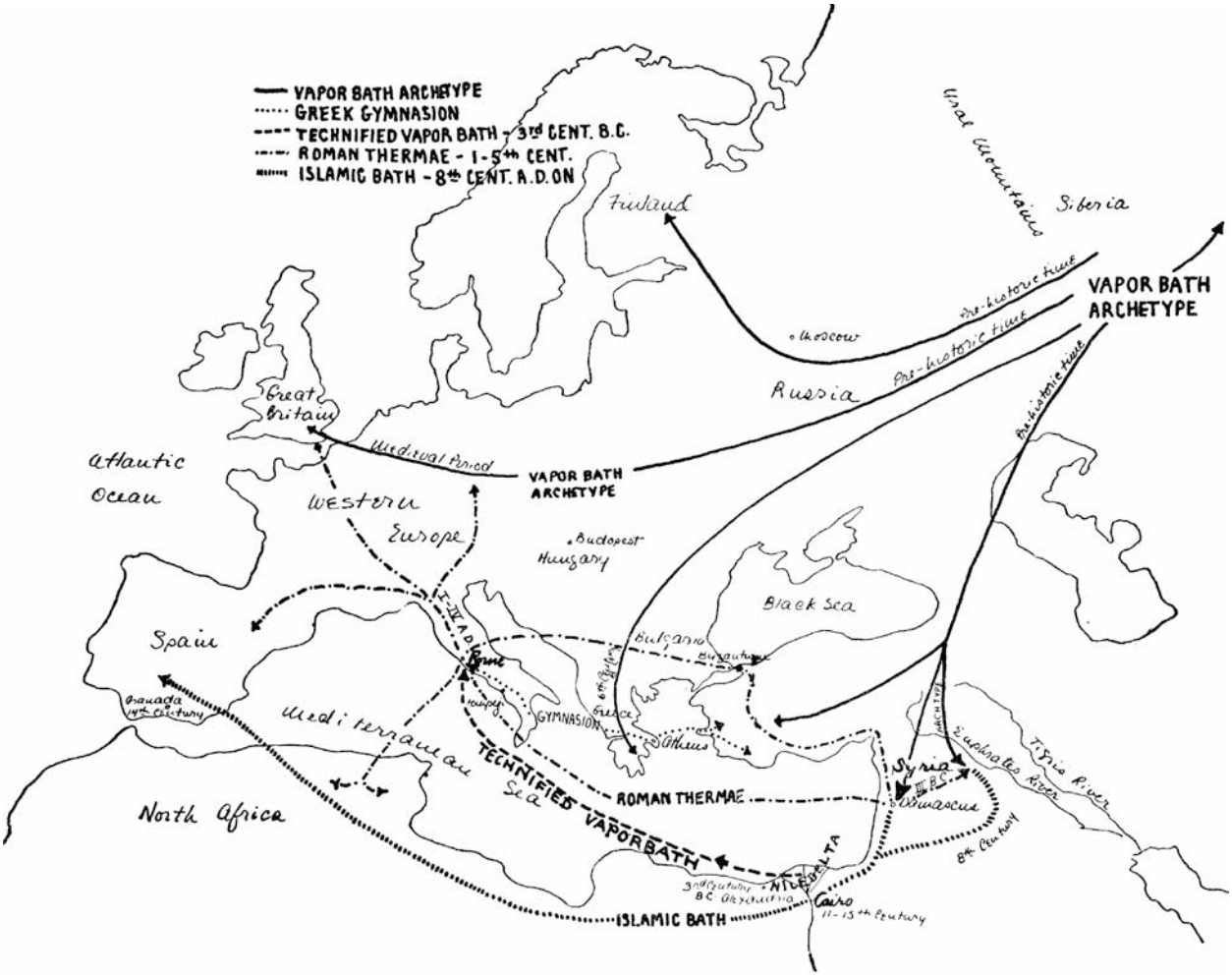

Fig. 1.5 A map tracing the paths of varying types of regeneration. (M. Ecochard and S. Giedion)

SAUNA

What *is* sauna?

In a sauna or other type of thermic bath, a bather enters a hot room and is faced with intense heat. Variations on heat source, humidity level, room layout, regional custom, materiality, and prospect of the outside world all alter the space and experience. However, most forms of thermic bathing include a cycle that could be described as "heat, cool, rest, and repeat." In a typical sauna, the bather sits in the heat for ten or fifteen minutes, depending on heat intensity and personal tolerance. After leaving the sauna, a bather cools off. This can happen through taking a cold plunge, standing under a shower, rolling in the snow, or lying down. After a period of rest, the bather returns to the hot room to begin another cycle of cooling and heating.

A Finnish sauna always includes *löyly*. This is a term that every Finn understands, and one that does not translate to other languages:

> "Examination of the most ancient word stock of the Finno-Ugric languages leads to the origins of the word löyly. It is of Finno-Ugric origin. It does not only refer to the steam rising from the sauna stove as it does in Finnish or Estonian (leil), but one of a person's souls, linked as it is throughout life to breathing.... The word encompasses the span of a human life, which in old beliefs was held to last from the first breath to the last."[14]

Today, this word is commonly used in Finland to describe the practice of throwing or sprinkling water on the hot stones of the sauna stove (kiuaskivet), and the resulting the steam, which moves throughout the sauna room with a wave of hot air that condenses on the skin. Löyly can also describe the quality of the sauna steam itself. Finns generally prefer not to put oils on kiuaskivet. However,

[14] Pentikäinen, Juha, ed. *The Finnish sauna, the Japanese furo, the Indian inipi: bathing on three continents*. Building Information Limited, 2001, p.25.

traditional bathers may whisk, beating their skin percussively with astringent leaves of plants like birch, oak, or juniper, resulting in aromatic air emanating from the leaves' ethereal oils. After enough time in the heat, barriers between the mind and body begin to dissolve. Condensation gives way to sweat passing through the filter of the skin. Once sweat flows freely, a bather has likely found a space of depth and pushed the bounds of their physical comfort. During the sauna, warm blood moves toward the periphery of the body. After leaving the hot room, it is important to acclimate and rehydrate. Some bathes may prefer to cool down by resting. Other bathers may step quietly through the surface of cold water, or stand below a cold shower. As they breathe through the initial shock, blood vessels contract and cause a rush of endorphins. An "expert bather"[15] may even swim or tread until a chill begins to set in. After cooling off, bathers take time to rest before returning to the sauna. They may lie on a deck, float in a tepid bath, or in the case of a city-block sauna, sit on a courtyard bench. During this time, endorphins are joined by adrenaline as the heart rate regulates. The exertion of sauna and contrast of cold bath activate the sympathetic nervous system. However, sweating and rest activate the parasympathetic nervous system. The practice as a whole brings the bather's body into balance.[16]

The Finns have long-believed in medicinal benefits of sauna; they consider it a basic part of life. The Finnish idiom "Jos ei sauna, viina ja terva auta, tauti on kuolemaksi" roughly translates: "If booze, birch tar, or sauna won't help, the illness is fatal." [17] Viherjuuri advises, "the whole purpose of the sauna is to induce perspiration... Its importance cannot be over-emphasized, because there are many saunas where perspiration is more apparent than real."[18] Sweat

[15] In October, 2017, I met with Tuomas Toivonen, co-designer/operator of Helsinki's *Kulttuurisauna*. He described "expert bathers" as those who are acclimated to the bath and demonstrate proper bathing customs to others.
[16] Turner, Victor. "Body, brain, and culture." *CrossCurrents* 36.2 (1986), p. 165.
[17] Brunvand, J. H. (Ed.). (2006). *American folklore: An encyclopedia*. Routledge.561.
[18] Viherjuuri, 6.

researcher Mikkel Aaland notes that the three degree Celsius inner temperature rise created by sweat bathing is similar to the “fever” sought by Hippocrates and other historic physicians.[19]

Historically, the sauna was a modest wooden or dugout structure, sometimes serving multiple functions like temporary housing, drying meat, and stabling animals. In Finland and Lapland, the sauna was coined "the hospital of the poor." It was here that birth, mourning, and celebration took place, as it was the most sterile location accessible to ordinary people.[20] Sauna offers prospect and refuge: looking out and turning in, facing the self, and acknowledging the other. Amidst Finland’s introverted forest-dwelling culture, sauna was also a reason for social gathering. Many saunas are equipped with grills or even snack tables. A sauna experience in Finland is often interspersed with cider or beer and *makkara* (Finnish for sausage).

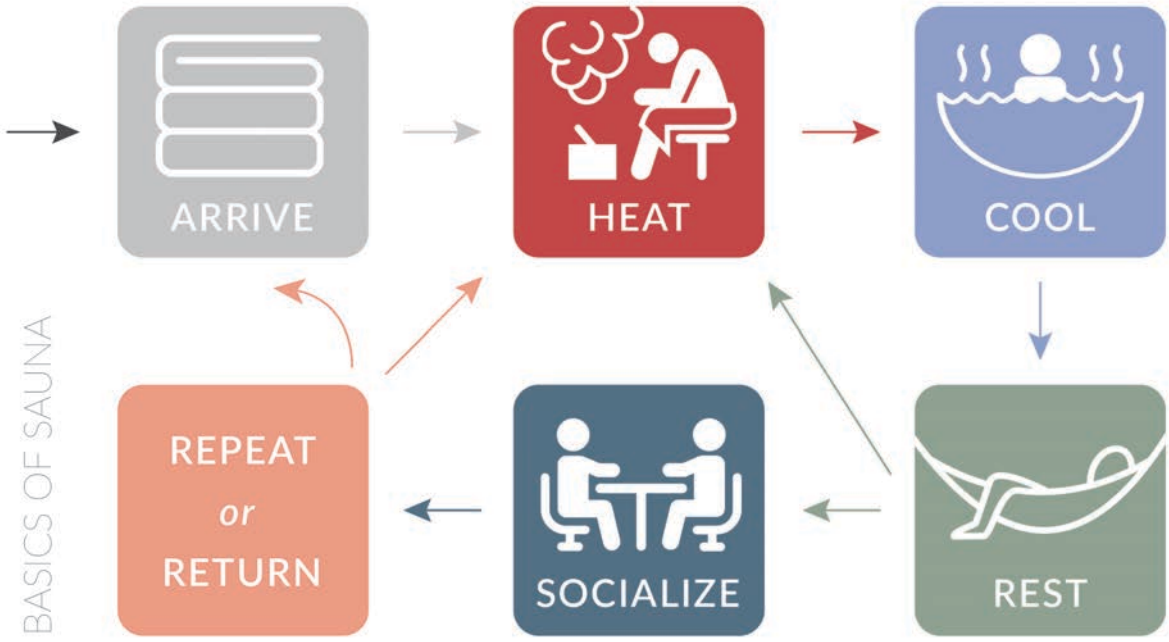

Fig. 1.6: The basic practice of sauna includes heating, cooling, and resting

[19] “Sweat Bathing and the Body.” Mikkelaaland.Com, 1 Jan. 2018, https://www.mikkelaaland.com/sweat-bathing-and-the-body.html.
[20] Scheid, K. (1962). *Sauna*. Mnchen: Callway.

Sauna and other bathing rituals were banned in most of Europe during the 1600's and 1700's during a "dark period in the history of swimming," [21] when public and sea bathing was considered unhealthy due to contagion of immorality and disease. This was not the case in Finland, where sauna was understood as essential for ridding disease, fostering "sisu" (a word that could be translated to mean "tenacity" or "strength in the face of adversity") through heat and cold, righting the mind, and aiding in purification. Beginning in the early 1800's, public sauna and bath saw a resurgence across Europe. Since that time, public baths have experienced a cycle of rising and falling from popularity in the Westernized world. This 1800's to early 1900's increase in bathing popularity occurred just as sport, public socializing, and access to health through fresh air, water, and ecology were becoming normative practices. Bathing was newly associated with leisure, proper society, and medicine, and for a time, public saunas and baths thrived across Europe and North America.

Many of these bathing traditions differed from the Finnish sauna both habitually and technically. Habitually, wide variations of custom exist, as each bathing ritual responds to local resources, political history, and cultural nuance. Technically, sweat bath can vary so much in temperature, heat-source, and humidity that it is no longer sauna at all. At one end of the spectrum, when humidity is increased, temperature must decrease, and sauna becomes a steam bath, or even a pool. On the other, some saunas exclude steam; instead, sweat is induced with very hot dry heat. Many Finns argue that this is no longer "sauna," and lively dialogue around customs in sweat bathing continues today. Be it sauna, bania, bastu, or beyond: given sufficient temperature contrast and respectful, egalitarian space, any sweat bathing ritual can contribute to catharsis, well-being, and systemic health.

[21] Brf, Simply (n.d.). Malmö Bastugille - Ribersborg Kallbadhus. *Bastugillet.se.*

Fig. 1.7 “Bain Finlandais:” The Italian traveler Giuseppe Acerbi visits the Finnish sauna in 1799. While Acerbi wrote of being astonished by the Finns’ habits, here, the Finns are astonished that Acerbi is letting the hot air out.

KALLBADHUS

Cold-bathing, while lesser-known than sweat-bathing, is an essential counterpart to the health benefits that thermic bath provides. As Europe began to recover from its bans on bathing, swimming and year-round sea bathing increased in popularity. Sweden's first sea baths were established at resorts,[22] accessible to wealthier members of society. Decadent bathing platforms were constructed on Sweden's coasts, and the practice of cold bathing gained popularity. In the 1840's, Sweden's "kallbadhus," or cold-bath houses, took root as a civic amenity.

The history of the kallbadhus is intertwined with the histories of public health, society, and ecology. Kallbadhus originated along the shallow and boulder-lined coasts of the Øresund and Kattegat Sea. These waters span between Denmark's east coast and Sweden's west coast. Often sited on urban waterfronts, the bathing platforms' site-circulation interfaces with city, land, and sea. Their structural configurations extend over shallow water, take shelter in harbors, and burrow into rocky harbors. Kallbadhus demonstrate the influence of a region's topography and geology on bathing.

Sweden's cold baths carry an exuberant air of leisure and the right to participate in public life. By the turn of the 20th century, "expectations of swimming in the open air… shifted away from the mere washing of the body." In Sweden, Switzerland, and elsewhere, natural health associations "propounded a more wholesome way of life."[23] Kallbadhus and public pools, such as Stockholm's

[22] Gustafsberg, "Sweden's oldest bath and spa," was established in 1729. "Bengtsfors." *Vastsverige.Com*, 1 Jan. 2003, https://www.vastsverige.com/en/uddevalla-eng/produkter/gustafsberg/?site=716.
[23] Stoffler, Johannes, "Modernism for the People: Swimming Pool Landscapes in Switzerland." *Modernism and Landscape Architecture, 1890-1940*. Ed. O'Malley, Therese., and Wolschke-Bulmahn, Joachim. National Gallery of Art, 2015, p.54.

Centralbadet and Göteborg's Sturebadet made a statement about society, what it was allowed to be, and what it had the potential to be. They provided access to cleanliness, reprieve from the strain of work, and opportunity for fitness and play. Engagement with the body in public and caring for one's own physique became popular activities for both men and women.

Physician Carl Curman was a leader in establishing both sea-baths and public pools in Sweden. Curman taught balneology, "the science of the therapeutic use of baths,"[24] at Stockholm's Karolinska Institutet. He worked throughout his life to scientifically demonstrate the curative capacity of sea air, water, and year-round cold swimming.[25] Curman instituted cold bathing as a practice with his patients in Lysekil in 1847, at a location that remains one of the longest-running public cold bathing sites on record in Sweden. In 1911, Architect Karl Giiettler designed Lysekil's kallbadhus. The structure is embedded in a large boulder on the edge of the city. It is comprised of two outdoor courtyards, lined with changing huts and boardwalks. Each courtyard is open to the water at its center, forming private sea-pools for nude, gender-separated swimming. The kallbadhus at Lysekil is still in use today.

Kallbadhus were initially established without saunas. Since the 1900's, they have begun to include sauna, or "bastu." Over time, the majority of these platforms have expanded to include not only bastu, but also changing and shower rooms, and sometimes cafe's, wellness businesses, or community rooms for fika (mid-morning or afternoon coffee and cake). This duo of heat and year-round cold bath supports physical health and social interaction between sometimes lifelong groups of users. Few complete original structures remain due to heavy coastal wind storms, yet many sites

[24] Merriam-Webster defines balneology as - "Definition of BALNEOLOGY." *Merriam-Webster.Com*, 2019, www.merriam-webster.com/dictionary/balneology.
[25] "Lysekil Kallbadhus - History." *Lysekilkallbadhus.Se*, 2018, http://lysekilkallbadhus.se.

feature re-constructed kallbadhus. A bastu was added to the Lysekil's kallbadhus in 2015. It consists of one small co-ed room, where men and women sweat bathe nude together. Even a co-ed bastu is always entered nude in Sweden, while cold swimming spaces remain gender-separated. Swimsuits are considered unhygienic, so bathers shower in locker rooms, and sit on a towel in the bastu. This practice implies that social bathing in Sweden is focused on "total regeneration," as bathers practice their individual ablution in the shower room before entering the bastu.

Today, fifteen (and counting) kallbadhus are in active use along Sweden's urban and small-town waterfronts. Many bathers have been going to the same kallbadhus year-round throughout their lives. At Råå, I met a mother and daughter who had been bathing at the same site over the course of seventy years. There is great potential for such a consistent and intimate practice to support community health and participation. While the popularity of bathing practices has waxed and waned throughout the past century, bastu and kallbadhus in Sweden are currently seeing a rise in popularity. At least nine new community bastu and/or kallbadhus projects have been established in Sweden over the past 20 years,[26] and local groups in the towns of Mariefred, Jönköping, and Ystad are advocating for new waterfront kallbadhus in their communities.

Over time, kallbadhus have invited individual well-being, housed social engagement, and offered tactile experience of ecology. Today, public bathing spaces can address contemporary extensions of these issues. Community spaces for health and connection are essential to our cities' futures. Their continued use pushes the bounds of what is acceptable for bodies and gender in space, provides an outlet for regeneration that is at once historic and culturally relevant, and draws attention to overlooked shorelines.

[26] In Borgholm, Bjärred, Göteburg, Höganäs, Stockholm, Röstånga, Dals Långed, Ulrichamnen, & Karlshamnen

Fig. 1.8: Sea-pools at Lysekil Kallbadhus, Lysekil, Sweden, established in 1917

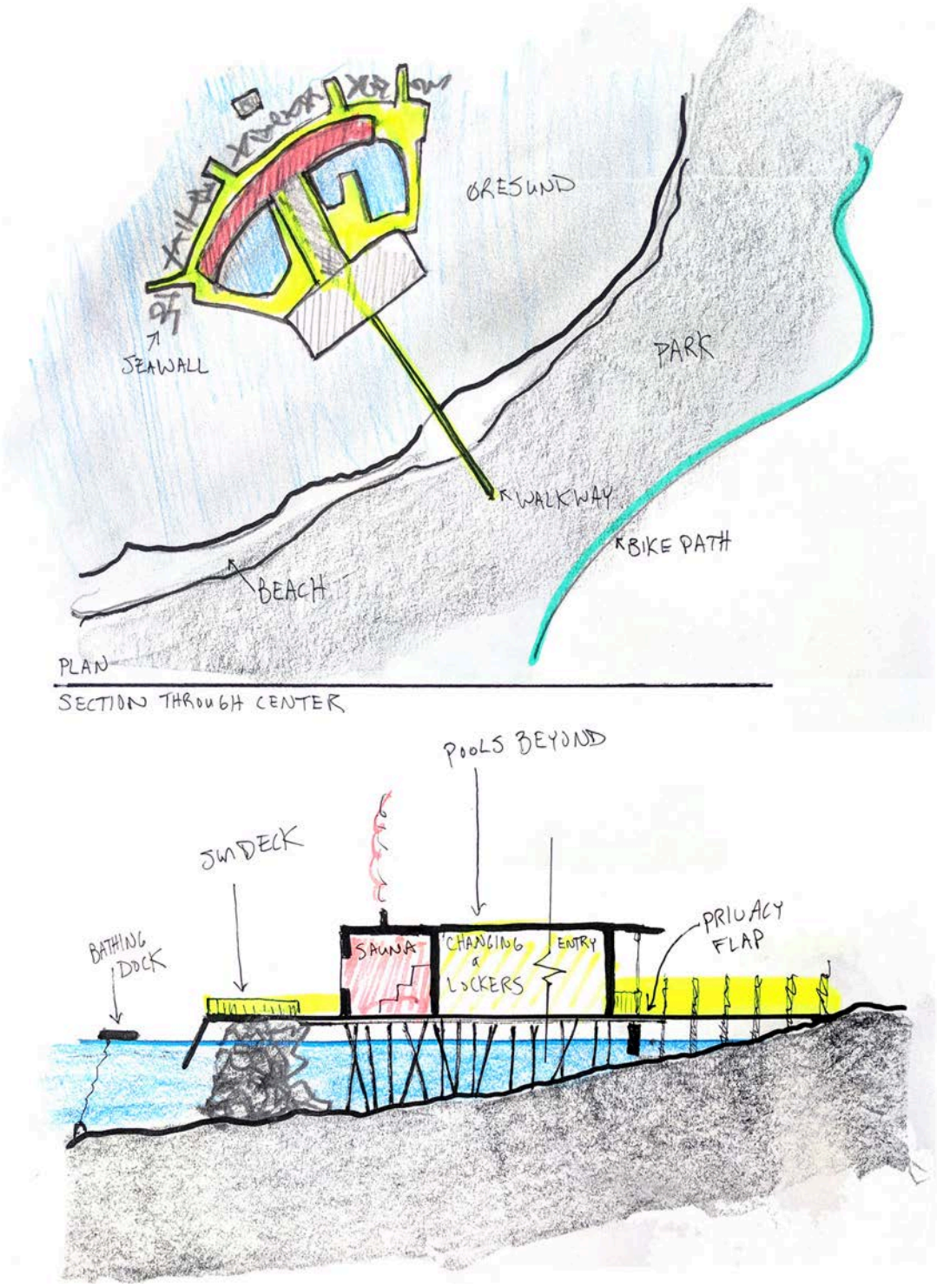

Fig. 1.9: Plan and section of Ribersborgs Kallbadhus in Malmö, Sweden, established in 1898. For background on Ribersborgs, see “Landscapes of Ritual and Health” in the appendix of this document.

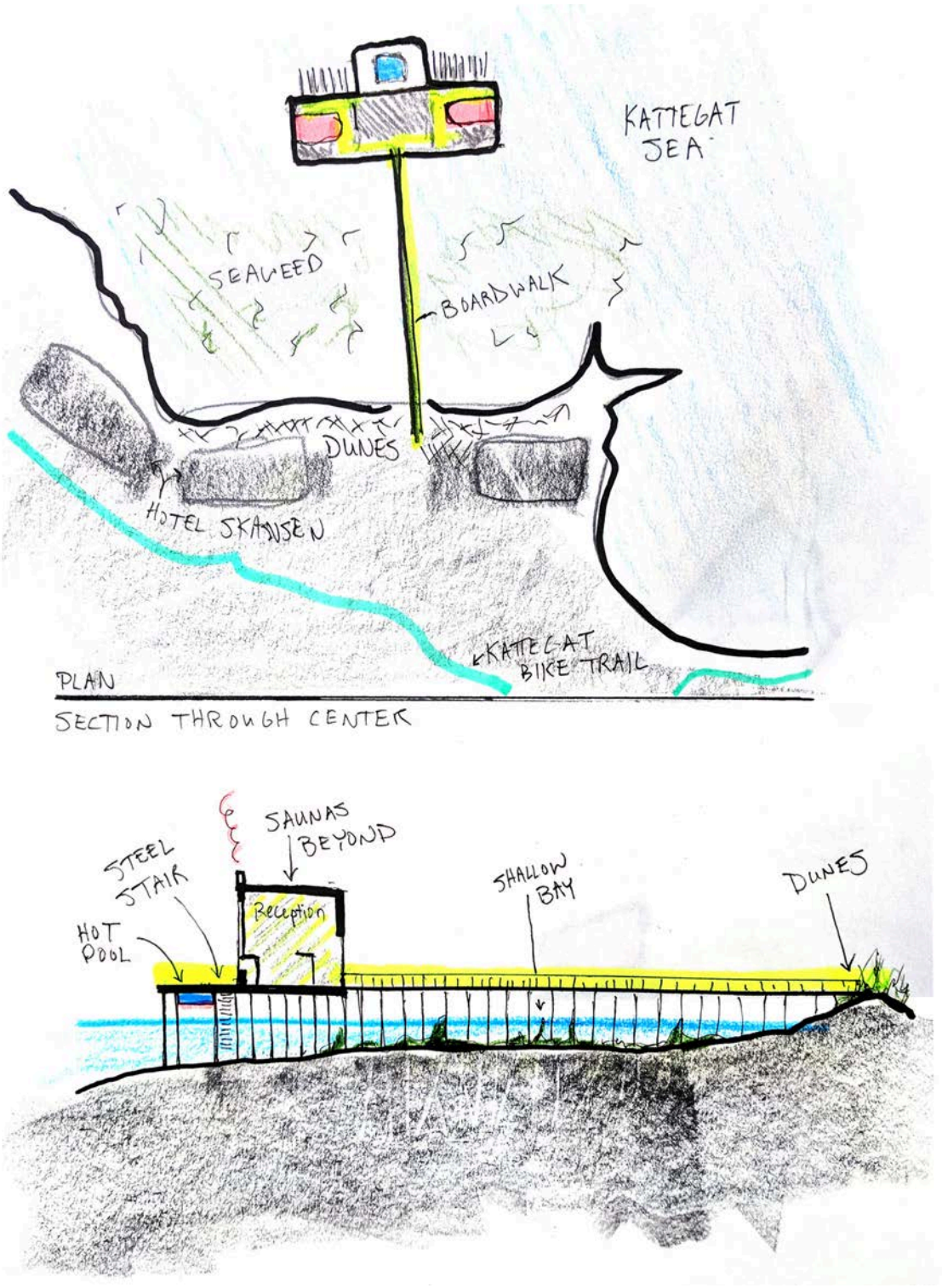

Fig. 1.10: Plan and section of Skansens Kallbadhus in Båstad, Sweden, rebuilt in 2009. For background on Skansens, see “Landscapes of Ritual and Health” in the appendix of this document.

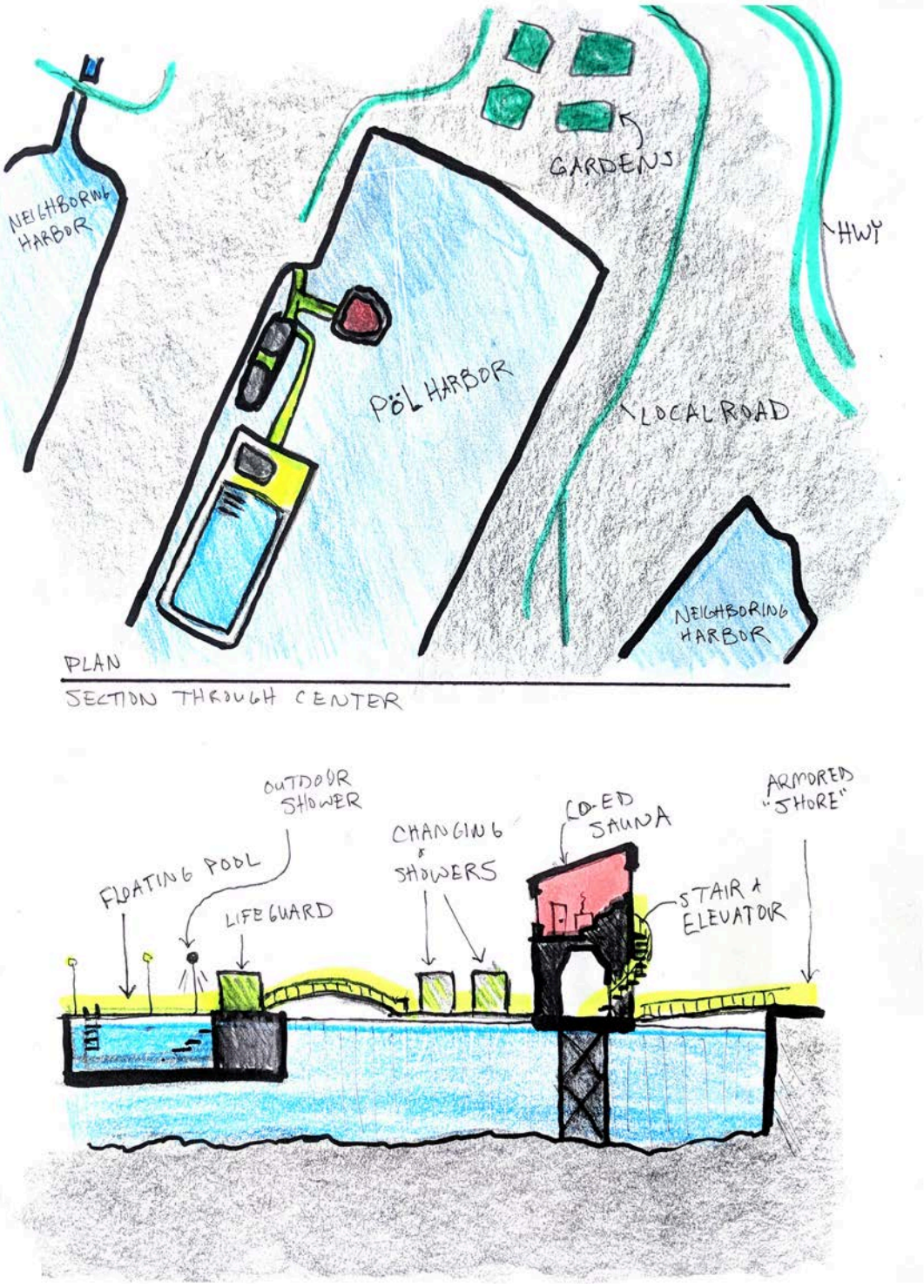

Fig. 1.11: Plan and section of Bastu i Frihamnen in Pöl Harbor, Göteburg, Sweden, established in 2015. For background on Skansens, see “Landscapes of Ritual and Health” in the appendix of this document

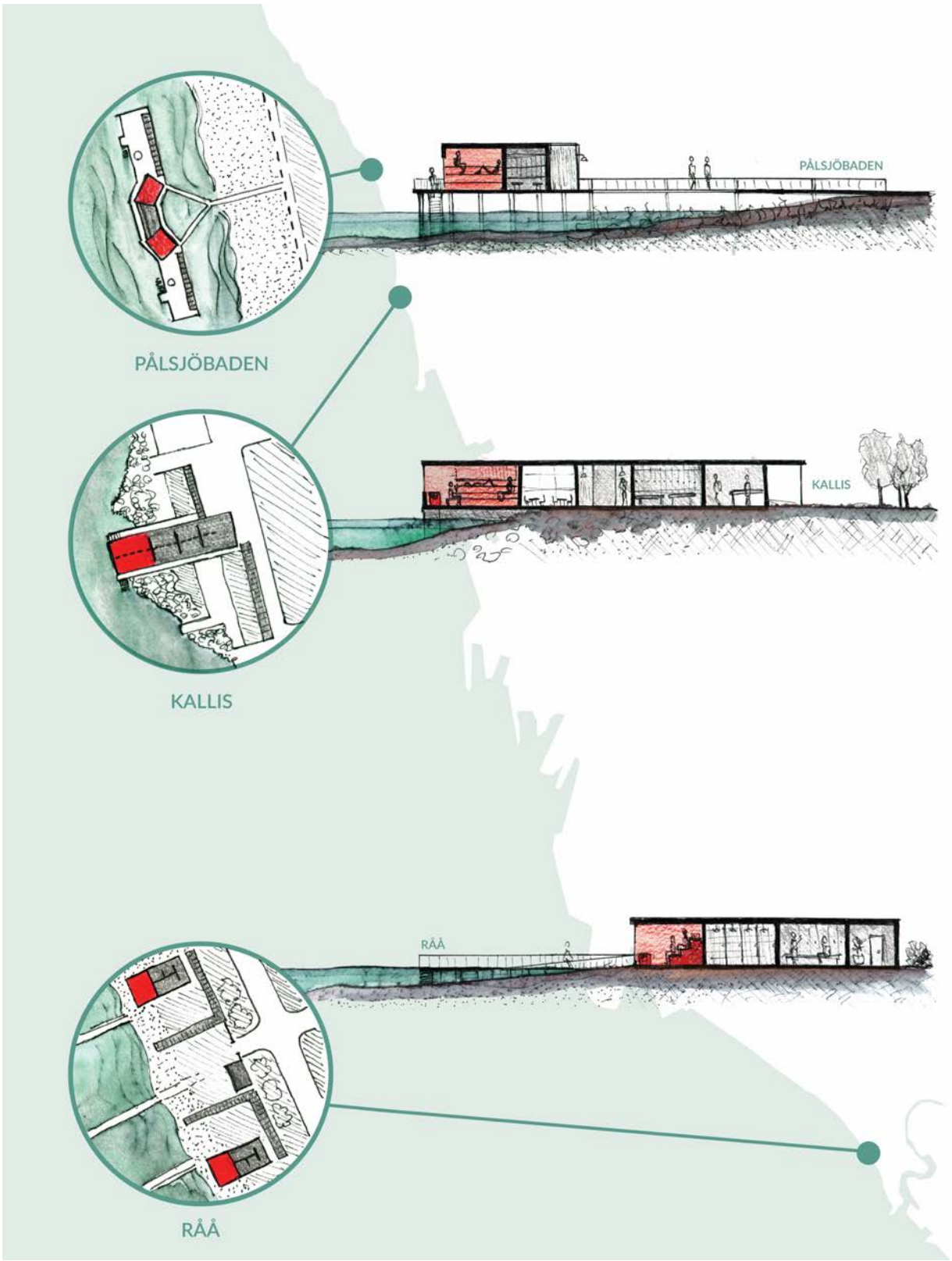

Fig. 1.12: Comparison of three Kallbadhus near Helsingborg, Sweden: Pålsjöbaden, Kallis, and Råå; for a written comparison, see the article “Bathing on Swedish Shores” in the appendix of this document

PRECEDENTS: HELSINKI CITY SAUNAS

In 1939, there were 122 public saunas in Helsinki. As World War II drove up the prices of goods, sauna prices remained consistent due to a union of Finnish Saunas and a Sauna Committee, who declared that "All inhabitants of Helsinki must have the opportunity for a proper sauna bath at a reasonable price." Although Finnish public saunas survived the European bathing ban and two world wars, Juha Pentikäinen writes that these declined in the 1950's and 60's due to a trend of individual or shared saunas in apartment buildings. In 2001, only three public saunas remained in Helsinki: Sauna Hermani, Arlan Sauna, and Kotiharju Sauna. "People have fought for these saunas; a good example is the supporter's association of Kotiharjun sauna and their long struggle to repair the sauna and restore it to its original condition."[27] However, beginning with the opening of Kulttuurisauna in 2013, Helsinki has seen new city saunas open, particularly on the waterfront. I was able to visit eight of Helsinki's urban public saunas.

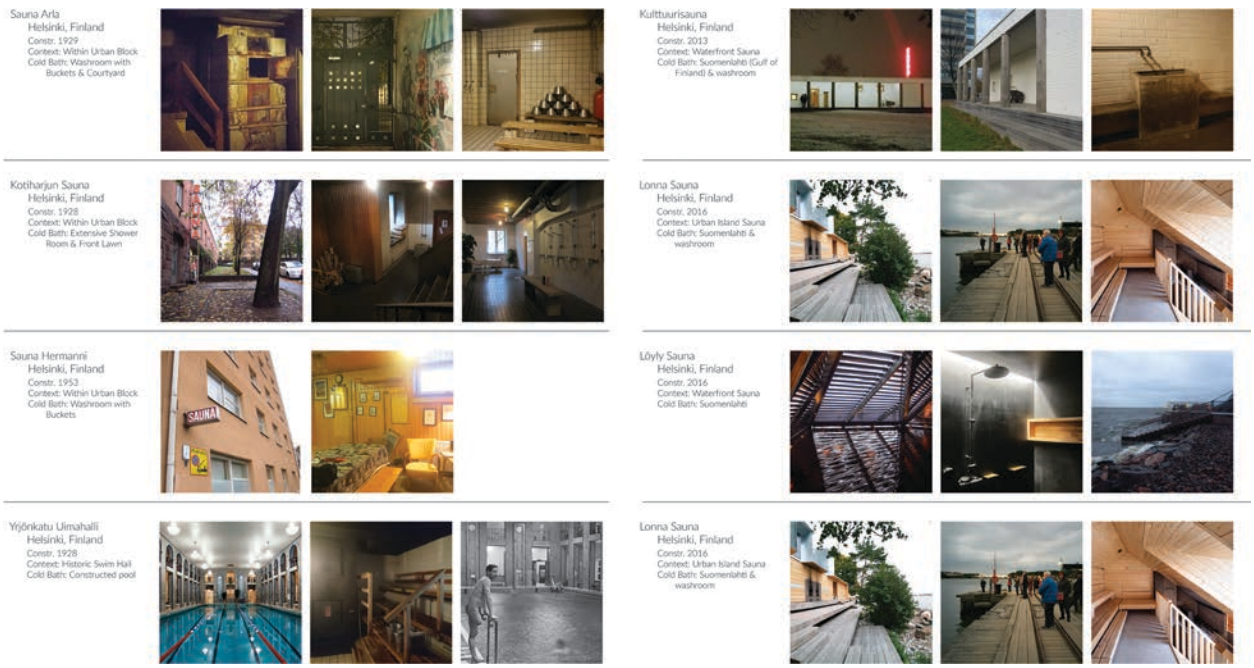

Fig. 1.13: Helsinki City Saunas visited via on-site research in autumn, 2017

[27] For an overview of the decline of public saunas in Helsinki, see Pentikäinen, Juha, ed. *The Finnish sauna, the Japanese furo, the Indian inipi: bathing on three continents*. Building Information Limited, 2001, p. 47-49

PRECEDENTS: OUTLIER SAUNAS

Beyond the public cultural institution of sauna in Helsinki, smaller saunas are regaining popularity across southern Finland and Sweden. Some of these are funded by restoration organizations and exist as in-use historic sites. Others are floating or waterside saunas, built and opened by local collectives. Siting a sauna *on* the water or on the outskirts of town are two ways of skirting urban real-estate competition. Running a sauna as a community invites stewardship and consistent participation, two qualities that help a sauna to maintain cultural richness and longevity. I was able to visit ten community-oriented saunas, and met with individuals who helped to start or operate several of these. These included a restoration specialist for Rajaportin Sauna, the oldest continually operating public sauna in Finland, and operators and designers of Tanto Bastu and Kesän Sauna, floating community-built saunas in Stockholm Sweden and Oulu, Finland.

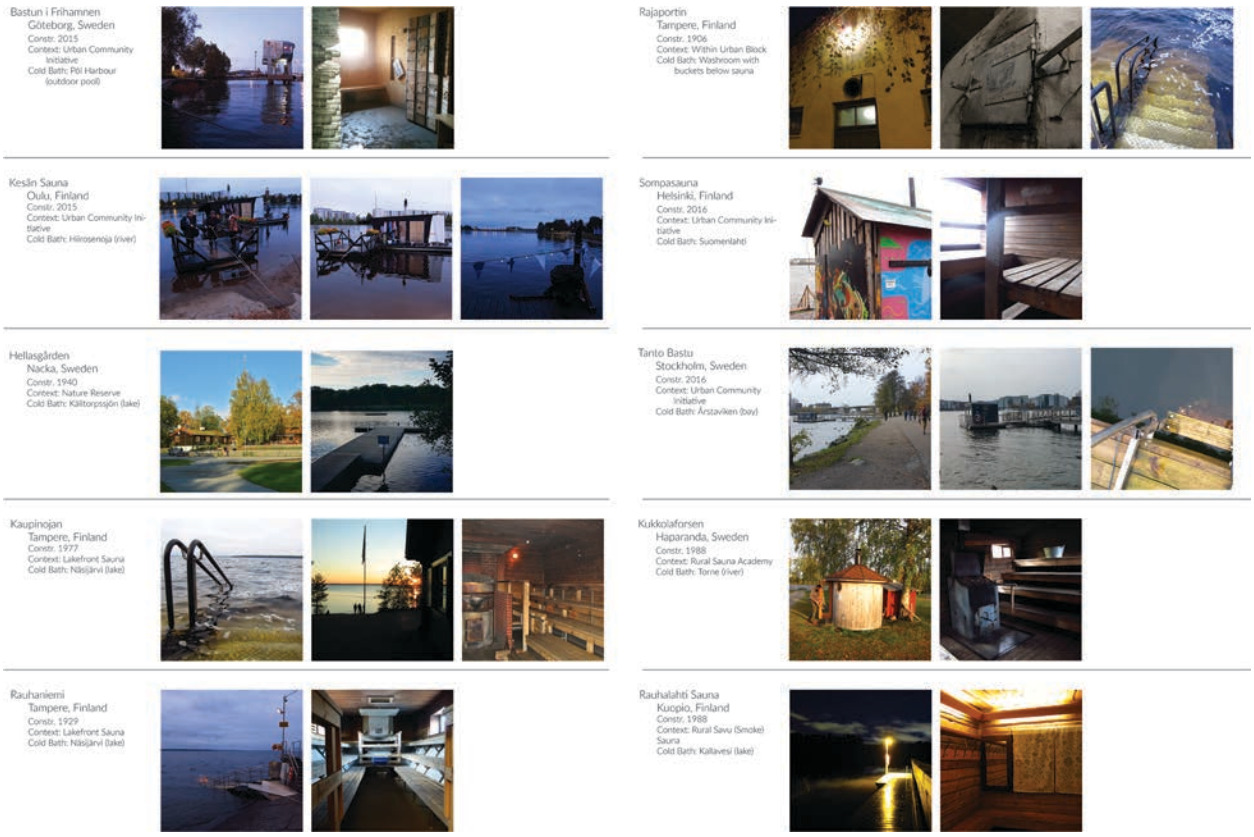

Fig. 1.14: Outlier Saunas visited via on-site research in autumn, 2017

PRECEDENTS: KALLBADHUS

While many kallbadhus now include bastu, these structures retain qualities that make them distinct from other public waterfront saunas. For example, many kallbadhus are entered via a long walkway to carry bathers to deeper waters. The renowned walkway at Bjerreds Saltsjöbad in Bjärred, Sweden is 600 meters long. However, even if a promenade is not present, each kallbadhus is focused on providing two separate, gendered cold swimming areas, allowing for semi-private nude bathing. I've located and visited twelve year-round kallbadhus in Sweden.[28]

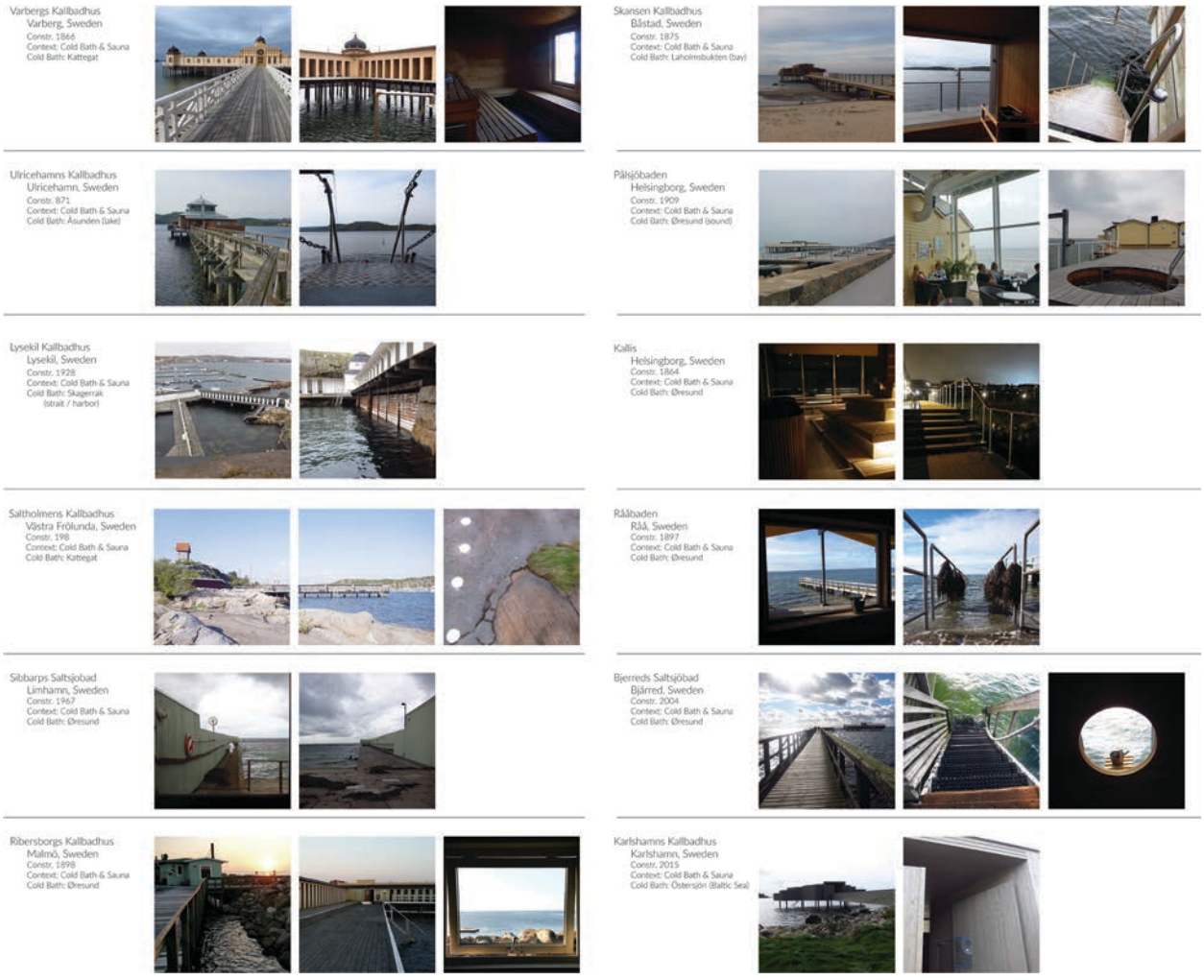

Fig. 1.15: Kallbadhus visited via on-site research in autumn, 2017

[28] For a more in-depth analysis of kallbadhus' structural responses to topography and community, see the paper "Landscapes of Ritual and Health" and the article "Bathing on Swedish Shores" in the appendix of this document.

PRECEDENTS: SITE RESEARCH MAP

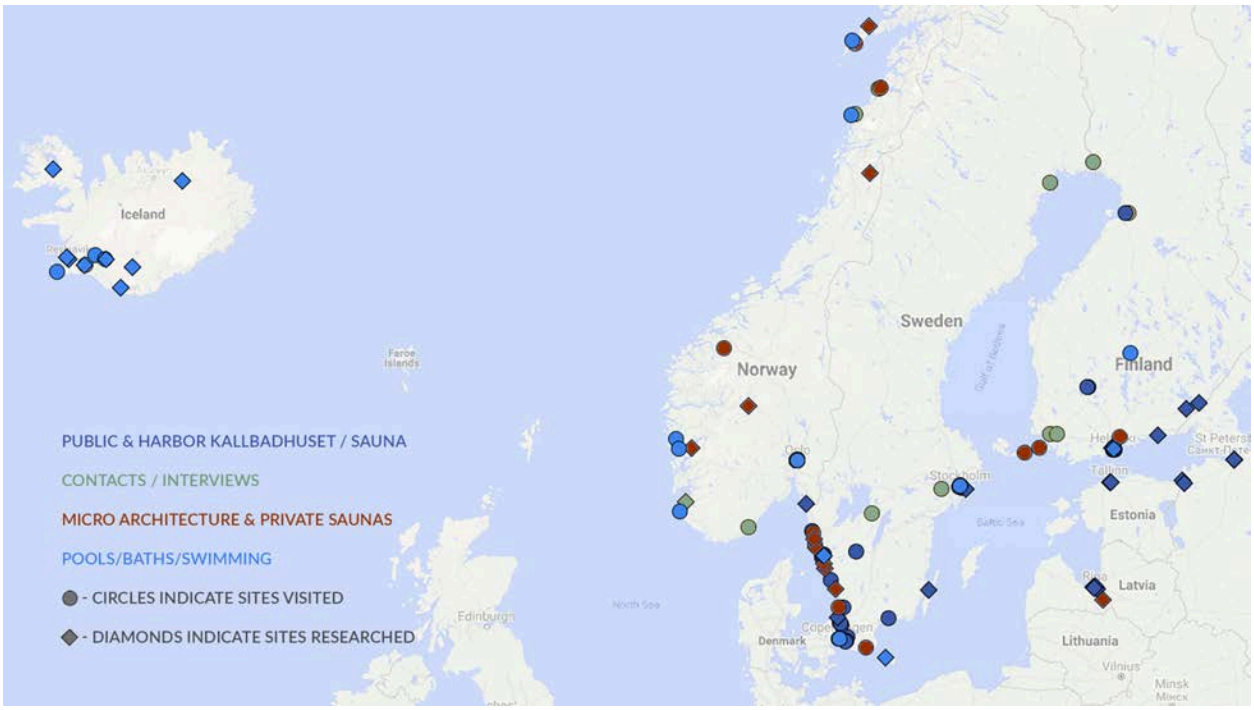

Fig. 1.16: Thermic bathing sites visited while conducting research in Autumn, 2017

Fig. 1.17: Sketch of the sauna, pool, and yard of Villa Mairea, Noormarkku, Finland, September, 2017

RESEARCH TIMELINE

September 2016 – September 2017

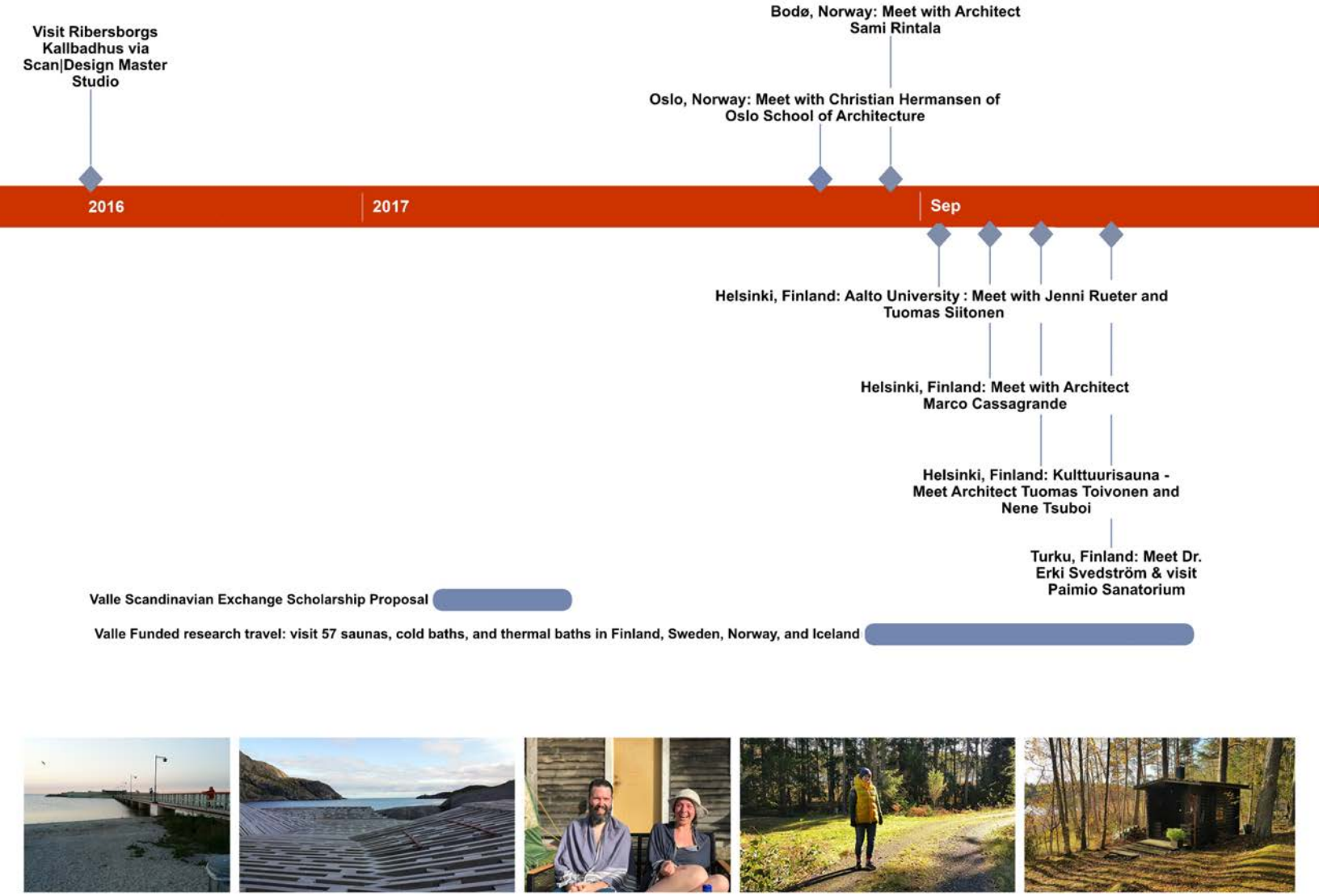

Fig. 1.18: Preliminary research, site visits, and interviews

RESEARCH TIMELINE

October 2017 – April 2018

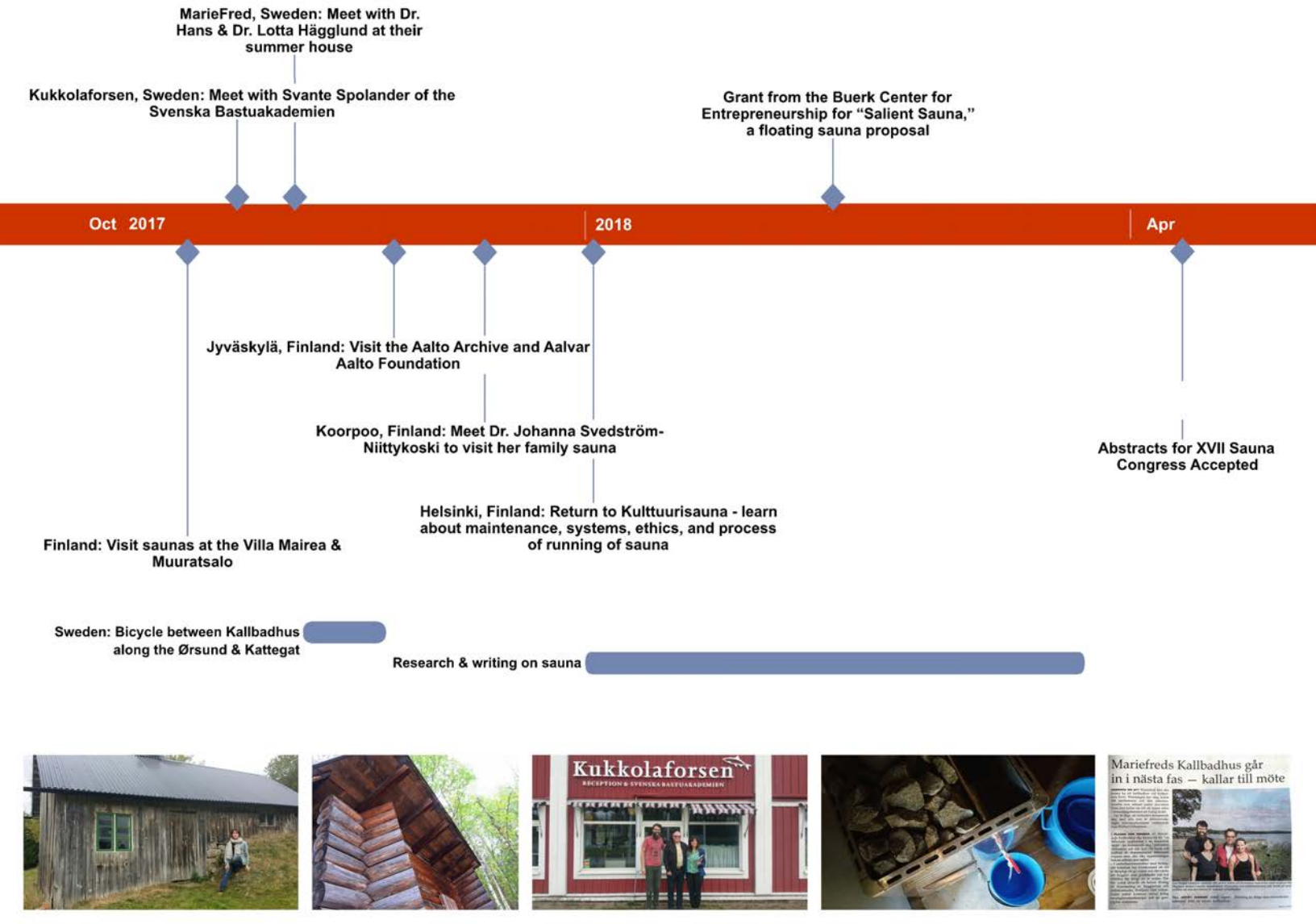

Fig. 1.19: Continued site visits and interviews

RESEARCH TIMELINE

May 2018 – January 2019

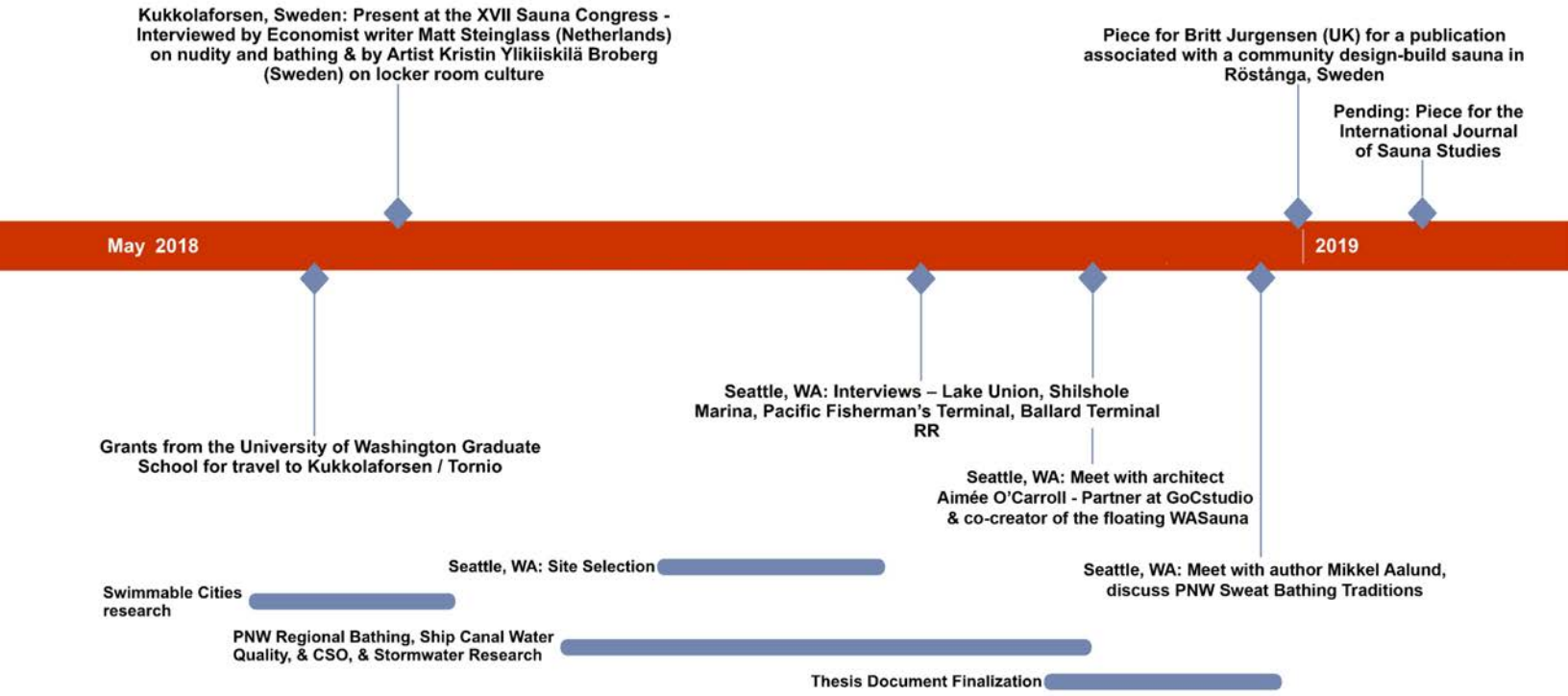

Fig. 1.20: Presentation at The XVII Sauna Congress, Mobile Sauna Meetup, and ongoing research and writing

A MEETING OF WATERS: THE XVII SAUNA CONGRESS

The International Sauna Congress is a gathering of sweat bathing researchers that happens in a different location every four years. I was able to participate in and present at the XVII Congress, and the research related to that event has been seminal in forming this thesis.

The XVII Congress was held between Tornio, Finland and Kukkolaforsen, Sweden. These two towns are located in the shared region of Tornedalen (Meänmaa in Finnish), near the delta where the powerful Torne River spills into the Baltic Sea. The Torne and the Baltic geographically divide Sweden and Finland, yet in this northern region, the ritual of taking sauna/bastu is a shared value.[29] Kukkolaforsen's hotel boasts a sauna and fishing museum, and has become the "home base" of the Svenska Bastuakademien (Swedish Sauna Academy), whose mission is to make the history, tradition and significance of bastu/sauna culture as well-known throughout Sweden as the word "sauna" itself. [30]

The Sauna Congress began with a small group of devotees in Finland, when a group of "Finnish journalists, doctors, and architects convened to consider ways of furthering the Sauna's cause." [31] In 1940 the group's leader, Hillari Johannes Viherjuuri, published his now-historic book Saunakirja (Sauna, the Finnish Bath), which has since been translated into many languages, helping "sauna" to become the most popular Finnish word outside of Finland. Viherjuuri and his colleagues formed the first Sauna Society of Finland, and today there are many similar societies around the world. The Congress continues to draw international participation from these groups

[29] The Northern parts of Sweden, Finland, and Norway are also tied through the indigenous nomadic Sámi Culture
[30] "Hem | Svenska Bastuakademien." *Bastuakademien. Se*, 1 Jan. 2008, https://www.bastuakademien.se/sv-SE.
[31] Aaland -"Finnish Sauna. History of the Nordic Bath" 1997 Mikkel Aaland

and other sweat bath-infatuated individuals. While I've focused primarily on sweat bathing as inspired by the Finnish sauna, it is worth noting that the origins of the sweat-bath are elusive:

> "It may well be that, as men developed a desire to bathe, they also developed similar forms of bath houses, quite independently and in their different countries… [yet] the forest zone of the Northern hemisphere is the original home of the perspiration bath… Sauna has not found favor in the steppes, nor in the treeless cultivated areas… The sphere of the bath extends from the North Atlantic, from Norwegian Lapland through Finland, Karelia, North Russia and Siberia to the shores of the Pacific Ocean."[32] – H.J. Viherjuuri

The taiga, or boreal forest, that Viherjuuri cites is indeed a likely home of the wood-fired sweat bath. Yet others since have acknowledged a wider variety of perspiration bath types, demonstrating sweat bathing as an ancient practice that likely originated in multiple places as a part of human instinct. In the 1960's, anthropologist Ivan A. Lopatin worked to categorize and trace a more global history of ritual bath.[33] In the 1970's, researcher Mikkel Aaland spent three years traveling the world and exploring bathing culture for his book, "Sweat : the Illustrated History and Description of the Finnish Sauna, Russian Bania, Islamic Hammam, Japanese Mushi-Buro, Mexican Temescal, and American Indian & Eskimo Sweat Lodge."[34] He simply notes:

> "Most researchers agree that Finns always had some form of sweat bath, as did most peoples around the world. It was the simplest and most efficient way to satisfy people's innate need to keep clean."

[32] Viherjuuri, Hillari Johannes. *Sauna; the Finnish Bath*. S. Greene Press, 1965, p 18.
[33] Lopatin, Ivan A. "Origin of the Native American Steam Bath." *American Anthropologist*, vol. 62, no. 6, 1960, pp. 977. – here Lopatin breaks bath down into four categories: 1) plunge pool; 2) direct fire sweat bath; 3) water vapor sweat bath; and 4) the mixed type – Lopatin associates sauna with the water vapor bath, and claims that it is likely derived from earlier methods of direct-fire sweat bathing.
[34] Aaland, Mikkel. *Sweat: The Illustrated History and Description of the Finnish Sauna, Russian Bania, Islamic Hammam, Japanese Mushi-Buro, Mexican Temescal, and American Indian & Eskimo Sweat Lodge*. Capra Press, 1978

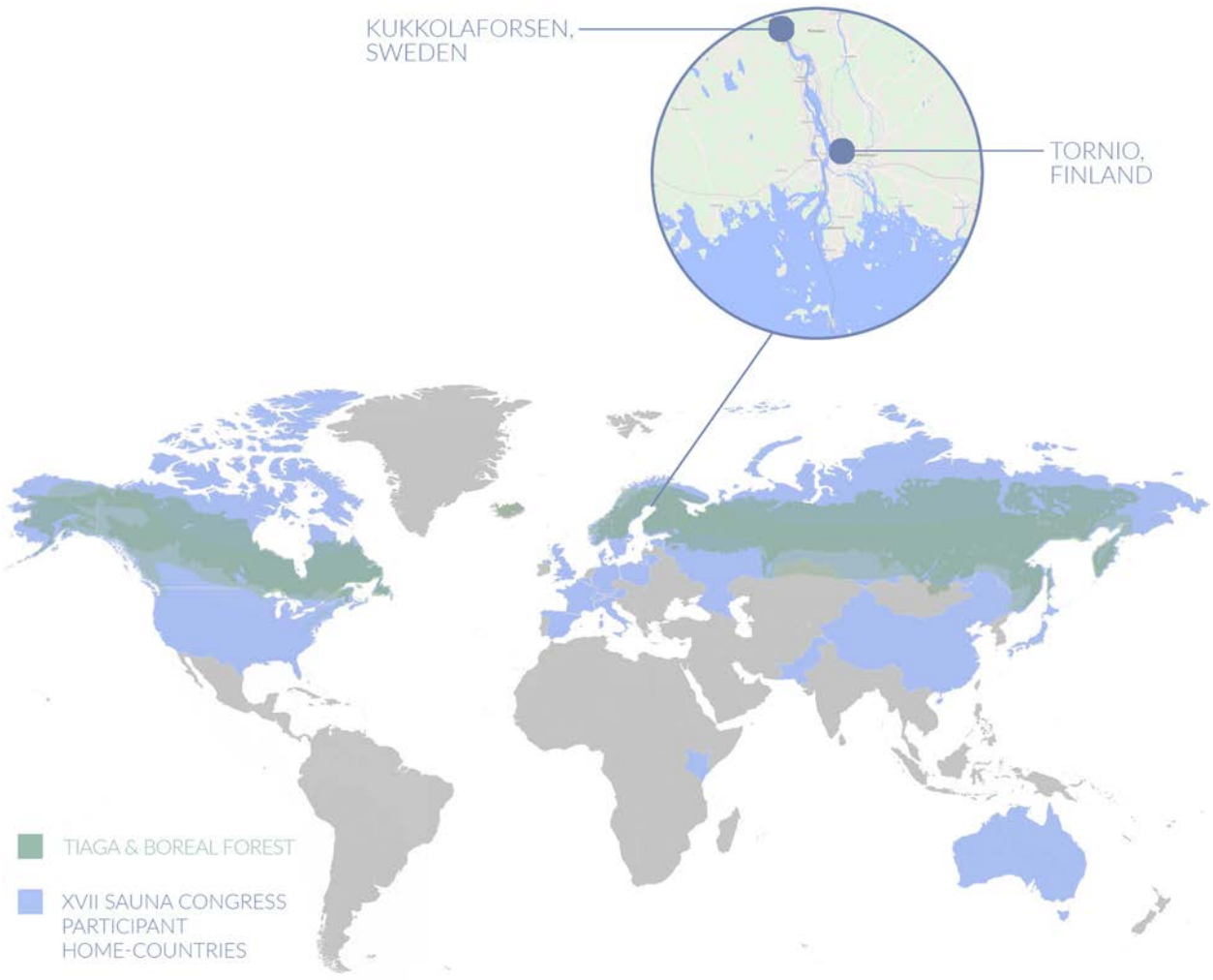

Fig. 1.21: Extent of the Taiga, home-countries reported by XVII Sauna Congress participants, & Congress location

In 2018, the Sauna Congress drew 198 participants from 24 different countries. While many of these participants' methods for sweat bathing resemble sauna (as with bastu and sauna), differences in practice and thermal preference abound. The word "sauna" itself become so popular that its ties to Finland are at risk of being loosened. For example, the practice of sauna in Germany has become wildly popular, but traditions are so different that many Finns would not

visit a Germans sauna and vice versa.[35] There is some debate as to whether to turn to a new term for sauna when it is appropriated by other cultures, (e.g. thermic bathing is one option) or to welcome new interpretations of "sauna" while nodding to Finnish origins.

The XVII Congress was arranged around three themes: 1) Sauna and Health, 2) History and Culture, and 3) Technology, Design and Architecture. The presentations that I shared bridged these themes, investigating the sauna as a ritual and architectural space able to inspire systemic health. Papers and presentations that I presented included: [36]

1. "Sauna and Kallbadhus": An overview of my 2017 Valle-Foundation granted research, composed of a photo-essay and stories, ultimately drawing connections between sauna and "existential-embodied practice" as defined by Juhani Pallasmaa.

2. "Landscapes of Ritual and Health": An assessment of sauna's capacity to contribute to individual, social, urban, and ecological health.

3. "Bodies of Water - Approaches to Gender in Sauna and Bath": A workshop, inspired by an in-process paper on gender and bath. Participants shared their experiences of and preferences for gender separation and nudity in bathing.

This document builds on the first and second of these research initiatives. It furthers investigation of thermic bathing as a practice that can contribute to systemic health, and examines stormwater treatment as a counterpart to waterfront thermic baths. Pairing cleansing of self with cleansing of shared waterways in a dual process of purification illustrates one way that the health of the individual can be tied to the health of the greater social-ecological whole.

[35] Namely, Germans bathe co-ed and nude at public facilities, and practice the tradition of "Aufguss," where scented oils are dripped onto hot sauna stones and waved around the room by a saunameister. Finnish sauna is much more reserved. In Finland, co-ed bathing is only for families, and no scents are put on the *kiuaskivet*, or sauna stones.
[36] The abstracts for and working versions of these papers are included in the appendix of this document.

SAUNA IN SEATTLE

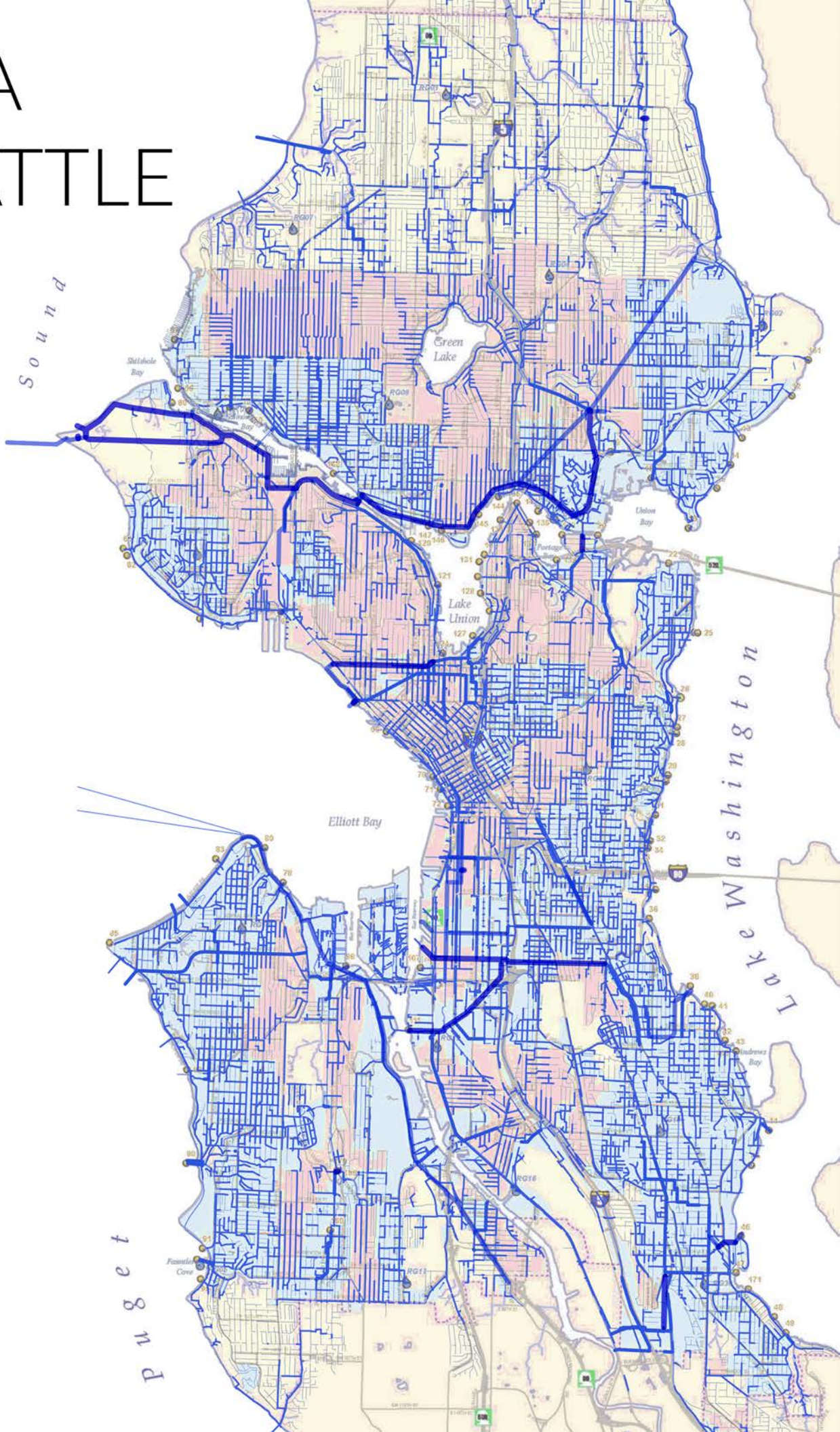

Fig. 2.1: Seattle's stormwater and sewage system

THRESHOLD AS METHODOLOGY

This theoretical framework explores the capacity of a thermic bath to extend beyond its perceived boundaries to impact health across individual, social, and ecological realms. An understanding of systemic health, overlaid with an interpretation of bathing and water purification as a *series of thresholds*, reveals a methodology for design.

A threshold is a liminal space, or a space of transition between contrasts. Liminality is related to the word *limen*, meaning "limit, threshold, or edge."[37] It also refers to the quality of transition, to ambiguity, or to disorientation that occurs during ritual rites.[38] In "Edge(s) of Landscape: A Study in Liminology," Edward Casey notes writes that a threshold may be a clear edge, a conceptual border, a surrounding rim, a gap between other spaces, or a permeable boundary.

> "In thinking of edges, there are two extremes to consider first: the Salient Edge and the Subtle Edge. The Salient Edge is perceptually obvious; it stands out… A Subtle Edge is something else; this kind of edge is ambiguous in its appearance… It is so integral to a given phenomenon as to be barely, if at all, distinguishable from the phenomenon itself… Instances include folds in clothing that are not simply pleats or seams, different parts of the green lawn of grass… stretches of the bright and cloudless sky… Does the fold represent a terminating of the cloth of which it is made or its continuation?"[39]

Crossing a threshold may invite fluid passage, curiosity, or transgression. In the case of sauna, thresholds invite a shift in perspective, a challenge to the physical self, and a departure from cultural norms. In the case of stormwater purification, thresholds invite departure from the urban plumbing system, deposition of toxic chemicals, and redistribution into the ecological cycle.

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[37] Casey, Edward S. "The edge (s) of landscape: A Study in Liminology." *The Place of Landscape: Concepts, Contexts, Studies* (2011): p. 91.
[38] "liminal", *Oxford English Dictionary*. Ed. J. A. Simpson and E. S. C. Weiner. 2nd ed. Oxford: Clarendon Press, 1989. OED Online Oxford 23, 2007; cf. *subliminal*.
[39] Casey, 92.

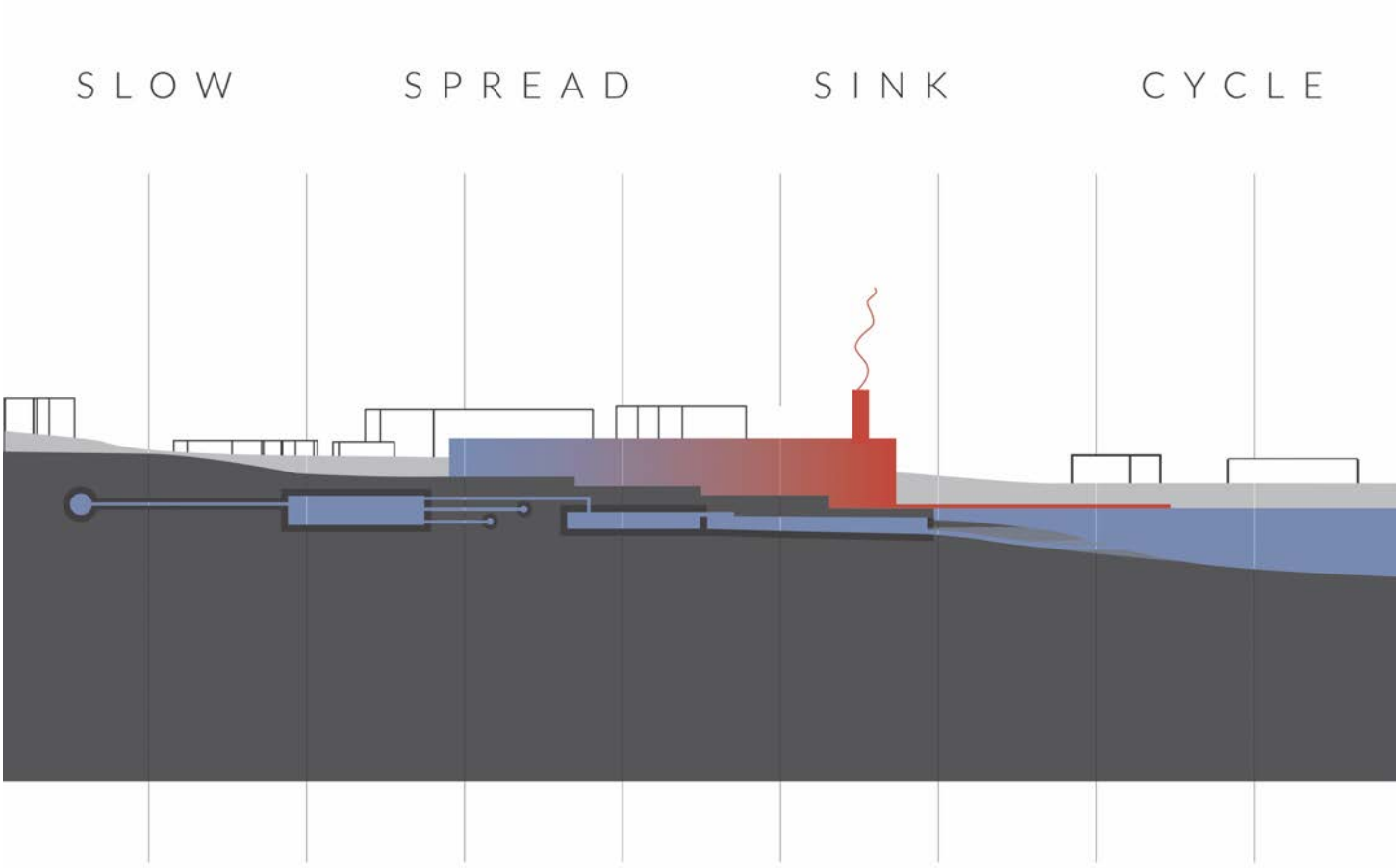


Fig. 2.2: Thresholds in thermic bathing and stormwater remediation

In essence, each the ritual of sauna and the process of water purification *is* a series of thresholds. In sauna, a bather's ability to engage in this ritual, let go, and open to relationship between self and other is tied to the quality of a bathing space and to regenerative intent of the bathing practice. Similarly, in purification of water, a threshold, or filter, may be technically efficient when buried in a pipe underground. However, stormwater purification is far more effective at impacting individual, social, and ecological realms when its processes are publicly visible.

Thresholds can occur at an intersection of realms, such as urban-ecological, public-private, new-old, or interior-exterior. Thresholds are opportunities to translate the connection between these realms into space. Ways of achieving this may include emphasizing contrast or ambiguity, inviting multi-sensory experience, use of elements like water or light, directing attention to materiality, inviting ecological processes into a constructed space, and offering prospect or refuge. These

and other ways of emphasizing a threshold invite those who pass through to experience a shift, perceive their surroundings, and perhaps re-locate themselves in relationship to their context. A threshold may invite a bather to experience a sense of placeless-ness. The experience of being lost is essential to remembering how to find one's way. Alan Read explores varying ways of and reasons for the experience of "getting lost."

> "Getting oriented, like getting lost, is a cultural experience. It is the acquisition, the building, the discovery or the lack of a network of references. It is an activity that we usually share with other people. Or it can put us into a pre-existent social and cultural context.
>
> Between getting lost and getting oriented there is a cultural process, the use of external, arbitrary occasions to make them propitious, to make the unknown hospitable, and to become able to settle in it.... But it is very important to negotiate with the chaos, to ingratiate oneself with it, trying to guess its intentions and not to overlook its power."[40]

Loss of grasp of the outside world during a moment of transition allows a bather to let go of concerns and preconceptions, settling into the moment. Without this slowing and perceiving, the bath loses all power to contribute to systemic health. Just as stormwater is infiltrated through slowing, spreading, and sinking of rainfall, systemic health begins with letting go, opening to the moment, and settling into awareness of a larger system. Friedrich Nietzsche's attitude on awareness of the moment is uncompromising. He proclaims:

> "He who cannot sink down on the threshold of the moment and forget all past, who cannot stand balanced like a goddess of victory without growing dizzy and afraid, will never know what happiness is – or worse – he will never do anything to make others happy.[41]

[40] Read, Alan. *Architecturally Speaking Practices of Art, Architecture and the Everyday*. Routledge, 2000, pp. 31, 34, & 35.
[41] Nietzsche, Friedrich. *Nietzsche: Untimely Meditations*. Cambridge University Press, 1997, 62.

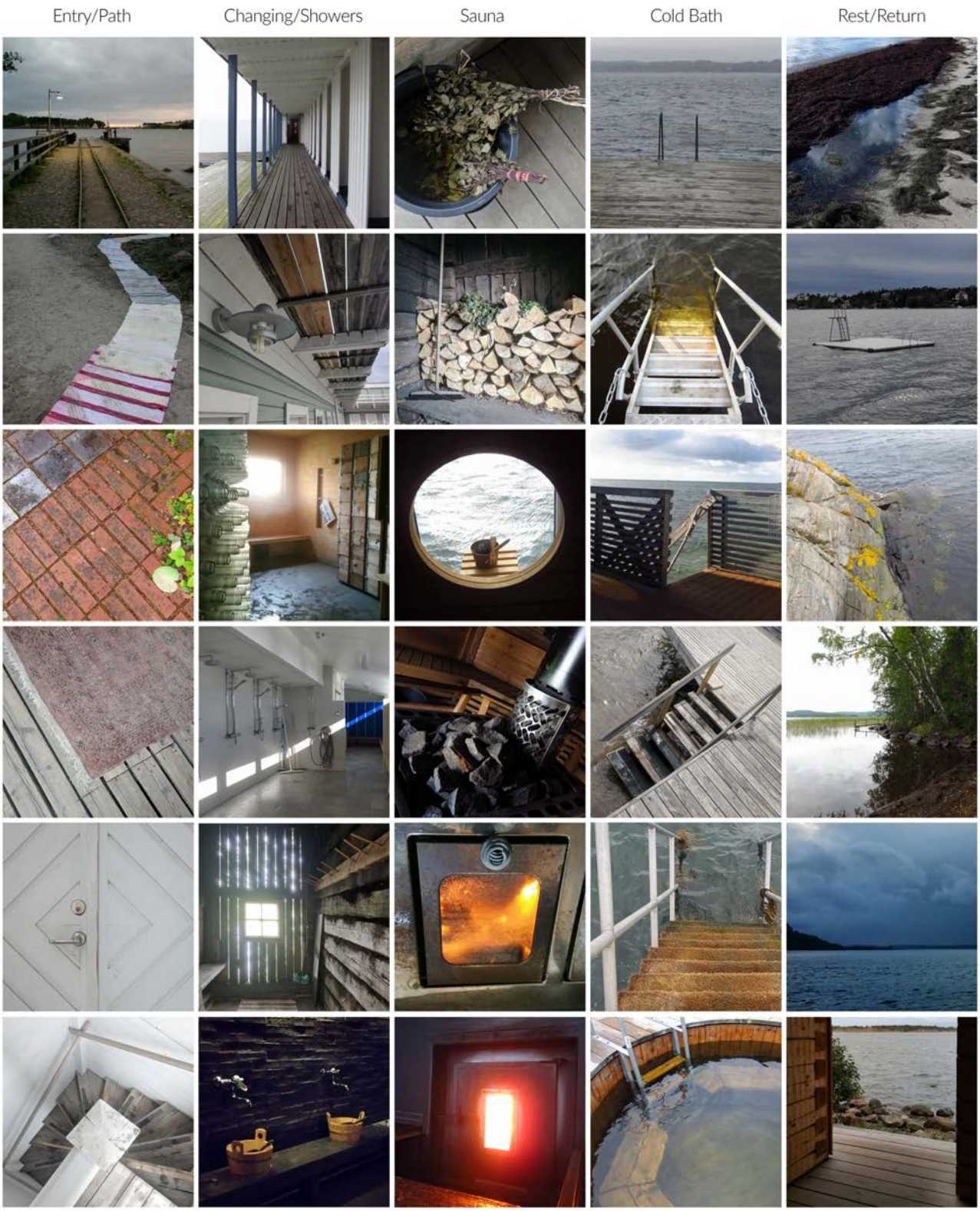


Fig. 2.3: Details such as texture underfoot, light-level, temperature, quality of edge, and material choices may contribute to multisensory experience at thresholds in bathing

SEATTLE BATHS

Seattle, like many cities in the US, was once home to several bathhouses. Seattle's baths were exemplary thresholds of private, public, ritual, taboo, sport, performance, and regeneration. In the early 1900's, a "Natatorium" sat on Alki Point in West Seattle. Known as a human aquarium for play, it was "appointed like a Japanese teahouse" with hanging lanterns, and featured gymnasium paraphernalia. Its bathing tank was "130 feet long, 53 feet wide and 22 inches to 9½ feet deep, filled daily with Puget Sound waters kept at 74 to 76 degrees." The pavilion hosted events, "most involving dance."[42] The Natatorium was destroyed by inclement weather and rebuilt in 1934, and the second structure was razed in 1953 after falling into disrepair.

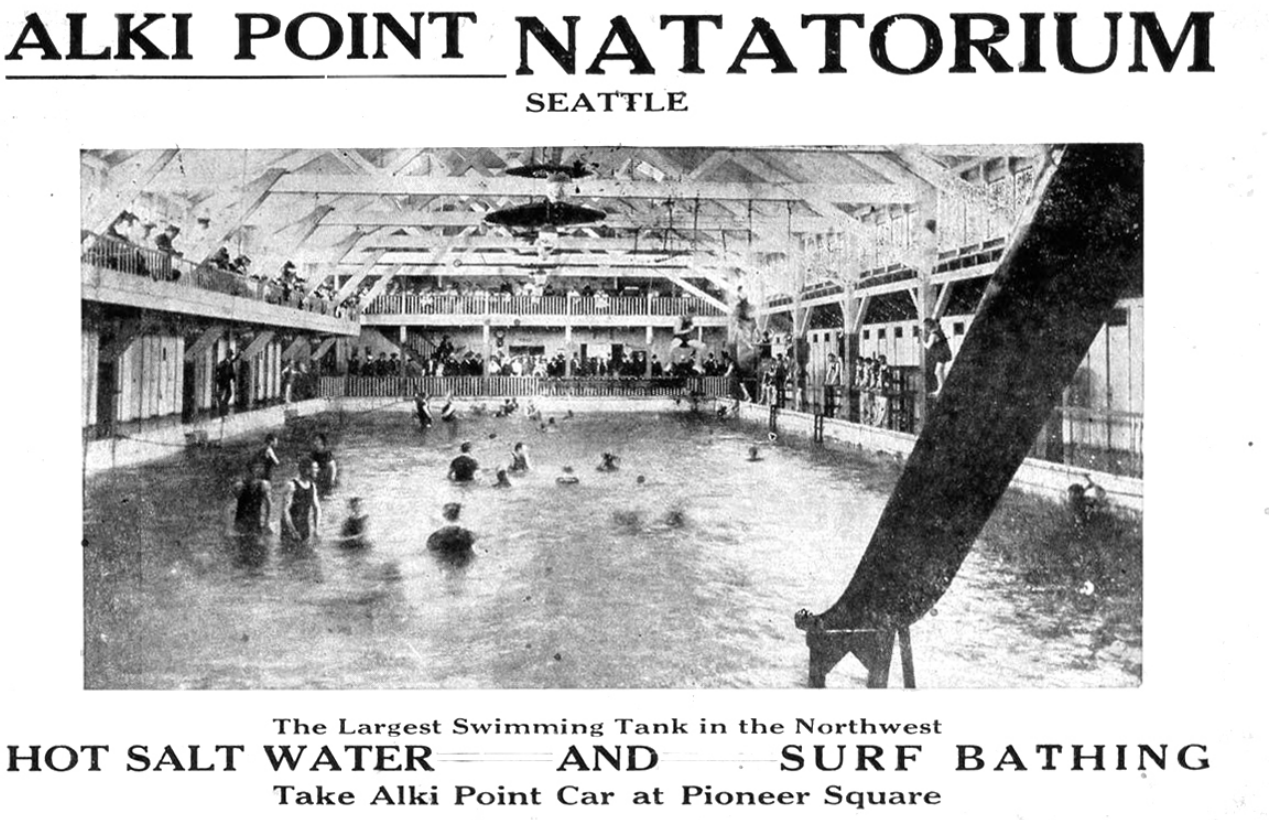


Fig. 2.4: Advertisement for Seattle's Alki Natatorium bathing hall (via Paul Dropat)

[42] Dorpat, Paul. "The First Alki Natatorium Ended up Swimming in Snow." *The Seattle Times*, 17 Oct. 2016, https://www.seattletimes.com/pacific-nw-magazine/the-first-alki-natatorium-ended-up-swimming-in-snow

In 1910, the Panama Hotel opened on 6th and Main, designed by Sabro Ozasa, the first architect of Japanese ancestry in Seattle. The hotel housed laborers and fishermen, and its businesses included a laundry, tailor, dentist, bookstore, sushi restaurant, and a full-service Japanese sento. The sento, called Hashidate-Yu, was one of four in Seattle. It had one bath for men and another for women and children, and was an important resource for families in the area. The sento was a reminder of the "calm, of ritual and normalcy, that imbued the everyday built environment of Japanese-American communities in the early/mid-twentieth century."[43] Hashidate-Yu fell out of use in 1942 during World War II when Japanese-Americans were sent to internment camp. It is still intact today, and is the only remaining example of such a bath in the United States.[44]

Fig. 2.5: Sento at te Panama Hotel (National Register of Historic Places)

[43] Boutelle, Laura. "Sento at Sixth and Main-Preserving Landmarks of Japanese American Heritage [EDRA/Places Awards, 2003--Research]." *Places* 16.1 (2004).
[44] Meg van Huygen. "The Panama Hotel Is Both a Working Hotel and a Living Museum." *Curbed Seattle*, Curbed Seattle, 30 Apr. 2018, https://seattle.curbed.com/2018/4/30/17303288/panama-hotel-seattle-history-preservation.

In 1927, a bathhouse was constructed at Green Lake. The lake had been a popular swimming spot, but algal blooms caused swimmers to itch. As a solution, the new bathhouse was located a mile north of the old swimming hole. In 1928, 53,000 people used the bathhouse, but "the Green Lake Itch" followed.[45] In 1950 residents established an Aqua Theater with a floating orchestra pit near the bathhouse. It housed "swimusicals" courtesy of the Aqua Follies. These were a mix of water ballet, comedy, and stage dance. After the 1962 World's Fair brought performance space to downtown Seattle. The Aqua Theater could not compete, and fell into disrepair. After hosting concerts by Led Zeppelin and the Grateful Dead in the summer of 1969, the grandstand was determined unsafe, and in 1970 the Aqua Theater was razed.[46] Later that year, the city of Seattle converted the bathhouse itself into a small theatre. The theater is still run by the Parks Department, and has changing rooms and lifeguard stations along its back.

Fig. 2.6: A performance by the Green Lake Aqua Follies (via Paul Dropat)

[45] jrsherrard. "Seattle Now & Then: Green Lake Swimmers." *DorpatSherrardLomont*, 19 June 2011, https://pauldorpat.com/2011/06/18/seattle-now-then-green-lake-swimmers/
[46] "Aqua Theatre -- Seattle." *Historylink.Org*, 2019, http://www.historylink.org/File/1052

The longest-standing practice of Pacific Northwest sweat bathing, and the most akin to sauna, is the Indigenous Peoples' sweat bath. Aaland writes, “In one form or another, the sweat bath pervaded cultures from the Alaskan Eskimo south into the land of the Mayans. The purpose, in most cases, went beyond getting the body clean. The sweat bath provided a cure for illness, revitalization for aching muscles, and a sense of racial identity.” [47] Practices of sweat bathing around the Salish Sea are widely varied, as is noted by anthropologist Claude Lévi-Strauss. In his examination of the region’s variations on the “Story of the Lynx,” he writes that for some tribes, “Sweat Lodge” itself is understood to be a divinity, who exists for the help of human beings. Sometimes Sweat Lodge is "a supernatural mediator with a place in the pantheon;” other times it is a “hygienic practice.”[48] The Snohomish Lynx Story includes an origin myth of the sweat lodge. Sweat Lodge heals the protagonist, Wild Cat, who praises what it has done for him and calls for its continuation.[49] However, this understanding of sweat lodge is not ubiquitous; in some traditions it does not appear in the Lynx story at all. Lévi-Strauss writes that for many Salish Peoples, the sweat lodge was not a strong focal point, and that its use is simply based on individual preference.

Because of the sweat-lodge’s importance to many Indigenous Peoples' religion, it was discouraged in the United States, and banned in Canada until the 1951 revision of the “Indian Act.” Today, this source of identity is finding its place in new ways. These include addiction recovery in the face of the current meth and fentanyl crisis,[50] and on another end of the spectrum, sweat-tourism, which walks a fine line between spiritual inclusivity and misappropriation by “Plastic Shaman”[51] as the

[47] Aaland, 1978.
[48] Lévi-Strauss, Claude. *The story of Lynx*. University of Chicago Press, 1995, pp. 11-15.
[49] Ibid.
[50] “‘We’re Dealing with a Lot of Deep Trauma’: B.C. Aboriginal Peoples Turn to Culture for Healing amid Overdose Crisis.” *The Province*, The Province, 1 Apr. 2017, https://theprovince.com/news/local-news/were-dealing-with-a-lot-of-deep-trauma-b-c-aboriginal-peoples-turn-to-culture-for-healing-amid-overdose-crisis.
[51] Wikipedia Contributors' entry for Plastic Shaman has a running list information on this: Wikipedia. “Plastic Shaman.” *Wikipedia*, Wikimedia Foundation, 22 Dec. 2018, https://en.wikipedia.org/wiki/Plastic_shaman.

Sweat-Lodge makes its way into the post-colonial world. An “Indigenous BC” article names sweat lodge as a source of “mental, emotional, physical, and spiritual well-being…” associated with “deep connection to the universe and to the spirit realm.” It adds, “one sweat lodge can be used as a place to work out family or community problems, while another handles addictions and health problems, or even to teach and share Aboriginal traditions or languages.”[52]A sweat lodge ceremony is always to be guided by a formal spiritual leader. The practice itself may vary, even within one tribe, depending on the leader and the purpose of the sweat; it is accompanied by some combination of singing, meditative prayer, and oration. In some tribes, use of the sweat lodge has "moved from the periphery to the center for contemporary Indian communities, given the dearth of ritual opportunities available to contemporary [Indigenous] people."[53]

There are two forms of sweat-lodge in the Pacific Northwest, each based on a different method of heating. These are sometimes hybridized, but the base method influences the lodge’s form. The most common is the “hot rock” sweat lodge. This structure is often made with a frame of arched boughs. If it is temporary, it may be sheathed in blankets or skins, if permanent, it may be sealed with mud or sod. Rocks are heated outside the lodge, brought in, and sprinkled with water to create steam. The other method is the “direct fire” sweat lodge. This lodge is large enough for dozens of men, and is often constructed of planks. Through this method, a small fire is kept burring throughout the day. At night, it is fed until the lodge is filled with smoke and the air becomes hot enough to produce sweat. This method of heating a space is more leisurely than the “hot rock” method; its presence indicates more time for leisure and communal activities.[54]

[52] “The Sweat Lodge – An Aboriginal Healing Experience - Indigenous Tourism BC.” *Indigenous Tourism BC*, 1 Jan. 2014, https://www.indigenousbc.com/blog/sweat-lodge-aboriginal-healing-experience/.
[53] Kelley, Dennis. *Tradition, performance, and religion in Native America: Ancestral ways, modern selves*. Routledge, 2015.
[54] Aaland, 1978.

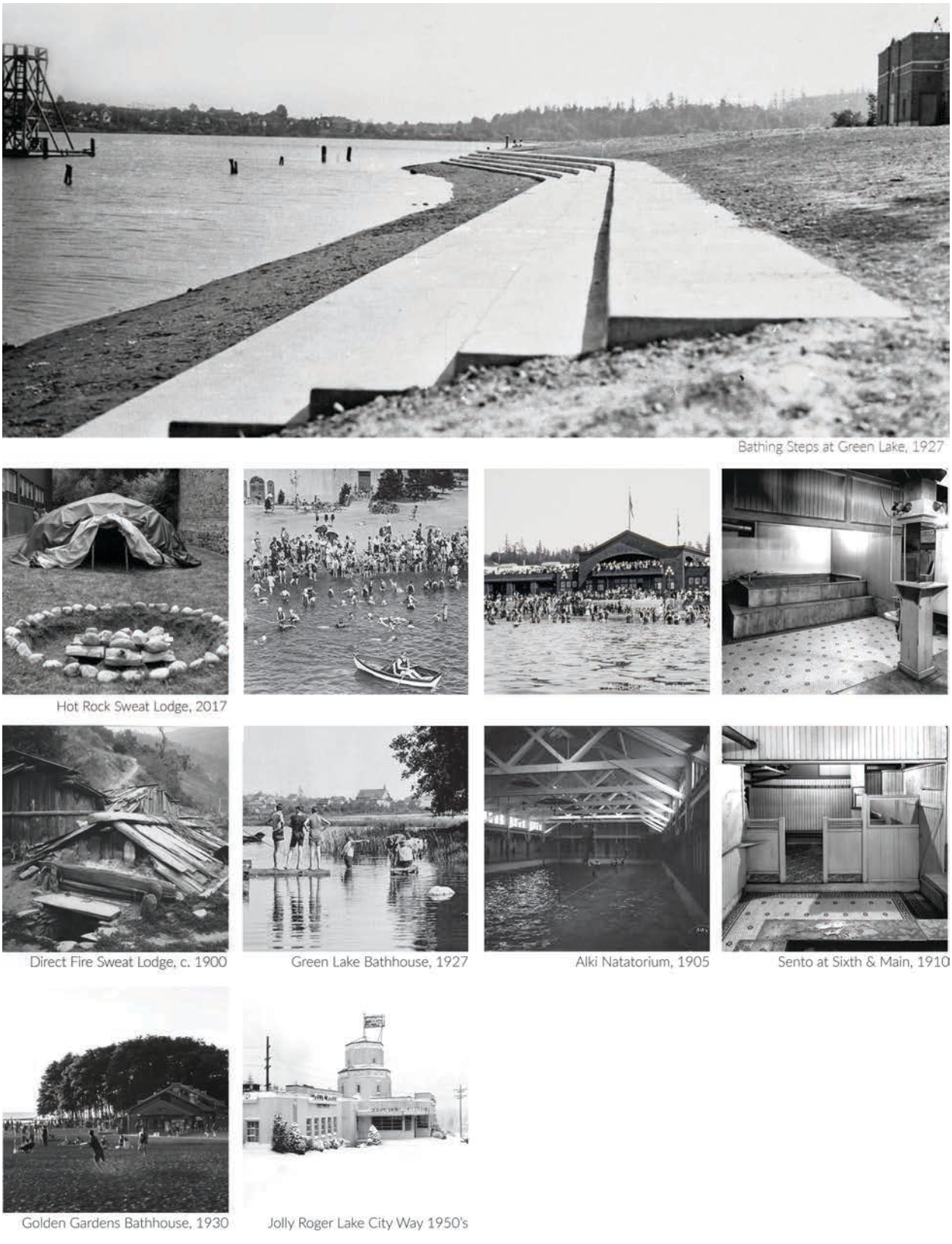


Fig. 2.7: Historic sweat lodge, bath houses, and sento in the Pacific Northwest

KEY ISSUES FOR A THERMIC BATH

How might a thermic bathing culture take root in present-day Seattle?
The preceding examples demonstrate that the form of a bath will vary based on its site and intended community. As is evidenced by saunas in Helsinki and kallbadhus along the Kattegat and Øresund coasts, a network of thermic baths is needed to form a normative bathing culture. However, key challenges to implementing such a network are similar across sites in Seattle. These challenges correspond the framework of mind-body, social, and ecological health, and offer some basic insight into requirements for a Seattle bath.

Sauna and bath are often associated with luxury, sport, and sexuality in Western culture. The body is frequently objectified rather than cared for. There are few co-ed thermic bathing places, and no sauna-specific thermic baths in Seattle that are exclusively for men unless they are *also* gyms or gay saunas. A network of baths in Seattle can help to normalize the practice of bath as a preventative health measure and a form of everyday mind-body care.

Shared egalitarian social practices are lacking in contemporary culture. Meanwhile, disparity in Seattle is increasing rapidly. Many baths in the Pacific Northwest are more like spas, which precludes their capacity to serve as egalitarian space. As Seattle becomes increasingly dense and vertical, access to self-care and ecology in the urban realm must expand beyond single family lots to include distinctly public spaces and space for shared activities. A public thermic bath in Seattle could welcome people from many walks of life, regardless of gender, race, class, creed, or title, into a shared space for ritual.

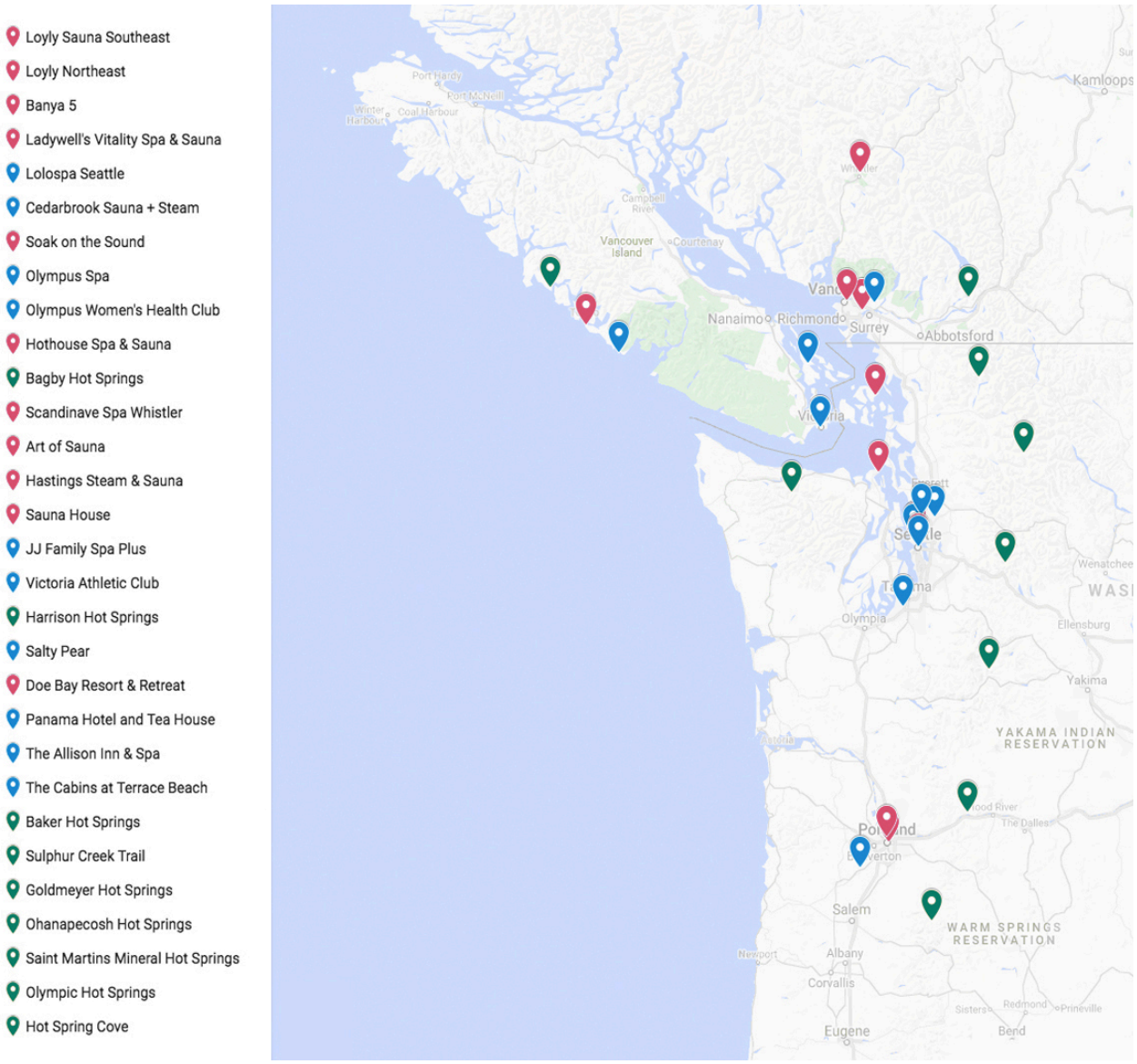


Fig. 2.8: Popular saunas, spas, and thermal baths in the Pacific Northwest as of January, 2019

As a part of a greater ecology, the City of Seattle is tied to its watersheds. Swimmable public waterfront is an invaluable amenity and a shared resource. While Seattle has several street-end parks and public beaches, much of its waterfront is privatized, industrialized, or otherwise inaccessible. The water ought to belong to everyone, and Seattle's waterways can reflect this reality, becoming a primary focus for expansion of public space.

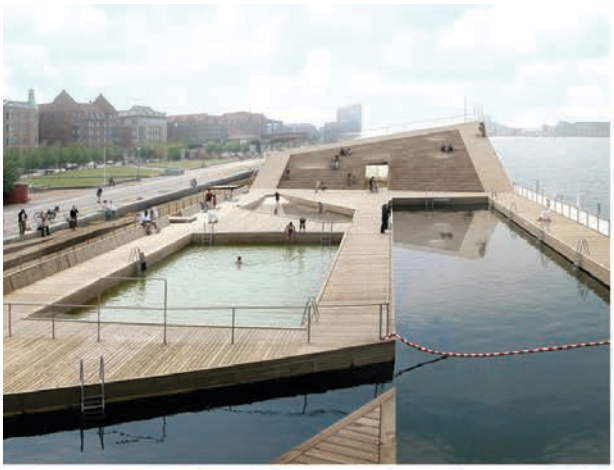
SWIMMABLE CITIES

Swimmable waterfront, in particular, is an example of how a regenerative activity, like bathing, can incite health across realms. For example, Copenhagen cleaned the water in its harbor in just twenty years. The City prioritized making its water's edge accessible, to the point of building walkways in front of private buildings. Copenhagen's example has become world-renowned, and other cities are following suit. Today, there are an inspiring number of proposals for public waterfront pools in polluted urban waterways. In 2017, Paris began to open pools in its canals after a bathing society drew attention to its polluted water, and in the US, Baltimore, along with Atlanta, Boston, Los Angeles, New Orleans and Norfolk, are trying to clean their harbors to swimmable standards.

Many real-world initiatives come from idealistic proposals, and several proposed baths are being promoted globally. An architecture firm called "Studio Octopi" has drawn up proposals for swimmable pools in London's River Thames and Melbourne's Yarra River. "Flussbad Berlin," which proposes a swimmable channel, remediated by wetlands, in the river Spree, has promoted its ideals primarily through design propaganda. Meanwhile, "+Pool," a proposed floating filtered pool in New York's East River, has raised millions of dollars in crowdfunding and secured help from ARUP Architectural Engineers, all based on a few diagrams and renderings.

This thesis proposes a similar initiative. Based on the key challenges to establishing a culture of thermic bathing in the United States, the design for Seattle's thermic baths investigates one example that could inform a network of thermic baths rather than focusing on a singular pool.[55]

[55] See "Pool Parti: Swimability as an Incentive for Urban Waterway Remediation" in the appendix of this document for a full report on recent swimmable cities initiatives



Islands Brygge, Copenhagen, 2002

Badeschiff, Berlin, 2004

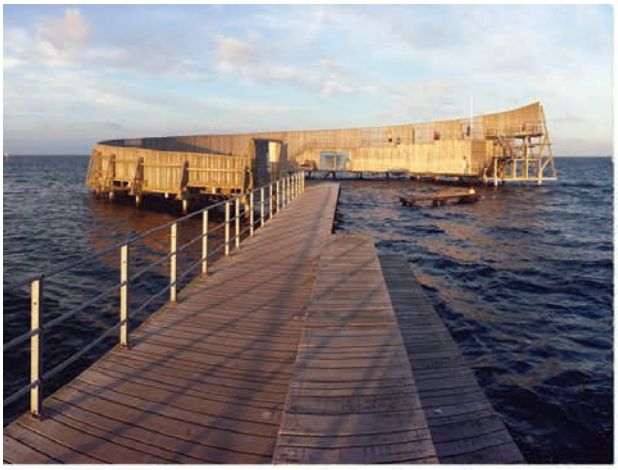
Baignades Urbaines, Paris, 2012

Pöl Harbor, Göteborg, 2015

Aarhus Harbor Pool, Denmark, 2018

King's Cross Pond Club, London, 2015

Fig. 2.9: Swimmable cities initiatives serve as inspiration for Salmon Bay Baths (see "Pool Parti" for references)



Kastrup Sea Bath, Copenhagen, 2004

Swimmable Cities, Baltimore, Ongoing

Thames Lido, London, 2017

Allas Sea Pool, Helsinkim 2017

Yarra Seapool, Melbourne, Proposeed

+Pool, NYC, Proposed

Fig. 2.10: Further proposed and established swimmable cities initiatives (see “Pool Parti” for references)

SITE SELECTION

Saunas in Seattle could certainly exist at already-developed park spaces, such as street-end parks or in the city's many marinas. However, in effort to maximize impact of a bath network, site-selection for this thesis focuses on polluted locations where the public is currently cut off from the waterfront by privatization and pollution.

While exploring Lake Union and the Lake Washington Ship Canal, I spoke with Kaitlyn Van Nostrand, of Seattle Boat Share. Van Nostrand doesn't see Lake Union as an ecological space, but as a "working lake," and noted that it's been that way for a long time. Upon exploring the docks and sites around the lake, I found these places to be characterized by airplane traffic, barges, docks, bridges, and boat activity. While swimming in Lake Union occurs regularly, because of legacy sediment pollution, no official swimming beaches are sited on the lake or canal. Further west, toward Salmon bay and the Hiram M. Chittenden Locks (Chittenden Locks), industrial presence increases. The shoreline of the Ship Canal is 98% armored, and is covered by a near-continuous series of overwater structures. Vegetation is extremely limited in this area and the few trees present are separated from shore.[56] In this part of the city, water is primarily used as a tool for conveyance. Seattle's working waterfronts are similar to locations where new saunas have popped up as urban connectors, such as the harbors of Gothenburg and Helsinki.

The primary sources of pollution to Seattle's waterways are combined stormwater and sewage runoff, so one possibility for establishing a network of baths is to begin at a combined sewer overflow, or CSO. Of the one hundred twenty-three CSO's [57] that are managed by Seattle and

[56] Seattle Public Utilities
[57] "Controlling Combined Sewer Overflows - King County." *Kingcounty.Gov*, 1 Jan. 2012, https://www.kingcounty.gov/services/environment/wastewater/cso/about/working-together.aspx.

King County, CSO site "150/151"[58] is the terminus of Seattle Public Utilities' largest civil infrastructure project to-date: the "Ship Canal Water Quality Project." This 570 million-dollar[59] initiative is focused on developing a three-mile long, eighteen-foot diameter tunnel to store combined waste and stormwater during large storm events.

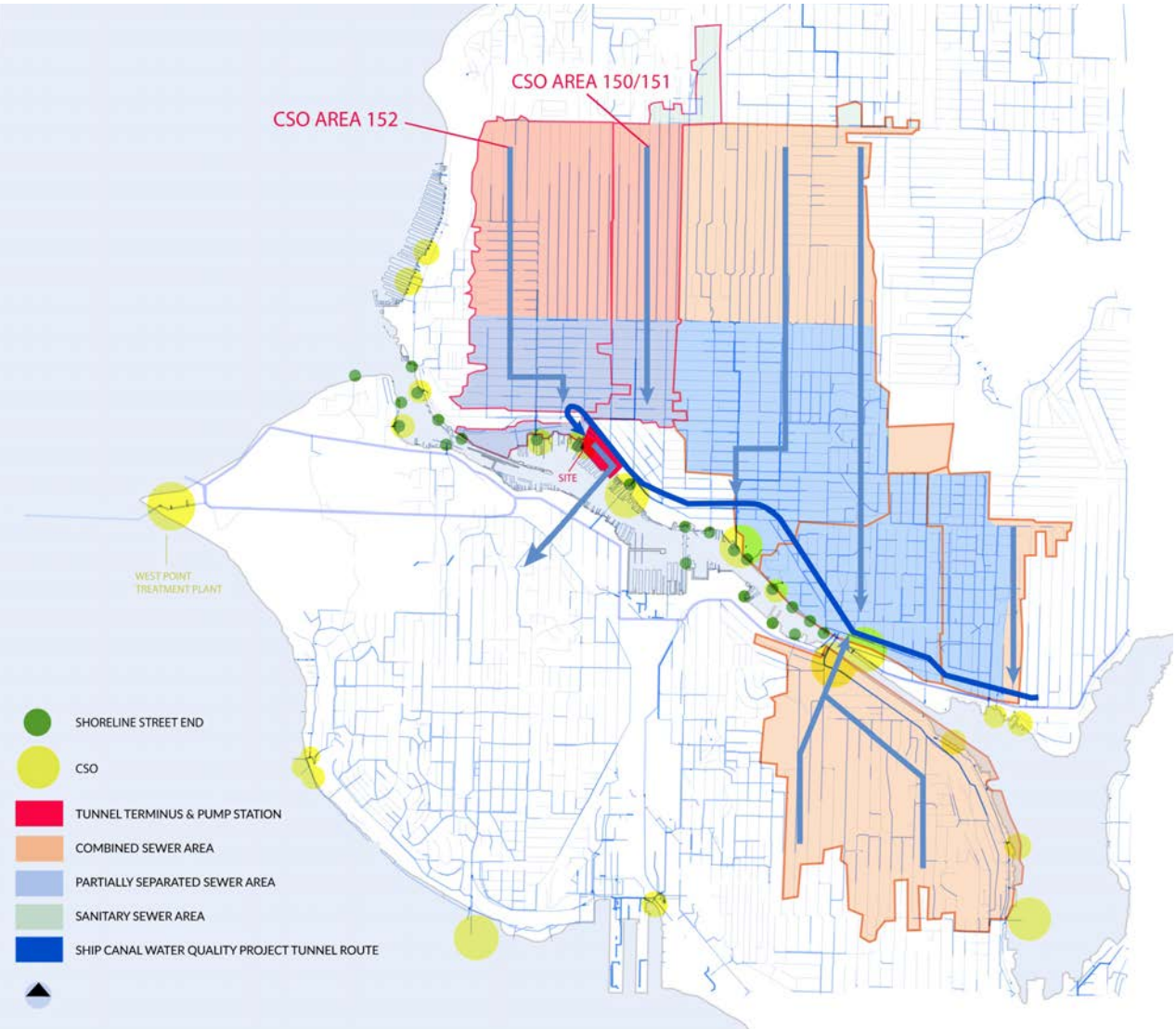


Fig. 2.11: The six CSO areas addressed by the Ship Canal Water Quality Project; the paths of water flowing to and through the Project's tunnel are shown in dark blue; the terminus of the tunnel is highlighted in red

[58] This outfall is named 150/151 because there one older outfall and one newer one are adjacent to one another at the same location.

[59] Beekman, Daniel. "Cost Estimate Hits $570 Million for Seattle Sewage Tunnel." *The Seattle Times*, 23 May 2018, www.seattletimes.com/seattle-news/politics/cost-estimate-hits-570-million-for-seattle-sewage-tunnel/.

The storage tunnel is slated to collect water from six CSO areas, all located along the ship canal. The combined sewage will flow from the East Portal in Wallingford westward to the Tunnel Effluent Pump Station (TEPS) in Ballard, sited near to CSO 150/151. Water will be stored in the pipe until the system has enough capacity for it to be pumped from this site to tunnel's terminus at the West Point Treatment Plant. The tunnel is essentially a big holding pen for waste. While this is better than sewage overflows, it fails to capture stormwater from separated systems, which is currently discharged directly into the ship canal, and has recently been found to be the greatest polluter of the Salish Sea.[60] This approach simply reduces and masks ongoing pollution. It misses an opportunity to educate the public about taking accountability for stormwater runoff.

Fig. 2.12: Workers being lowered into the access way for Ballard Siphon, which directs combined stormwater and sewage from the north side of the Ship Canal to the West Point Treatment Plant (via Seattle Public Utilities)

[60] Ecology and King County, 2011. Control of Toxic Chemicals in Puget Sound: Assessment of Selected Toxic Chemicals in the Puget Sound Basin, 2007-2011. Washington State Department of Ecology, Olympia, WA and King County Department of Natural Resources, Seattle, WA. Ecology Publication No. 11-03-055. www.ecy.wa.gov/biblio/1103055.html

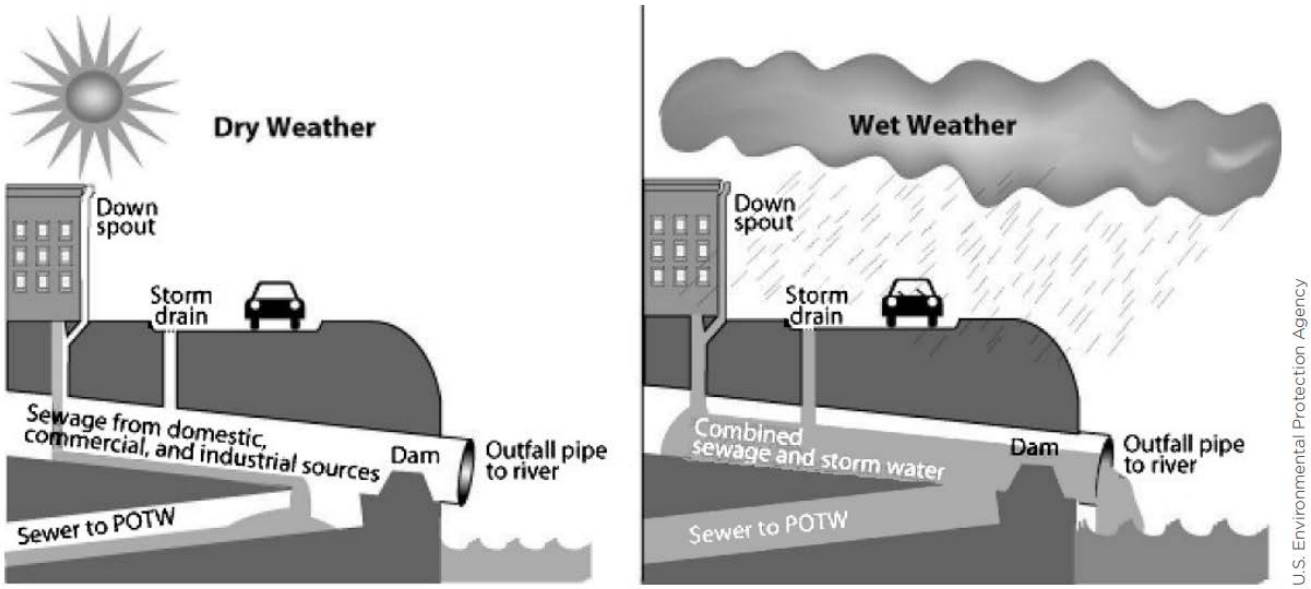


Fig. 2.13: During rainstorms, runoff can overwhelm the capacity of combined sewers, sending untreated sewage and runoff into local waters – US EPA

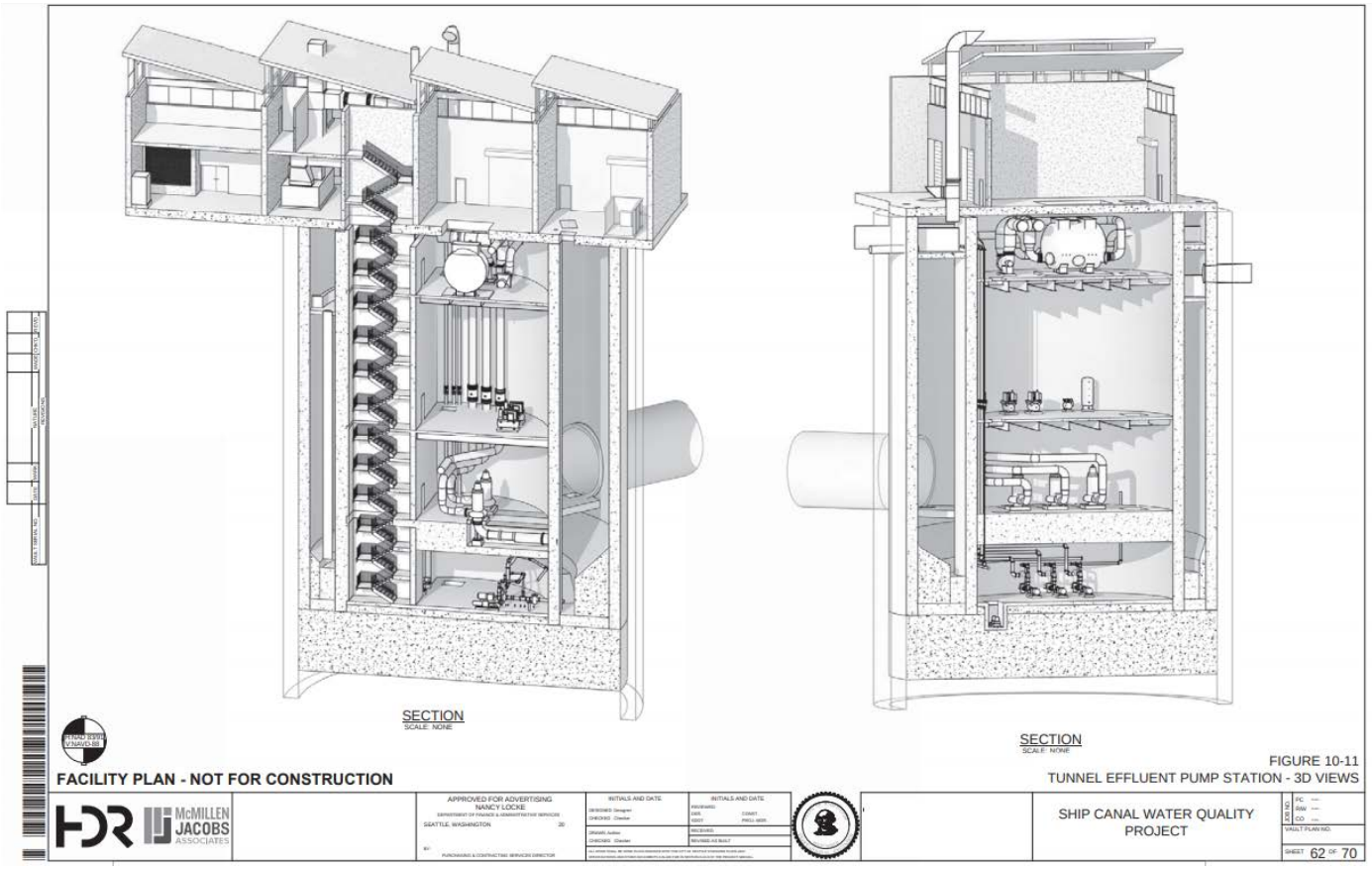


Fig. 2.14: Plans for a Tunnel Effluent Pump Station (TEPS), which will pump the tunnel's water to the Ballard Syphon

APPROACH TO SITE

This thesis' proposed thermic bath, Salmon Bay Baths, will be located on the grounds of the proposed pump out station, at the edge of Salmon Bay near CSO 150/151. This site is presently a gently sloping asphalt lot. On a larger scale, this site includes the contributing area to its CSO's, also called the Ballard Basin. The site's network also includes the Lake Washington / Cedar River / Sammamish Watershed and the Salish Sea.

Anita Berrizbeitia, Professor and Chair of the Harvard Department of Landscape Architecture, advocates for "working with a process-based approach," especially when designing large parks on contaminated sites. To this end, she suggests a significant set of shifts in design methodology:

> "First, the dynamic nature of the material itself requires one to design processes rather than a landscape's final form…. these are "found" and evolved out of systems already there."
>
> "Second, there is a shift in design methodology toward dedicating more effort to site research than once was the case in formally focused design approaches…. research also explores how systems have evolved and performed over time, questioning how and why the landscape arrived at is present state…"
>
> "Third, history is understood as a process itself, rather than a visual reference for form… Process-based practices acknowledge that the site is defined as much by its visible physical qualities as by its accumulated histories. This is especially relevant to large parks because they occupy sites that have been transformed several times over the course of centuries."
>
> "Fourth, process-based practices anticipate the change from the outset, understanding that their intervention is only one of many in the immense evolutionary process of the landscape… As a result, more weight is placed on establishing an argument for the objectives of a project than on creating a vision for a final form."[61]

[61] Berrizbeitia, Anita, "Re-Placing Process." *Large parks*. Ed. Czerniak, Julia, George Hargreaves, and John Beardsley. New York: Princeton Architectural Press, 2007. 174-197.Print.

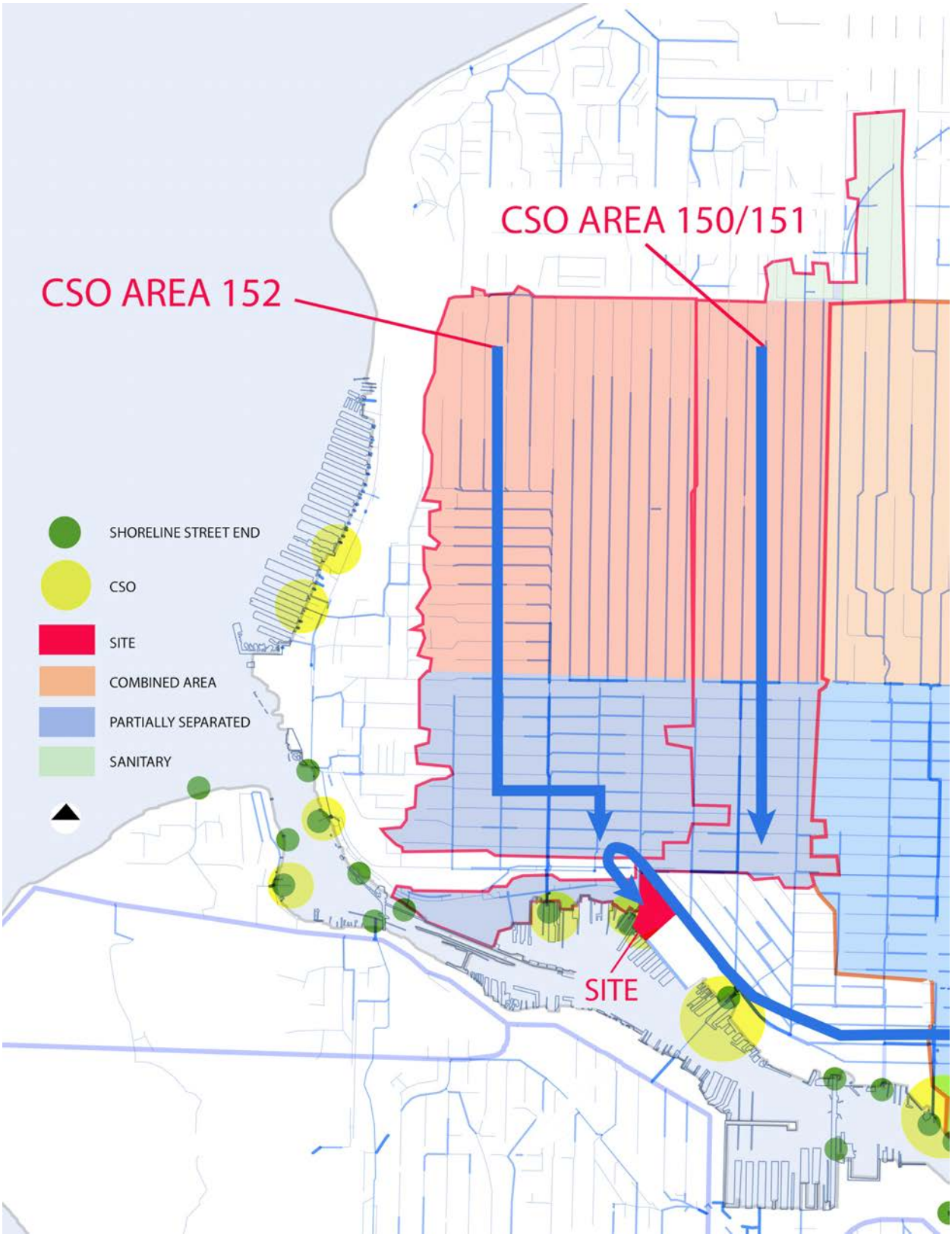


Fig. 3.15: The site of Salmon Bay Baths and extent of the site's contributing area, the Ballard Basin

These recommendations have been taken into account in the design of Salmon Bay Baths, and considered alongside this thesis's framework of systemic health. Understanding a site in terms of its processes demonstrates that small decisions can accumulate throughout a system to achieve significant impacts. A design must respond to both its physical site-boundary and to its larger network to impact systemic health. As such, the design process for this project values a balance of quantitative, qualitative, cultural, theoretical, and aesthetic research. The design of the baths is informed by an understanding of volumes, flows, and quality of storm and wastewater passing through the Ballard Basin, as is described in the following sections. It is also informed by the accumulated histories on site. These histories are tied to systemic health, and include individual, social, and ecological history.

This site of Salmon Bay Baths has been altered dramatically over time. Research into the site's history reveals a legacy of cultural shifts, extraction of resources, and modification of ecological process. Understanding of this place's many-layered history reveals patterns that are telling of what may come in the future. For example, since it was settled, Seattle has been a "boom and bust" city. Speculators and workers alike have repeatedly capitalized on this region's resources, extracting them until their value is dried up. Yet the city continues to grow, finding another resource to invest in after each downturn. In light of the site's "Urban Core" location and the current wave of infrastructural development, it is likely that human inhabitation "upstream" of Salmon Bay Baths will increase in density for the coming decades. Impacts from sites upstream aggregate downstream, and each new development has potential to help or harm surrounding ecology. Thus, it is important for the design of the baths to include a network-based approach. In the case of this site, the approach includes a network of GSI initiatives and a stormwater park for the Ballard Basin. A similar method could be tested at all CSO's in the Ship Canal Water Quality Project, or near any CSO in Seattle.

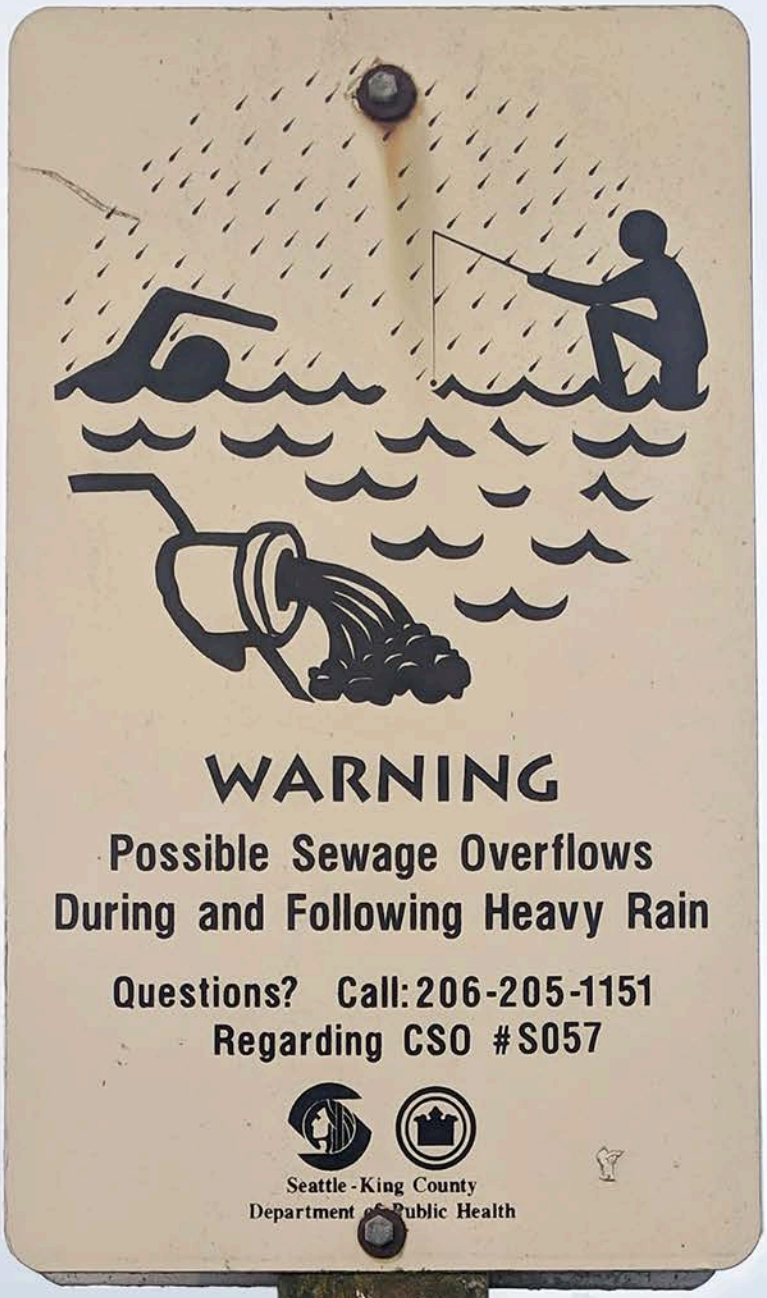


Fig 2.16: Signage near Seattle CSO on Puget Sound

ACCUMULATED HISTORIES

The plot of land for Salmon Bay Baths is a 2.15-acre city-owned property at the southeast corner of Shilshole Avenue NW and 24th Avenue NW. Post-glaciation, the site was a shallow tidal inlet. Its rich riparian forest remained inhabited by Indigenous Peoples even after white settlement began in Seattle. The people *called shill-shohl-AHBSH* had the village of *shill-SHOHL* on the southern shore Salmon Bay, meaning “Tucked Away Inside.” In the 1880’s settlers began to arrive, establishing what that would later become Ballard on the north side of Salmon Bay.

Fig. 2.17: Hwehichtid and Chilohleet’sa’s home, at *shill-SHOHL*, c. 1905 (UW Digital Collection)

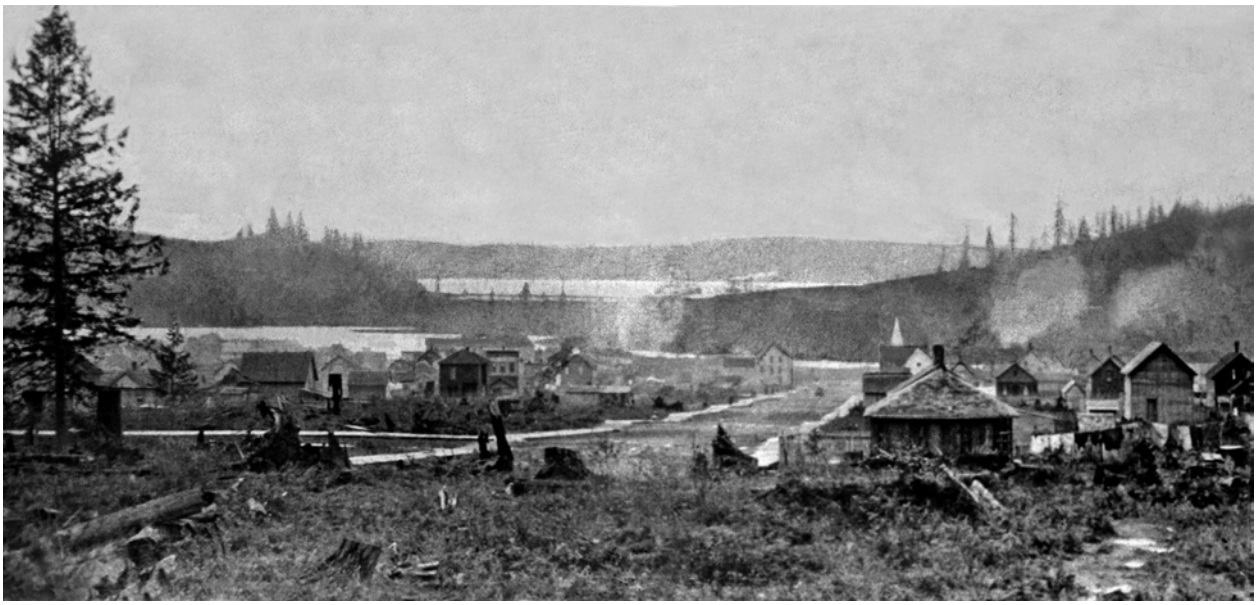


Fig 2.18: Early settlement in Ballard, looking south toward Salmon Bay, c. 1970 (Vera Pells Christianson)

> "Farmdale was Ballard's first and short-lived name. In 1889 Ballard got its second name, Gilman Park, and the once forested acres that gently sloped south to the north shore of Salmon Bay were divided into hundreds of residential lots and a few larger ones for the factories that were soon strung along the Salmon Bay shoreline… A quartet of robust capitalists organized the ambitiously named West Coast Improvement Company to develop the site… happy to give up [their] bucolic visions of gardens in Farmdale for factories. In four or five chop-chop years the mill town became 'The Shingle Capitol of the World,' and more often than not it smelled like Cedar. With its 1890 incorporation, came the third try at naming, and the citizens chose Ballard."[62]

Ballard's early developers were quick to recognize the monetary value of the area's resources. They caught salmon, felled trees, opened lumber mills, and transformed both the landscape and the region's watershed. In the 1880's, Ballard's Ross Creek was enlarged to flush logs out toward sawmills and the shoreline of Salmon Bay was lined with lumber mills. Ballard's population grew from 1,700 in 1890 to 17,000 in 1907 as people came looking for work, making Ballard the second largest city in King County. In 1909 "132,000,000 feet of lumber and 1,117,000,000

[62] jrsherrard. "Seattle Now & Then: Ballard Beginnings." *DorpatSherrardLomont*, 11 June 2017, https://pauldorpat.com/2017/06/10/seattle-now-then-ballard-beginnings/.

shingles… and probably 25,000,000 lath"[63] were manufactured from the forested hillsides. The enlargement of Ross Creek was not sufficient for real shipping traffic. Both private developers and the City of Seattle entertained several proposals for an inland waterway, and it was determined that Salmon Bay would become the mouth of the Lake Washington Ship Canal.

Fig 2.19: Seattle Cedar Lumber Manufacturing's yard in Ballard c.1910 (Paul Dropat)

[63] "The History of 'Shingletown'—Part 1 of Ballard City History | Shingletown Saloon." *Shingletown Saloon*, https://shingletownballard.com/2015/06/23/the-history-of-shingletown-part-1-of-ballard-city-history

Fig 2.20: Ross Creek ran between Freemont and Ballard and was enlarged , 1887 and 1903 (Paul Dropat)

The Lake Washington Ship Canal project connected Lake Washington, Portage Bay, Lake Union, and Salmon Bay to Puget Sound. This process raised the water level of Salmon Bay by nine feet to match the level of Lake Union, and threatened to flood the Ballard waterfront, which had become a "solid line of lumber mills, boat building plants, marine ways, out- fitters and endless booms of logs."[64] By this time, Ballard had been annexed by Seattle in exchange for clean drinking water and public utilities. The City of Seattle came to the rescue, creating a special tax district to regrade the entire shoreline of Shilshole and build an improved street with "new sewers, walkways, water service, and fire protection."[65]

Fig. 2.21: Seattle Municipal Archives. Re-grading Shilshole Avenue to raise street above new water level, 1914

[64] Johnson, Ralph, "Memory Digs a Canal - The Creek," *The Sea Chest*, 1975. p. 155
[65] "- King County." *Kingcounty.Gov*, 1 Jan. 2017, https://www.kingcounty.gov/depts/records-licensing/archives/exhibits/SalmonBayMills_ShipCanal/NewInfrastructure.aspx.

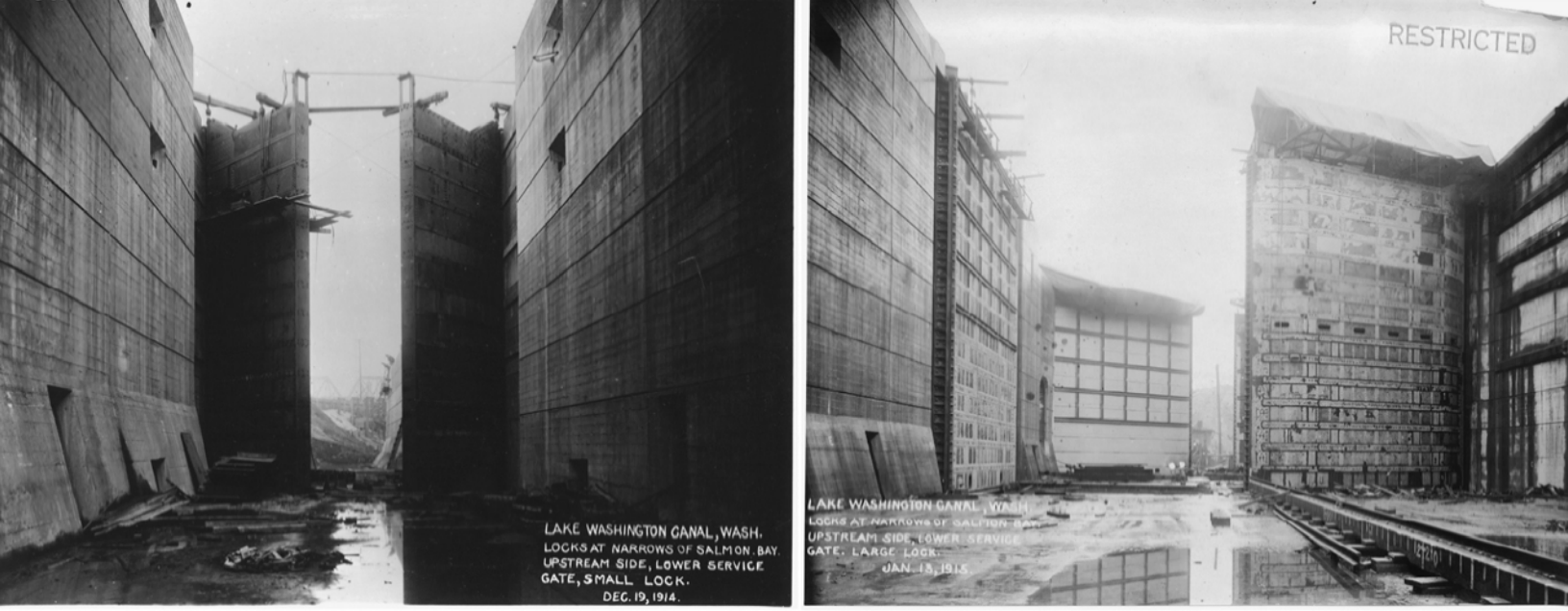


Fig. 2.22: The "Small Lock" (left) and "Large Lock" (right) under construction at the Chittenden Locks, 1914

> "The Hiram M. Chittenden Locks were formally opened on July 4, 1917 with the transit of the Arctic exploration ship ROOSEVELT... [They] consist of two units; a large lock 825 feet long and 80 feet wide, while the small lock is 150 feet long and 28 feet wide; the gates are operated electrically and the locks are filled with fresh water by gravity. Lifting or lowering a vessel or tow of logs varies from six to twenty-six feet depending on the tide at the Puget Sound entrance to the locks and the level of the water in the lakes."
>
> "The distance from Puget Sound to the locks is one and one half miles; from the locks to Lake Union three and nine-tenths miles and the Montlake Cut one half mile further; the total length of the Waterway is approximately eight miles. A minimum depth of thirty feet of water is maintained in the canal at all times."[66]

When the Ship Canal opened to Puget Sound, the Black River, Lake Washington's outlet to the Duwamish, fully drained. All flows in the Lake Washington, Cedar River, and Sammamish watersheds are now controlled by the Chittenden Locks. These keep the water levels of Salmon Bay, the Ship Canal, and the lakes beyond at near to 20 feet above sea-level in the summer and two feet higher in the winter. The locks, which sit just west of Salmon Bay Baths, are the only entrance for boats, fish, or other aquatic species to enter 692 square mile watershed upstream.

[66] Johnson, 1975, p. 38.

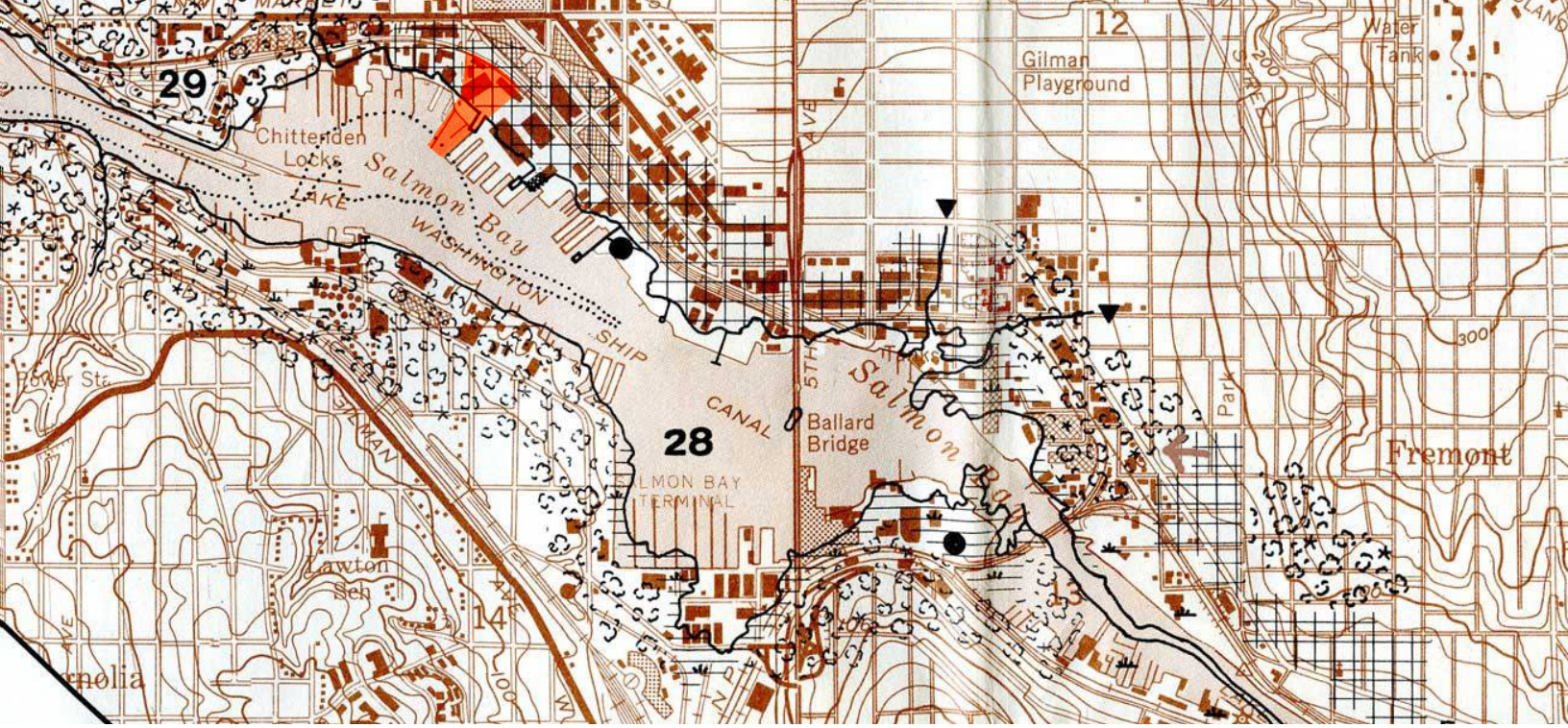


Fig 2.23: The Shoreline of Salmon Bay before and after the filling of it behind the Locks in 1916; the site of Salmon Bay Baths is highlighted in red (map from U.S. Department of Commerce c.1990)

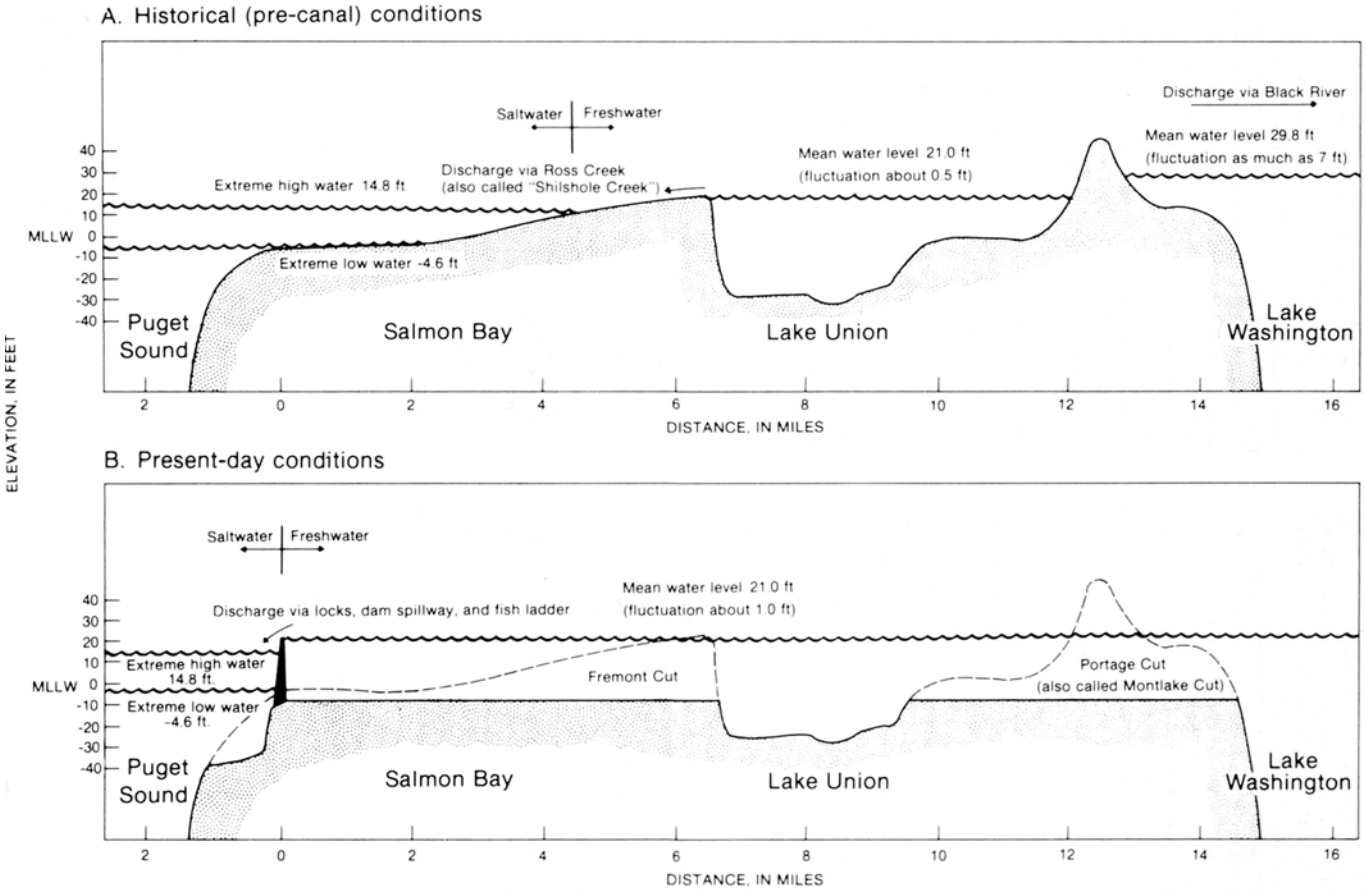


Fig. 2.24: Schematic sections comparing historical and present-day bottom configuration and elevations along the Lake Washington Ship Canal (US Geological Survey)

After the early 1920's, the site of Salmon Bay Baths was the location of a plating shop. In 1977, a fine dining restaurant, called "The Canal," was constructed on site. This later became an everyday diner called the Yankee Grill. The Yankee Grill closed in 2014, and the property is currently being used as a Seattle Public Utilities outbuilding. The remainder of the site is an asphalt parking lot.

Fig. 2.25: The site of Salmon Bay Baths, the Yankee Grill building is to the left, armored shoreline at the center, and a barge being used for removal of Ship Canal Water Quality Project waste is to the right.

Today, the site of Salmon Bay Baths sits amidst an array of district overlays and initiatives. In addition to the Ship Canal Water Quality Project, these include the Burke-Gillman Trail's missing link and a light rail line proposed for 2035. The site is adjacent to a public pier and street end park with a restored shoreline, which is currently closed as it hauls away waste from the digging of SPU's tunnel. It is also proximate to the Chittenden locks, Carl S. English Jr. Botanical Garden, Salmon Bay Natural Area, Ballard Landmark District and Sunday Farmer's Market, a Salmon Conservation District, a Muckleshoot and Suquamish Tribal fishing site, a Rainwise District, and is part of the Ballard urban core per Seattle's 2035 plan. Salmon Bay Baths is sited near to new Nordic Museum, making it a likely stopping point for many who are culturally interested in sauna.

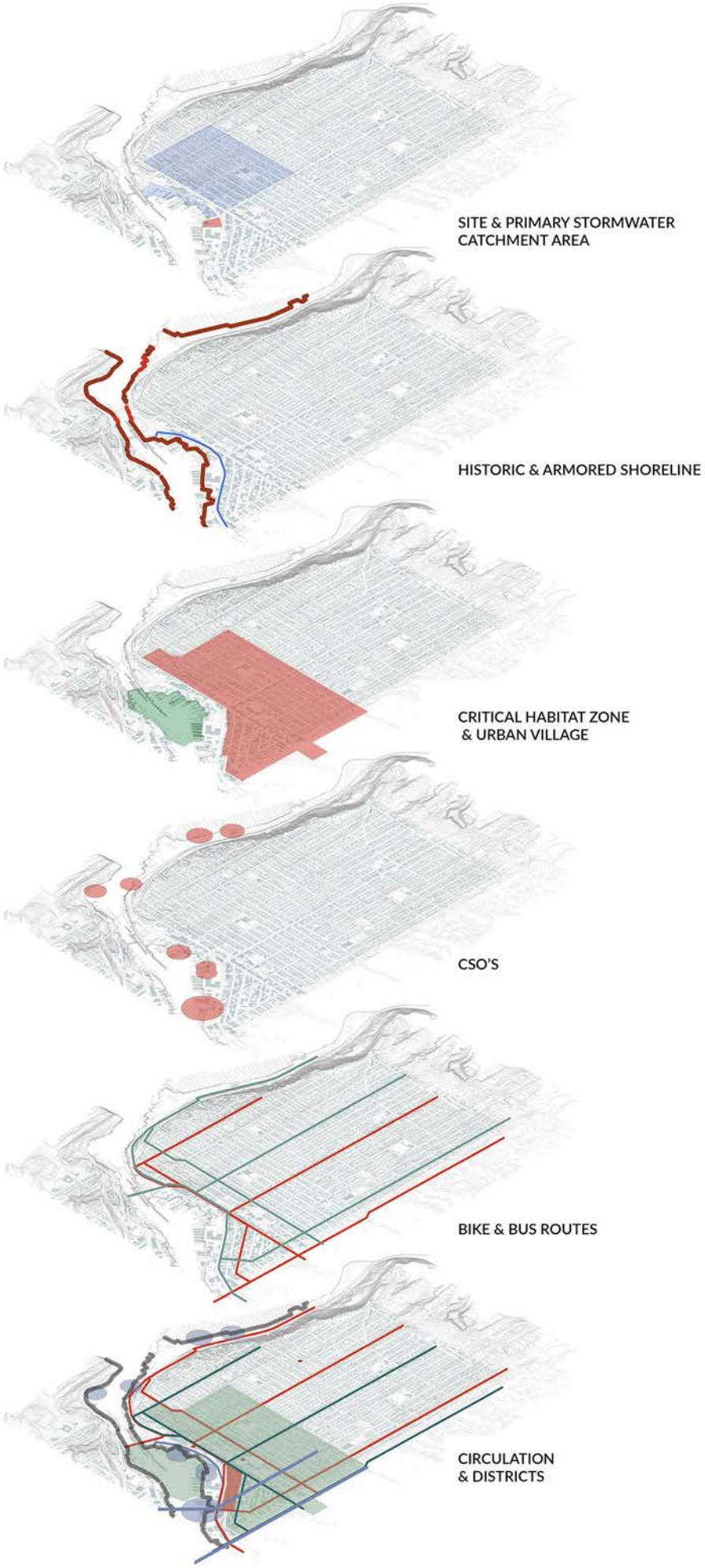


Fig. 2.26: Circulation & Districts near the site of Salmon Bay Baths

Fig. 2.27: The site of Salmon Bay Baths in the present-day context of Historic Ballard and a working waterfront

The site itself, however, is currently disconnected from this surrounding array of activity. Its immediate adjacencies consist mostly of underutilized space that is not open to the public. The monumental Pacific Fisherman's Shipyard sits to the west. The site's northern edge is divided from Shilshole Avenue and Ballard by an active Class III (short-line terminal) rail line. Shilshole Avenue itself is lined with parking, auto shops, and public storage. To the east are a parking lot for Stimson bay marina, two office buildings, and Salmon Bay Concrete and Gravel. The site's southern edge is an armored shoreline. The swath of waterfront and on and adjacent to the site, once a vital tidal flat, is currently uninviting to the public and uninhabitable by other species.

Fig. 2.28: Dividing edges between the site and Ballard

The site is proximate to a changing and active residential neighborhood which a variety of people engage and pass through daily. This is important to support a healthy space for sauna, which provides a rare place for people from all walks of life to share in a contemplative and visceral practice in a common space and on a repeated basis.

Examples of people and activities in this area include:

Fishing & Industry: The fishing industry, which brings as much income to Seattle as the tech industry, sees this site as a stronghold. Industry near Salmon bay has been greatly impacted by new development. Fishing boats have threatened to leave - mooring in another city if new development encroaches on their right to a working waterfront.

Newcomers and Development: Ballard has changed significantly in the past 20 years. The city lists Ballard as an urban village hub in its 2035 plan. Mixed-use mid-rises are going up everywhere, a Link Light Rail line is being planned, and many local businesses are opening just to the north, bringing entrepreneurs, commerce, and workers at large.

Resident Neighbors: Some residents have called Ballard "home" for over a half-century. The area's history of working-class labor lingers in the face of new development.

Tourism and Visitors: Nearby amenities like the Nordic Museum, the Carl S. English Jr. Botanical Garden, the Locks, a climbing wall, and a farmers market attract a variety of visitors.

A House-less Population: Shilshole Ave is presently lined with motorhomes and busses parked along the train tracks; these are being used as informal housing. Encampments of tents are currently cropping up in any location where space allows in Seattle; sometimes tents are present along the Ballard Terminal Railroad or on Market Street.

The many activities in this area could be shifted to encourage connectivity by re-imagining the streets and latent spaces around the sauna as supportive, rather than prohibitive, to the life of the city. Examples include improved pathways that engage the streetscape and waterfront, increased green space, places to pause and "be" without paying for a café' or bar, and places to safely engage others across cultural difference. These types of space are often proximate to saunas in Finland and Sweden, and can similarly occur near Salmon Bay Baths. Reimagining this site as a thermic bath and stormwater treatment network gives it a new identity as a place for individual, social, and ecological health. The impact of a visible process of cleansing urban waters is reminiscent of the multi-scalar impact of ritual bath. Using Green Stormwater Infrastructure (GSI) to manage urban hydrology has

the capacity to invite individual engagement with ecology, space for connecting with others, and increased awareness about stormwater through education. A design that implements GSI can allow water to well up and flow through the site, establishing visible, tactile connection between urban and receiving waters. Methods like this, that respond to systemic realities, highlight the relationship between urban and ecological space and underscore the importance of watershed health.

Fig. 2.29: Ecological edges on site

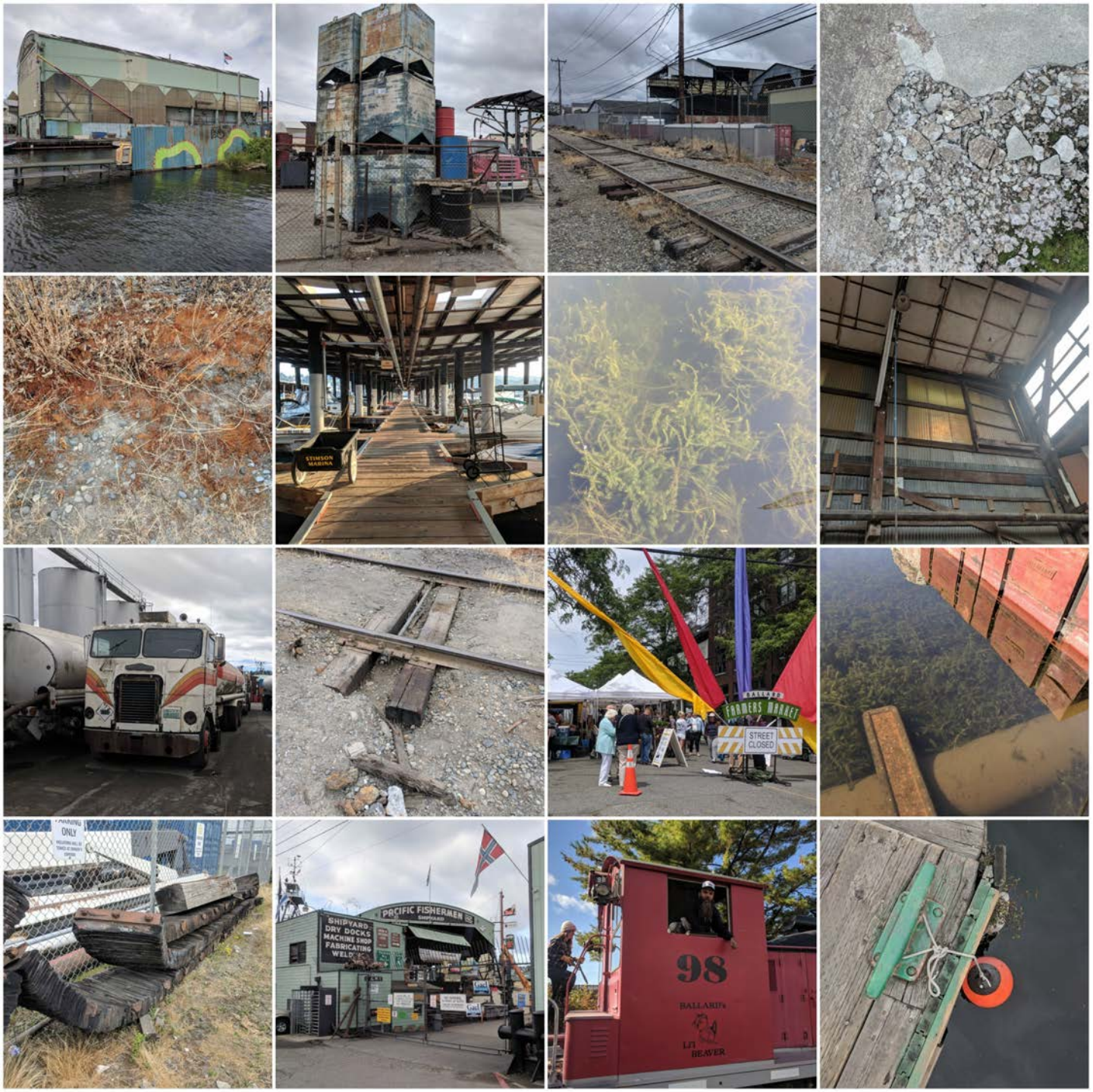
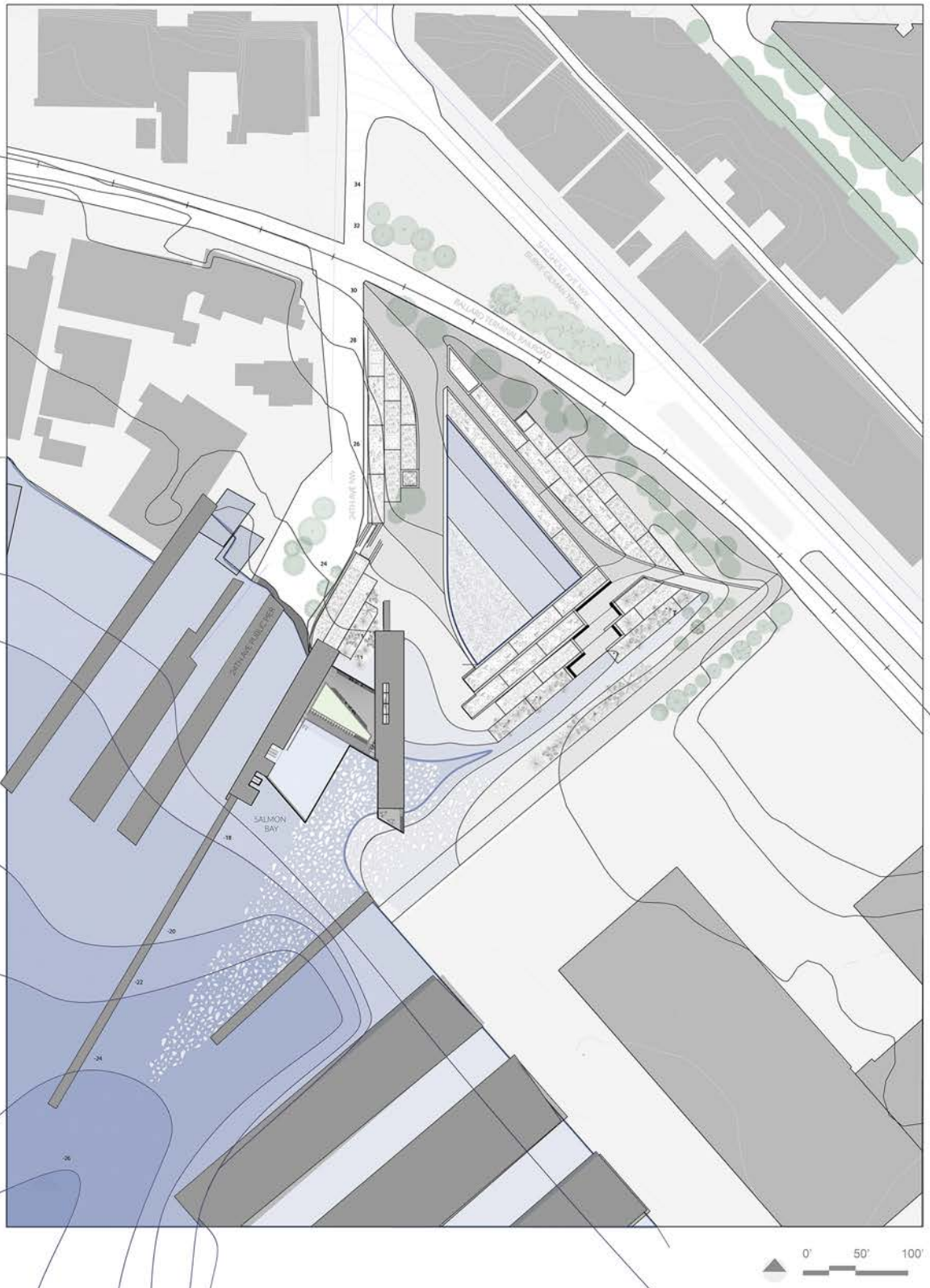


Fig. 2.30: Activities, materials, and vernacular structures near the site of Salmon Bay Baths

Fig. 2.31: Aerial view of existing conditions on the site of Salmon Bay Baths



SALMON BAY BATHS

Fig. 3.1: Site Plan

SYSTEMS-BASED RESPONSE

The present-day site of Salmon Bay Baths is an intersecting point of many flows. It is located at both the manufactured mouth of its watershed, the Ballard Locks, and at an outflow of the Ballard Basin, CSO's 150/151. While the water in Lake Union and the Ship Canal completely changes every nine to ten days, efficiently flowing toward the sea at a consistent rate, the canal remains polluted due to stormwater and CSO outflows. Legacy pollutants, stormwater runoff, and armored shorelines impact benthic species, salmon, and other aquatic life, directly killing species by pollution and limiting their habitat. These impacts go on to affect other species, like great blue herons, who have a nesting colony near the site, orca whales, whose pods are struggling in the Sound, and humans, who rely on the sea as a seemingly-abundant source of life.

Life is dependent upon exchange, yet this site is characterized by flow-through. Contaminants, commuters, cyclists, stormwater, the canal, migrating species, vessels, and raw materials flow by the site, but none of them pause on-site, in part, because there is nowhere to rest. Humans, urban space, and even ecology are channelized, passing through efficiently without opportunity for the enrichment that comes from the exchange that is required for vitality and life.

In light of the thermic bath's association with clean, swimmable waterways, this thesis proposes an alternative to the Ship Canal Water Quality Project's three-mile long pipe. This alternative includes a network of Low-Impact Development (LID) and Green Stormwater Infrastructure (GSI) initiatives. This network of cisterns, swales, check-dams, and cloudburst parks will reduce peak flows that would otherwise lead to CSO events. Furthermore, these initiatives will reduce and filter stormwater runoff, the primary source of pollutants entering Salmon Bay and Puget Sound.

SEA Streets clean water that would otherwise pollute Piper's Creek (2001)

The High Point neighborhood development integrates GSI throughout its design (2013/2019)

The Swale On Yale filters an average of 190 million gallons of stormwater each year (2013/2019)

Fig 3.2: Seattle is a leader in GSI; the above projects filter and infiltrate millions of gallons of stormwater each year.

Fig 3.3: Details of the Swale on Yale, which sits entirely within a widened curb strip on each of four streets and filters an annual 190 million gallons of stormwater from Seattle's Capitol Hill neighborhood.

A GSI-based alternative is an improvement upon the Seattle Public Utilities (SPU) Ship Canal Water Quality Project, which proposes to reduce CSO overflows without specifically addressing stormwater runoff. The site of the Baths, which is also the proposed site of the Water Quality Project's TEPS station, is on a large enough parcel to accommodate stormwater filtration for *two* of the Water Quality Project's six CSO areas. These are Ballard Basin CSO Areas 150/151 and 152. Overflows stemming from the Ballard Basin alone account for over 50% of annual overflow volume to the Ship Canal. If a GSI-based stormwater and swimmability strategy is viable for the Ballard Basin, a similar strategy could be imagined as repeating across any area of the Ship Canal project. Furthermore, this pattern could be applied upstream of any outfall where sufficient space for water infiltration exists. Based on existing projects that demonstrate the capacity of LID and GSI, I believe that this kind of infrastructure is a viable and preferable option.

As one of 800 cities in the U.S that operate a combined sewer system, Seattle has failed to meet Clean Water Act mandates despite over a century of efforts toward improvements in conventional plumbing. However, in the past decade, Seattle has become a source of innovation in LID and GSI initiatives, and this city is now the home to several leading examples of successful natural drainage systems. Projects like SEA Streets, Carkeek Cascade, Broadview Green Grid, High Point, Pinehurst Green Grid, and the Swale on Yale demonstrate that Seattle has ample capacity to infiltrate and filter its stormwater. The diagram of these projects is iterative, networked, and redundant. Their goal is to reduce loads on SPU's plumbing system by infiltrating stormwater near to where it falls. This happens through increased porosity and distribution of flows across a network, rather than relying on a single pipe diameter, which is easily overloaded. A system-based response strives for outcomes that benefit multiple stakeholders. Humans, other species, water and air quality, soil health, local economy, and even the city's infrastructure budget can all benefit from a network response to stormwater infiltration.

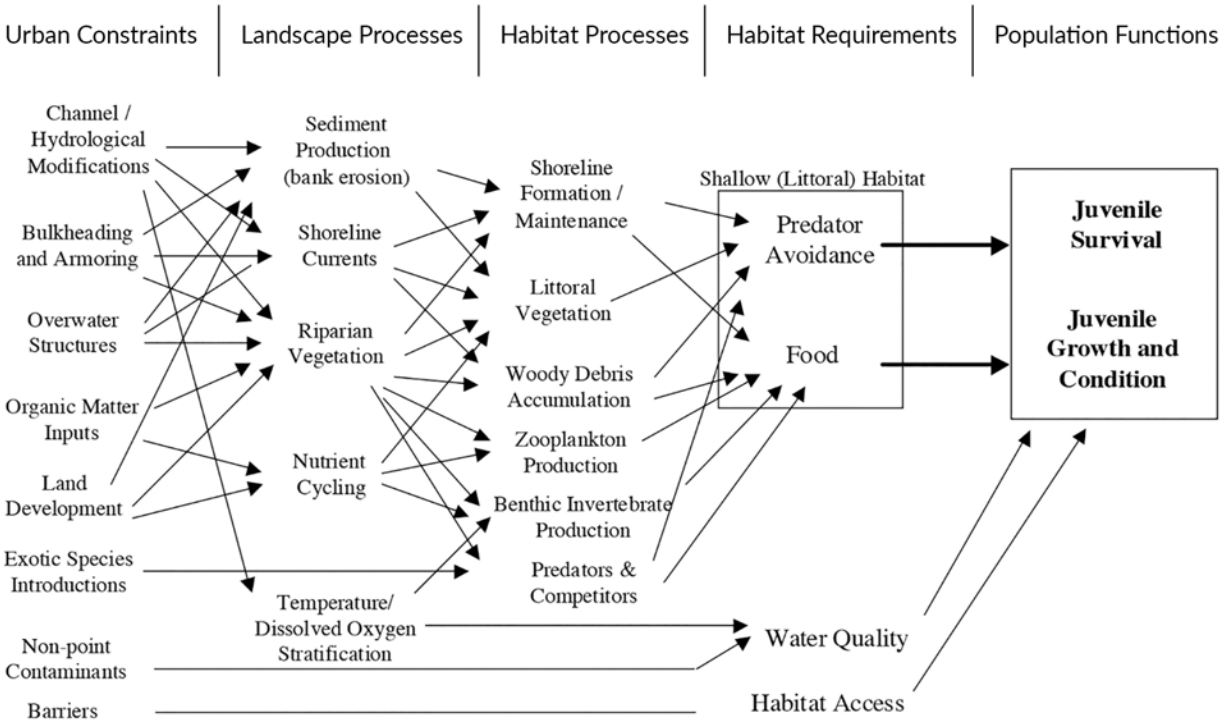


Fig. 3.4: Networks on site include habitat and species networks; this diagram demonstrates the impacts of urban and ecological processes on Chinook Salmon in the Lake Union / Lake Washington Ship Canal system (via Seattle.gov)

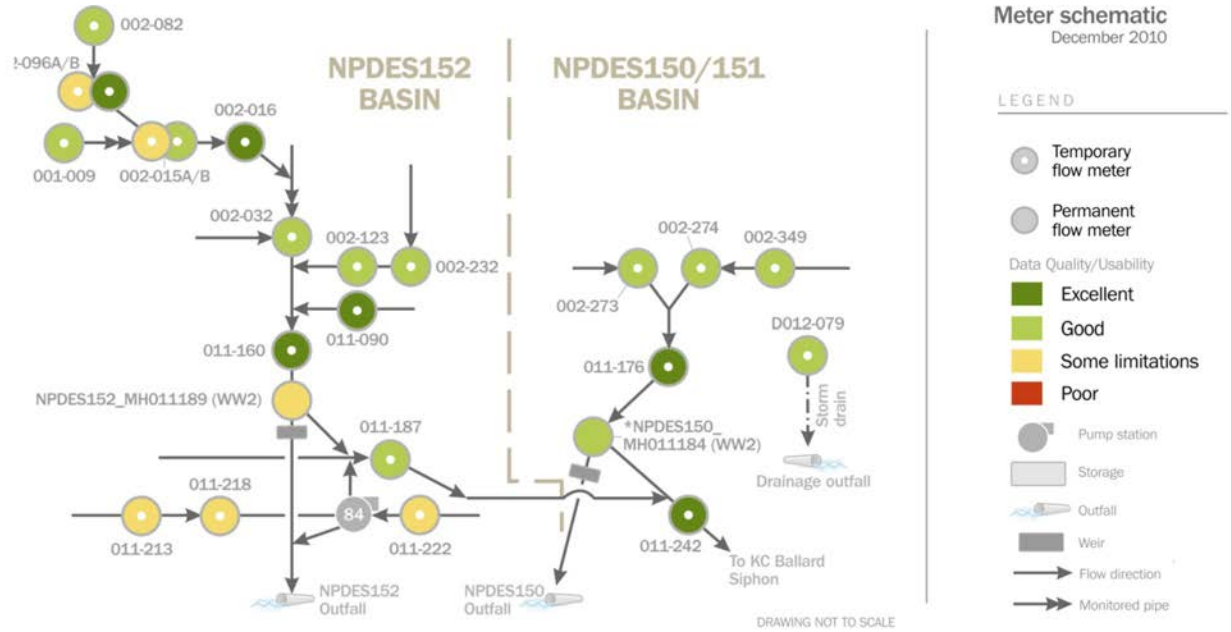


Fig. 3.5: Networks also include stormwater flows; this diagram shows stormwater flow direction and monitoring stations running through the Ballard Basin (via Seattle Public Utilities)

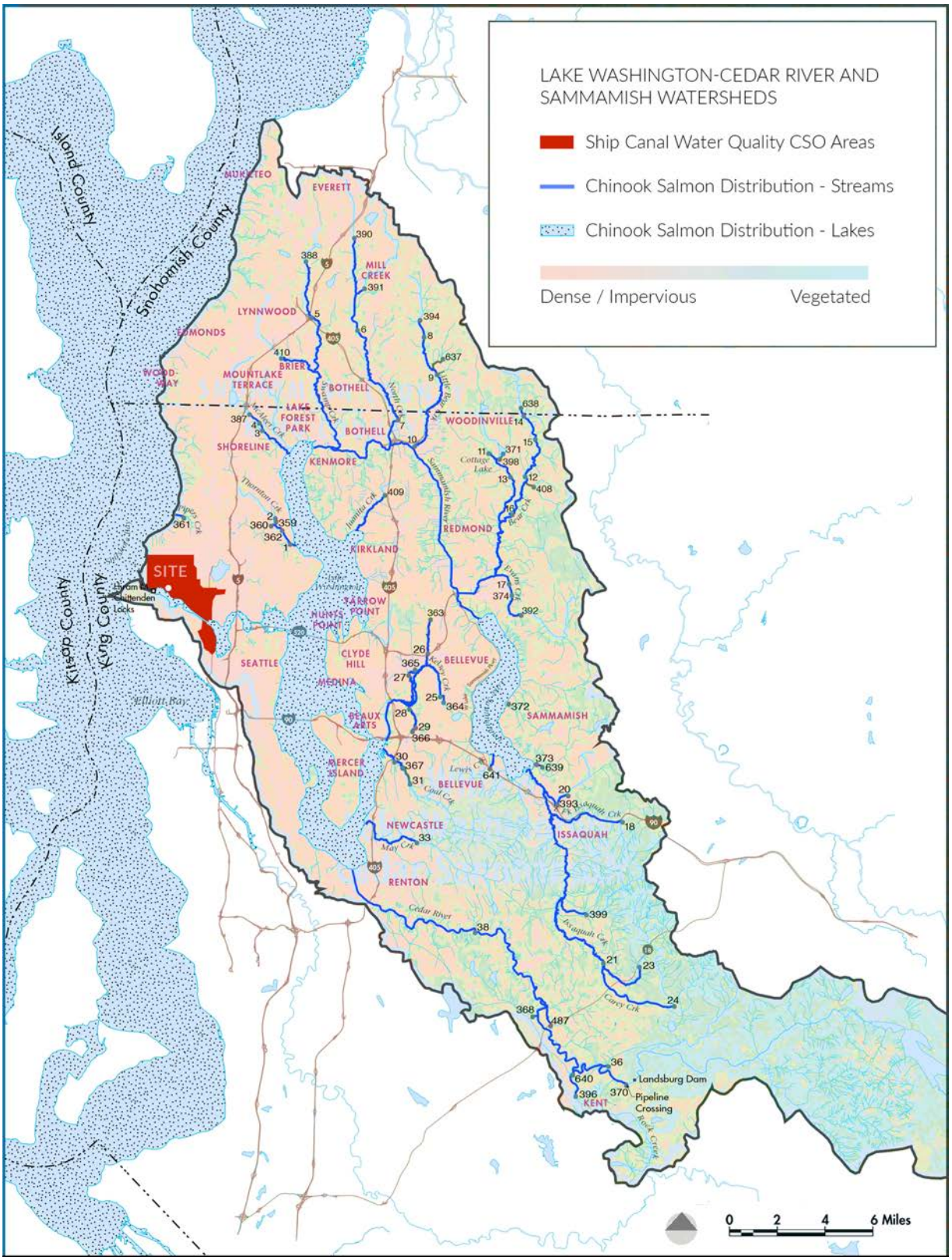


Fig 3.6: Overlaid maps explore the relationship between Chinook migration & developed land; the Ship Canal's CSO's line the mouth of Lake Washington-Cedar River Sammamish Watershed, impacting spawning and juvenile fish.

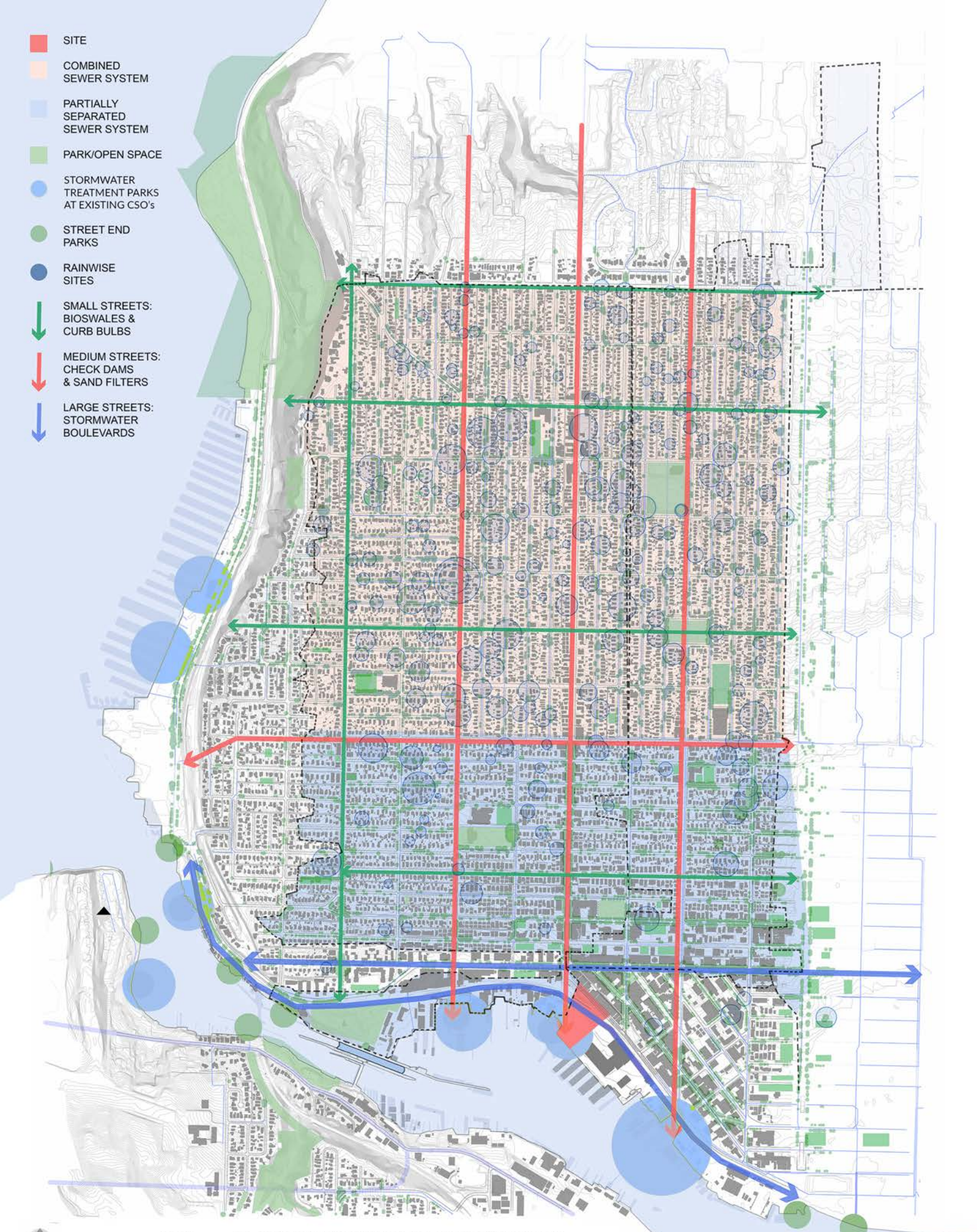


Fig. 3.7: District Stormwater Plan for the Ballard Basin

DISTRICT STORMWATER STRATEGY

> "Stormwater doesn't match the traditional image of pollution. There are no factory smokestacks belching waste, no pipes with a steady trickle of noxious industrial effluent. Despite appearances, stormwater packs a wallop. Polluted runoff long ago surpassed industry as the number one source for petroleum and other toxic chemicals that wash into the Northwest's water bodies."[67]

CSO overflows and stormwater runoff are the primary contributors to pollution in Salmon Bay. During a time of overflow, 90% stormwater and 10% raw sewage is released into a CSO's receiving waters. Overflows happen not because of sewage, but because of un-infiltrated stormwater. If this overload is reduced by infiltrating stormwater in place and over time, peak runoffs can decrease to a point where CSO overflows are eliminated.

Green Stormwater Infrastructure first slows, then spreads, then infiltrates stormwater before it cycles back into the system. GSI can help to return a site's hydrology near to pre-development levels of the Douglas Fir forest that once thrived on Seattle's hillsides. GSI is a proven method for eliminating sewage overflows. Based on the example of existing projects, the district-scale strategy for the Ballard Basin implements GSI at residential, small street, park/open space, and large street scales. Lisa Stiffler of Sightline Institute writes:

> "Low-impact development has been shown to be less expensive and more effective at cleaning stormwater than the traditional gutter-and-storm-drain systems. A study by the US Environmental Protection Agency compared the cost of stormwater projects that were built using green techniques to what they would have cost using conventional strategies. In 11 of 12 cases examined across North America, the low-impact development option was cheaper by anywhere from 15 to 80 percent."[68]

[67] "Stormwater Solutions: Curbing Toxic Runoff Archives - *Sightline Institute*." Sightline Institute, 2014, www.sightline.org/series/stormwater-solutions-curbing-toxic-runoff/
[68] ibid.

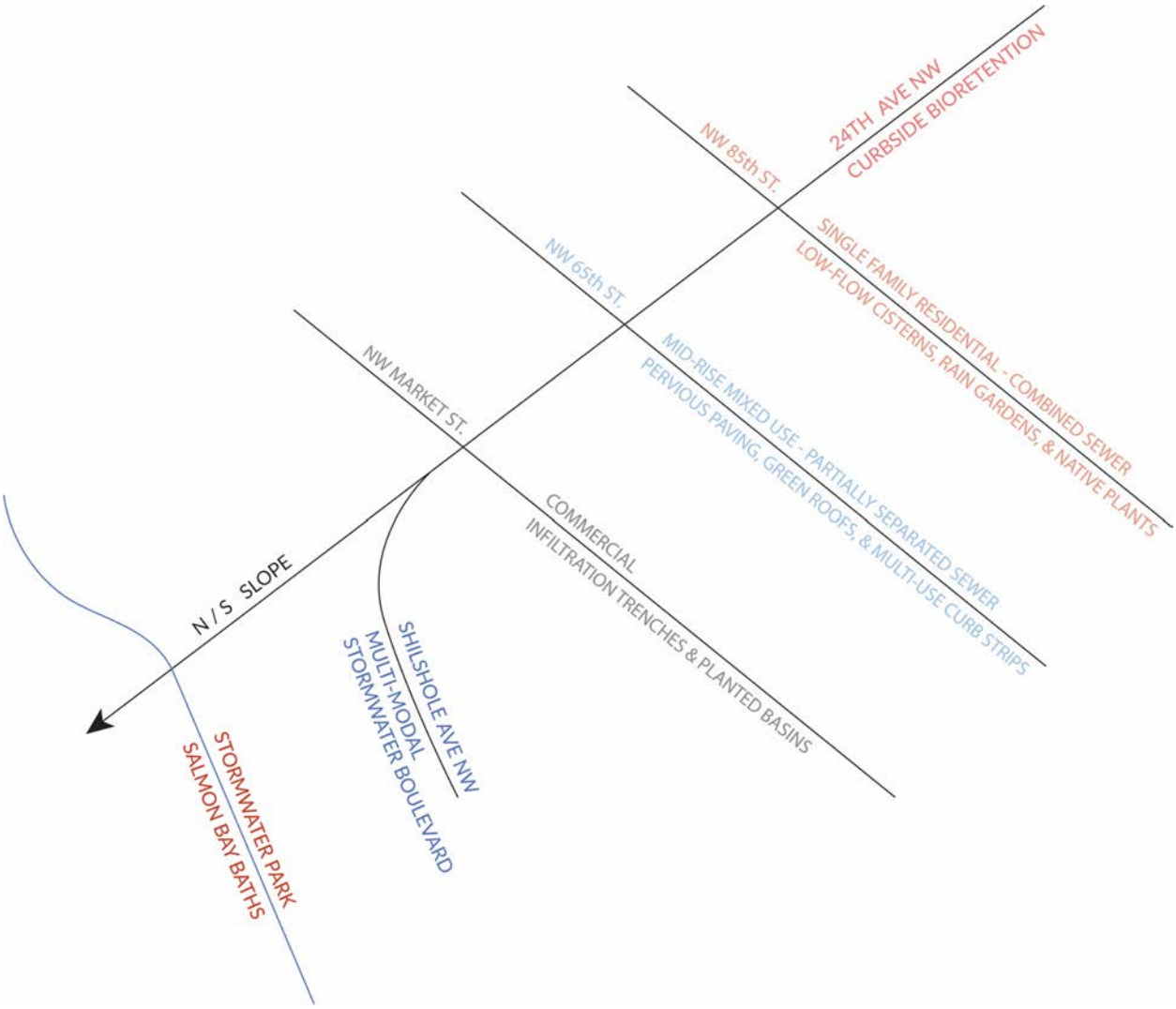


Fig 3.8: Diagrammatic plan for stormwater flows in the Ballard Basin.

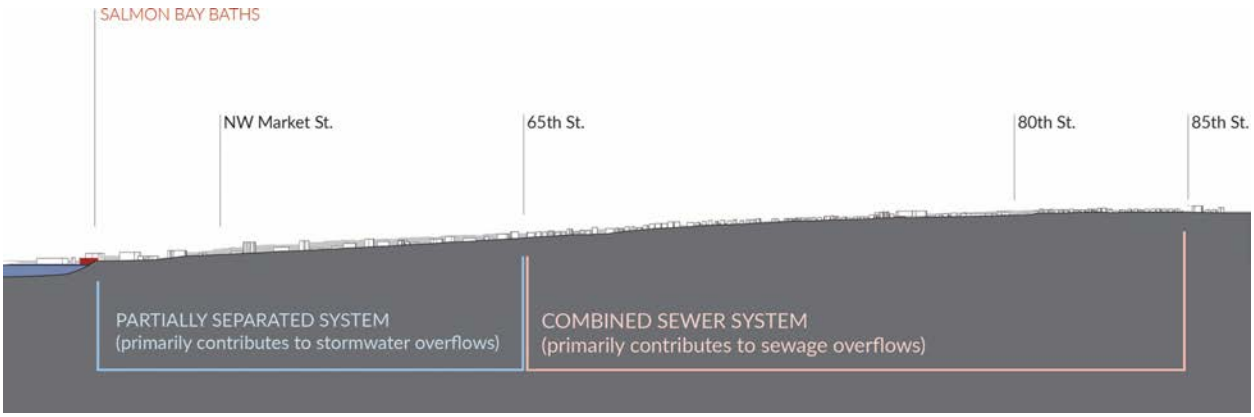


Fig 3.9: Section through 24th Avenue NW, from Salmon Bay Baths through the Ballard Basin's contributing area

Fig 3.10: CSO # 150 at its outfall into Salmon Bay

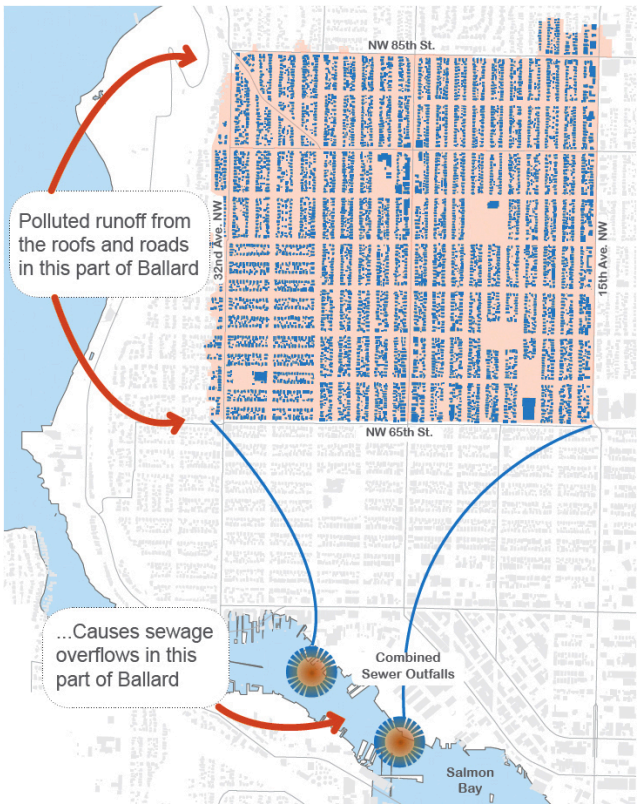
The analysis below quantifies stormwater flows and proposes best-practices for GSI in each the combined sewer system and partially separated sewer system of the Ballard Basin. This set of strategies proposes a parcel-by-parcel approach, rather than a singular pipe, as residential parcels are the leading contributor to stormwater runoff in this stormwater basin.

While it is tempting to scapegoat industry, neglect, or illegal dumping as key sources of pollution, the reality is that polluted runoff from individual rooftops and parcels, along with roads, sidewalks, and other right-of-way (ROW) are a primary source of pollution to water bodies in waterfront urban areas.[69] For example, motor drips and oil leaks are a leading source of Petroleum pollution; personal care products are primary contributors of Phthalates, and roofing material is a leading contributor to Zinc, Lead, Copper, Phthalates, Cadmium, and Arsenic.[70]

This pollution includes over 14 million pounds of toxic chemicals, oil, and grease annually. Stiffler equates this to 70,000 cars emptying their tanks straight into the Sound each year. She further notes that stormwater runoff mixed with sewage can carry "salmonella bacteria, parasitic giardia, and Norwalk-like viruses."[71] The side-effects of these viruses are unfavorable to swimmers, to say the least. They are also a public health threat and a key source of aquatic and shoreline habitat destruction.

> "There is no reason not to make every single residential-scale property do something (to reduce stormwater)," writes Peg Staeheli, principal of SvR Design Co., a Seattle leader in low-impact development. There are a lot of tools out there now that can be used." [72]

[69] ibid.
[70] Crowser, Hart. "Control of Toxic Chemicals in Puget Sound." *Phase 1* (2007): 188.
[71] ibid.
[72] "Stormwater Solutions: Curbing Toxic Runoff Archives - *Sightline Institute*." Sightline Institute, 2014, www.sightline.org/series/stormwater-solutions-curbing-toxic-runoff/



In 2012, raw sewage combined with polluted runoff from roofs,roads, and parking lots overflowed a total of 89 times into Salmon Bay. In total, 57 million gallons were discharged, untreated.

This was about 37% of the total sewage overflow volume for all of Seattle.

Overflows are 90% polluted stormwater runoff and 10% raw sewage.

Fig 3.11: This diagram from a "Ballard Natural Drainage Project Open House" plainly illustrates the relationship between the site's combined stormwater area and the CSO's on Salmon Bay.

To the north, the Ballard Basin's "combined sewer system" area is 1.05 square miles. While this area is physically cut off from Salmon Bay, this is the zone that contributes the sewage in CSO overflows to the Ship Canal. This area's surface is approximately 52.1% impervious, so it includes a total of 0.55 square miles of impervious surface. Much of the remaining surface is composed of lawn. Based on a recent 5-year rain gauge study, this region of the city receives 36 inches of rain annually.[73] Using standard runoff coefficients,[74] it can be estimated that this combined sewer area sends an annual 495 million gallons of stormwater runoff downstream. Most of this water makes its way through the sewer system. However, each year, 42.6 million gallons of combined sewage overflow into receiving waters due to lack of infiltration and undersized infrastructure.

[73] https://www.theurbanist.org/2015/10/15/map-of-the-week-rainfall-across-seattle-neighborhoods/
[74] Runoff coefficients help determine how much water will run off of or infiltrate through a surface; further calculations and sources are available in the appendix of this document.

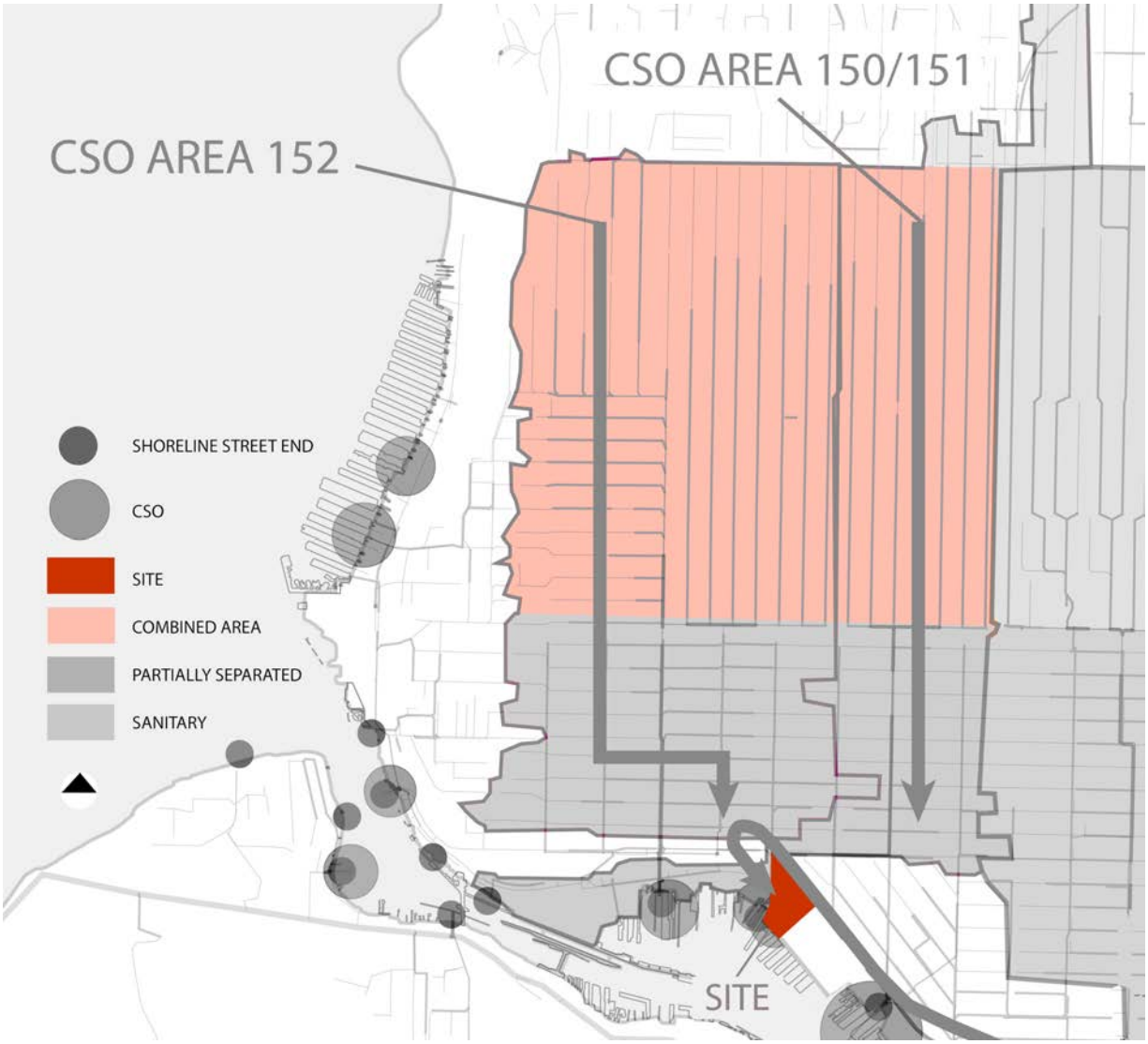


Fig 3.12: Ballard Basin's combined sewer area contributes more than half of all sewage overflows to the Ship Canal

Ballard Basin's stormwater flows come primarily from private property, so intervention begins with the area's residential rooftops. Methods of increasing infiltration include green roofs and rain gardens, but the easiest way to mitigate water flow is through a cistern with a low-flow orifice. A low-flow cistern allows water to collect during major storms and flow out gradually, maintaining room in the cistern for the next storm. This increases the timespan between when rain falls and when it is sent onward, more closely resembling the hydrology of a native forest.

Water that does not infiltrate in yards eventually enters the city streets, where it is intercepted with curb cuts or curb removal, encouraging the water to flow into bioremediation swales. This redesigned streetscape can include curb bulbs, bike parking, and gardens interspersed with parking strips. Streets that run along the ridgelines, in this case east/west streets, focus more on biodetention swales, while streets running downhill, in this case north/south streets, may include check dams, sand filters, and other methods that focus on infiltration and water redirection. Larger sites, particularly those that are paved, like parking lots, can be re-designed to include swales around tree plantings, pervious pavement, and retention ponds.

A system like this could be distributed throughout the combined sewer area north of 65th Street to infiltrate water from typical storms, sufficiently reducing runoff coefficients to eliminate overflows during typical storms. However, most overflows happen during frequent periods of consistent rain, or during heavy storms, and more intense frequent storms are predicted with climate change. As such, a set of overflow areas downstream of the combined sewer system may be necessary to fully prevent CSO overflows. During 25-100 year storms, water can be directed to retention pools and drought-tolerant bio-swales downstream, or into the city sewer system per SPU control volume recommendations.

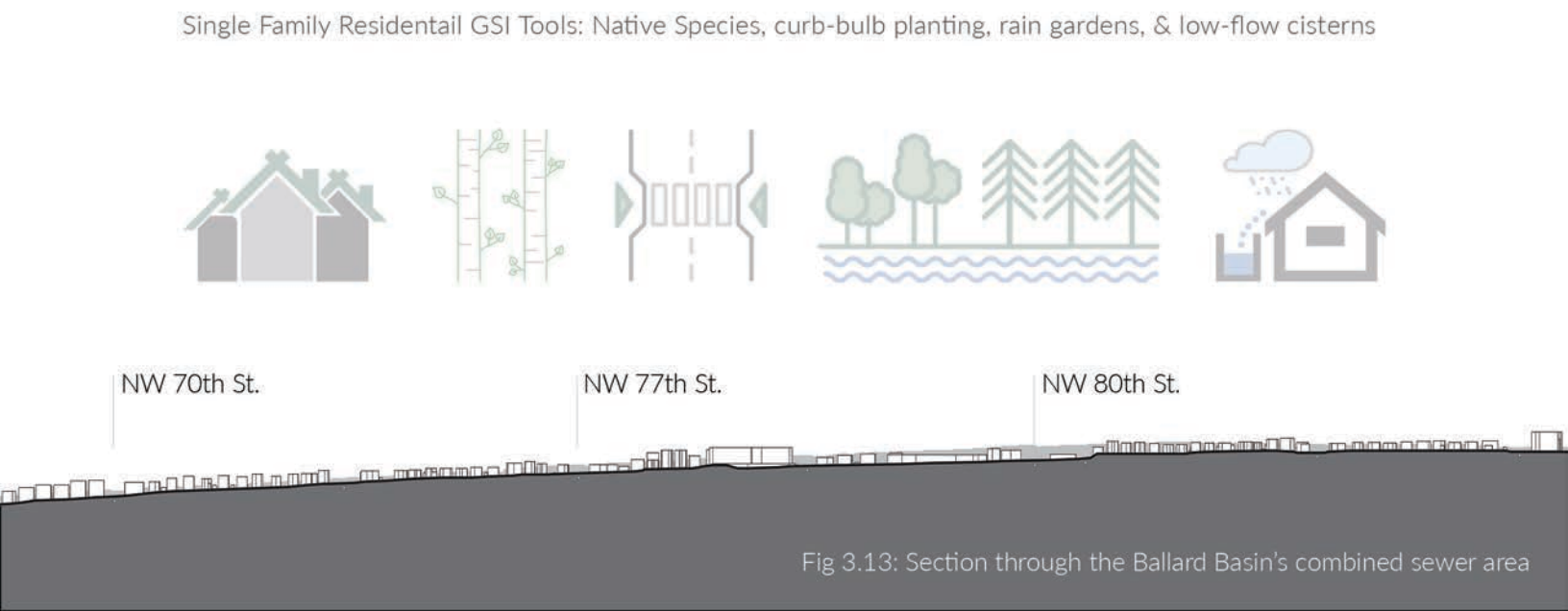


Fig 3.13: Section through the Ballard Basin's combined sewer area

LONG-TERM MODELING OF LAKE WASHINGTON SHIP CANAL CSO VOLUMES (1978-2015)

Outfall	Average Number of CSO Events Per Year	Average Annual CSO Volume (MG)	Control Volume (MG)
147	32.9	12.5	2.36
174	12.5	6.7	1.56
3rd Avenue W	9.5	16.1	4.07
11th Avenue NW	12.5	13.3	3.14
150/151	12.3	2.5	0.58
152	53.3	40.1	6.55
TOTAL	**133.0**	**91.2**	**18.3**

Fig. 3.14: CSO event frequencies, volumes, & required control volume based on long-term modeling (SPU)

SEATTLE ANNUAL PRECIPITATION, MICROCLIMATES, DAYLIGHT, & CLOUD COVER

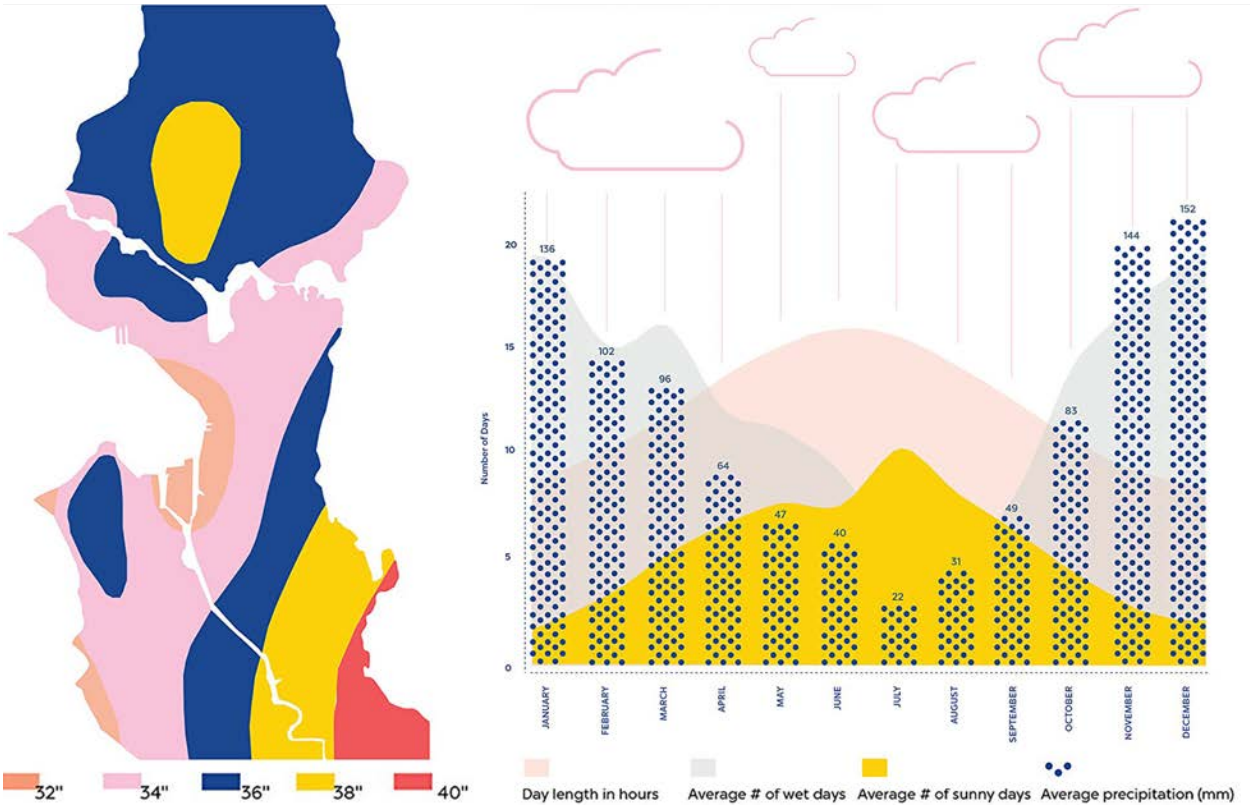


Fig 3.15: Annual rainfall microclimates based on SPU rain gauges, daylight, cloud cover, & precipitation (Seattleness)

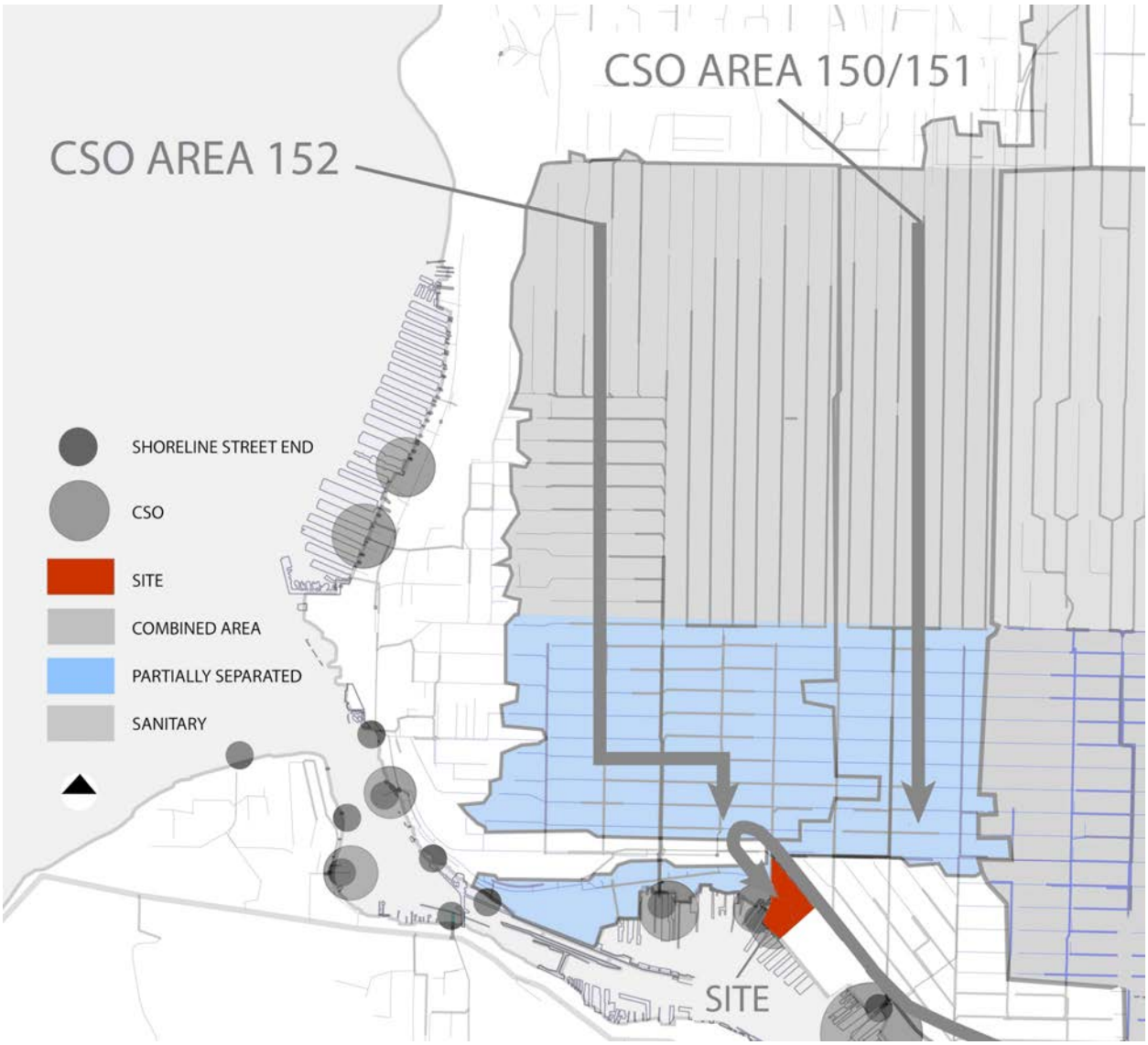


Fig 3.16: Ballard Basin's Partially Separated Sewer Area will infiltrate overflows from the north, and send its surplus stormwater to a larger stormwater park at Salmon Bay Baths.

The 0.59 square mile area toward the south of Ballard Basin has a "partially separated" sewer system, which means that household waste and stormwater from roofs runs into sanitary pipes, joining the flows from the combined system to the north. Stormwater from sidewalks and streets (right-of-way, or ROW) flows into a separate set of stormwater pipes. All of the stormwater running off of this portion of the Ballard Basin goes to a fallout at 20th Ave NW and Shilshole Ave NW, where it flows directly into Salmon Bay without treatment.

Ballard Basin's partially separated sewer area is approximately 60% impervious, and is made up of commercial, industrial, and mixed-use lots and ROW. This area's 0.15 square miles of rooftop drains to the combined system. The area's other surfaces drain directly to Salmon Bay without treatment. These include 0.04 square miles of park, 0.22 square miles of impervious surface, and 0.18 square miles of lawn, which allow 200 million gallons of stormwater to sheet off annually. In this somewhat dense zone, stormwater may be infiltrated or filtered at centralized sites, such as stormwater parks or boulevards. Streets like Market and Shilshole can be imagined as green and blue corridors to serve a multiplicity of needs, rather than conduits to funnel people through.

The final catchment opportunity for this system is at the shoreline, where a stormwater park adjacent to Salmon Bay Baths intercepts flows that have not yet been infiltrated. These flows are distributed between three biodetention swales. The swales filter sediment, trash, oil, pesticides, herbicides, organic waste, metals, oil/grease, hydrocarbons, bacteria and viruses, nitrogen, and phosphorous before these contaminants enter Salmon Bay. Together, Ballard Basin's GSI network, the stormwater park, and a set of bay-water filtering pools at Salmon Bay Baths begin to address CSO overflows, stormwater runoff, and extant chemicals of concern in the Ship Canal.

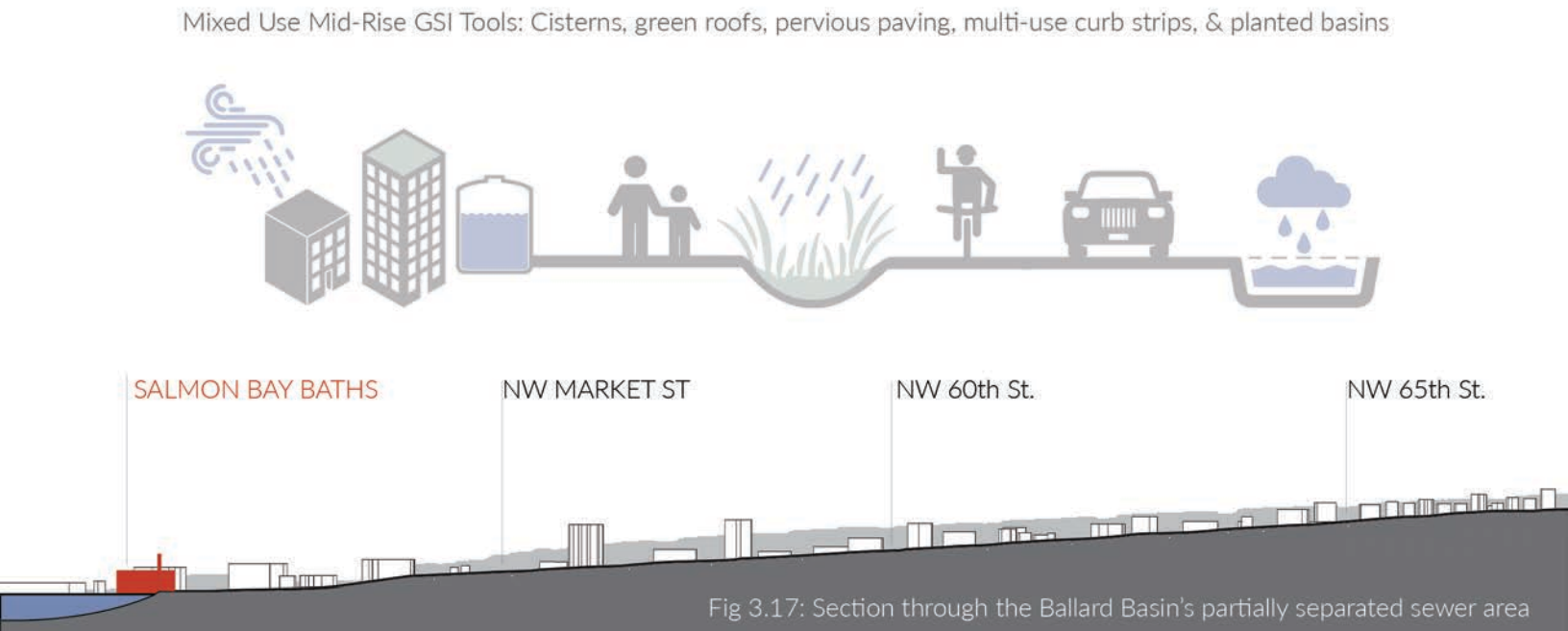


Fig 3.17: Section through the Ballard Basin's partially separated sewer area

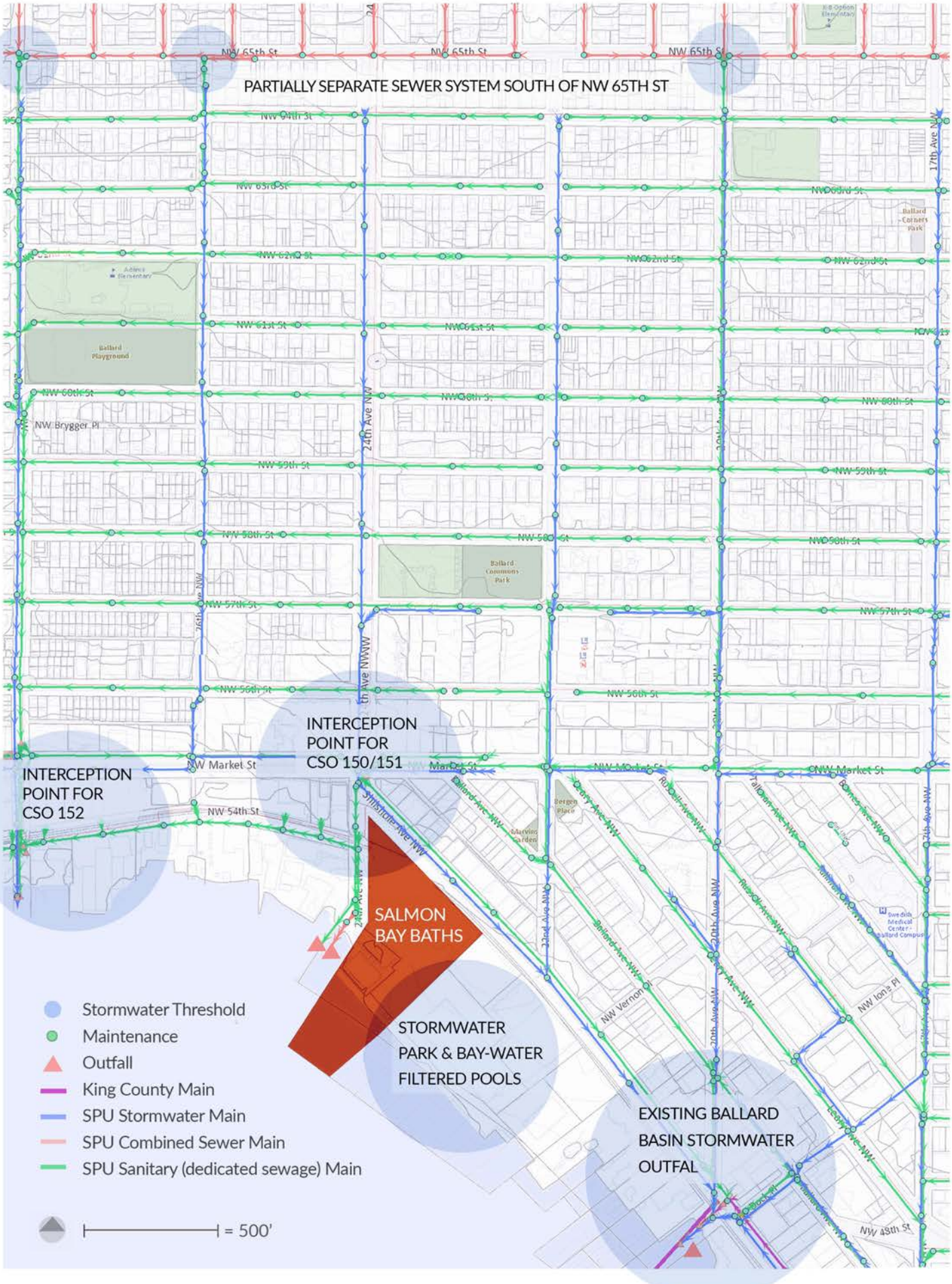
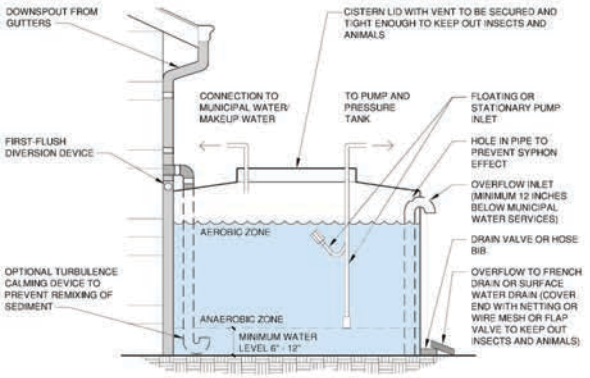
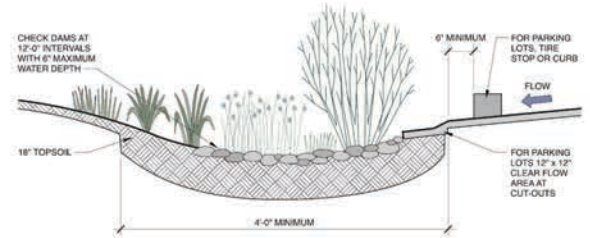


Fig 3.18: SPU stormwater routing to CSO's 152 and 150/151

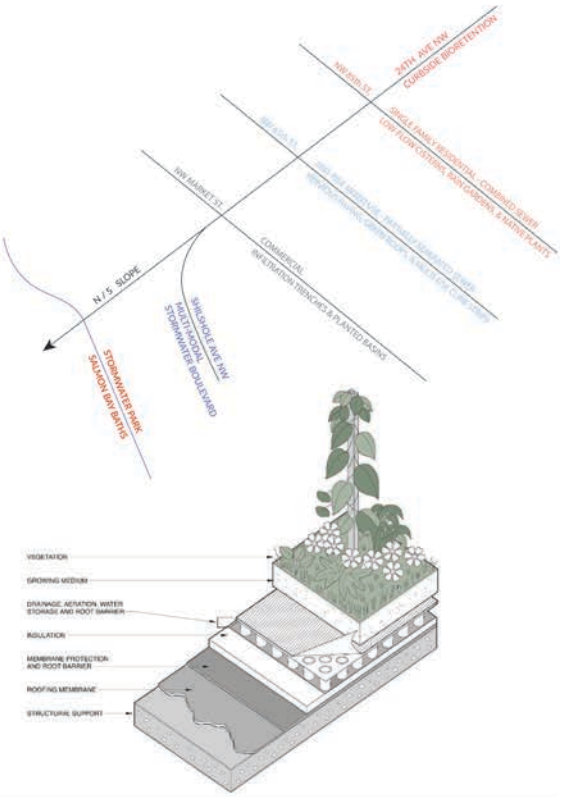


Residential Cistern

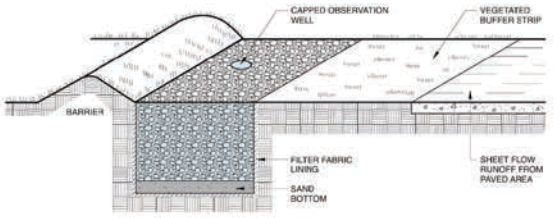
Source: Heather Kinkade-Levano, Forgotten Rain



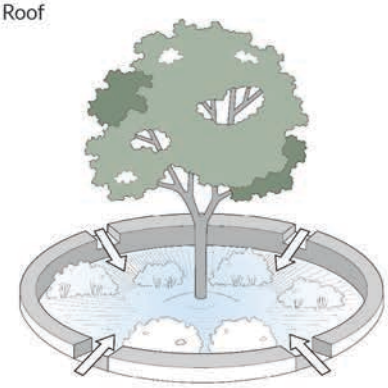
Vegetated Swale



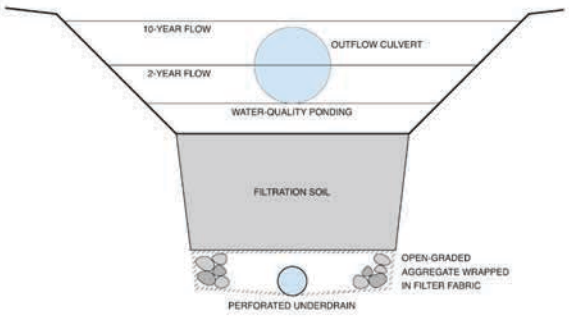
Green Roof



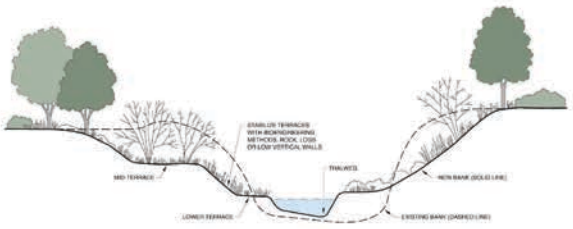
Infiltration Trench



Infiltration Basin

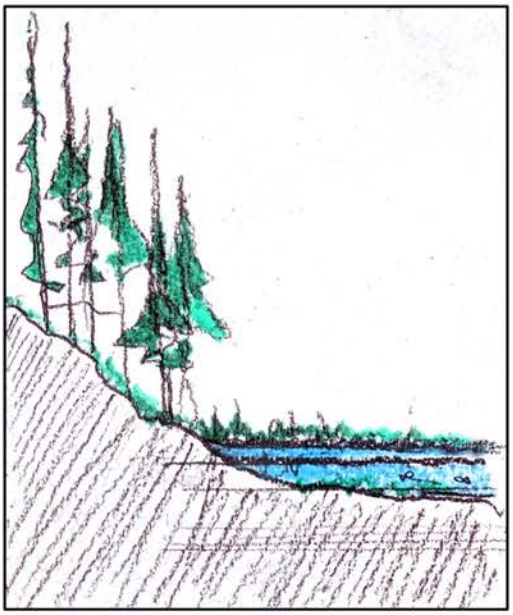


Biofilter Swale

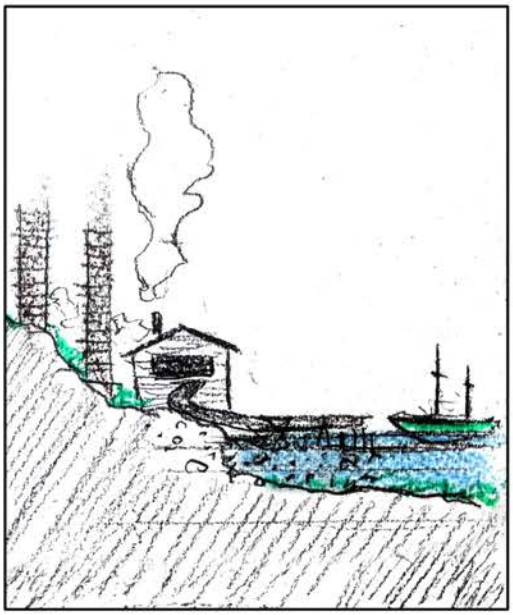


Terraced Banks

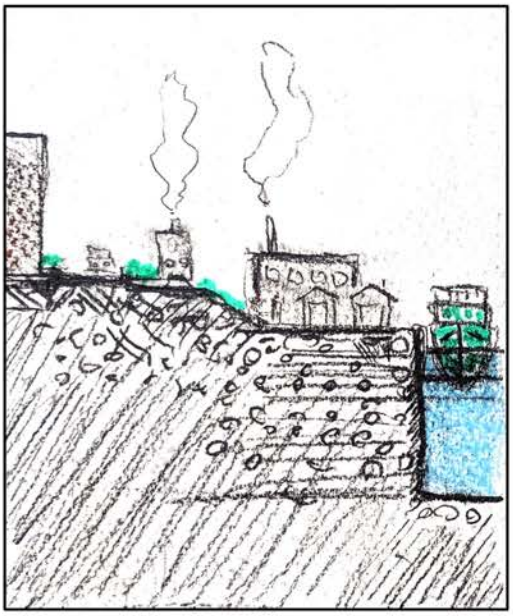
Fig 3.19: Details of stormwater catchment and infiltration tools (Landscape Architectural Graphic Standards)



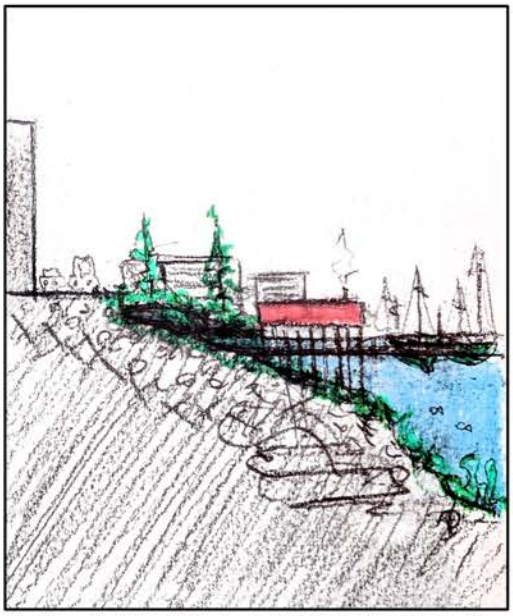
1800's: Forest & tidal wetland



c. 1910: Lumber mills & Shingletown



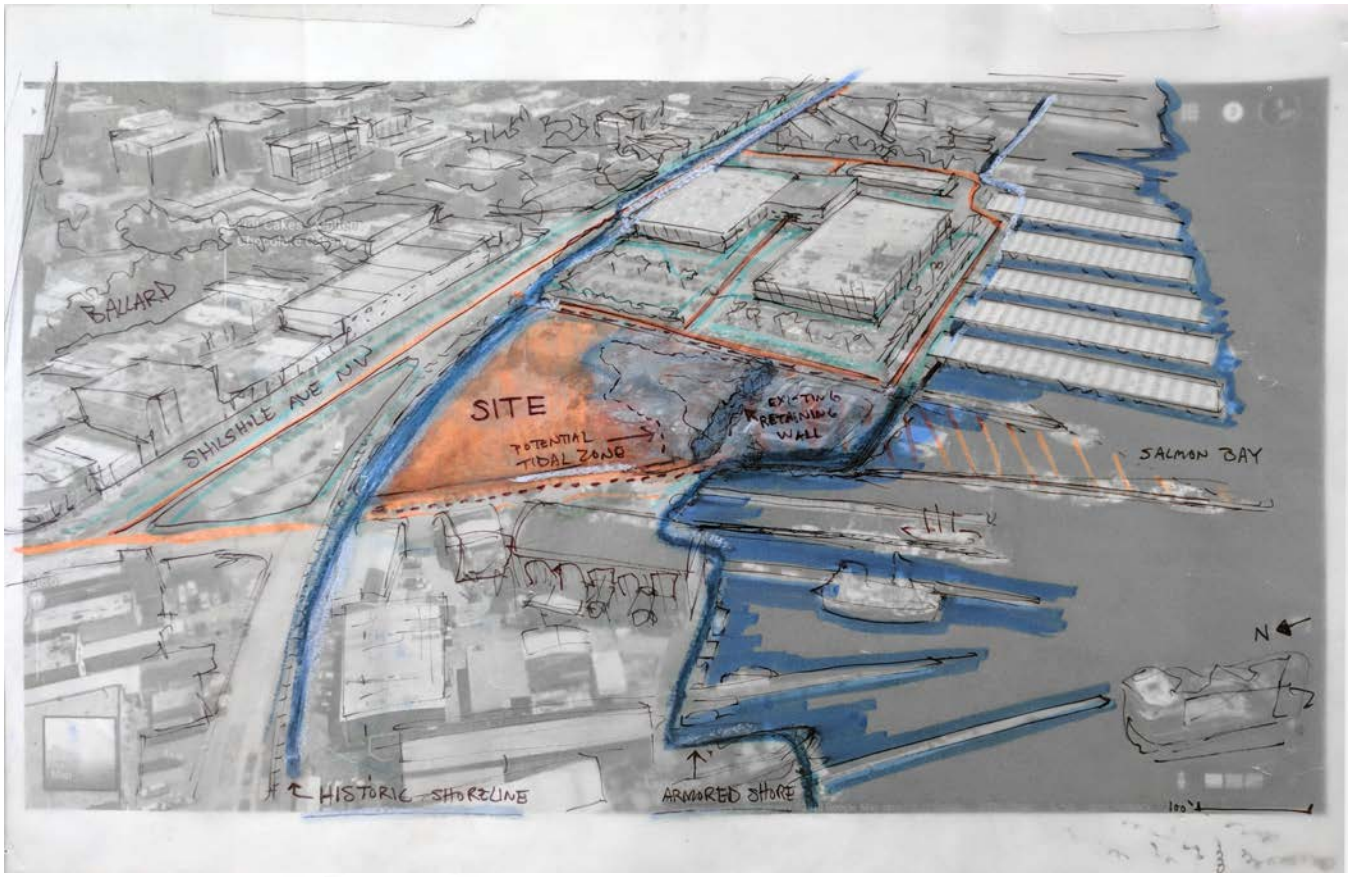
1917-Present: Locks & channelization



2020: Wetland and baths

(this page) Fig.3.20: Site sections over time

(facing) Fig. 3.21: Process drawings


BALLARD
SHILSHOLE AVE NW
SITE
POTENTIAL TIDAL ZONE
EXISTING RETAINING WALL
SALMON BAY
N
HISTORIC SHORELINE
ARMORED SHORE

THRESHOLDS AT SALMON BAY

> "Nothing in the world is as soft and yielding as water. Yet for dissolving the hard and inflexible, nothing can surpass it." [75]
> - Tao Te Ching 78

Thresholds at Salmon Bay Baths transform both people and water as they move through the site. The first of these thresholds is crossed when bathers choose to leave the cityscape and approach the bath. Movement toward the baths is accompanied by a shift *away* from speed and hyper-connection and *toward* time, introspection, and shared experience.

[75] Nuñez, Pati, et al. *RCR : Dream and Nature : Catalonia in Venice*. Actar D Inc, 2018, p. 047.

Fig. 3.22: Site Entrance to Salmon Bay Baths

The site's stormwater park entices visitors to venture away from the urban grid, passing swales and a retention pond on the way to the bath entrance and Salmon Bay itself. This unique combination of bath and stormwater park reinvigorates a section of waterfront that is currently underutilized. The site is activated as streams of people and water flow together in a process of purification and regeneration.

To access any of the site's entrances, bathers must venture down a hill and across railroad tracks that coincide with the location of the site's historic shoreline. The park's entrances are lined with native species, which will grow over time, framing views and drawing people to move from north to south across this site. Each entrance is marked by a shift in ground material: stepping stones, recycled brick, or crushed basalt.

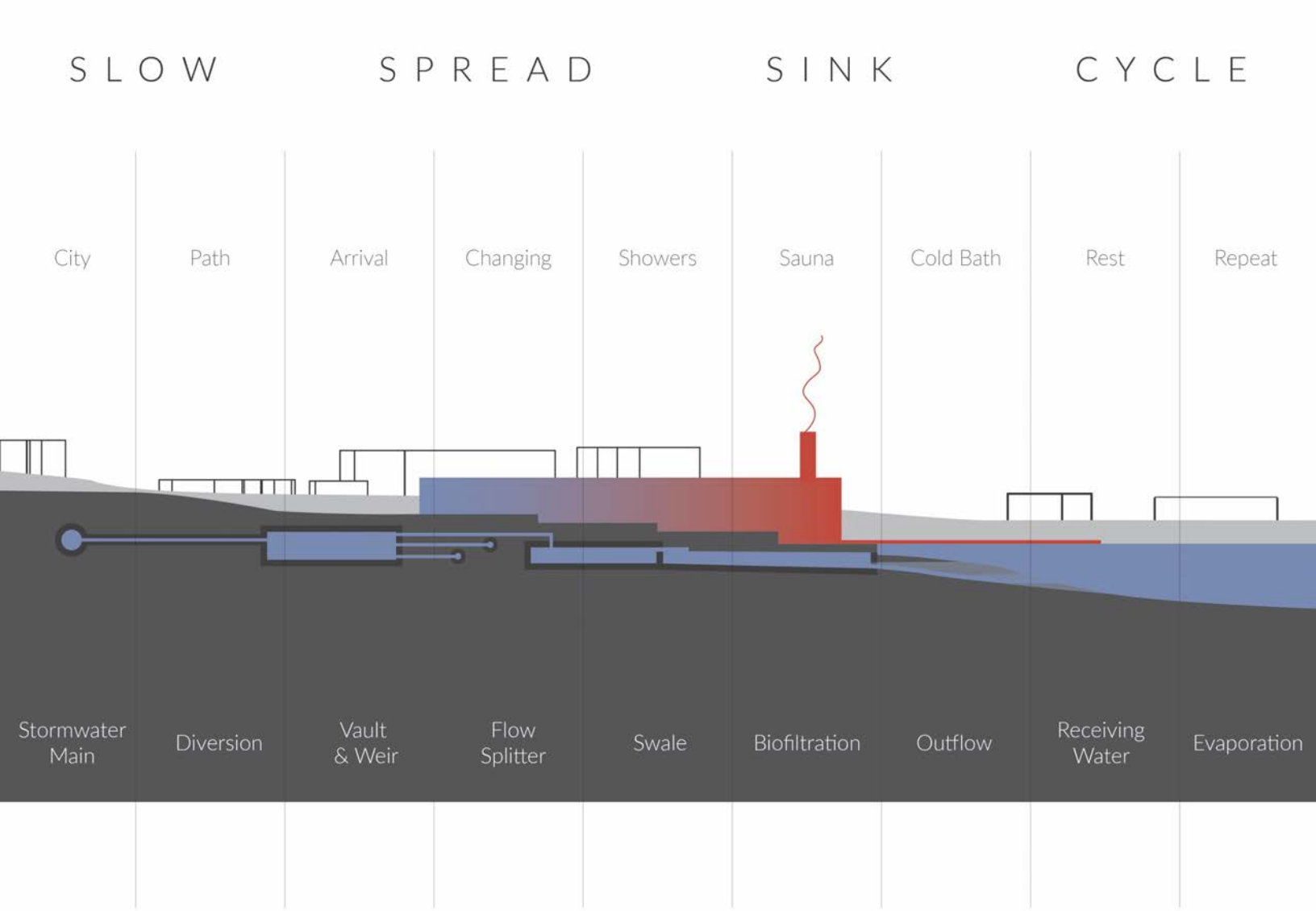
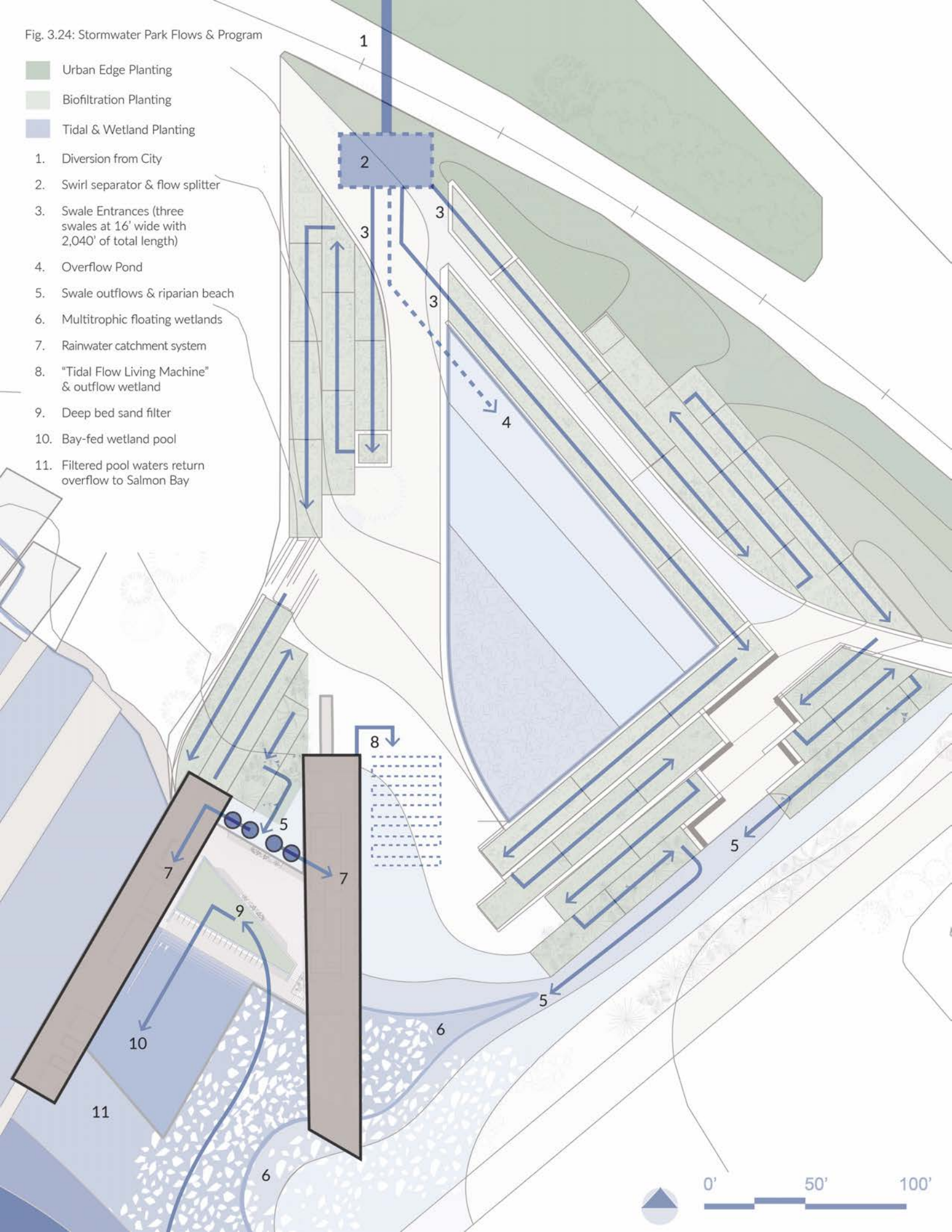


Fig. 3.23: Diagrammatic sequence of thresholds at Salmon Bay Baths

Beyond the site's entry, thresholds for bathers and stormwater diverge, overlap, and rejoin again at Salmon Bay. Water coming into the site is intercepted at the stormwater pipe that runs along Shilshole. It is then sent through a vault, swirl separator, and flow splitter into one of three swales. At each swale, the water drops into a chamber and wells up through stones, overflowing evenly into a channel planted with a thick bed of rushes and sedges. The path to the site from any direction passes between two of these swales' terraced beds. Each swale steps consistently toward the shoreline until its outflow. At the site's plateau is a retention pond, constructed to contain stormwater overflows during 25-100 year events. Its depth relates to recent rainfall levels, as does the flow of water within the swales themselves.

Fig. 3.24: Stormwater Park Flows & Program



Grading takes a strategic approach to meet Washington State water quality treatment standards. The site is relatively flat, and each 680-foot long by 16-foot wide swale switches back upon itself, filling the majority of the park with a total of 2,040-foot swale length. The high point of each swale begins near the historic shoreline, where the existing stormwater pipe can easily be intercepted. From their entrances to their outflows, the swales are evenly graded at a 2% slope to slow and filter as much as 200 million gallons of stormwater annually. Their primary task is filtration, rather than infiltration, and water must flow through the swales' plants and soil for a minimum of 10 minutes to allow 91% of pollutants to settle out.

The site's existing contaminated soil has been removed and replaced with biofiltraiton soil mixture, amended with biochar and wastewater treatment solids. Diverse species are planted throughout the swales, with flood-tolerant plants at their low points. All planted areas are drier in the summer, and consistently filled with flowing water when it rains. The once-hardened shoreline has been pulled back to form a nutrient rich ecotone to thrive at the swale's outflows.

Upon approaching the bath house structures, the bather can see the intersection of the swales' outflows with a gravel beach to the southeast. The hardened shoreline has been removed, inviting the waters of Salmon Bay to encroach upon the swales' low points. The structures themselves are set on stilts two feet above the high-water level of Salmon Bay.[76] A semi-tidal wetland is formed on the ground below the bathhouses. The site's condition recalls its state in the Nineteenth Century, when it was the shallow riparian edge of a Douglas Fir forest. Now at this same location, two bathhouses extend into a stormwater wetland.

[76] The Army Corps of Engineers manages the bay's water level via spillway gates on the nearby locks, and bay's water level is approximately two feet higher in the summer than in the winter.

ZONE 1

ZONE 2

ZONE 3

URBAN EDGE PLANTING

Riparian Trees


Douglas-fir
Pseudotsuga menziesii


Pacific Dogwood
Cornus nuttallii


Serviceberry
Amelanchier


Red Alder
Alnus rubra


Western Red Cedar
Thuja plicata


Oregon Ash
Fraxinus latifolia

Whisk Trees


Western Juniper
Juniperus occidentalis


Paper Birch
Betula papyrifera


Water Birch
Betula nigra

Pollinator Shrubs


Yarrow
Achillea


Common Camas
Camassia quamash


Salal
Gaultheria shallon


Blueblossom
Ceanothus thyrsiflorus


Blue elderberry
Sambucus caerulea

BIOFILTRATION PLANTING

Water tolerant - Edges, Berms, & Erosion Protection


Kinnickinnic
Arctostaphylos uva-ursi


Snowberry
Symphoricarpos albus


Coastal Strawberry
Fragaria chiloensis


Boxwood Honeysuckle
Lonicera pileata


Western Sword Fern
Polystichum munitum


Thimbleberry
Rubus parviflorus


Tufted Hairgrass
Deschampsia cespitosa


Orange NZ Sedge
Carex testacea

Biofiltration, Standing or flowing water, drought tolerant


Blue Wild Rye
Elymus glaucus


Elderberry
Sambucus nigra


Dwarf Red-twig Dogwood
Cornus Sericea


Small Fruited Bulrush
Scirpus microcarpus

Flood Tolerant


Lady Fern
Athyrium filix-femina


Dewey's Sedge
Carex blanda dewey


Tapertip Rush
Juncus acuminatus michx

TIDAL & WETLAND PLANTING

Shallow Water - Emergent


Flowering Rush
Butomus umbellatus


Water Horsetail
Equisetum fluviatile


Bur-reed
Sparganium erectum


Water Plantain
Alisma plantago-aquatica


Common Spike Rush
Eleocharis palustris


Bog Bean
Menyanthes trifoliate

Deeper Water – Floating


Stiff-leaved Water Crowfoot
Ranunculus circinatus


Frogbit
Hydrocharis morus-ranae


Broad-leaved pondweed
Potomegetun natans


Amphibious Bistort
Polygonum amphibium


Yellow Waterlily
Nurphar lutea


Fringed Waterlily
Nymphoides peltata

Deepwater – Submerged


Curly Pondweed
Potomegeton crispus


Water Starwort
Callitriche


Hornwort
Ceratophyllum demersum


Spiked Water Milfoil
Myrophyllum spicatum

Fig. 3.25: Selected plants for each zone of Salmon Bay Bath's site

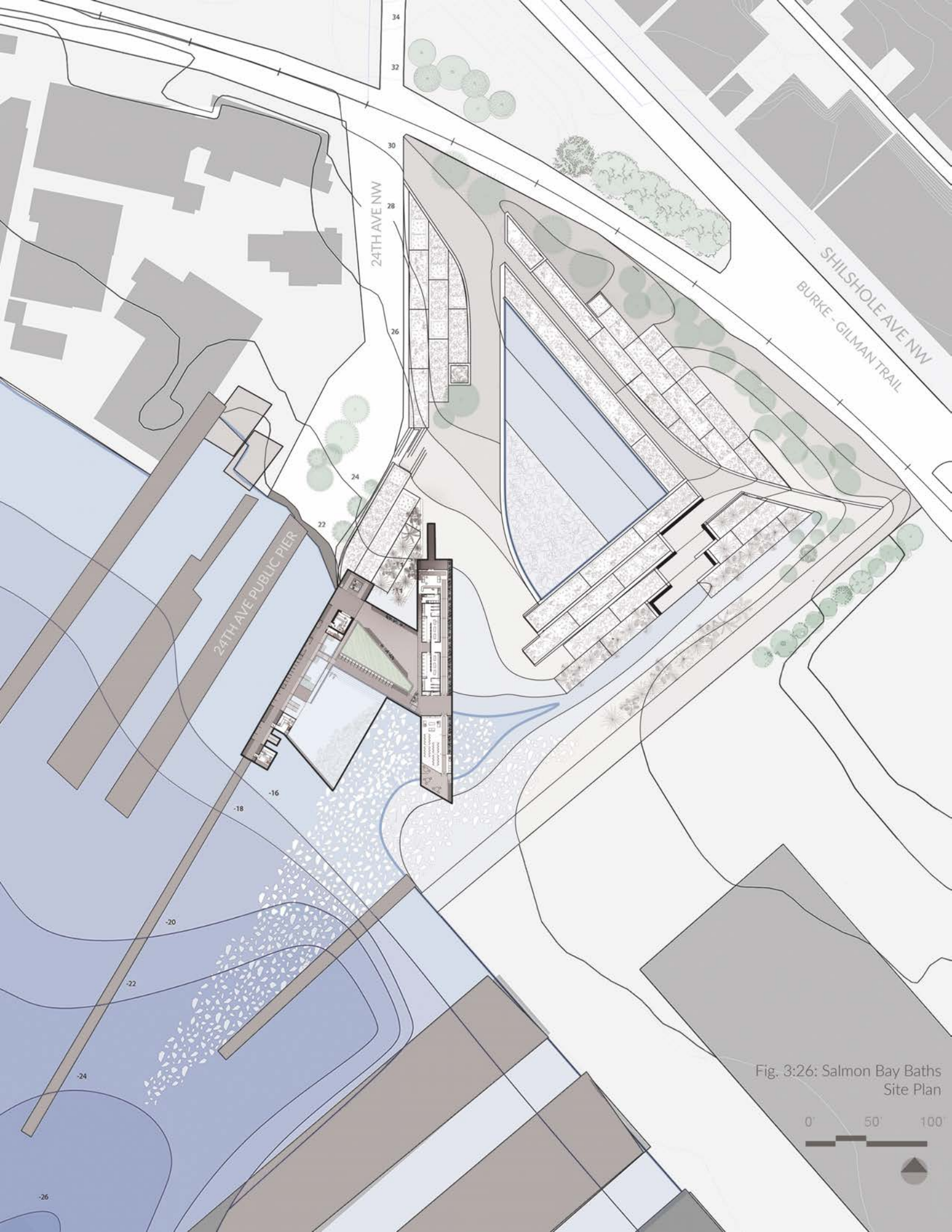


Fig. 3:26: Salmon Bay Baths
Site Plan

Fig. 3.27: Entry and wetland outflow

The site's regenerated shoreline extends to meet the bathhouse entry. This softened shore provides habitat for birds, pollinators, and aquatic species. It also invites bathers to cross its edge. The bathhouses are tucked between Stimson Bay Marina to the east and a public pier to the west. These buffer the site from surrounding industry. Bathers approaching the structure step onto a walkway, pass over the threshold where a swale outflow meets the shore, and into a deep porch.

Inside the bathhouse, bathers enter a reception area where they are able to glimpse wetland-filtered pools beyond through a timber screen. They remove their shoes and leave them along the north wall, with others' shoes, gaining increased sensitivity to the ground beneath their feet.

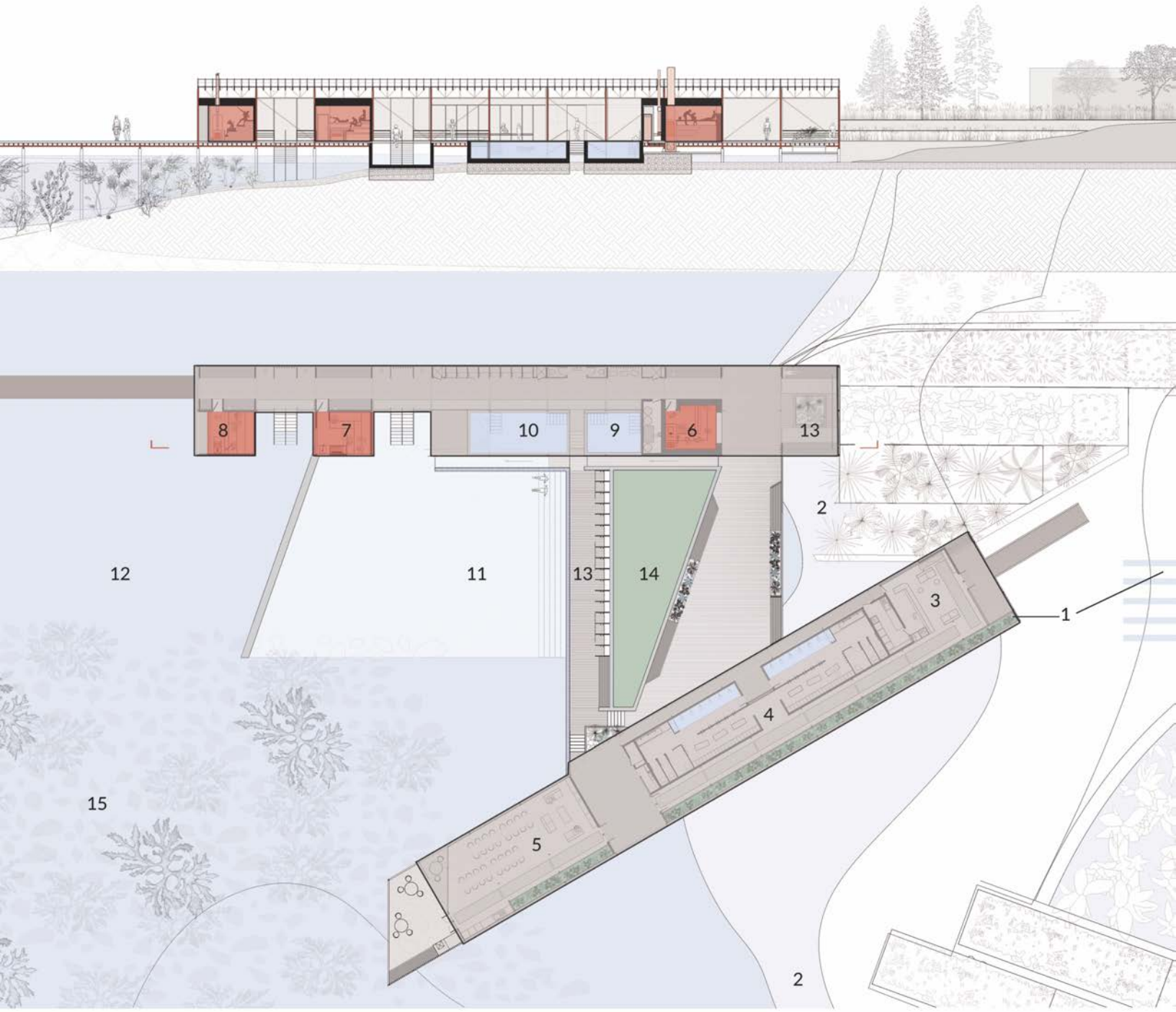
At the desk, bathers receive a towel and perhaps a locker key, and a greeting or instruction on sauna customs. From the bathhouse reception, bathers walk south down a hall. A "living machine" extends along the hall. This planted system treats the building's own wastewater using similar ecological processes to a tidal wetland, and returns it to an outflow field on-site.

(above) Fig. 3.28: Bathhouse reception (facing) Fig. 3.29: Hall, timber screen, lockers, and showers

To enter the baths, bathers turn west and are met by a second timber screen, washed in light. The screen offers a glimpse of the baths beyond and facilitates circulation toward changing rooms on either the left or right. Upon entering the changing room, bathers leave their day-clothes, cell phones, accessories, and all but their bathing clothes and towels behind.

Beyond this threshold the bath is an egalitarian space, free from accoutrements. Each bather moves into a shower room to wash, both to cleanse before approaching a place of purification, and to support common hygiene in the spaces beyond. Sounds of others showering or pouring buckets of clean water over their bodies may be present. After washing, bathers join together from either side, and experience a clear view of the sauna and bath houses beyond.

To the north, one of the site's three swales sends purified water down the hillside and into the gravel beach below a deck, which bathers cross as they approach the sauna house. Between the bathhouses, a deep bed sand filter planted with flood-tolerant bioremediation species takes in water from Salmon Bay. This water is sent to an in-bay pool that is framed by the two structures.



PROGRAM:

1. Tidal Flow Living Machine
2. Swale Outflows
3. Reception & Service Space
4. Lockers & Showers
5. Makkara/Fika Gathering Area
6. Bio-Mass Sauna
7. Electric Sauna
8. Wood-Fired Sauna
9. Cold Plunge
10. Tepid Pool
11. Filtered Bay Pool
12. Salmon Bay
13. Resting Space
14. Deep Bed Sand Filter
15. Multitrophic Constructed Wetlands

0' 50'

Fig. 3.30: Thermic bathing program and bathhouse water treatment systems

SALMON BAY BATHS - SYSTEMS & PROGRAM SUMMARY

Land area: 155,000 ft^2 + water and docks: 49,700 ft^2 = 204,700 ft^2 total site area

Water Purification

Total Site Program: 175,000 ft^2

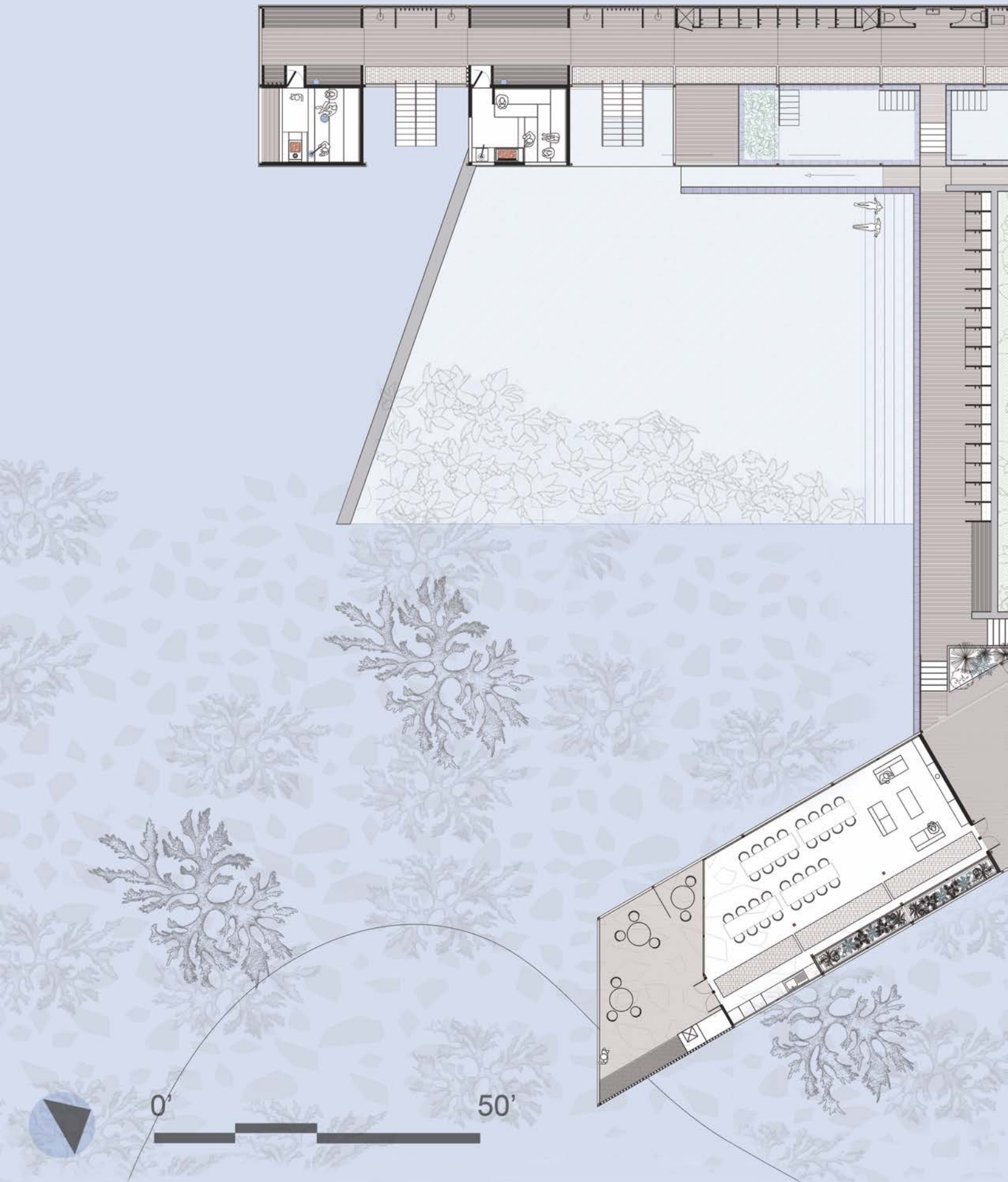
- Diversion structures. swirl separator, & flow splitters
- Biofiltration swales, 32,640 ft^2: Filter 200 million gallons of stormwater each year
- Overflow pond, 18,000 ft^2: Retains excess water during frequent or 25-100 year storms
- Swale outflows, restored riparian shoreline & gravel beach, 42,400 ft^2: Habitat, filtration, and increased connection between urban area and receiving water
- Multi-trophic floating wetlands and reconstructed salmon-friendly docks, 17,000 ft^2: Habitat for benthic and other aquatic species
- Rainwater catchment: Five 8' x 5.5' cisterns, each holding 2,000 gallons; provides up to 29.4% of water supply from roof catchment.
- "Tidal Flow Living Machine," 300 cubic feet + 1200 ft^2 dispersal field
- Deep sand filter, 2,200 ft^2: Vertical filtration system filters bay-water and sends it to the site's pools
- Bay-fed wetland pools, 14,000 cubic feet: water cycles through secondary filtration zones within each pool, filtered outflow returns to salmon bay
- Riparian trees and shrubs: 38,000 ft^2
- Pedestrian paths, wetland viewing platforms, and bicycle parking: 21,500 ft^2

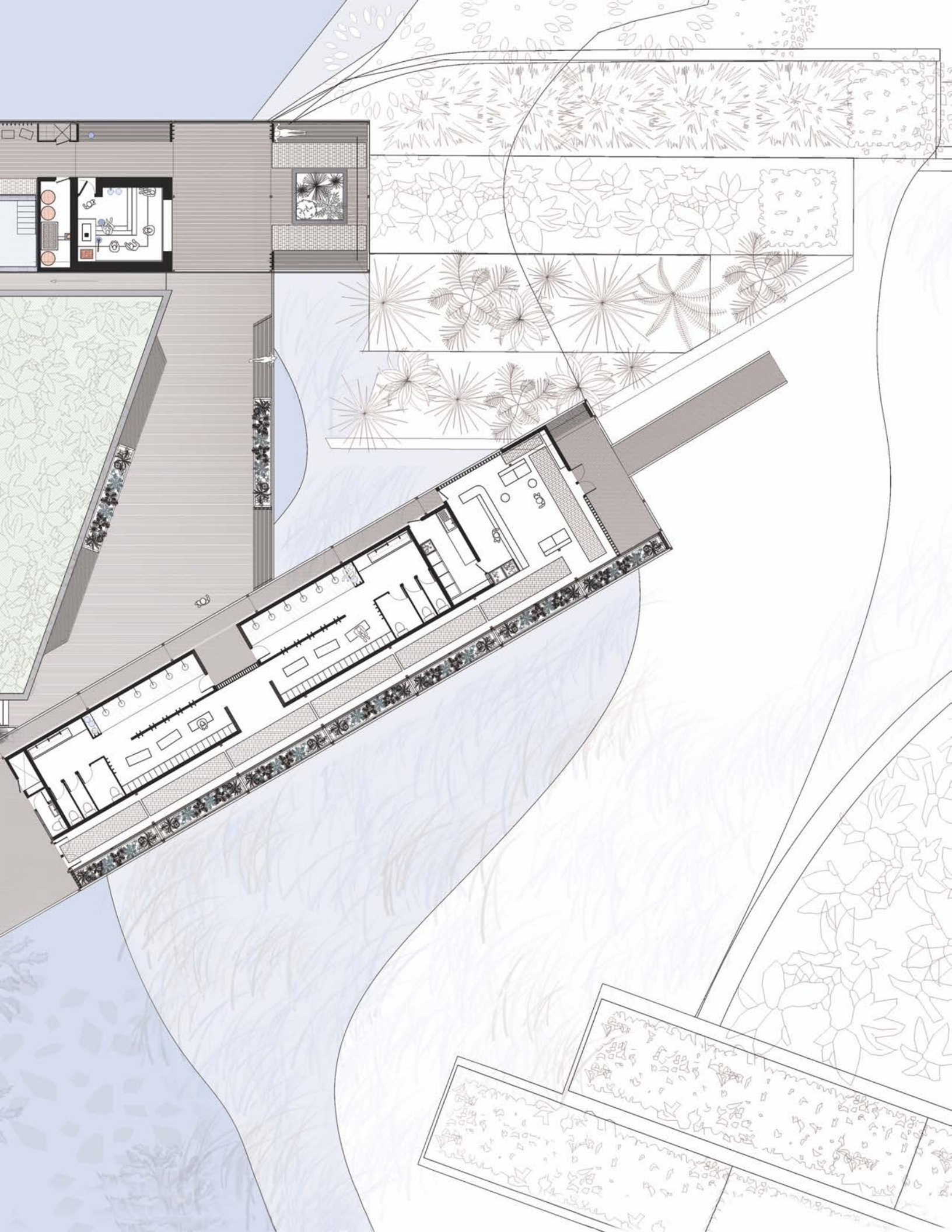
Thermic Bath

Total Bathing Program: 9,500 ft^2

- Entry / waiting: 400 ft^2
- Reception / office: 200 ft^2
- Laundry: 120 ft^2
- Lockers: 450 ft^2
- WC's (total): 450 ft^2
- Shower Rooms: 300 ft^2
- Gathering Space (Makkara / fika, event space, library, & grilling deck): 1500 ft^2
- Thermal mass sauna: 250 ft^2
- Electric sauna: 200 ft^2
- Wood-fired sauna: 200 ft^2
- Wood storage: 150 ft^2
- Chopping area: 60 ft^2
- Bay-fed wetland pool: 3000 ft^2
- Cold plunge: 175 ft^2
- Tepid pool: 300 ft^2
- Resting terrace 1500 ft^2
- Outdoor changing huts: 300 ft^2

Fig. 3.31: Enlarged Thermic Bath Plan





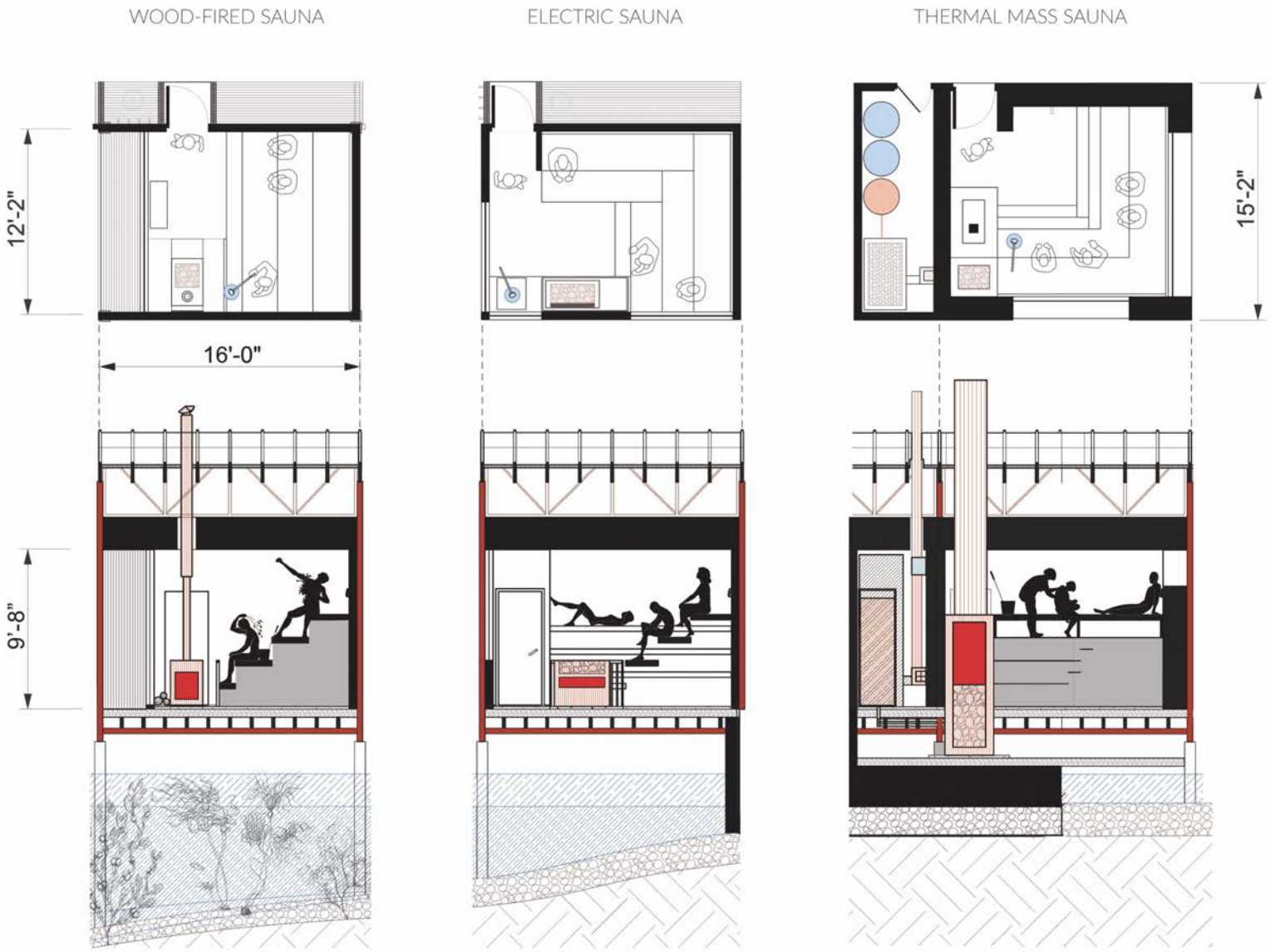


Fig. 3.32: Thermal Mass Sauna (right), electric sauna (center), and wood-fired sauna (left)

Three sauna rooms and pools rise up and dip down from western bathhouse. The northernmost of these is a thermal mass sauna. It anchors the deck, and is supported by recycled stone. The space it contains is dark and contemplative. Upon entering, the bather faces a large stove that is filled with several tons of local Basalt. The basalt kiuaskivet (sauna stones) are heated to extremes during the morning and retain heat throughout the day. Water poured over the stones produces a soft löyly, similar to that of a smoke sauna. This sauna's ceiling is stained black from the smoke that fills the room during its morning firing. Its thick walls are inset with shallow windows, welcoming northern light and overlooking the wetland and Ballard.

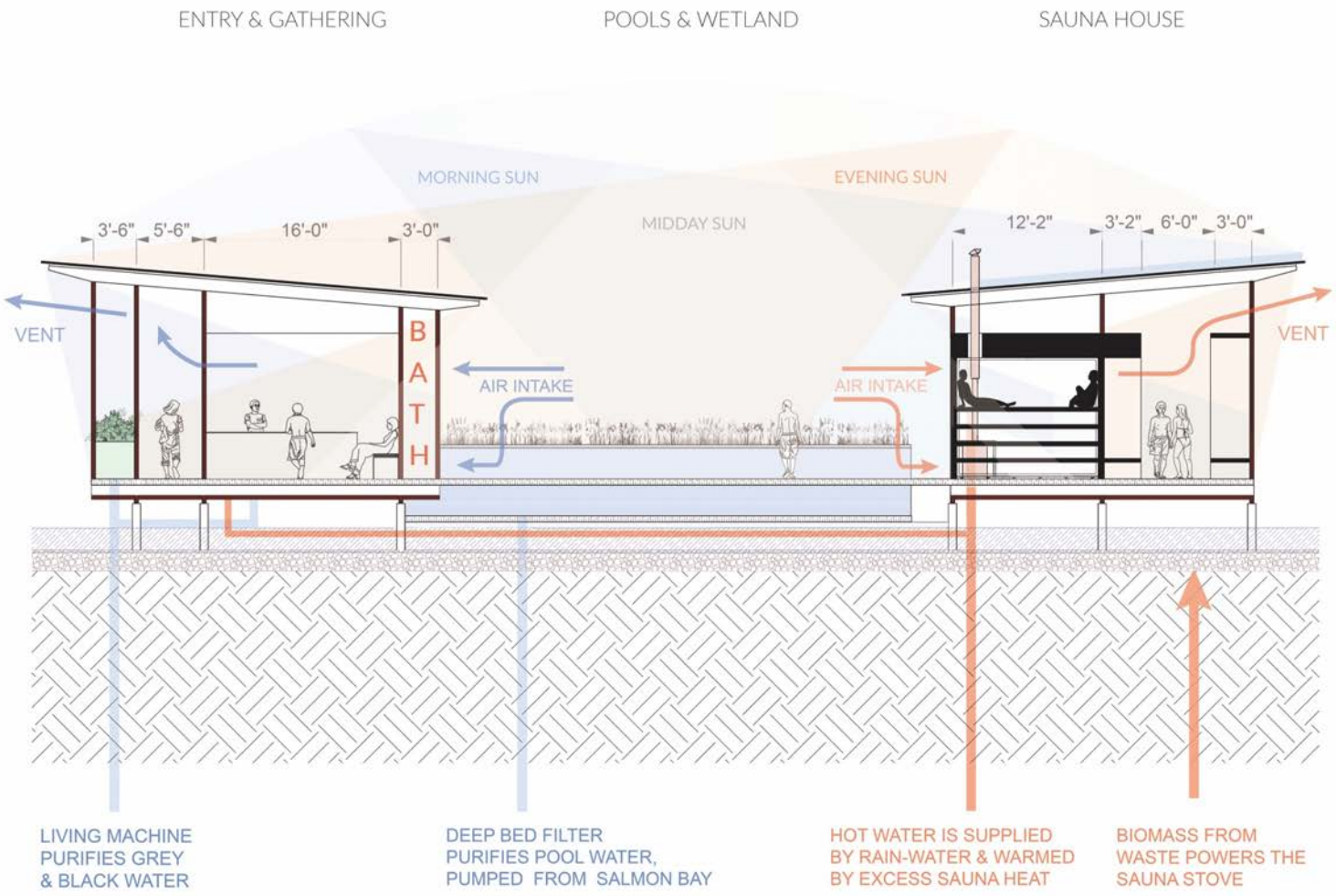


Fig. 3.33: Salmon Bay Baths energy and potable water cycling systems

This sauna's heater is fueled with biomass pellets. These can be made from waste processes like industrial or lumber milling waste, food waste, or produced from seaweed. Washington has a ready supply of such bio–mass, and initiatives are in place to support the use of this renewable material, which has a high rate of efficiency in combustion. Combined with this stove's unique emissions system, this sauna operates with almost full internal combustion, contributes a minimum of carbon to the atmosphere, and recycles the heat that is produced back through the bath structures themselves. The stove's mass is able to warm water, supplemented by rainwater catchment, which is sent back to the bathhouse for radiant floors and warm showers. Further down the dock, bathers can venture to an electric and a wood-fired sauna.

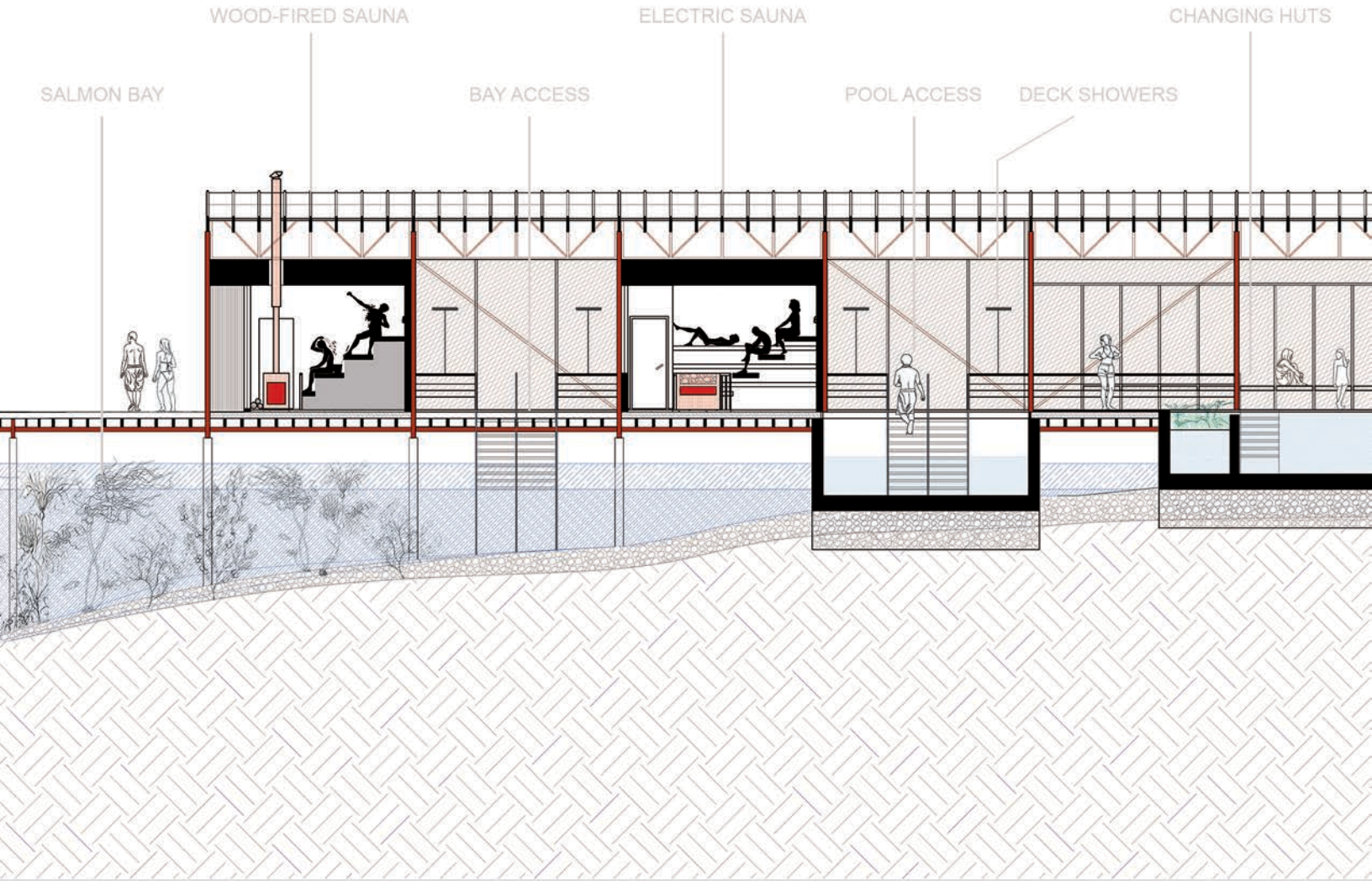


Fig. 3.34: Longitudinal section

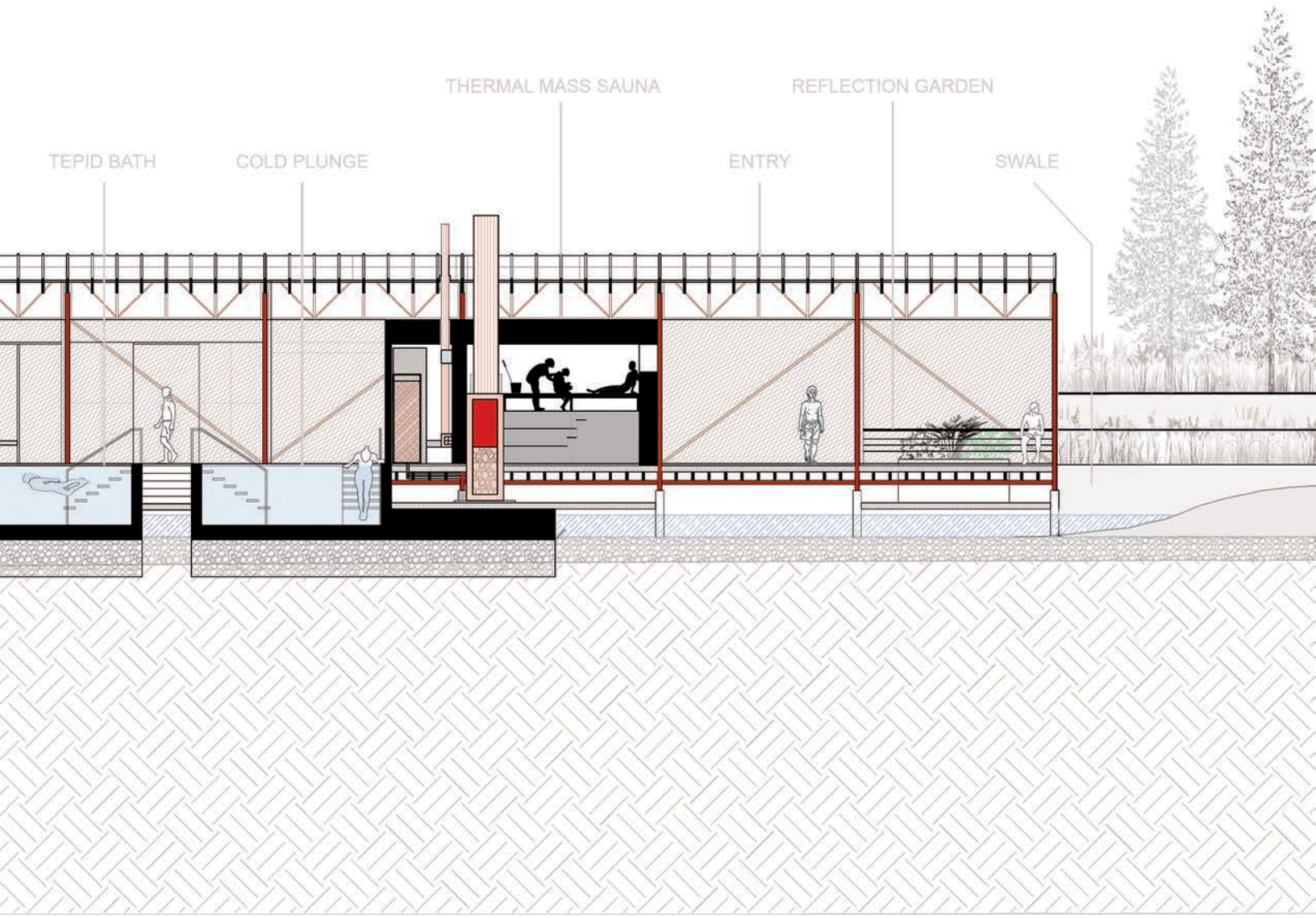

THERMAL MASS SAUNA
REFLECTION GARDEN
TEPID BATH
COLD PLUNGE
ENTRY
SWALE

Fig. 3.35: Salmon Bay from the Baths' central, electric-heated sauna

The electric sauna is located over the edge of what was once a hardened shoreline, and is now the edge of the bay-water pool, which continually spills through a riparian environment and into the bay itself. This sauna is at once an intimate and social space. L-shaped seats overlook the baths through one window, and the bay through another.

A wood-fired sauna is at the dock's end. This space is characterized by the smell of hot dry wood fire, and has a rare view directly toward the horizon, unlike any other in the vicinity. The view is framed by two existing docks, and in the ship canal beyond, vessels pass by coming to and from the locks. The site changes drastically from day to night, and through the foggy autumn, rainy winter, blossoming spring, and dry summer. The saunas overlooking the bay reduce the elements of its prospect to the surface of the water, horizon, hillside, and sky. The docks beyond have been redesigned to support aquatic life and human experience by allowing light to filter through. They house constructed wetlands and offer docking space to floating saunas.

Fig. 3.36: Cold plunge, tepid path, bay-fed pool, and Salmon Bay

At the end of the docks, bathers can directly enter the open water of the bay, swimming out between wetlands and toward the horizon. The bay's water hosts plant-life near the site's edge, yet quickly becomes very deep, as deep as 24 feet toward the end of the docks. For a more contained experience, bathers can swim in the wetland filtered pool, descending and ascending a double set of stairs, or gently entering via a ramp. Conditioned bathers may desire the contrast of extreme heat and cold year-round, and have the option of entering a frigid plunge pool near the smoke sauna. At this threshold, the bather's own sweat joins the water of a larger body, passing through the thin layer of skin to merge with the fluidity of the world.

Upon leaving the cold water, bathers take a moment to ground themselves in greater reality, moving from activity to rest, lying on a deck or in a chair, or floating in the tepid bath. A resting bather allows endorphins to rush over their body, accompanied by adrenaline as their heart rate regulates and the parasympathetic nervous system comes into balance with the sympathetic. The feeling of this experience is one of simultaneous sinking and evaporation.

Fig. 3.37 Salmon Bay

Here, at the horizon, efforts to slow, spread, sink, and cycle stormwater join with the purification process of the thermic bath. Just as the stormwater loses something of itself, depositing sediments and contaminants as it passes through filters of soil and plant matter, the person in the sauna is removed from the grid of the city, gaining depth as they transition through thresholds of space, engage with the elements, let go, and find greater awareness.

In "Launching a Sea Ethic," Carl Safina writes:

> "Because 99 percent of the Earth's living space is in the seas, it would likely bear abundant life even if no land existed. But without an ocean, this planet would merely spin unnamed three or four bits from a star, its browned-out face its own sterile moonscape. How do we begin to acknowledge a debt of such magnitude?
>
> "Were it not for the fact that we are such visual creatures, our sense of community with the ocean would be easier and more intuitive to grasp than even our sense of the land, because our connection with the sea is more intimate. Most of the oxygen that we breathe is made by ocean plankton. And when animals left the seas from which life arose, they took saltwater with them, in their bodies - an internal environment crucial for cellular survival. We are, in a sense soft vessels of seawater. 70 percent of our bodies is water, the same percentage that covers the Earth's surface. We are wrapped around an ocean within. You can test this simply enough, taste your tears.
>
> "But the ocean does differ from land, mainly by its fluidity. The same fluidity that generates so many metaphors about life and time also close the ocean's skin instantly, to hide the tracks of vessels and the scars inflicted by humanity. Yet this very same fluidity that makes the ocean look untrammeled actually smears and spreads the geographic footprint of people - our contaminants, trash, and alien species, the climatic consequences of our combustion, and the increasingly conspicuous absence of the migratory animals that fail to make it home. The ocean may be uncolonized by people, but it is hardly untrammeled wilderness."[77]

[77] Excerpts from Safina's essay in Menzel, Peter, and Faith D'Aluisio. *Hungry planet: What the world eats*. Material World Press, 2005.

Fig. 3.38: Salmon Bay Baths and Ballard from the Salmon Bay

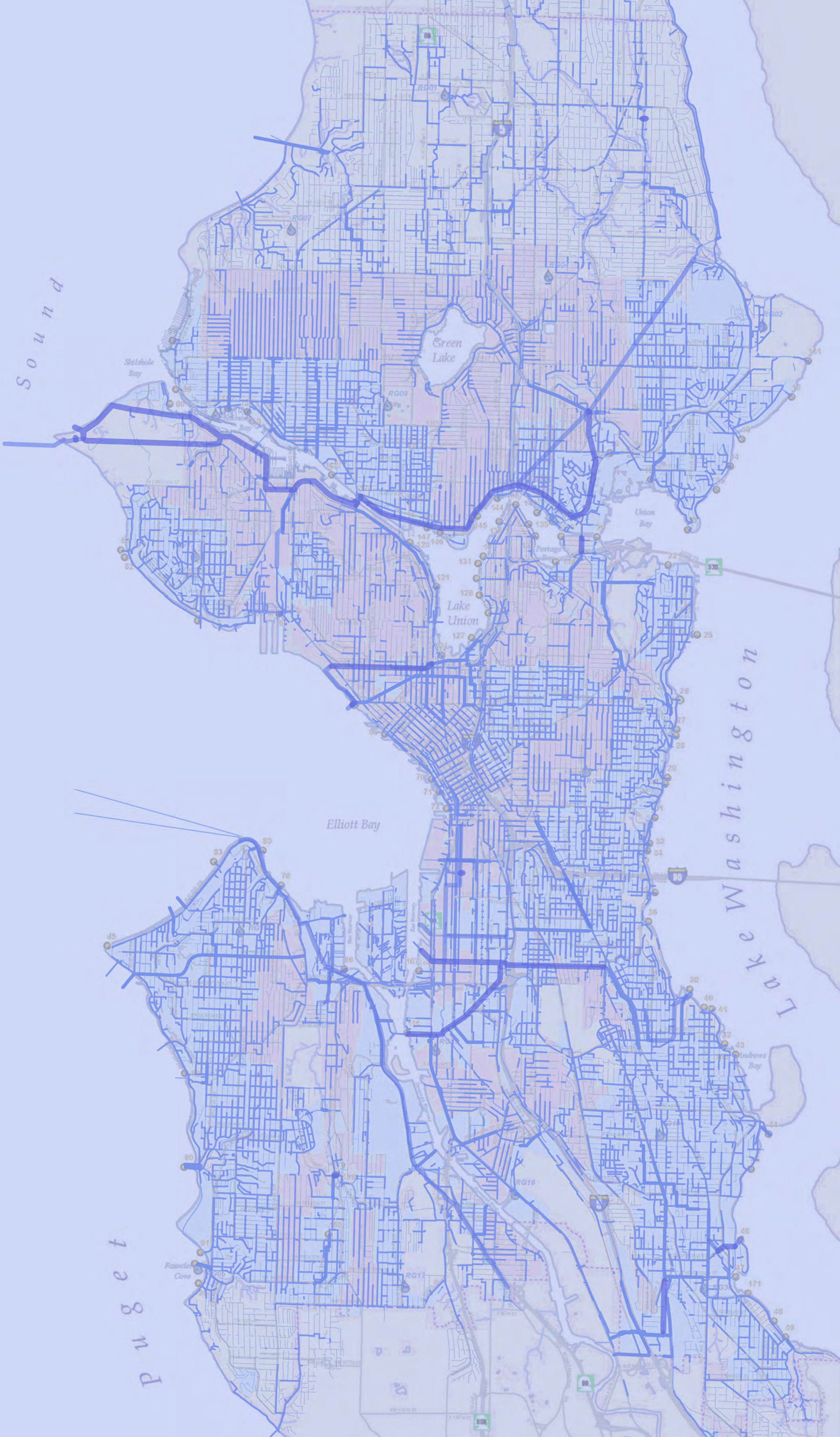
Through a district-based design, stormwater falling in the Ballard Basin is absorbed through plant roots, enters into groundwater, or flows through filters into Salmon Bay's receiving waters, passing into larger bodies beyond. It then cycles through evaporation and returns as rainfall. Likewise, bathers may return to the sauna, cycling through the process of sinking into self and expanding back into the world several times. After taking space for catharsis and engagement with the elements, bathers return to society, reminded that we as people do not just live in, but are our bodies, and that we as a society do not just live in, but are a part of ecology.

CONCLUSION

At the outset of this thesis, my intention was to explore the relationship of sauna and cold bath to systemic health and to advocate for increased prevalence of public baths in North America. To this end, I engaged in site and precedent research, literature review, interviews, attendance and presentation at the XVII International Sauna Congress, writing, design iteration, and visualization.

Through this study I discovered an intricate network of ties between ritual bathing and watershed health, and identified "thresholds of purification" as a methodological tool for the design of a thermic bath and stormwater treatment park. The pairing of ritual bath, green stormwater infrastructure, and urban swimmability is a contextually-specific response to Seattle's storm and wastewater system. The design component of this thesis, which treats water from the catchment area of a combined sewer outfall and culminates in a thermic bath, could be adapted to benefit systemic health at any outfall location in Seattle or beyond. Ideally, a similar approach would be investigated across multiple locations to make a significant impact in a watershed. This outcome, a design for a pattern that can be applied across a system to impact health through an aggregate of small shifts, is a key strength of this thesis.

Another strength is the discovery of a methodology: the concept of thresholds as liminal spaces that facilitate purification. This methodology is a response to on-site patterns of speed and conveyance, which minimize opportunities for pause and exchange. Here, a series of thresholds is an opportunity to celebrate moments of intersection, contrast, and transition. These moments slow, redistribute, and deepen interaction between water and people moving through the site, inviting catharsis and transformation.


Puget Sound
Shilshole Bay
Green Lake
Lake Union
Union Bay
Portage Bay
Elliott Bay
Lake Washington
Fauntleroy Cove

APPENDIX

Fig. 4.1: Waterway 15 Street End Park,
Seattle Washington

NEXT STEPS

This thesis and the research in the appendix have helped to identify several areas for further exploration. This work could be used to prompt further studies in public bathing and swimmable waterways, or even to initiate a feasibility study for a thermic bath in Seattle. The ideas outlined here could be built upon to broaden understanding of the benefits of sauna and thermic bath, demonstrating the capacity of bathing to contribute to systemic health.

An immediate next step in is further investigation through visualization. While studying proposals for swimmable waterfronts,[78] I discovered an array of compelling illustrations of everything from filtration systems to public pool proposals. Visualization is a powerful tool for working out concepts and narrating possibilities. The practice of translating ideas into physical space through drawing or model-making is an important step in realizing those ideas in reality. I would specifically like to work on visualizing data on stormwater and watershed health in a digestible way. There's great opportunity here to demonstrate how familiar objects, like roofing material, contribute huge amounts of chemicals of concern to our watersheds each year, or to show how just a small wetland can treat 2 million gallons of water. Data visualization could help to make the numbers and acronyms related to sources of pollution more relatable.

Technical drawings alongside poetic images are another powerful way to illustrate connection across scales. At the review for this thesis, reviewers encouraged visualizations that diagram the relationship between water, city, neighborhood, and body. They suggested the next steps of visualizing moments of purification across the larger neighborhood scale of the site, uphill of

[78] Described in the document "Pool Parti: Swimability as an Incentive for Urban Waterway Remediation" in the appendix of this thesis

Salmon Bay Baths. We also discussed expanding the program. One suggestion was to consider inclusion of smaller urban saunas within the city blocks uphill. Another was to explore opportunities for creative fuel sources for the sauna. I incorporated the idea of using bio-pellets. However, reviewers also discussed use of methane from sewage waste, inclusion of a small power plant on site, or even the idea of a crematorium. The most obvious step for expansion of this work might be to investigate iterations of the baths at Salmon Bay at the other combined sewer outfalls that are a part of the Ship Canal Water Quality Project. A set of thermic baths and stormwater treatment parks along the canal could provide inspiration to select one site and propose development of an actual sauna and bath.

A primary learning form this thesis exploration is that research in sauna and other types of thermic bathing has not yet caught up to the twenty-first century. As Tsonis notes in his Because of this, the process of learning about the history of bathing, plumbing, and purification rituals, was labyrinthine. Sources of inspiration and references for my "bathing research" to-date vary from the fields of neuroscience to ecology to ancient theory. As a continuation of this work, I hope to contribute to the emerging International Journal of Sauna Studies, [79] which aims to consolidate, promote, and publish academic research on thermic bathing.

[79] "IJSS | The International Journal of Sauna Studies." *Saunaresearch.Org*, 2018, saunaresearch.org

PROCESS DRAWINGS

Fig. 4.2: Ideation word map

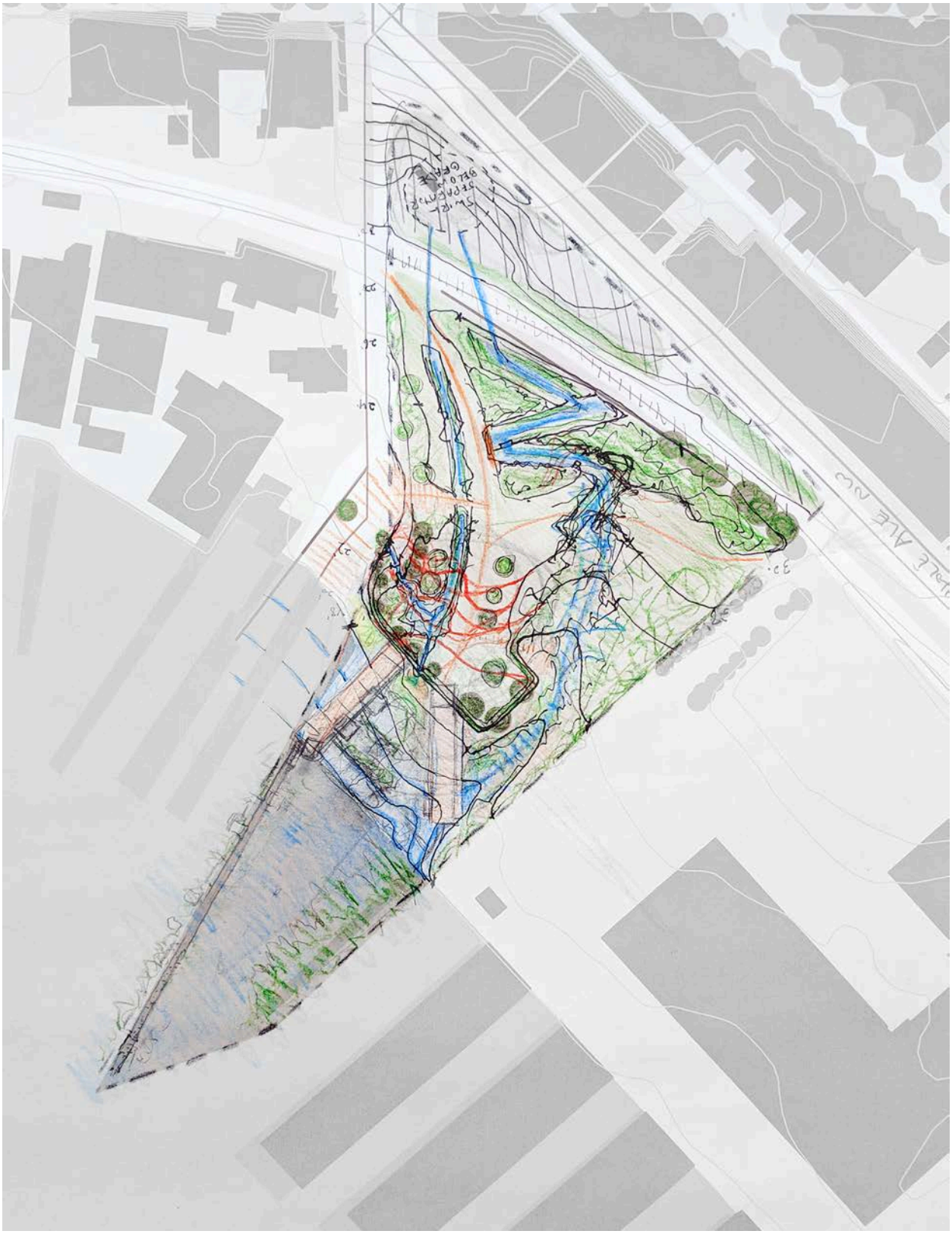


Fig. 4.3: Landscape process drawing

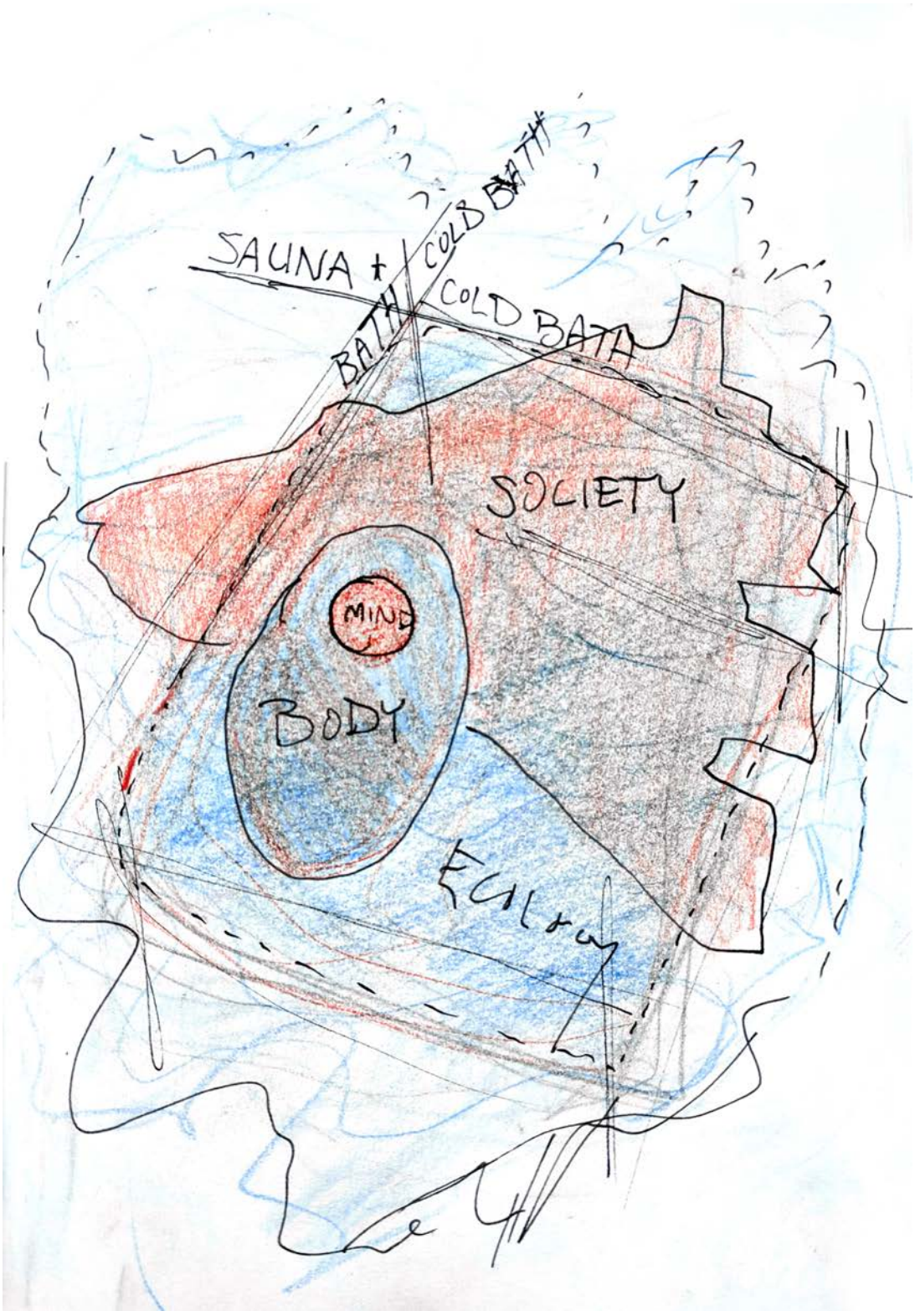


Fig. 4.4: Mind-body diagram

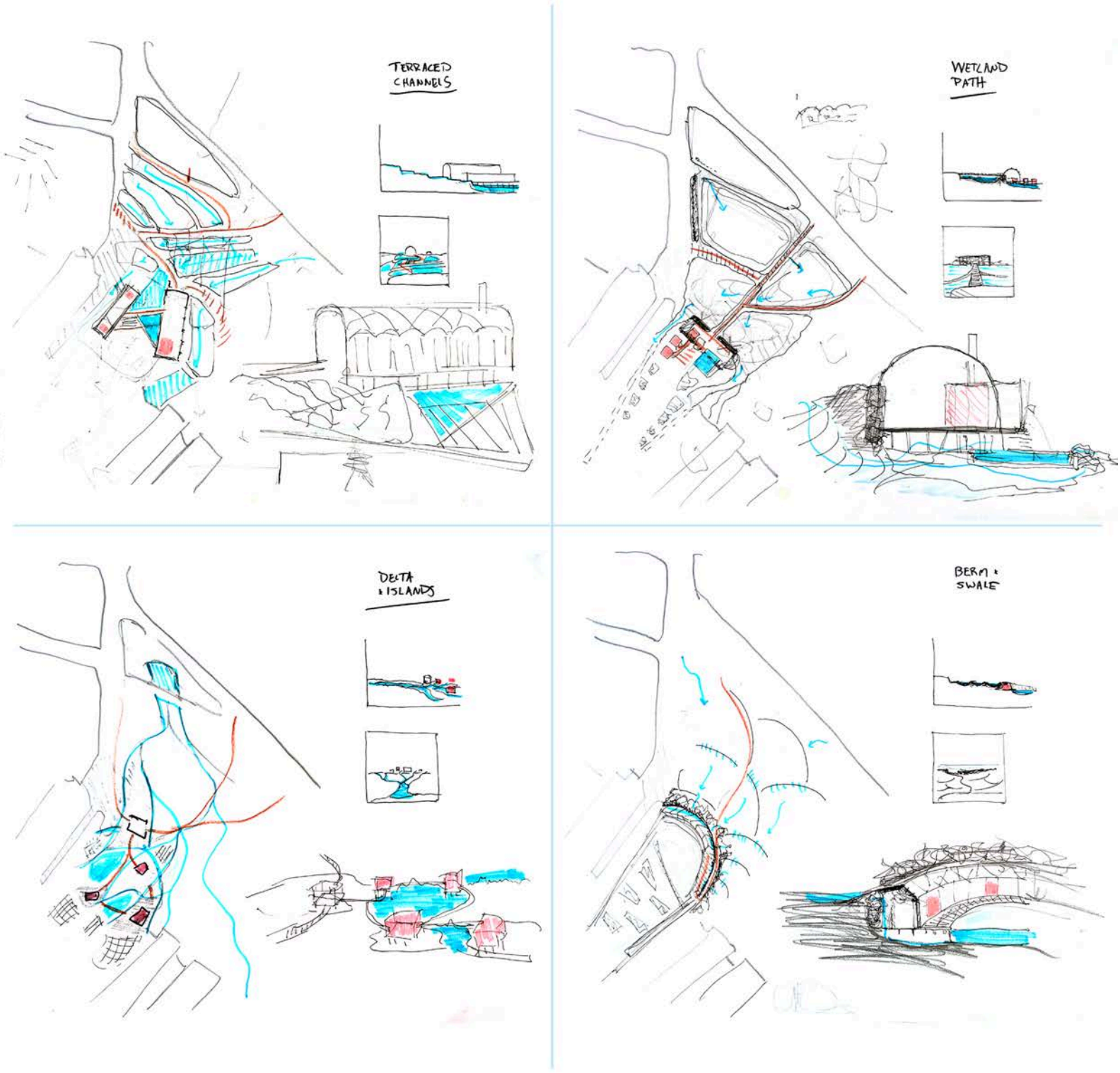


Fig. 4.5: Site Schemes

Fig. 4.6: Threshold sketch

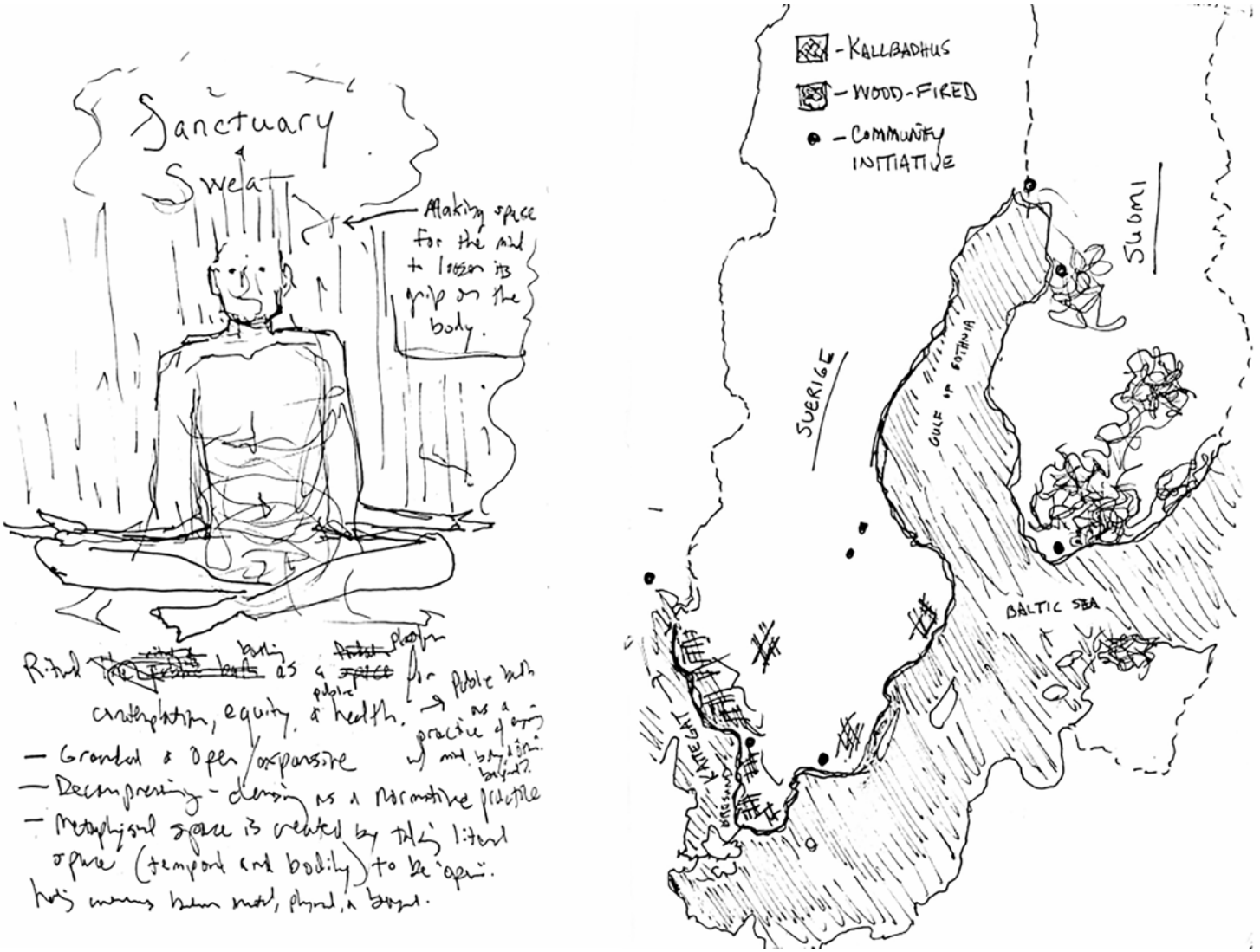


Fig. 4.7: Travel sketches

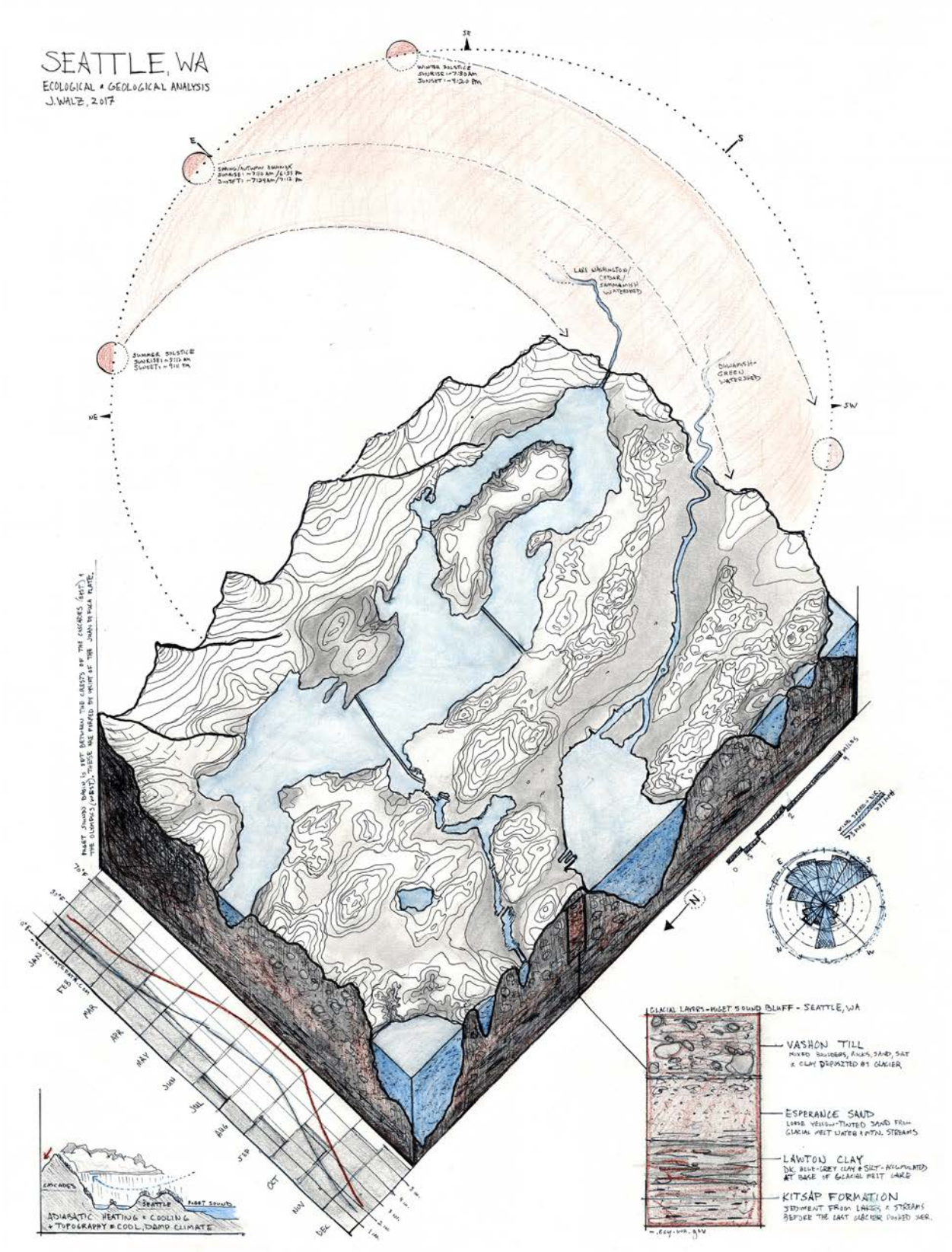


Fig. 4.8: Axon drawing of Seattle

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For a more in-depth analysis of kallbadhus' structural responses to topography and community, see the paper "Landscapes of Ritual and Health" and the article "Bathing on Swedish Shores" in the appendix of this document.

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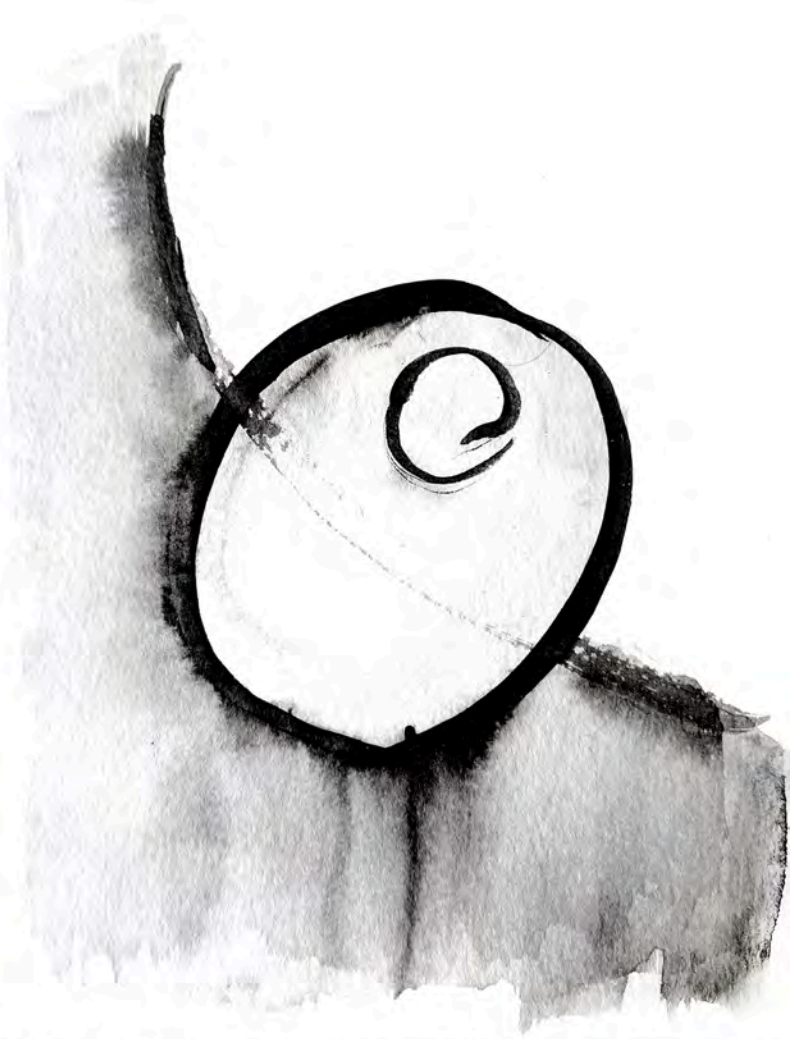
LIST OF FIGURES

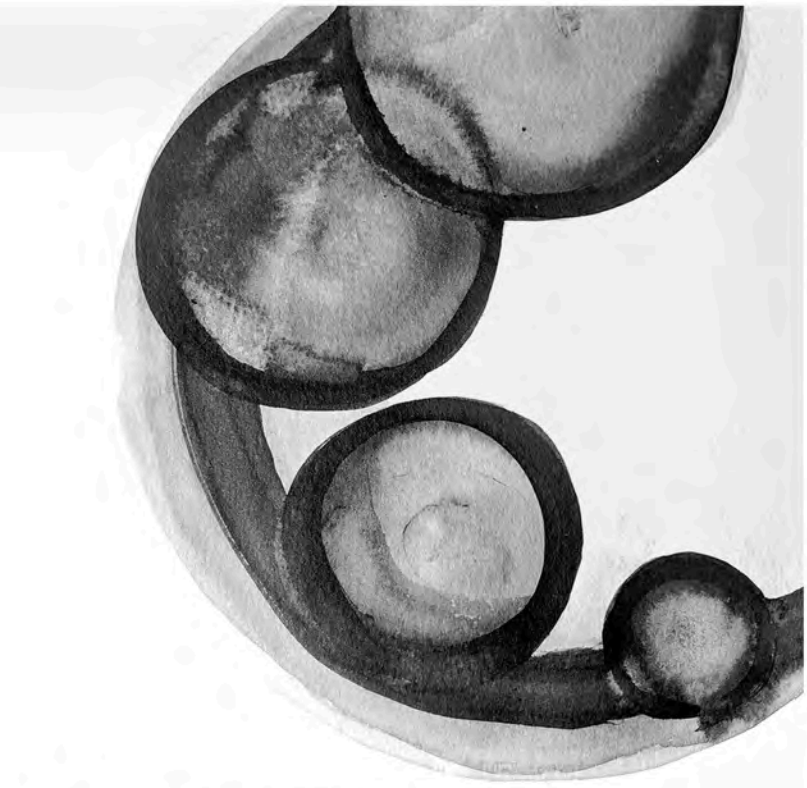
Unless otherwise noted, all photographs, drawings, and illustrations are the work of the author

WORKING PAPERS

The following section contains working papers. They were written for the purposes of coursework and preparation for this thesis, and were adapted for presentation at the XVII International Sauna Congress. This research has informed this document, and I am working to adapt it for publication.

1. Purification and Plumbing
2. Bodies of Water: Approaches to Gender in Sauna and Bath
3. Landscapes of Ritual and Health
4. Pool Parti
5. Public Bathing on Swedish Shores





PURIFICATION & PLUMBING

EXISTENTIAL-EMBODIED PRACTICE

We *are* our bodies.

> "In our age of massive industrial production, surreal consumption, euphoric communication, and fictitious digital environments, we continue to live in our bodies in the same way that we inhabit our houses, because we have sadly forgotten that we do not live in our bodies but are ourselves embodied constitutions. Embodiment is not a secondary experience; the human existence is fundamentally an embodied condition.""[1]

This perspective, from Finnish architect and academic Juhani Pallasmaa, has affirmed my thoughts on the relationship between sauna and systemic health. The theoretical framework for this thesis posits that just as an individual is an embodied organism, society as an aggregate of organisms does not live in ecology, but is itself an ecological constitution. We *are* ecology.

The "realms of health" investigated in this thesis, mind, body, society, and ecology, are not hierarchical categories. These realms are networked, and impact one another cyclically. Because of this, the health of a system is not achieved through checklists, compromise, or dichotomies. Rather, systemic health relies on mutually beneficial exchange between stakeholders and across scales. Efforts to improve health in one realm must happen in "co-evolution" with the resources, restraints, and networked realities of other realms.[2] Ecological health requires deep engagement on a societal level. This, in turn, requires that individuals have sufficient motivation, means, and awareness to work toward integration.

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[1] Pallasmaa, Juhani. *The thinking hand: Existential and embodied wisdom in architecture*. Chichester: Wiley, 2009, 13.

[2] This way of thinking is derived from the teachings of regenerative design, as taught by Joel Glanzberg, Bill Reed, their mentor Pamela Mang, and others at *Regenesis Group*, regenesisgroup.com.

Integration cannot develop in a vacuum, devoid of contact with one's own senses or surrounding ecology. However, as cities grow and densify, and technology increases in prevalence, society demands efficient, rather than effective, solutions to meet the needs/wants of masses living in tight quarters. As speed of production, consumption, and stimulation increase, connection to embodied and ecological reality decreases. Pallasmaa expresses concern over this division:

> "Today, our senses and bodies are objects of ceaseless commercial manipulation and exploitation… With ever accelerating frequency, all our senses are exploited by consumer manipulation, yet at the same time these very same senses continue to be undervalued as prerequisites of our existential condition or as educational objectives. Intellectually, we may well have philosophically rejected the Cartesian duality of body and mind, but the separation continues to rule in cultural, educational, and social practices."[3]

In light of this, Pallasmaa advocates for activities like drawing, walking through the forest, and other practices that facilitate communication between "the body and the other senses" [4] to inspire empathy and integration. Because such activities encourage multi-sensory engagement alongside contemplation, they can be understood as existential-embodied practices.

Sauna is a form of existential-embodied practice that is also a place-based ritual. As such, it has capacity to stimulate health across realms through its intrinsic ties to society and culture. Whether bathing traditions are learned within a community or shared in a public bath, they are passed on in specific ways that vary by location. Sauna and bath also engage both form-making and ecological elements, inviting a bather to experience ecology through the physical heating and cooling of the body within in a particular set of spaces. Thus, thermic bath invites vulnerability, place, and pause in a world that is increasingly characterized by division.

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[3] Pallasmaa, 2009, 13.

[4] Pallasmaa, Juhani. *The eyes of the skin*. Britain: Wiley (2005), 41.

CONTRAST & THE COSMOS

Hyper-stimulation is a key obstacle to existential-embodied practice; it is also a status-quo in contemporary society. Humans feel great responsibility to make, do, think, and engage. While these activities can be perceived as productive, the impact of an individual's work and being is dependent on attention to the whole. This attention begins with space for nothingness and awareness of the senses. To sit with nothing simply means to open oneself to the void that is apparent when excess stimulation is removed, and to listen.

An illustration of this idea comes from Robert Meagher's interpretation of the stories of Prometheus and Adam. Of Prometheus, Meagher writes:

> "Prometheus, true to the meaning of his name, brings foresight, the capacity and the inclination to look ahead, beyond what is to be; but he also brings fire, the transforming power par excellence. "Under the influence of fire, flesh becomes food, wood and coal become fuel, ore becomes steel, water becomes steam; and, in this process, the world becomes more inhabitable, more sustaining, and more controllable."[5]

Meagher goes on to describe the violent and life-giving potential of fire, by exploring the difference between *bia* and *energia*, two ancient Greek words for power. He describes *bia* as a violent form of power that works upon an object, and *energia* as a life force that works within an object, noting that the power bestowed upon humans by Prometheus was inspired not only by technological promise, but also by heart and compassion.[6] Bringing the Biblical story of creation into his writing, Meagher describes how God speaks over the void, summons from the void a cosmos of beings, and gives Adam the power to name the rest of creation:

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[5] Meagher, Robert. "Technê" *Perspecta*, vol. 24, 1988, 161.

[6] Ibid.

> "When Adam confronts a river, he must decide whether its waters are to be for drinking, or for the cleansing of sins, or for aquatic sports, or for commercial traffic, or for the convenient receiving of sewage.
>
> "His is always the second word, not the word that creates but the word that construes. Everything which he names and describes and puts to his use already exists and is something in itself before it becomes whatever it is to be for him; and there is always the possibility that his names and definitions and purposes deny, distort, and violate those beings on which they are bestowed. For Adam, faced with a silent cosmos, unrevealing of its own intrinsic purposes, there is one hope for integrity; that the creator God will speak directly to Adam and articulate the divine will mutely embodied in creation. If Adam's will is not to violate God's, then Adam's words over creation must repeat God's words over the void."[7]

Naming the cosmos is not a singular event. Whether understanding of "the void" comes from Prometheus, Adam, one the many traditions describing the value of contemplation, or from a belief in nothing in and of itself, humans are faced with an innate responsibility, a voice, and a void. Facing emptiness and silence is an essential step in cultivating the ability to listen to self and other, which precludes the ability to make decisions with compassion and integrity.

In light of this, Meagher calls for "a *technê* experienced in contemplation, riddled with the scruples of Adam, and inspired by the benevolence of Prometheus."[8] Pallasmaa also writes in favor of contemplation. "Instead of participating in the process of further speeding up the experience of the world, architecture has to slow down experience, halt time, and defend the natural slowness and diversity of experience. Architecture must defend us against excessive exposure, noise, and communication. Finally, the task of architecture is to maintain and defend silence." [9]

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[7] Meagher, pp 162-163.

[8] Meagher, 164.

[9] Pallasmaa, 2009, pp 149-150.

The ritual of sauna sits on the threshold between the wild and the civilized, inviting the bather to practice contemplation and engage the cosmos while moving through a visceral simultaneity of contrasts: Sweat, cold, darkness, light, prospect, refuge, isolation, congregation, activity, and rest. While conversation certainly happens in each phase of this ritual, consistent practice of sauna fosters an appreciation of silence, awareness of the senses, and respect for other. In a comparison of the Finnish Sauna, Japanese Furo, and Native American Inipi, Juha Pentikainen writes:

> ""The foreign guest soon finds himself relaxing on the benches of the sauna under the supervision of this hosts whether he likes the experience or not. The foreigner in Japan receives the same treatment whether interested or not in the Japanese furo…what the bathes of these continents have in common has been their connection to human life and the rites over the passage of time…. In inipi, furo and sauna the spirt and the body are purified - recreated, as it were, to enable to person to face the challenges life presents" [10]

> "The steam arising from the stove, like the smoke issuing from the open fire, the door of the smoke sauna, the flue or chimney, established a symbolic connection between the sacred space of the sauna and its people (microcosmos) and the sphere of the Hereafter and its inhabitants (macrocosmos)."[11]

The contrast experienced in sauna is a reminder of difference. Moving through the liminal space between these contrasts facilitates awareness of a greater reality. In "Thermal Delight in Architecture," Lisa Heschong explores the value of contrast, observing instances where thermal extremes and their opposites are close at hand, such as the sauna and the snowbank. Heschong notes that thermal extremes have both psychological and aesthetic benefits. Physiologically, if each extreme is available, it is possible to safely move between each one to maintain balance. Aesthetically, "The experience of each extreme is made more acute by contrast to the other." [12]

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[10] Pentikainen, 8.

[11] Pentikainen, 25.

[12] Heschong, L. *Thermal Delight in Architecture*. MIT Press, Cambridge, MA, 1979, pp 21-22.

> "One of the magical things about our senses is that they do not function in isolation. Each sense contributes to the fuller comprehension of other sensory information. Indeed, one may not even be able to understand the information from one sense properly until it can be related to information from other senses."[13]

There is an ancient conversation around the relationship between "sense impressions" and greater awareness. Historian Frances Yates compares the perspectives of Plato and Aristotle on sense impressions. Plato believed in the existence of a latent "moulds and ideas, of the realities which the soul knew before its descent here below," and claimed that knowledge is derived from "fitting the imprints from sense impressions on to the mould or imprint of [a] higher reality." However, Aristotle, Plato's student, believed that sense impressions themselves "are like the imprint of a seal on wax… are the basic source of all knowledge; though refined upon and abstracted by the thinking intellect, there could be no thought or knowledge without them." [14]

In a similar vein, anthropologist Walter Burkert writes of the relationship between ritual (which often includes multisensory input) and ideas. Burkert writes, "It is quite right to speak of 'ideas' or 'insights' which are 'contained' in ritual and which it can express and communicate – as, for instance, the reality of a higher, transcendent power or the sacredness of life." Burkert adds that while ritual is a kind of language, it is "far older than linguistic communication… Ideas do not produce ritual; rather ritual itself produces and shapes ideas, or even experience and emotions." Burkert adds that rituals which are conditioned, rather than innate "can endure only when passed on through a learning process."[15]

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[13] Heschong, 24.
[14] Yates, Frances. "*The Art of Memory. Selected Works.*" (1999), 36.
[15] Burkert, Walter. *Homo Necans : the Anthropology of Ancient Greek Sacrificial Ritual and Myth*. University of California Press, 1983, 26-29.

SAUNA AS A PURIFICATION RITUAL

Since pre-history, ritual sweat-baths have drawn cultures around the world to experience thermal contrast.[16] Whether bathers seek the heat of the sauna because it evokes an embedded memory of the cosmos, or simply because the contrast stimulates the senses, thermic bathing continues to invite individuals to slow down and enjoy a good sweat.

Sweating is easy to relate to, yet the idea of ritual is increasingly challenging for contemporary society to identify with. Sauna is one example of ritual practice that has transitioned alongside culture over a long span of time. H.J. Viherjuuri's 1940 writing on sauna is clearly descriptive of ritual practice:

> "Before the middle ages, Finns "went to the sauna every day to cleanse themselves; there they prepared for great festivals, and there they bathed before wedding ceremonies… Many a child was born in the sauna and many an old man and woman carried there to die… The sauna was a place for worship of the dead, who were supposed to return gladly, even after death, to so pleasant a place… Some people believed that the throwing of water over the stones was a form of sacrificial ceremony."[17]

In his 1986 writing "Body, Brain, and Culture," anthropologist Victor Turner visits the above themes. Contradicting basic anthropological tenets of his era, which mandated that all human behavior is conditioned, Turner posits that humans have an innate, propensity to ritualize certain behaviors. He notes that social transitions across cultures are often associated with ritual. Historically, these included change in the seasons, agriculture, fertility, funerary rituals, and

[16] Barfield, Lawrence, and Hodder, Mike. "Burnt Mounds as Saunas, and the Prehistory of Bathing." *Antiquity*, vol. 61, no. 233, 1987, pp. 370–379.

[17] Viherjuuri, 5-6.

healing rites. Turner writes that these moments of transition “make explicit the interdependence of people with their physical environments and bodies." [18]

These occasions for cultural ritual bear remarkable similarity to the events that Viherjuuri associates with historical use of sauna. Sauna, an embodied ritual, was used to mark commonplace events as well as moments of physical and spiritual liminality in Finnish culture. For centuries, the Suomi (the word for Finnish in Finland) people were dependent on laboring in forested landscapes in extreme weather. Ritualization of sweat was one way of overcoming the otherness of wilderness, celebrating, and preparing for the next day.

If ritual is indeed innate, rituals will shift alongside cultural change over time. Many practices of ritual bath have decreased as social-ecological distance has increased. Yet sauna has continued to adapt as a social tradition. Idioms about sauna have transitioned from “sauna on köyhän apteekki,” (“sauna is a poor man’s pharmacy,”) to ““Saunassa ollaan kuin kirkossa” (sauna is being in church), to a metaphorical understanding of the latter, whereby the phrase is still used but with the intent of communicating the importance of respecting the sauna as an egalitarian space. Here, sauna is unique because was once associated with spiritual belief, but has evolved into a ritual that offers secular sanctuary space. It seems that sauna has an innate capacity to maintain relevance to the needs of society. The example of sauna’s shift toward secular space is important because concepts like “sacred and profane” are increasingly absent in contemporary culture. Modern medicine tends toward sanitization and sterilization, and progressive culture evades association with ritual and religion.

[18] Turner discussing Sir Julian Huxley's definition of "ritualization" in Turner, Victor. "Body, brain, and culture." *CrossCurrents* 36.2 (1986), 158.

Turner maintains that "ritual is not necessarily a bastion of social conservatism; its symbols do not merely condense cherished sociocultural values. Rather, through its liminal processes, it holds the generating source of culture and structure." [19] Ritual, Turner writes, continues as a practice "associated with social transitions… whereby groups and individuals adjust to internal changes and adapt to their external environment." Turner describes fellow anthropologists' interpretations of ritual as a way to "communicate important cultural knowledge," and even a way of "handling of otherwise un manageable power."[20] This idea, that ritual is a way to handle great power, recalls the power of *bia* and of *energia*, and relates to both historical and contemporary reasons for ritual, and comes into play in sauna and bath.

While Meagher called for a contemplative and benevolent *technê* in the face of great power, historian, critic, and philosopher René Girard explores the role of violence, sacrifice, and catharsis as intrinsic to the sacred. Girard writes, "Sacrifice has often been described as an act of mediation between a sacrificer and a 'deity.' Because the very concept of a deity, much less a deity who receives blood sacrifices, has little reality in this day and age, the entire institution of sacrifice is relegated by most modern theorists to the realm of the imagination." Yet he continues, claiming that "violence is the heart and secret soul of the sacred," [21]

In the Twenty-First Century, the idea of sanctioned violence is even more taboo than ideas of sacrifice or religion. However, the power of *bia*, or violent creation, is as an essential counterpart to the life-giving power of *energia*. Each of these forces is present in the ritual of sauna.

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[19] Turner, (1986) pp 157-158.

[20] Girard, René *Violence and the Sacred*. Johns Hopkins University Press, 1977, 32.

[21] Ibid.

SWEAT IS MEDICINE

A study of catharsis provides one lens for understanding the roles of violence and life in ritual bath. A key contrast in sauna is that it is both psychologically enriching and physically demanding. Psychologically, sauna encourages bathers to engage the intrinsic void that is otherwise occupied by with the bustle of daily life. Physically, purification in sauna occurs in the midst of extreme heat. As such, this "sitting with self" includes moving past physical and mental discomfort. Sauna generates a fever which heals; thus, sweat-bathing can be understood as a cathartic process.

> "In addition to its religious sense and its particular meaning in the context of shamanism, the word katharsis has a specific use in medical language. A cathartic medicine is a powerful drug that induces the evacuation of humors or other substances judged to be noxious. The illness and its cure are often seen as one; or at least, the medicine is considered capable of aggravating the symptoms, bringing about a salutary crisis that will lead to recovery. In other words, the crisis is provoked by a supplementary dosage of the affliction resulting in the expulsion of the pathogenetic agents along with itself.
>
> "The mutations of meaning from the human katharma to the medical katharsis are paralleled by those of the human pharmakos to the medical pharmakon, which signifies at once "poison" and "remedy." In both cases we pass from the surrogate victim—or rather, his representative—to a drug that possesses a simultaneous potential for good and for bad, one that serves as a physical transposition of sacred duality."[22]

The violence of extreme heat that bathers experience in sauna supplants the violence of daily life. However, the heat is not intended to harm the bather. As Heschong observed, the proximity of thermal contrast between sauna and snow maintains an ability to engage with catharsis safely. Girard writes, "The considerable importance this freedom from reprisal has for the sacrificial

[22] Girard, 303.

process makes us understand that sacrifice is primarily an act of violence without risk of vengeance."[23] He continues to explain that systems intended to facilitate catharsis have to be understood by all as having some transcendental quality in order to prevent or cure violence.[24] This is certainly true of Finnish Sauna, whose transcendental qualities enabled the ritual to survive when it was banned across the rest of Europe.

Girard writes, "As soon as the essential quality of transcendence— religious, humanistic, or whatever—is lost, there are no longer any terms by which to define the legitimate form of violence and to recognize it among the multitude of illicit forms." In places outside of Finland, public bathing practices were prohibited during the Reformation and Counter-Reformation due to association with disease and nudity, which was regarded a sin.[25]

> "The seventeenth century, which laid the spiritual foundations for the following period, carried neglect of the body to its lowest state. Slowly, the eighteenth century began the change. A start was made along two directions: through medicine, and through the rediscovery of nature; that is, by therapeutics and by a new orientation of feeling. The two will become intertwined in the course of the nineteenth century."[26]

Sauna and bath gradually reappeared as a source of medicine. Early physicians like John Floyer of England, Herman Boerhaave of the Netherlands, and M. Poitevin of France worked to establish bathing spaces, yet "use of the bath for anything beyond medical purposes was regarded as unsound."[27] Eventually, promotors of the bath, such as Sweden's Dr. Carl Curman, founder of

[23] Girard, 13.

[24] Girard, 24.

[25] Giedion, 653.

[26] Giedion, 653-654.

[27] Giedion, 654-655.

Kallbadhus, Dr. Richard Barter, who initiated Turkish Baths in Ireland,"[28] and English diplomat David Urquhart, who brought baths to industrial towns in England and beyond,[29] recognized that the benefits of the public bathing extend beyond mere ablution.

These advocates of bathing as regeneration recognized the bath's ability to contribute to both physical and mental health. However, engaging with ecology, specifically with open water, was a challenge until fear of contact with water, along with "fear of nakedness and of the natural," began to shift under the influence of new ways of thinking. The influence of philosopher Jean-Jacques Rousseau helped to promote ideas of returning to nature and "the noble savage." Humanity began to focus on tolerance, understanding, and becoming citizens of the world. This understanding was accompanied by pedagogy: "gymnastics, running, jumping, swimming, became necessary elements of education."[30] Bathing for medicine, recreation, and leisure gained widespread popularity in the early Nineteenth Century.

Scientifically, we now know that sauna has unique impacts on the bather that extend from the realm of medicine to the realm of neuroscience. Ritual movement between contrasts contributes to "total regeneration" by impacting the nervous, circulatory, and endocrine systems, offering a host of benefits to the human organism. It also engages different sectors of the brain. Here, understanding of sauna as a form of embodied ritual, or embodied therapy, is increasingly relevant to translating ritual bath into contemporary society. Similar practices have gained popularity in recent decades through traditions like yoga, quigong, and tai chi, as well as in dance, movement, and formal therapy sectors. While these have been commercialized on some level, their benefits remain.

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[28] Shifrin, Malcolm. *Victorian Turkish Baths*. Historic England, 2015, 41.
[29] Shifrin, 5.
[30] Giedion, 655.

Embodied therapies address mental disconnect by activating different parts of the brain simultaneously, networking instincts, emotions, and greater sense of awareness. Such practices can contribute to healing of trauma, recovery from addiction, and integration between self and other. Contemporary models of embodied therapy often reference neuroanatomist Paul MacLean's model of the "triune brain."[31] MacLean's model, used in the fields of medicine, education, psychology and philosophy, and anthropology, recognizes three primary regions of the brain: The instinct-driven Archipallium, or "reptile" brain, the emotion-centered Limbic System, or "mammalian" brain, and the expansive Neocortex, or "rational" brain.

In sauna as an embodied ritual, we understand that cultural, physiological, and psychological understandings of purification align to have a powerful impact on the bather. This impact can ultimately result in an array of physical sensations that lead to an "altered state of consciousness (ASC) for the participant… Typical examples of activities thought to cause an ASC include dreaming, endurance running, meditation, daydreaming, hypnosis, and various drug-induced states." [32] Sauna is a unique format for this kind of experience in that it offers an *accessible* path to such expereiences. Sweat bathing requires no drug or special physical ability, and the practice is composed of basic elements that transcend class and culture. The individual arrives nude or nearly-so, without judgement, products, or solution, to engage healing and connection across a host of realms simply through sitting and sweating.

[31] MacLean, P. D., & Kral, V. A. (1973). *A triune concept of the brain and behaviour*. Published for the Ontario Mental Health Foundation by University of Toronto Press.

[32] Deitrich, (2003) in Colmant, Stephen A. *Effects of Sweat Therapy on Group Therapeutic Factors and Feeling States*. Diss. Oklahoma State University, 2005. 43

During sauna, the both the sympathetic and parasympathetic nervous systems are stimulated. This ergotropic system (from the Greek *ergon*, *"work")* governs the sympathetic nervous system. This system is stimulated by the exertion of sauna; it processes fight or flight responses, increase in heart rate, blood pressure, and sweat secretion, and increased secretion of hormones.[33] During this phase of sauna, A bather experiences increased noradrenaline, a chemical that regulates function in the brain, similar to the amount induced by maximum physical exercise.

Yet sauna is different from ordinary physical exercise and mental stress, because "concentration of adrenaline in blood does not increase during a sauna bath," meaning that "sauna does not cause mental stress to people accustomed to it."[34] This may be because the initial experience of warmth in the sauna, and relaxation that occurs while cooling down, stimulates the trophotropic system (from the Greek *trophe*, "nourishment"). Trophotropic activity includes parasympathetic nervous system functions. These are the functions necessary to maintain basic stability, such as reduction in heart rate, blood pressure, and sweat secretion, and increase in the secretion of insulin, estrogens, and androgens. "Briefly, the trophotropic system makes for inactivity, drowsiness, sleep 'cooling down,' and trance-like states." [35] When sauna is accompanied by exposure to a cold shower or swim, the concentration of TSH," a thyroid stimulating hormone, is increased.[36] Turner shares findings that suggest the following:

> "When either the ergotropic or trophotropic system is hyperstimulated, there results a "spillover" into the opposite system after "three stages of tuning," often by "driving behaviors" employed to facilitate ritual trance. They also use the term "rebound" from one

[33] Turner, (1986) 165.

[34] Kukkonen-Harjula, and Kauppinen. "How the Sauna Affects the Endocrine System." Annals of Clinical Research, vol. 20, no. 4, 1988, 262-266.

[35] Turner, (1986) 165.

[36] Kukkonen-Harjula, and Kauppinen, pp 263-264.

> system to the other; they find that when the left hemisphere is stimulated beyond a certain threshold, the right hemisphere is also stimulated. In particular, they postulate that the rhythmic activity of ritual, aided by sonic, visual, photic, and other kinds of "driving," may lead in time to simultaneous maximal stimulation of both systems, causing ritual participants to experience what the authors call "positive, ineffable affect"[37]

Because sweat-bathing carries these benefits without the requirement of physical movement, some researchers advocate for sweat-bathing as a tool to facilitate both physical and psychotherapy. Findings indicate that the psychological benefits of sweat bathing "promotes positive effects on sleep, mood and affect, and on hyperactivity, specifically for people with anorexia nervosa. One of the most consistent descriptions is that sweating facilitates relaxation and stress relief." Dr. Stephen Colmant conducted research on sweat bathing, and found that participants experienced increased feelings of acceptance, improved interpersonal action, and a sense of universality, or one-ness with self and others. [38] Colmant writes, "It is generally accepted by most theorists and clinicians that catharsis is not sufficient to promote psychological change," yet with assistance, bathers can move "beyond the ventilation of feelings and attempt to add meaning or significance to the cathartic experience."[39]

This feeling of one-ness also has scientific basis, and has been explored through modalities like embodied therapy. This model can be used to frame sauna as a form of "embodied therapy," or a practice that engages each sector of the brain to network instinct, emotion, and greater sense of awareness. This networking capacity makes the simple practice of sauna a powerful instrument

[37] Eugene d'Aquili and Charles D. Laughlin in Turner, (1986) 165.

[38] Colmant, 49-50.

[39] Colmant, 159.

for both “sanctuary” and “systemic health,” offering a broad cross section of society opportunity to practice presence in the physical body, connect with others, and think beyond the self. This time of refinement and awakening in turn gives way to cycle - individual reflection and integration with self, physical healing, and connection to communitas and ecology. Sitting with the self can help an individual to surpass ego, or least allow it to expand to the point of understanding otherness. In “The Gift : Imagination and the Erotic Life of Property,” Lewis Hyde writes:

> “I find it useful to think of the ego complex as a thing that keeps expanding, not as something to be overcome or done away with. If the ego widens still further, however, it really does change its nature and become something we would no longer call ego. There is a consciousness in which we act as part of things larger even than the race. Now the part that says “me” is scattered. There is no boundary to be outside of, unless the universe itself is bounded.
>
> In all of this we could substitute “body” for “ego.” … Again, the body can be enlarged beyond the private skin, and in its final expansion there is no body at all. When we are in the spirit of the gift we love to feel the body open outward. The ego’s firmness has its virtues, but at some point we seek the slow dilation, to use another term of Whitman’s, in which the ego enjoys a widening give-and-take with the world and is finally abandoned in ripeness”[40]

This ripeness is another way of understanding catharsis and ritual ceremony, which include elements of birth, transition, sacrifice, and death. Through sauna, this movement of vertical and integration and expanse makes space for loosing of self in order to integrate with that which is.

> This great exfoliation of self requires a moment on the vertical axis - down into the depths and upward toward the sky. Stranded on the horizontal axis, one is likely to remain attached to the character-role, the microcosm of self that we live through socially and in seclusion. Movement on the vertical axis, down into the realm of underworld or upward to the heavens, allows for connection to a vast, fluid, and timeless realm. [41]

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[40] Hyde, Lewis. *The Gift : Imagination and the Erotic Life of Property*. Random House, 1983, 17.

[41] Little, Tias. *Yoga of the Subtle Body: A Guide to the Physical and Energetic Anatomy of Yoga*. Shambhala Publications, 2017, 271.

Bodies of Water
Approaches to Gender in Sauna and Bath

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Feminist Geography & Sauna Studies

Abstract:

This paper builds on three months of research in Finland and Sweden in 2017. During this time I visited over fifty saunas and thermal baths, and observed a variety of approaches to separation of gender and practices of nudity in each sauna/bastu and bathing space. I began to ask: How do sauna and bathing spaces engage gender and equity through their traditional and structural formats? How do these responses impact their user communities, and what perceptions do these spaces reproduce?

This paper explores the relationship between gender, historical use, and the physical form of saunas, asking: How do these spaces contribute to, or detract from, the reputation of sauna as a safe, intimate, and egalitarian space? This examination does not preference a specific approach, but shares observations coupled with related research to illuminate a variety of outcomes and underscore the need for additional examination on the topic of gender and bath.

Keywords: gender, sauna, bathing, feminism, embodiment

INTRODUCTION

The public sauna is an egalitarian place of ritual; its physical space supports an ancient and health-oriented practice that has adapted to change over time. The structure of sauna has evolved into contemporary expressions, yet the practice itself retains cultural continuity, transcending class and stereotype to stimulate health across individual, social, and ecological realms. These benefits rely on equitable access to facilities and placement of collective value on ritual health. The saying, *"Saunassa ollaan kuin kirkossa,"* or, "the sauna is being in church," [1] implies that while sauna is common (there are an estimated 3.3 million saunas in Finland for 5.3 million Finns[2]), one should treat its space with sacred respect.

While origin stories differ, it is agreed that sauna was developed as a place for the average person to cleanse, get warm, and share ritual.[3] Historically the sauna was a modest wooden or dugout structure, sometimes serving multiple functions like temporary housing, drying meat, and stabling animals. In Finland and Lapland, the sauna was coined "the hospital of the poor." It was here that birth, mourning, and celebration took place, as it was the most sterile location accessible to ordinary people.[4] The Finnish idiom *"Jos ei sauna, viina ja terva auta, tauti on kuolemaksi"* roughly translates: "If booze, birch tar, or sauna won't help, the illness is fatal."[5]

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[1] Edelsward, L. M. (1991). *Sauna as symbol: society and culture in Finland* (Vol. 53). Peter Lang Pub Incorporated.79.
[2] Mark Bosworth Helsinki (n.d.). Why Finland loves saunas. *BBC News*.
[3] Johnson, T., Miller, T., McGauley, P., Belsaas, J., & Moorman, G. (1977). *The sauna book*. Harper & Row. 15.
[4] Scheid, K. (1962). *Sauna*. Mnchen: Callway.
[5] Brunvand, J. H. (Ed.). (2006). American folklore: *An encyclopedia*. Routledge.561.

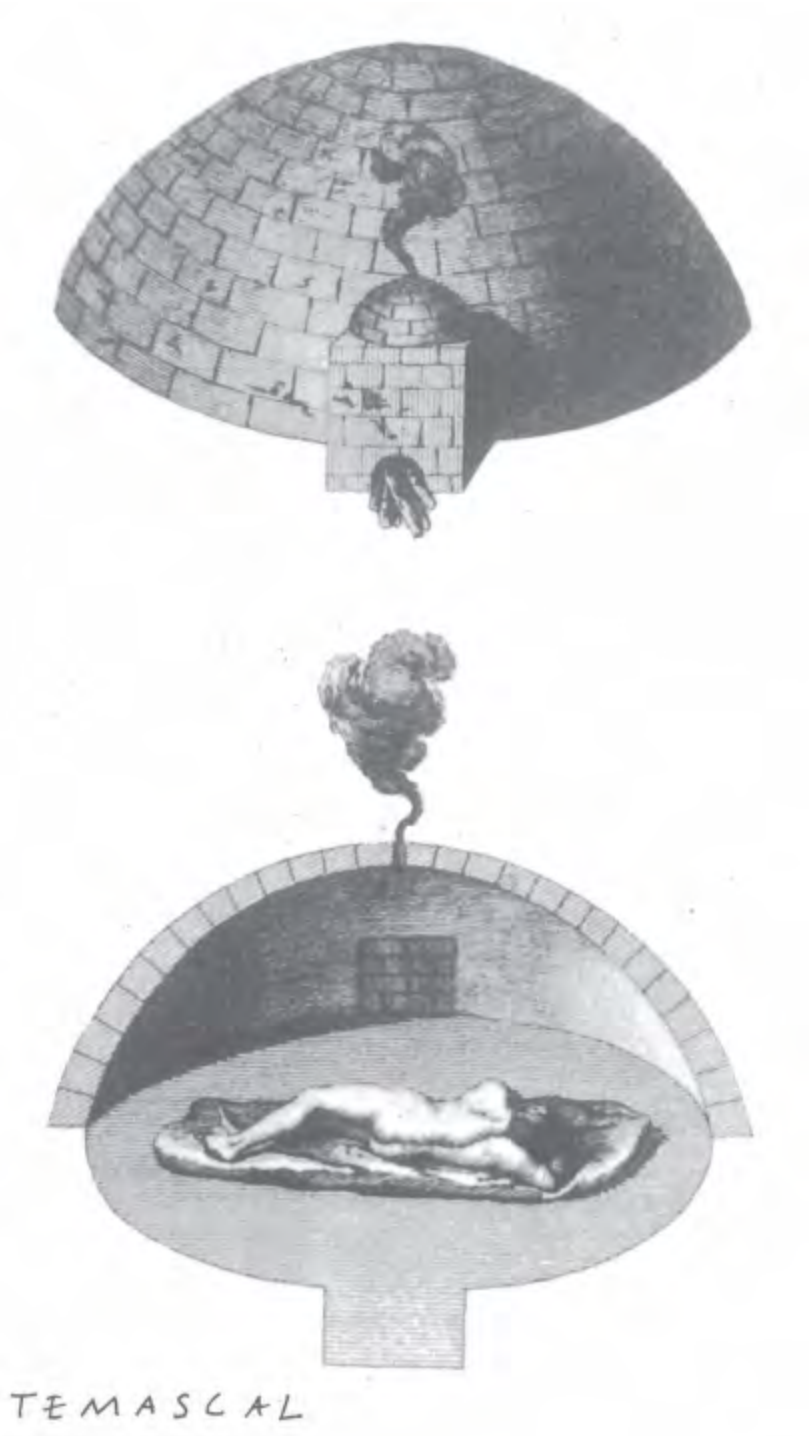

IMAGE: the Temescal, a Mesoamerican sweat bathing tradition used for physical and ritual health[6]

[6] N.a (n.d.). San Rocco | Book Of Copies. *Sanrocco.info.*

There are many sauna terms that every Finn understands that do not translate to other languages.[7] Löyly is perhaps the most essential of these. Its etymology comes from words for spirit, soul, or ghost; today the word is used to describe the "steam that rises from the sauna stove (kiuas) or the heat of the sauna," it also means "heat, pressure, and intensity,[8]" and can be used to describe the entire practice of taking water, pouring it on hot stones, and the resulting steam.

While the nuance of löyly has not translated, the spirit of sauna has. Public sweat-bathing traditions are common in most of the Nordic and Baltic states. These, however, begin to differ from sauna both habitually and technically as they increase in distance from Finland. *Habitually*, public bathing in much of Europe was banned in the 1500's due to association with immoral behavior and disease, and only saw resurgence in the 1800's.[9] A ban never took place in Finland, where sauna is understood as an egalitarian space for cleansing. *Technically*, the diaspora of sauna varies due to differences in temperature, heat-source, and humidity. At one end of the spectrum, "sauna" is so humid that it becomes "bath." On the other, "sauna" occurs without steam, using dry heat. Most Finns would argue that this is no longer "sauna," yet lively dialogue around the relationships between and lineage of sweat bathing traditions continues.[10]

[7] Suomen Saunaseura ry (n.d.). Sauna Terminology - Suomen Saunaseura ry. *Suomen Saunaseura ry*.
[8] N.a (n.d.). löyly - Wiktionary. *En.wiktionary.org*.
[9] BURG, A., Hess, H. E., Meyhöfer, D., & LEISTNER, D. (1994). *Water temple: Gründerzeit and Jugendstil public baths*. Academy, London.
[10] Konya, A. (1987). *Finnish sauna*. Van Nostrand Reinhold. 7-8.

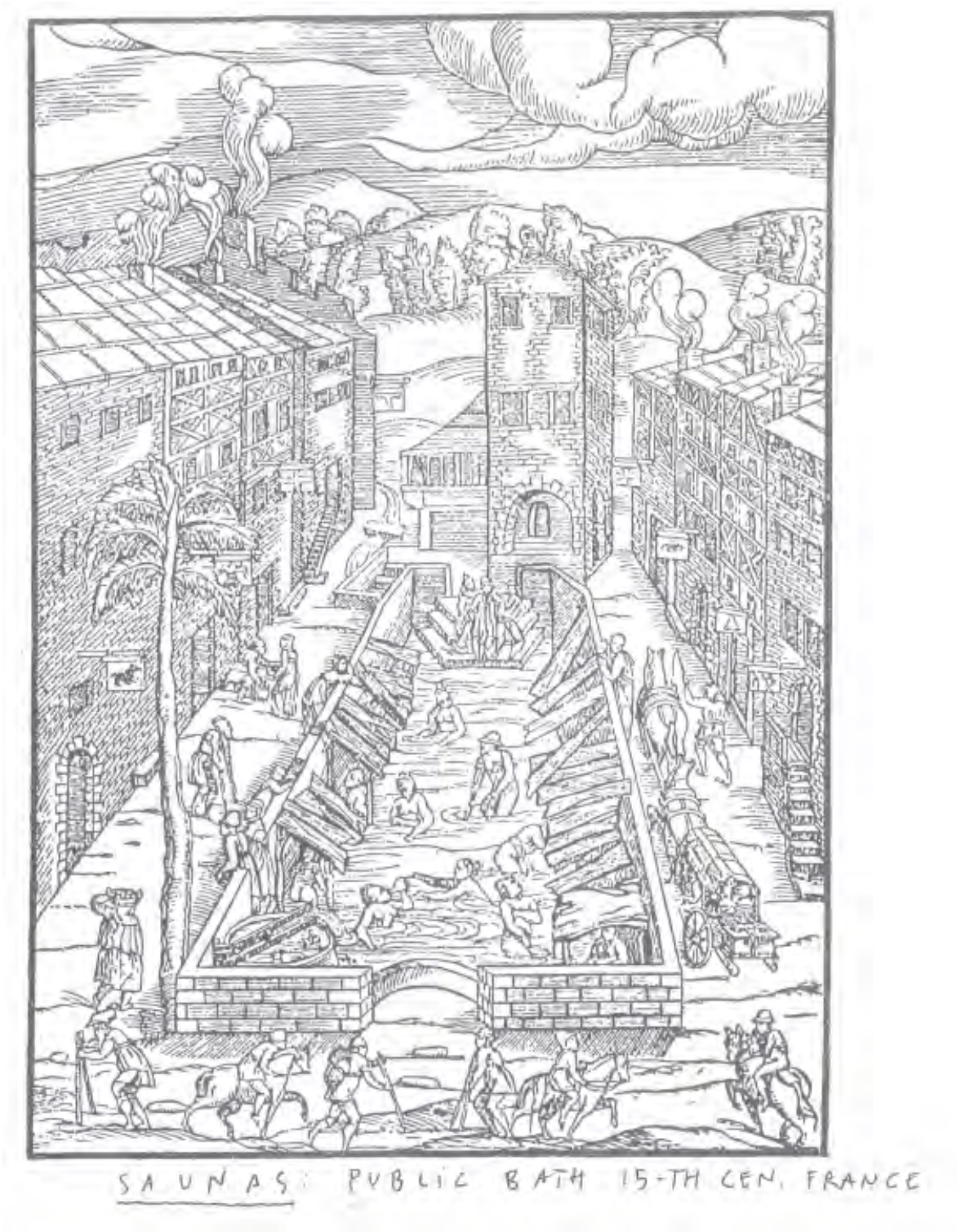

IMAGE: A fifteenth century public bath in France[11]

[11] N.a (n.d.). San Rocco | Book Of Copies. *Sanrocco.info.*

NUANCE & NUDITY

Nuanced dialogue extends to many aspects of sauna, including treatment of gender and nudity. My own research, which took place primarily in Finland and Sweden, revealed differences between these two countries' approaches to nudity and space-sharing, with some gradation near their shared northern border. These approaches are layered and always-evolving, however clear trends remain:

In Finland, it is common for families to sit in the sauna nude together, sharing space between genders and generations. During teenage and early adult years, children may transition toward separate "boys" and "girls" sauna times, but family sauna is a ritual that many children are introduced to from birth. In Finnish public saunas, bathers are often separated into two gendered sauna rooms, each of which is used nude. If there is only one sauna, or if the facility is co-ed, bathers wear suits. When a public sauna facility is located near the water, bathers wear (or put on) suits before taking a plunge.[12]

In Sweden, there are far fewer family and urban public saunas, however, a robust tradition of "cold bath houses," or "kallbadhus," have persisted along Sweden's southwest Øresund and Kattegat coasts since the the mid-1800's.[13] These represent Sweden's recovery from a seventeenth and eighteenth century "dark period in the history

[12] While putting on a bathing suit after being nude and sweaty disrupts the procession between sauna and cold plunge, I am told that this custom is practiced "for respect" of other bathers.
[13] The longest running site I'm aware of is at Lysekil, which has hosted bathing since 1847, as confirmed by N.a (n.d.). Lysekil Kallbadhus. *Lysekilkallbadhus.se*, and in Leandersson, B., & Lind, H. (2004). *Kallbadhus*. Stockholm: Byggförlaget.

of swimming," when public and sea bathing were considered unhealthy[14] (the same ban that Finland bypassed). Kallbadhus differ from Finnish saunas in that they were initially established as gendered bathing platforms (saunas were added later), and as of today, these saunas and baths are strictly nude.[15] This trend began in the 1930's,[16] when nude sunbathing and swimming were popularized, and many facilities increased their levels of opacity and separation to allow for separate male and female saunas and cold bathing areas. Today, some facilities are evolving to offer co-ed bathing times for families and small groups of friends who wish to sauna together.

Nude or clothed, freedom for women to visit public saunas was a radical precedent in the early twentieth century. Max Brod's 1929 essay "Women and the New Objectivity" describes conditions of gender in Weimar, Germany after World War I, saying, "love, women, hearth, soul have no place."[17] Nearly fifty years later, in 1976, the Habitat 1 Conference gathered multinational participants in Vancouver,[18] who declared "hope that the everyday life circumstances of women and men should and could be better with the help of governments and communities"[19] and imagined safer cities for women and girls. These ideas "were shaped in part by newly emerging scholarship in urban planning,

[14] Brf, Simply (n.d.). Malmö Bastugille - Ribersborg Kallbadhus. *Bastugillet.se.*
[15] Signage in Kallbadhus facilities maintains that saunas should be used nude for health reasons, primarily to avoid transmission of microbes and bacteria that may grow on bathing suits. All shower before entering the sauna, and sit on a clean towel. Health concerns are not present for swimming, however, the cold plunge is practiced nude as an extension of customs established in the 1930's.
[16] N.a (4 Mar. 2018.). Ribersborgs Kallbadhus | kallbadhuset. *Ribersborgskallbadhus.se*.
[17] Brod, M. (1929). Women and the New Objectivity. *The Weimar Republic Sourcebook, ed. Anton Kaes, Martin Jay, and Edward Dimend-berg* (Berkeley: U of California P, 1994), 205-06.
[18] United Nations (1976) The Vancouver Declaration on Human Settlements. *Habitat: United Nations Conference on Human Settlements, Vancouver, Canada*, 31 May to 11 June 1976.
[19] Modlich, Reggie (2012) Women Plan Toronto (1985-2000) and Toronto Women's City Alliance (2004- and Struggling on): Experiences and Lessons. *Universitas Forum*. 3.1, 1-11.

environmental psychology, human geography and allied fields, including the perspectives of feminists."[20] The public sauna is an early precedent of everyday safe-space, carved from the urban realm to offer community engagement and solace for the psyche through a practice that promotes health and participation.

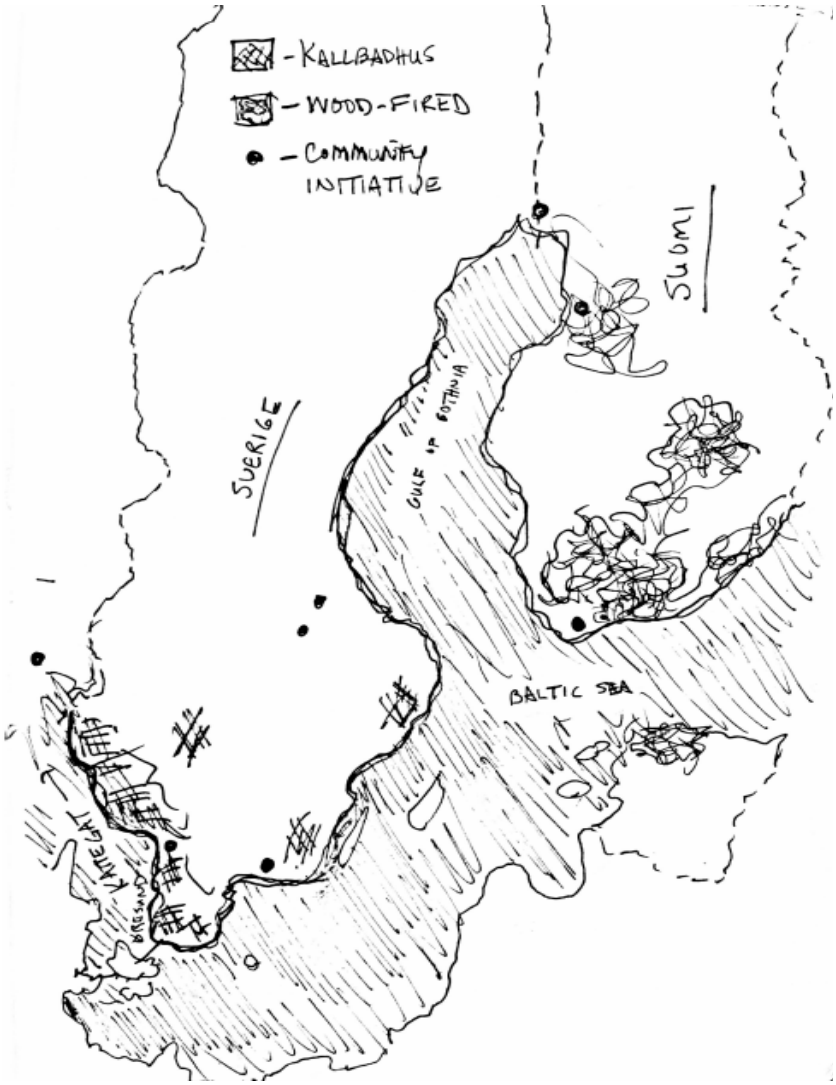

IMAGE: Hatching patterns represent concentration of Kallbadhus in Sweden, Saunas in Finland, & community initiatives that bridge the two countries' traditions. (sketch by Jesce Walz)

[20] Peterson, Rebecca, Gerda R. Wekerle and David Morley (1978) Women and Environments: An Overview of an Emerging Field. *Environment and Behavior*. 10.4, 511-534. (As described in) Klodawsky, F., Andrew, C., & Siltanen, J. (2016). 'The City Will be Ours: We Have So Decided': Circulating Knowledges in a Feminist Register. *ACME: An International Journal for Critical Geographies*, *15*(2), 318.

INDIVIDUALISM VS. INTIMACY

> "To speak of the local, regional, national, or even global processes is meaningless - social relations are in fact played out across scales rather than confined within them."[21]

Public sauna saw a decline in Finland and in major Nordic and Baltic cities in the 1970's through the early twenty-first century, when apartment blocks began to include saunas in each unit as a marketing amenity. This "scaling up" of facilities offered individual autonomy at the cost of a robust public space: residents began to use their private saunas and a majority of public saunas closed their doors.

This pattern is typical of the aftermath of neoliberal privatization and efforts to divide spaces as safe and luxurious, vs. uncertain and unsavory. This strategy is well-described in Leslie Kern's writing on neoliberal efforts to market condominiums in Toronto to women as safe and desirable spaces:

> "The argument that urban environments permit a degree of autonomy and freedom from traditional gender roles that women are not likely to experience in suburbs or small towns has been re-circulated in mainstream discourse; however, these ideals are emptied of any re-distributive or equity concerns in favour of an individualized, consumption-oriented vision of 'freedom' and gender equality."[22]

[21] Kelly, P. F. (1999). The geographies and politics of globalization. In. Mountz, A., & Hyndman, J. (2006). *Feminist approaches to the global intimate*. 450.
[22] Kern, L. (2010). Selling the 'scary city': Gendering freedom, fear and condominium development in the neoliberal city. *Social & Cultural Geography*, *11*(3), 214

Despite the pressure toward privacy and individualisation, social connection is an essential aspect of sauna for many users. By the early twentieth century, most apartment saunas fell out of use and were turned into storage closets,[23] as individuals preferred to use a family sauna or one of the few public saunas that remained.[24] Since the turn of the twenty-first century, public saunas have seen resurgence in Finland, Sweden, and beyond, particularly as a contemporary public amenity in redeveloping urban waterfronts.[25] These new spaces incite participation and pride, and are so successful that many Nordic cities have multiple public waterfront saunas.

Sauna's persistence and adaptability are tied to familial and community participation. Because of this, increasing the number of private saunas did not enrich the tradition, but threatened it. This challenges hierarchical concepts of scale. As an intimate and embodied practice, sauna creates and spreads its own social norms that are able to resist hegemonic expectations (such as 1700's swimming bans in Mainland Europe or 1900's condo development in Helsinki).

Alison Mountz and Jennifer Hyndman describe the power of embodied scale in "Feminist Approaches to the Global Intimate:"

[23] I spoke with several individuals who told me versions of this story, and who themselves had saunas at home that were being used for other purposes.
[24] BURG, A., Hess, H. E., Meyhöfer, D., & LEISTNER, D. (1994). *Water temple: Gründerzeit and Jugendstil public baths*. Academy, London. 21-22.
[25] I'm aware of twelve waterfront public saunas and baths built in the Nordic countries since 2004. Of these, six are located in Sweden, and five in Finland.. I've also encountered groups working to start new kallbadhus in Mariefred, Jönköping, and Ystad, Sweden, and assume that there are others beyond these. (See) thisisFINLAND (27 Oct. 2016.). Helsinki sees seaside sauna renaissance - thisisFINLAND. thisisFINLAND.

> "We do not, therefore, agree that scale is dead or has ceased to serve a conceptual or political purpose. In contrast, we subscribe to feminist arguments that claim the body as the finest scale of political and economic space, that analyzes drawing on multiple scales including the body and the global represent a way out of narrowly economic globalization discourses."[26]

Saunas' seemingly small-scale spaces are vessels for customs that ripple beyond their physical borders, into both the human mind and social perception. This ripple permeates bodily, mental, and even spiritual boundaries. Today it is possible to assess sauna as a fine-grained and powerful space that is not only intimate and social, but also political,[27] economic, and even global.[28]

THE RIGHT TO SELF CARE

> "The role that bathing plays within a culture reveals the culture's attitude toward human relaxation. It is a measure of how far individual well-being is regarded as an indispensable part of community life."[29]

The sensorial and ritual practice of sauna may be an asset in translating "sauna" beyond the nordic world. As cities diversify and densify, speed of consumption and visual

[26] Mountz, A., & Hyndman, J. (2006). Feminist approaches to the global intimate. 451.
[27] (See) N.a (2 Jun. 2010.). Speech by Secretary of State Torstila at the XV International Sauna Congress: "Sauna Diplomacy; the Finnish Recipe". *Formin.fi.*
[28] "Sauna" it is the only Finnish word to find its way into everyday English Language, and has been carried around the world by Finnish immigrants, Olympians, and diplomats.
[29] Giedion, S. (1948). Mechanization takes command a contribution to anonymous history.628

stimulation increase, and social interaction decreases. On a daily basis, one might be in public space, proximate to class, race, age, and gender diversity, only to pass by, glued to a phone. Individuals don't have to engage with each other, yet are always together, living in a time of ambivalent distance.

This distance is not only social, but relates to disconnect between one's own mind and body, eventually manifesting in burnout, trauma, and even disease, as evidenced by a plethora of epidemics stemming from physical consumption and mental stress, including addiction, sexual exploitation, diet disorder, social violence, and more.[30] These are symptomatic of knee-jerk responses, such as fight or flight. One part of the "self" is prioritized over another to deal with a stressor, resulting in imbalance. Without opportunity to release/recover from this imbalance, a coping mechanism is established, resulting in eventual disconnect from one's own capacity to heal.[31]

Understanding sauna as an opportunity for mind-body connection, or a form of "embodied therapy," as well as closely examining the social value of self-care, are key in translating the practice beyond its Nordic roots. Embodied therapies addresses mental disconnect by activating different parts of the brain simultaneously, networking our instincts, emotions, and greater sense of awareness. Related practices have gained popularity in recent decades through traditions like yoga, quigong, and tai chi, and in

[30] Hannah Nichols (23 Feb. 2017.). The top 10 leading causes of death in the United States. *Medical News Today*.
[31] Epstein, R., & González, T. (2017). Gender & Trauma—Somatic Interventions for Girls in Juvenile Justice: Implications for Policy and Practice 4-5

dance, movement, and formal therapy sectors. While these have been commercialized on some level, their benefits remain.[32] These practices can teach the brain new patterns, encouraging connection between self, as well as between other, and society.

Once connection to “self” is established, sauna has further capacity to address intersectionality and offer access to shared experience. Sauna is an effective connector because it is relatively simple, composed of basic elements that do not necessitate special physical capacity or social status: The requirements are only wood, water, a hearth, and a room with space enough for at least a few people. The individual arrives nude or nearly-so to a liminal space where where all visitors are considered equal.[33] Body-judgement, class comparison, and bias have no place in the traditional sauna.

Unlike a commercial "spa," sauna is a common ground that invites a wide cross-section of society to participate on a frequent basis. Differentiation between spa and sauna is essential to address prevalent biases that trivialize sauna as luxury or novelty. In feminist geography, much has been written about the under-valuing of care-work (the work one person performs to care for another).[34] In her 2018 “The Abstraction of Care: What Work Counts?,” Henry attests: “The work, often unwaged or poorly paid, of those who perform care, is what many understand to be that which is the least technological, the most

[32] Yoga for Physical, Mental, and Emotional Health (n.d.). Yoga for Trauma e-manual - Yoga for Physical, Mental, and Emotional Health. *Yoga for Physical, Mental, and Emotional Health.*
[33] Konya, A. (1987). *Finnish sauna.* Van Nostrand Reinhold. 6-10.
[34] (See) England, K., & Dyck, I. (2011). Managing the body work of home care. Sociology of Health & Illness, 33(2), 206-219.

affective and intuitive."[35] I argue that the average person's right to self-care is similarly undervalued, and that a well-run public sauna offers space for self-care and also performs its own sort of care-work, as a facility, and as a place for those present to hold respectful safe-space for one another.[36]

REPRODUCTION

Even within a "safe space," it is important to recognize that gendered identities are discursively reproduced. How does this proclaimed egalitarian space impact gender perceptions? Most public saunas I visited incorporate heteronormative gender division that begins with the changing room, yet customs of space-sharing and nudity in the spaces beyond vary greatly. While my conversations with sauna operators did not relay contention around gender and nudity, each facility takes a stance through its rules and spatial organization.

Approaches to gender and nudity impact the bathing experience as much as levels of heat/humidity and quality of design, and have potential to set the tone of a facility's long-term community. How might saunas open, close, or shift in response to varying gender identities or to accommodate families? How do these approaches contribute to, or detract from, the reputation of sauna a safe, intimate, and egalitarian space?

[35] Henry, C. (2018). The Abstraction of Care: What Work Counts?. Antipode, 50(2), 340-358.
[36] This is not to say that Sweden and Finland are immune from the undervaluing of care work; while Finland does have universal basic income, and Sweden has a robust social system, racial biases and illegally-hired care-work are still present. (See) Torres, S., Lindblom, J., & Nordberg, C. (2014). Daily newspaper reporting on elderly care in Sweden and Finland: a quantitative content analysis of ethnicity-and migration-related issues. *Vulnerable Groups & Inclusion*, *5*(1), 21260.

MASCULINITY AND MATRIARCHY

A masculine space for self-care is well-exemplified by the 2010 film “Steam of Life,” or “Miesten Vuoro” in Finnish (the finish title actually translates to “The Naked Man”).[37] The films’ documentarians travel Finland recording mens’ conversations in the sauna, simply letting the men speak. The result is astonishingly intimate. A wide variety of men are featured: middle-aged parents, elderly men, veterans, rural populations, and urban un-housed men. Their portrayal is at times tender or humorous, yet more-often relays great compassion and pain. It baffles me to think that this kind of space, which empowers vulnerable and caring masculinity, is not available to much of the world.

While traveling the Finnish-Swedish border, I met a man named Svante Spolander, who shared the story of “sauna school” that he holds weekly with his grandsons. It is in the sauna that Svante teaches patience and endurance, telling the boys to “bita ihop” (bite the bullet, or bite your lip) when the heat from the stove began to make them break a sweat. As they grew up, they would return the phrase to Svante, saying, “morfar, bita ihop!” if Svante was having a tired day. Caring masculinities are beginning to receive more attention,[38] and the consistent space that sauna provides for masculine intimacy and intergenerational practice is a great venue for this movement.

[37]Koivunen, A. (2012). Talking heads, imagined communities: Steam of Life and the affective politics of intimate documentary. *Journal of Scandinavian Cinema*, *2*(2), 97-112.
[38] Elliott, K. (2016). Caring masculinities: Theorizing an emerging concept. *Men and masculinities,* 19(3), 240-259.

This capacity to affirm caring and accepting identities exists in the “feminine side” of sauna spaces as well. In Malmö, Sweden, Ribersborg’s Kallbadhus has retained immense popularity for a century and a half. As Malmö’s immigrant population increases, Ribersborg’s is beginning to attract a diverse community of visitors.[39] Ribersborg was the first public sauna I experienced, and I was astonished by the strength of the matriarcal space on the women’s side of the baths. This was my introduction to an accepting, uncommercialized space where women of all ages and body types were free to wander nude in the open air, take sauna, climb into the cold sea, and dry off in the sun. Like many saunas, Ribersborg’s hosts communities of visitors who come to the same space several times a week over many years. These resident bathers embody a history of the practice and exemplify the space’s nuances to beginners.

COMMUNITY VARIATION

The vibe of each sauna varies greatly, influenced by its user-group, rules, physical form, climate, and geographical location. Some saunas are stoic, some are chatty, and others are ethereal. Helsingborg, a neighboring city to Malmö, boasts three kallbadhus, each of which attracts a different community of visitors.

Rååbaden, the furthest to the south, features ADA facilities to support elderly guests, including ramps with handrails that descend to the sea (in addition to the usual dock and

[39] HD (23 Jan. 2016.). En ung generation har hittat till kallbadhusen. *HD.se*.

ladder), wheelchair accessible locker rooms, and large flat lawns for sunbathing. I met men and women there who had been visiting the same space for seventy years.

Kallis, the closest kallbadhus to downtown Helsingborg, was recently rebuilt as a contemporary facility. The windows are highly glazed, overlooking the harbor, and the mens' and womens' sides of the facility share a common wall that slides open to make the sauna one large shared space. Two nights a week Kallis hosts "co-ed nights," meant for families or couples to share sauna together (nude, as is the Swedish tradition). Single people aren't allowed to come alone, so I visited Kallis along with a male friend who grew up in the area.

In Sweden, co-ed sauna times are often accompanied by a German tradition called Aufguss, where a trained "saunameister" with a wool hat pours fragrant water over the sauna stones and whips a towel through the air in a choreographed movement that blows intense aromatic heat around the room. All present are attentive and quiet, clapping once the ritual is complete. Other spaces, including Kvickbadhuset, Ribersborgs, and Hellasgården, also offer co-ed sauna times that are particularly oriented to sharing Aufguss. This ceremonious occasion bridges the usual tendency toward separate gendered space.

Pålsjöbaden is Helsingborg's northern and most historic Kallbadhus. The bathing structure is set back approximately 100m from the shoreline, and is set atop dozens of

tall piers to keep it above storms and waves (Pålsjöbaden has destroyed by storms and rebuilt twice; this is common for facilities along Sweden's windy west coast). The facility fans out along a public waterfront in two wings, each offering panoramic views of the waterfront. The women' sauna, bath, and changing houses extend to the left and the mens' extend to the right. Bathers of either gender descend a long staircase that is clearly visible from the shoreline to take their cold plunges. No one seems to be bothered by this, but a tub full of cold water is available on the upper deck as an alternative dunking site for shy visitors and sheltered cold-plunging on stormy days.

While some kallbadhus have open steel stairs like those at Pålsjöbaden, others, such as Varbergs Kallbadhus (to the north of Helsingborg), offer quite the opposite. Its structure resembles a wooden palace, complete with onion domes, and its bathing spaces take the form of open-air sea pools surrounded by piers that have privacy flaps affixed on their shore-facing side. These enclosed spaces invite actual swimming more than their open coutnerparts. While decisions about opacity and bath reach beyond environmental determinism, it does seem that saunas or kallbadhus located in calmer harbors are more likely to have structures that invite users to swim, while those located on choppy waters are more likely to offer a stair with sturdy handrails. My understanding is that seasoned bathers prefer to swim briefly if possible, but even in choppy waters a cold dip is an essential counterpart to sauna, so anything will suffice.

HIERARCHY AND LIMINAL SPACE

Kulttuurisauna[40] was the first public sauna to open in Helsinki in over half a century. Its owners and designers, architect Tuomas Toivenen and artist Nene Tsuombi, have posted 10 historic rules in their sauna, which aim to emphasize its potential as a liminal space. If there is any kind of hierarchy in these spaces, it is that of newbie and expert bather. Tuomas describes the sauna as an instrument to be played by its operators, relaying a story of how to pour water on their stove: Usually one person in the room is adding water to the stove, gaining permission from those present to increase the heat. At Kulttuurisauna in particular, the peridotite stones at this sauna are heated overnight, reaching 2000 degrees Centigrade. The sauna is not “fired” during the day, but relies on thermal mass from the stones. When someone who knows how to engage this stove it is in the room, they pour one kauha (ladle) of water onto the rocks, taking for as long as a minute for one pour. All bathers present wait in anticipation, hoping that no one opens the door as the steam gradually reaches their skin and overwhelms the room with heat,

This level of ritual and expertise is most common in Finnish Saunas.[41] Sometimes the ritual takes on a performative nature, as at Kaupinojan, and Rauhaniemi Saunas in Tampere, the seating resembles a forum. Each features co-ed saunas whose long stepped benches face one another, with the stove at one end and the door at the other. A saunameister sits near the stove adding water to keep the room between 105 and 120 degrees celsius, and sausages are grilled outside near ladders to lake Näsiselkä.

[40] N.a (19 Feb. 2018.). *Kulttuurisauna.fi.*
[41] For this reason, Swedes near the northern Finnish border have started the Svenska Bastu Akademien: N.a (n.d.). Hem | Svenska Bastuakademien. *Bastuakademien.se.*

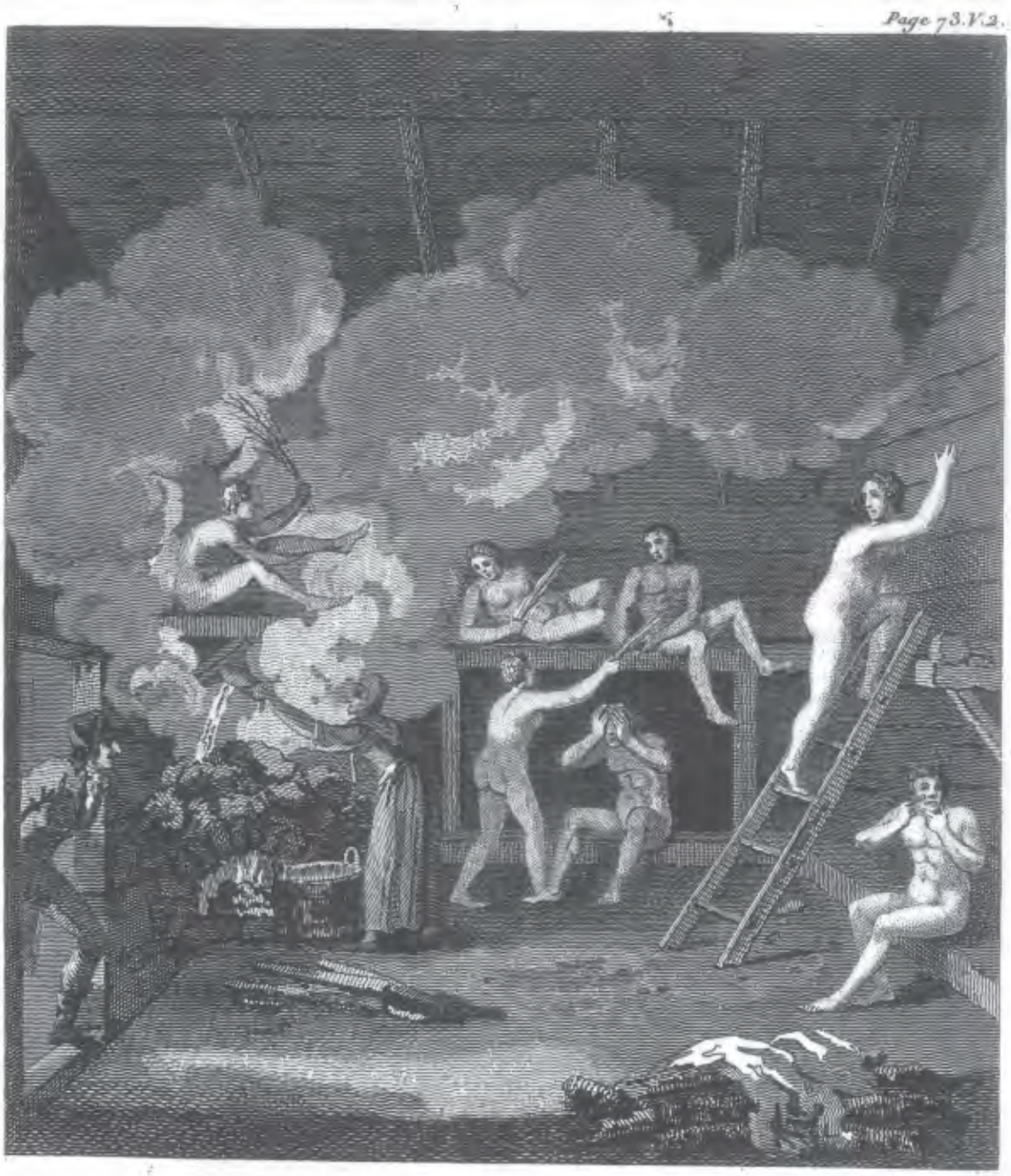

IMAGE: Guiseppe's "Acerbi Visits Finnish Sauna" depicts a man opening the door and letting the heat out[42]

[42] N.a (n.d.). San Rocco | Book Of Copies. *Sanrocco.info.*

Rajaportin, the oldest remaining sauna in finland, is more humble, yet equally dramatic. Located is in a windowless, damp, cave-like building on the interior of a city block in Tampere, Rajaportin costs six euros to enter and remains a bathing place for workers. The space was once able to “slide open” along its center-line (which now divides the sauna into two spaces) to offer access to the whole facility by either women, men, or families. It was eventually closed off for economy, so each side can operate continuously as either a “male” or “female” only space. However, doors between the saunas still allow for sound to transfer between the spaces. From either side visitors can hear, but not see, those from the other half whipping birch against their skin, splashing themselves with water from plastic buckets, or conversing in the sauna’s echoey chambers.

CONCLUSIONS

In the saunas that I visited, I observed six spatially diagrammatic options for varying facilities’ engagement with gender and sauna. These include “alternating, split, hybrid, shifting, shared, and open.”

“Alternating” indicates whole spaces that are used by alternating genders on varying days, such as the Helsinki’s Yrjönkatu Uimahalli (a historic swimhall) where the entire two-story facility is available to either male or female identifying visitors on varying days.

“Split” indicates spaces that have dedicated gendered facilities, from sauna to bath; male and female bodied visitors do not interact beyond the reception space in such sites.

Many kallbadhus are “split” in this way, as are many Finnish saunas *without* waterfront access (here, the cold bath would take place in a gendered shower room).

“Hybrid” describes Finnish saunas with waterfront access, where saunas are gendered, but bathing spaces are shared. It also describes Swedish kallbadhus that feature both individual and shared sauna options (Ribersborgs has two sauna for men, two for women, and a “fifth” central sauna that is co-ed).

“Shifting” indicates spaces like Kallis Kallbadhus, Kvickbadhuset, or the historic version of Rajapourtin, that have a moveable wall or curtain specifically intended to transform the sauna into one room at some times, or to divide it at others.

“Shared” indicates that the whole facility is shared, except the locker room, either in bathing suits (Finland) or nude (Sweden). This has long-been common in Finland for specialized facilities, such as historic smoke saunas or public waterfront saunas. In Sweden, nude sharing of a single sauna occurs primarily when facilities are limited, as at Lysekil and Saltholmens kallbadhus, each of which only has one small sauna room.

“Open” saunas are the most radically shared spaces; their saunas, baths, and locker rooms are shared by either gender. Facilities that are fully open are oftentimes also improvised or community-founded.[43] This means that the community determines the

[43] Public Editor (12 Oct. 2016.). A new sauna culture: Reimagining the bathhouse as a community space. *The Globe and Mail.*

rules, and their capacity to provide facilities, which often results in elimination of gendered locker rooms. “DIY” saunas are increasing in popularity; those I found include Oulu’s floating Kesän Sauna, Sompasauna, an informal sauna made out of recycled materials on Helsinki’s waterfront, and Tanto Bastu, a community-initiated floating sauna in Stockholm. A more formal example is Gothenburg’s Bastu i Frihamnen, a clothing-optional sauna built in Gothenburg harbor. This sauna is from recycled materials, includes a floating harbourfront pool, and while its locker rooms to imply gender preference, these too are she/he/they accessible.

Variations on these themes will continue to evolve over time. Future sauna facilities may include transgender or binary space as a primary option, building on sauna’s already neutral nature. Others may maintain historical matriarchal and patriarchal communities, offering support to explore caring masculinities and strong feminine community. In each case, it is clear that the vital ritual of sauna will retain its capacity to offer liminal space for self-care that transcends scales of body, mind, and social construct alike.

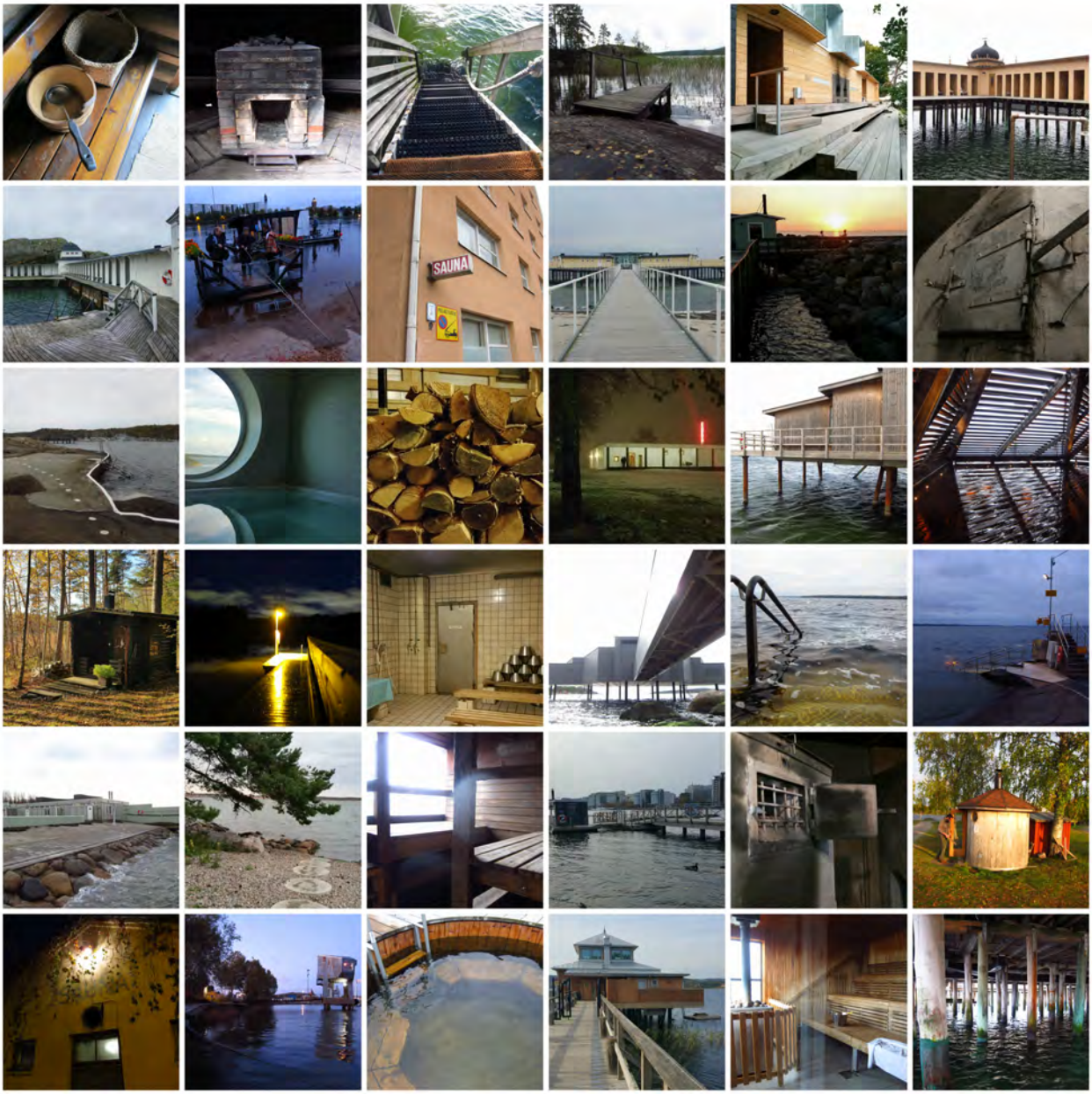

Image: Jesce Walz; saunas and kallbadhus visited during research in summer/autumn of 2017

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The Buerk Center for Entrepreneurship

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Landscapes of Ritual and Health

L ARCH 533, Winter 2018, History of Modern Landscape Architecture
Prof. Thaisa Way, University of Washington
Jesce Walz - jesce@uw.edu

Abstract:
The Swedish Kallbadhus, or "cold bath house, " is a traditional and publicly accessible typology of bathing platform popularized along Sweden's Øresund and Kattegat coasts in the mid-1800's. Many kallbadhus that stand today have been rebuilt several times over in the same location where they were first established.[1]

Since the 1900's, kallbadhus have expanded to include sauna, or "bastu." This duo facilitates vital exchange between urban and ecological environments, inviting visitors to the threshold of the city to reflect and engage the elements. Furthermore, it supports physical health and social interaction between sometimes lifelong groups of users. While the popularity of bathing practices has waxed and waned over time, the kallbadhus ritual is seeing a resurgence, as is evidenced by the success of restoration projects and contemporary facilities completed in the twenty-first century.

This paper examines three kallbadhus along the southwest coast of Sweden, offering a historical overview, followed by analysis of each site's engagement with topographic, urban, and ecological context. Research draws from qualitative and quantitative information: Construction timelines, user groups, use of material, ground cover, site circulation, and climate data. This information is used to analyze the role of landscape architecture in these spaces' function and relationship to their greater contexts, and to ask: how can today's kallbadhus movement respond to the needs of our time?

Keywords: landscape, architecture, sauna, kallbadhus, ecology

[1] The longest running site I'm aware of is at Lysekil, which has hosted bathing since 1847, as confirmed by N.a (n.d.). Lysekil Kallbadhus. *Lysekilkallbadhus.se*, and in Leandersson, B., & Lind, H. (2004). *Kallbadhus*. Stockholm: Byggförlaget.

OVERVIEW

The sauna and cold bath are ancient spatial typologies that maintain cultural continuity through change over time, yet continually manifest in contemporary expressions.[2] The bath is a threshold between the wild and the civilized,[3] and on-site resources and elemental themes are deeply tied to the practice. Foundation and aggregate are derived from stone and earth; structural timber comes from the forest; fresh air transports water vapor and heat; bathing requires clean water and engages seasonal cycles. Sauna and bath invite the human animal to engage in a visceral simultaneity of contrasts: sweat, cold, darkness, light, prospect, refuge, isolation, and congregation.

In each Finland and Sweden, popular saunas and bathing platforms have been in operation at the same site since the mid-1800's, boasting communities of users who continue to visit the same place for social bathing throughout their lives. The intimacy and appeal of such consistency is contagious, and the spatial typology of sauna and bath is expanding to include contemporary interpretations: a dozen or more public waterfront saunas and baths have opened in Sweden and Finland since the turn of the twenty-first century, and more are being built as local groups advocate for accessible bathing in their communities.[4]

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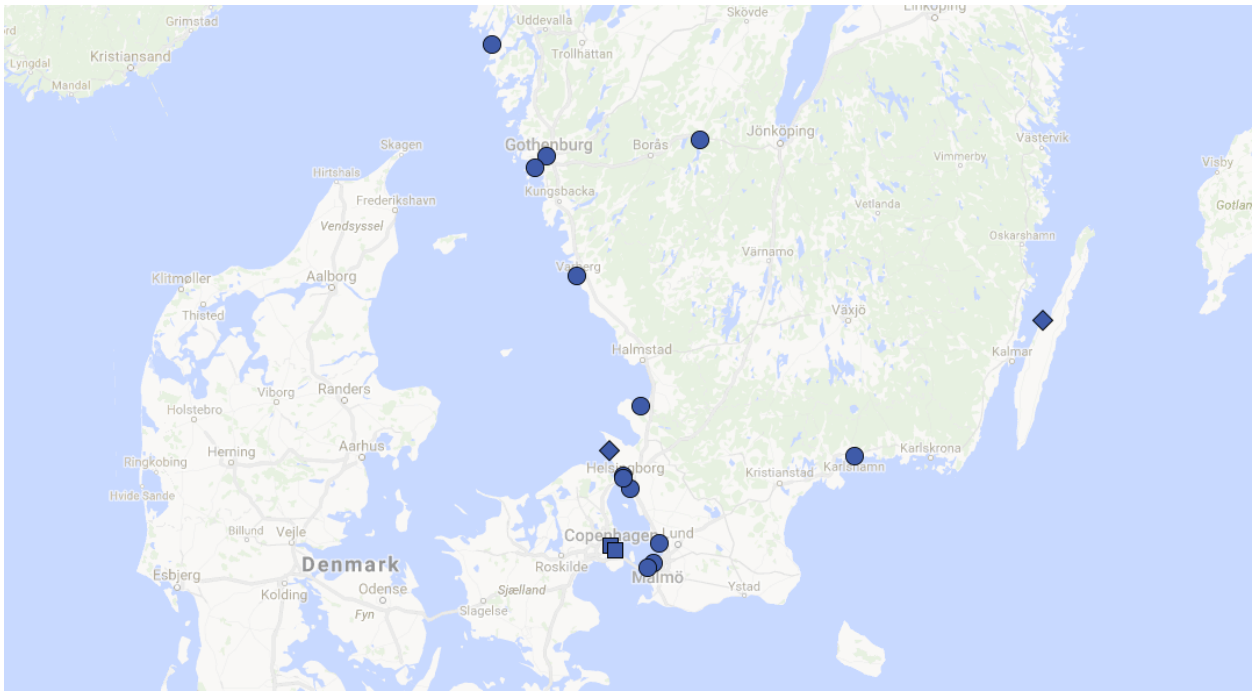
[2] Niemi, M., & Thompson, L. (2003). *Popular music from vittula : A novel*. New York: Seven Stories Press.117-232.

[3] Herdeg, K. (1983). *The decorated diagram : Harvard architecture and the failure of the bauhaus legacy.* Cambridge, Mass.: MIT Press. 29-32

[4] I'm aware of twelve waterfront public saunas and baths built in the Nordic countries since 2004. Of these, six are located in Sweden. I've also encountered groups working to start new kallbadhus in Mariefred, Jönköping, and Ystad, Sweden, and assume that there are others beyond these.

While the history of “sauna” has been touched upon in many books and essays, less has been written on the history of cold-bathing, an essential counterpart to the health benefits that sauna provides. Along Sweden’s urban and small-town waterfronts, fifteen (and counting) bathing facilities express a unique format called “kallbadhus,” which literally translates “cold bath house.”



Kallbadhus along Sweden’s southern coast. Image: Google Maps (n.d.). *maps.google.com*

The first kallbadhus were established in the mid-1800’s as simple bathing platforms with changing rooms (initially without saunas) along the Kattegat, a sea spanning between Sweden’s west coast and Denmark’s east coast.[5] While few complete original structures remain due to heavy coastal wind storms, many sites feature

[5] In addition to the web sources cited in this paper, my research on Kallbadhus was conducted in-person during Summer/Autumn 2017. I’ve also learned from two print books on Kallbadhus, written in Swedish. I have not quoted these directly paper, but have included them in the bibliography. In general, minimal formal research exists on sauna and kallbadhus; I recently discovered a call for papers confirming this: N.a (24 Sept. 2013.). IJSS | The International Journal of Sauna Studies. *Saunaresearch.org*.

re-constructed kallbadhus. Over time, the majority of these platforms have expanded to include saunas, changing booths, and shower rooms. Some also feature cafe's, wellness businesses, or "fika" spaces (community rooms for coffee and cake).

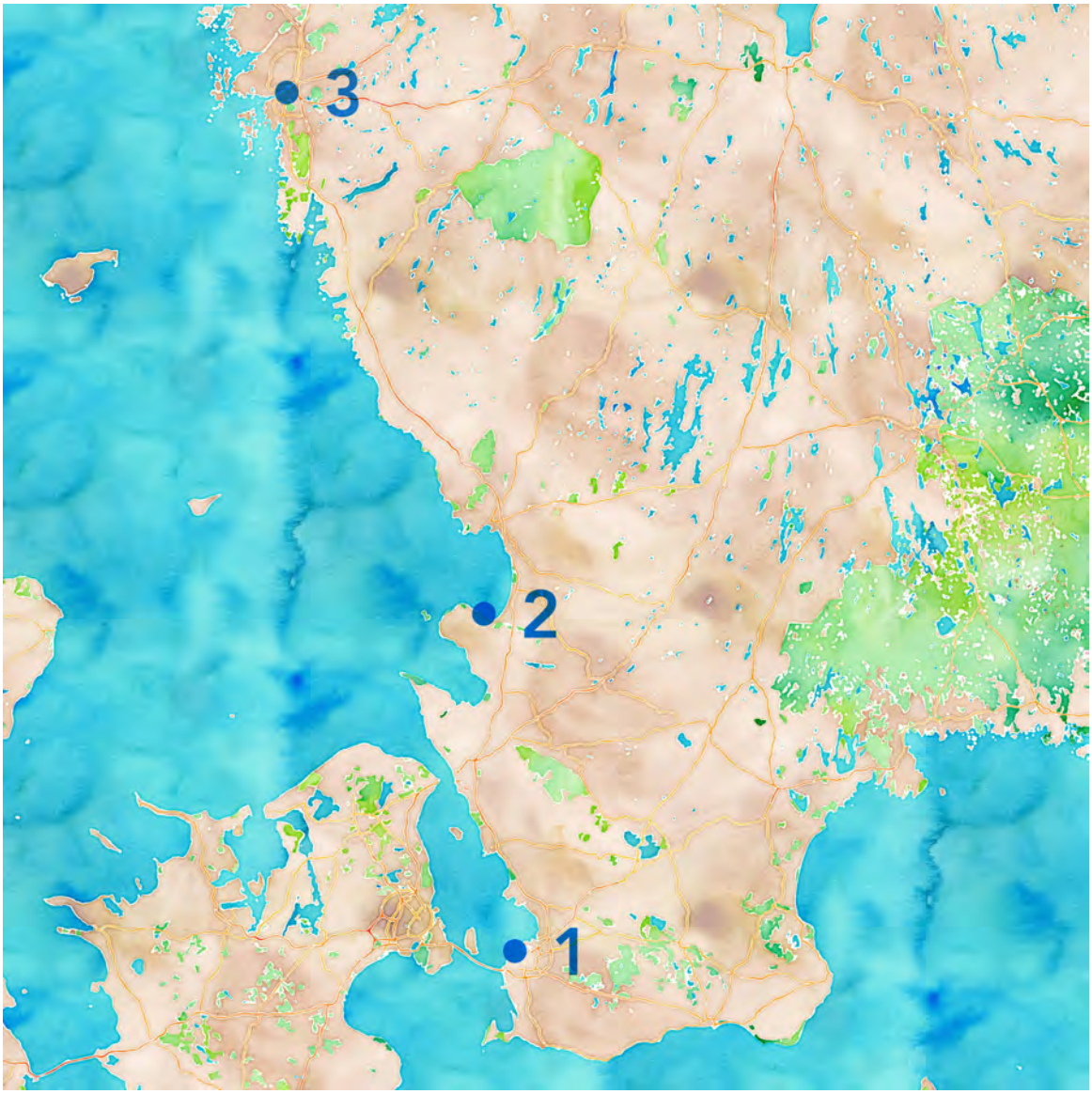
The history of the kallbadhus is intertwined with histories of public health, society, city, and ecology. The bathing structures' site circulation interfaces with land, sauna and sea to demonstrate design's ability to draw connections between "public and private," "city and waterfront," and "urban and wild." These structures' continued development has capacity to address health and ecological needs in our present time.

Lysekil Kallbadhus is built into its bouldered landscape, est. in 1847. Image Source: Jesce Walz

This paper examines a history of Swedish cold bathing spaces through case studies of two kallbadhus and one sauna. Each was developed near the center of a

coastal city to stimulate economic growth and public health, and each comes from a different era in the history of “bath and bathing:”

1) The famous “Ribersborgs open-air bath” in Malmö, founded in 1898
2) Båstad’s “Skansen Kallbadhus,” a 1920’s expansion of a public bathing platform
3) Göteborg's ”Bastun i Frihamnen,” a public harbor sauna built in 2015



Selected Sites; image adapted from: N.a (10 Aug. 2016.). Stamen Maps. *Maps.stamen.com*.

RIBERSBORGS KALLBADHUS

Malmö is characterized as an industrial waterfront city. It sits across the Øresund from its cosmopolitan sister, Copenhagen, Denmark. The initiative to establish a formal bathing structure at Ribersborg came from a “cane factory” owner CH Richter, who took advantage of harbor expansions to purchase the bath’s site at an auction.[6]

The cold baths at Ribersborg were inaugurated in June, 1898, fifty years into the kallbadhus movement of the 1800’s. While the practice of sauna and cold bath can be traced to centuries before this time, the 1600’s and 1700’s had temporarily stunted the tradition during a “dark period in the history of swimming,” when public and sea bathing were considered unhealthy.[7]

Malmö Regional Map; image adapted from: N.a (10 Aug. 2016.). Stamen Maps. *Maps.stamen.com*.

[6] The history of Ribersborgs Kallbadhus is translated and adapted from the bath’s official webpage: N.a (4 Mar. 2018.). Ribersborgs Kallbadhus | kallbadhuset. *Ribersborgskallbadhus.se*.

[7] Brf, Simply (n.d.). Malmö Bastugille - Ribersborg Kallbadhus. *Bastugillet.se.*

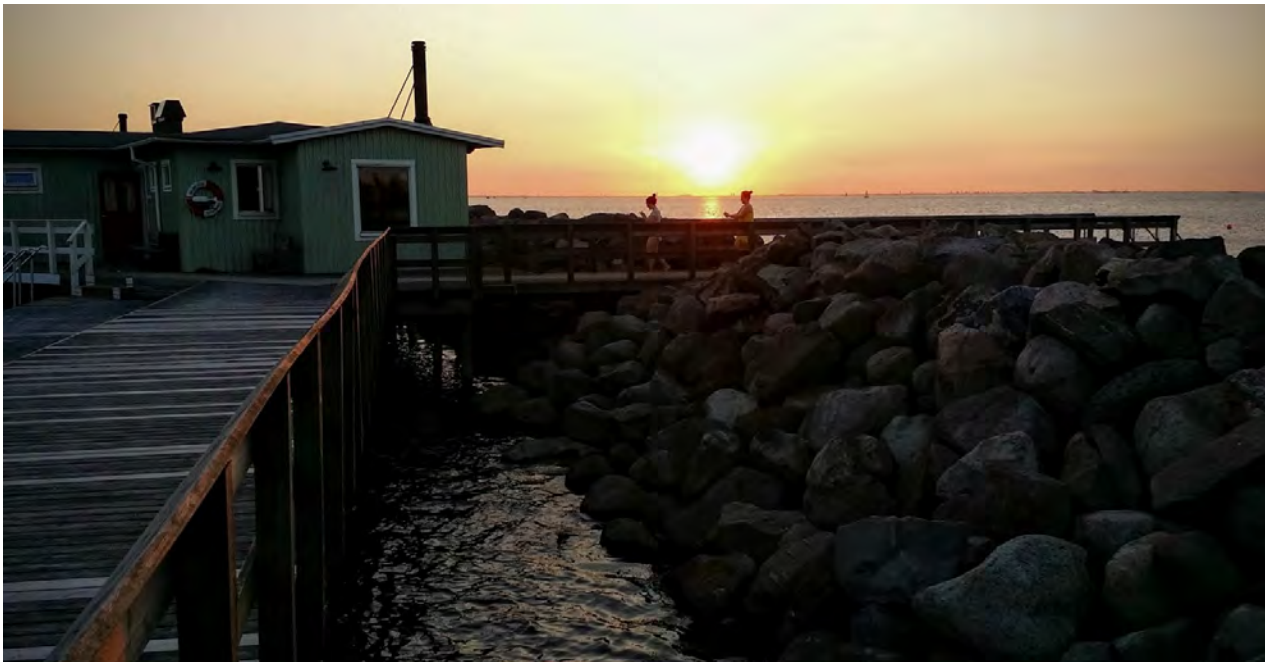
An extensive changing room and sun deck at Ribersborgs Kallbadhus. Image Source: Jesce Walz

It is commonplace for storms to destroy kallbadhus, causing the need to rebuild. In 1902, just four years after purchase, a storm destroyed Ribersborg's first bathing platforms. Richter chose to improve the site rather than abandon it, and the facility expanded to include space for diving and water polo. In the 1930's, nude sunbathing and swimming were established as popular health trends (this continues in Sweden today),[8] and Ribersborgs responded with increased separation of and opacity between the men's and women's swimming areas, providing opportunity for bathers to swim nude in the open air with some level of privacy. During World War II, the baths were used for military purposes, and later, in 1962, the first saunas were added to the structure. Indoor plumbing and showers were added in 1973. By 1966, the city of Malmö acquired

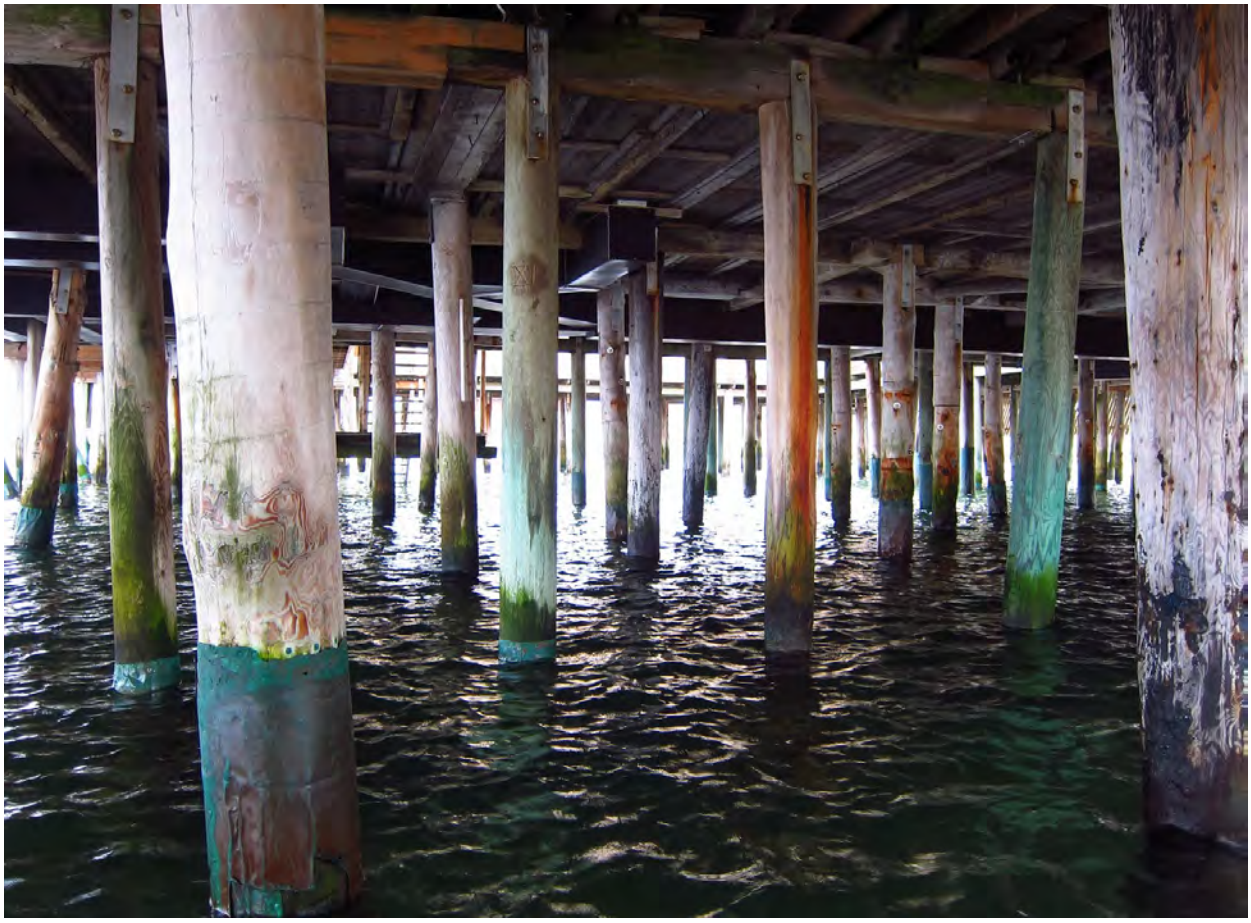
[8] HD (23 Jan. 2016.). En ung generation har hittat till kallbadhusen. *HD.se*.

Ribersborgs and took over operations, cementing its place as a public harbor institution. The bath has been renovated twice since that time, once after a 1988 storm caused extensive damage, and again after a 2001 fire destroyed the entire men's half of the bathing and sauna space. After the 1988 storm, the city suggested moving the structure, but the proposal was met with public outcry. This demonstrates the resiliency of the kallbadhus as tradition tied to specificity of site.

Under new operators in 2009 ("Hekajo AB"), significant improvements to Ribersborgs structure were implemented. Since that time, all of the structure's piles (see figures below) and sundecks have been replaced. A new land bridge was also built, and today a grand promenade spans between Malmö's recently redeveloped sustainable waterfront and the kallbadhus, drawing visitors over the shallow waters of the Øresund, through the bathing facility, and into the protected bathing area beyond.



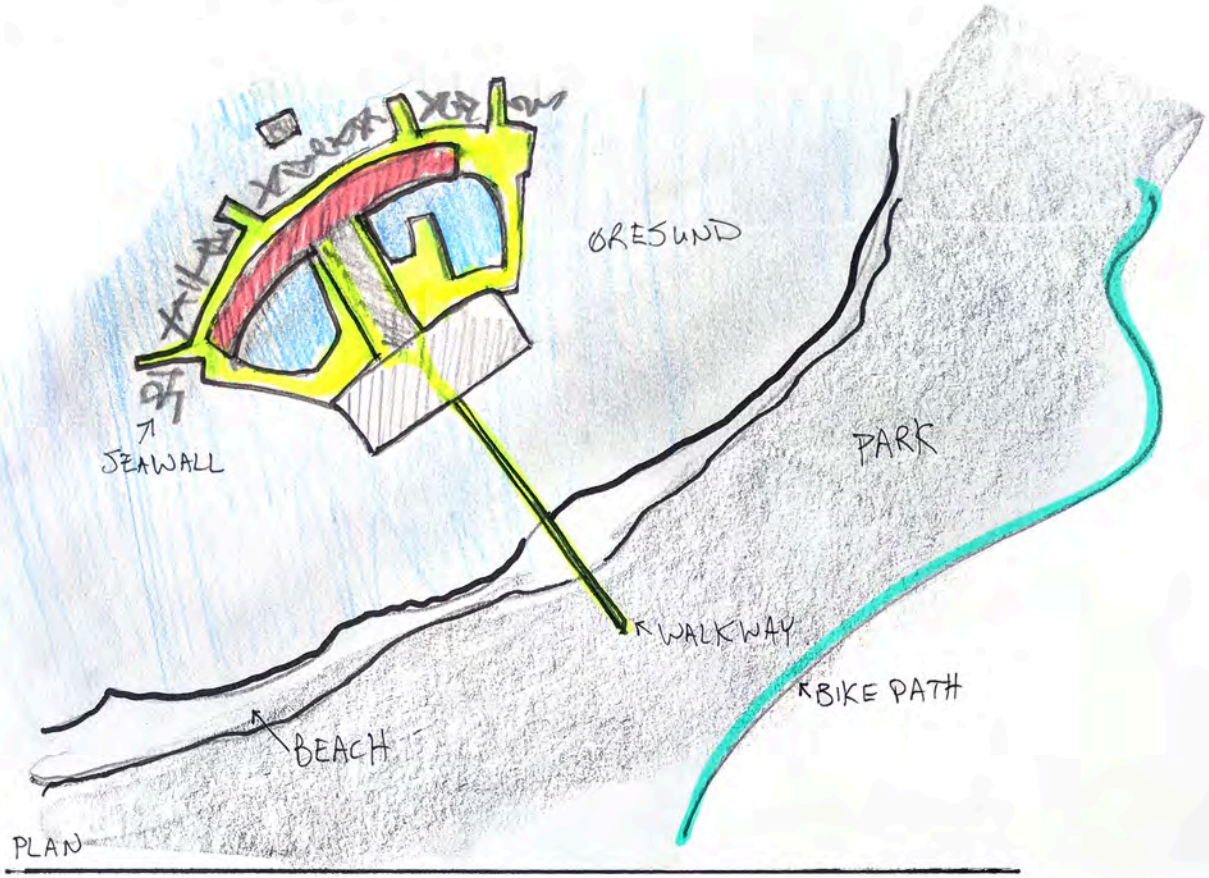
Ribersborg at sunset; sunbathing decks, seawall, sauna. Image Source: Jesce Walz



A tangle of piers support Varbergs Kallbadhus, similar to those at Ribersborg. Image Source: Jesce Walz

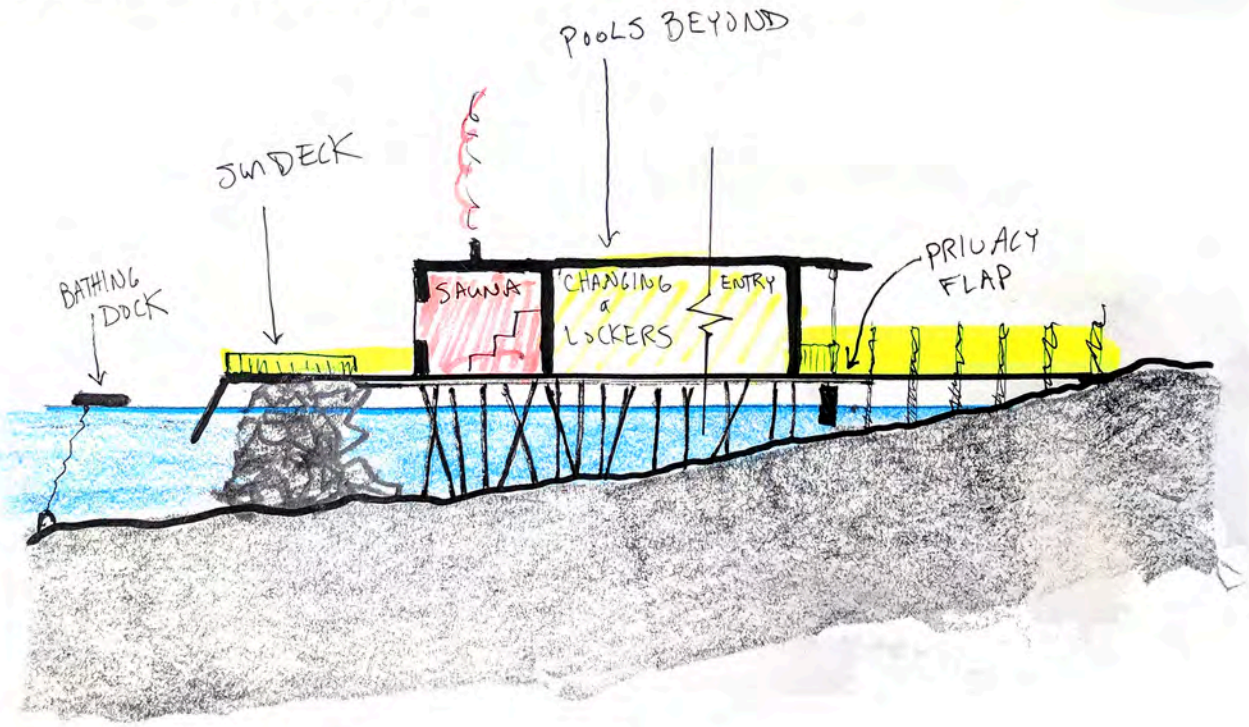
The tumultuous history of Ribersborg's construction and reconstruction is co-linear with the narrative of Malmö as a city recovering from association with war (Sweden was greatly impacted by WWII despite remaining "neutral"), post-industrial abandonment, and pollution to its air and waterways. While Malmö's waterfront today is a cover-story of successful and sustainable reclamation of urban space, this shift did not take place until the early 2000's. Through these shifts, Ribersborg's success as a space for public health and right to waterfront access was a stronghold for the city's identity and a physical space of hope to help residents find health and peace.

RIBERSBORGS



PLAN

SECTION THROUGH CENTER



HOTEL SKANSEN'S KALLBADHUS

The Kallbadhus in Båstad was established in the 1920's on the site of an existing local bathing space. The hotel's goal in building the kallbadhus was to serve locals as well as a constituency of elite guests. The era of Skansen was one that promoted sport, freedom, public health, and well-being, so it seemed reasonable that everyone should be able to bathe nude and play tennis.[9] Skansen's own website boasts, "Ludvig Nobel used the hotel as a tea house and a glamorous place to mingle with the rich and famous during his best years, and King Gustaf V was a regular visitor who also competed in the precursor to the Swedish Open tennis championships."[10]

Båstad Regional Map; image adapted from: N.a (10 Aug. 2016.). Stamen Maps. *Maps.stamen.com*.

[9] The Copenhagen Book (n.d.). The Copenhagen Book. *Thecopenhagenbook.dk.*

[10] N.a (n.d.). History | Hotel Skansen. *Hotelskansen.se.*

Skansen's history differs dramatically from that of Ribersborgs. It is associated with a beach community during a period of social "coming out." The Kallbadhus itself, however, was established as, and still is, a place for *both* high society and the local community. One can visit to the Kallbadhus directly from town without stepping into a hotel or onto a tennis court. Day passes remain accessible at ~$15, and locals can purchase seasonal passes for much less. The original Kallbadhus at Skansen was also damaged by a storm, and was rebuilt in 2016. The current structure approaches it's design, from detail to relationship with the waterfront, through simplicity and focus on materials. Its circulation bridges the nearby sand dune environment with a 60-meter boardwalk that stretches over the sea.

Skansen hotel guests return from a sauna and cold bath. Image Source: Jesce Walz

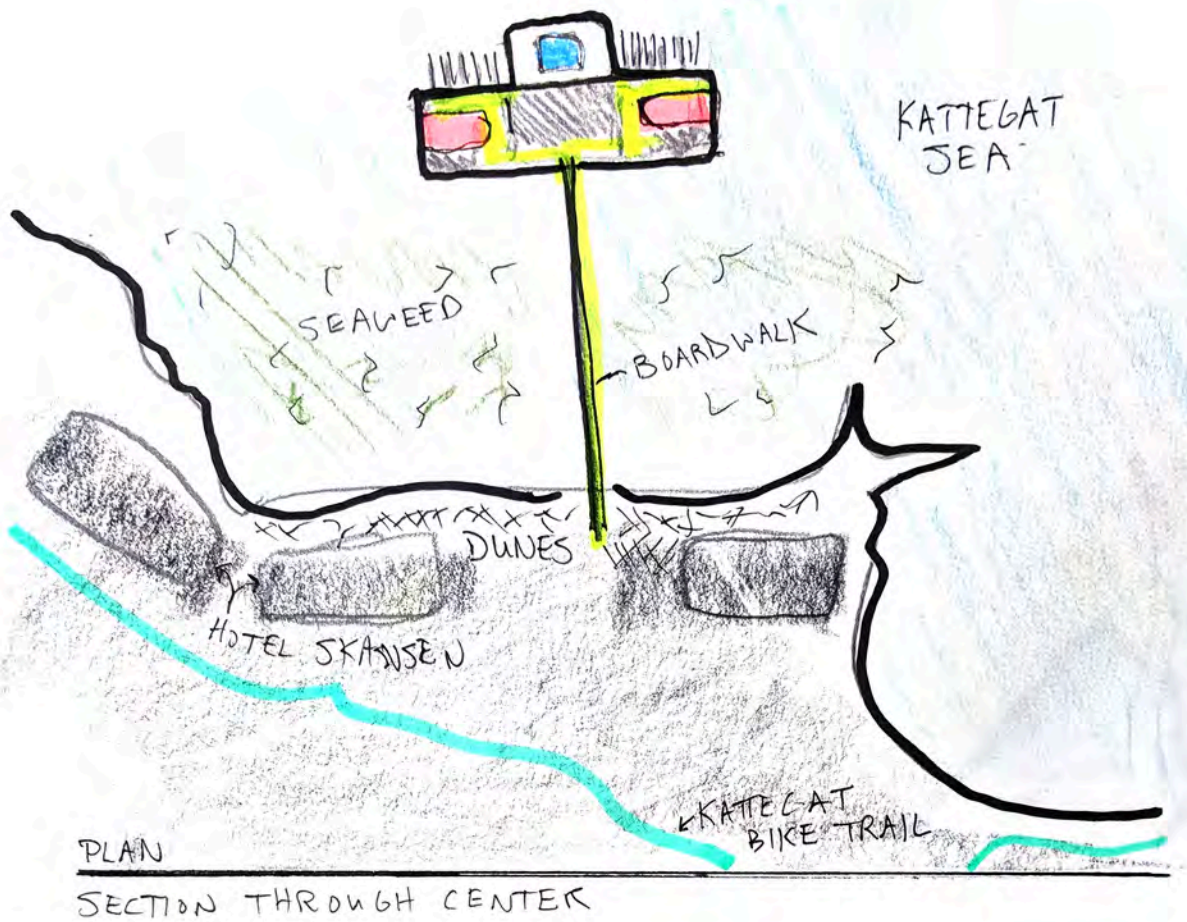
Hotel Skansen's Kallbadhus (rebuilt 2016). Image Source: Jesce Walz

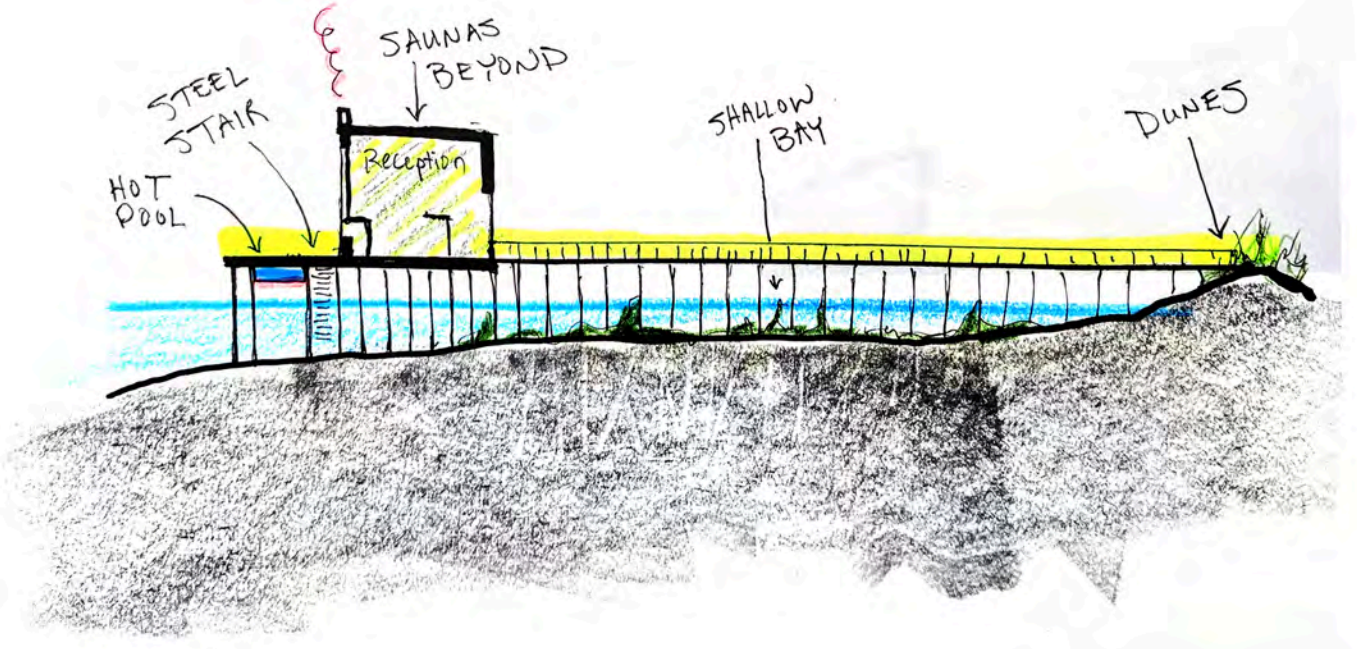
While Båstad's swath of the Kattegat coast is one of the wealthiest areas of Skåne County, it has not always been that way. Sites like the kallbadhus have coupled with regional planning incentives, like the 370-kilometer Kattegat coastline cycling trail (which passes through Båstad near the kallbadhus), to inspire a unique mix of seasonal visitors and year-round locals who support small towns and forestry projects along a portion of coastline that was once at risk of erosion and abandonment.

Skansen's steel drawbridge steps lead to the kattegat at low tide. Image Source: Jesce Walz

In contrast to Ribersborgs kallbadhus, which is tucked between downtown Malmö and the Øresund bridge, the kallbadhus at Båstad is nestled into a sleepy bay. Like many kallbadhus along the Kattegat coastline, the walkway to the bathing structure is composed of a lengthy boardwalk set on pilings. While this pathway is sometimes used as a promenade, it is primarily meant to get bathers to deeper waters beyond bands of seaweed that line the shallow tidal shore. After taking a sauna, bathers descend a metal drawbridge staircase and dunk into the water. The pilings that support the structure and its distance from shore offer just enough privacy for nude bathing, and allow for an optimal health-experience of cooling down quickly after sauna. After dunking, bathers ascend the stair to enjoy an endorphin rush and rest on sun decks adjacent to the sauna.

SKANSEN


KATTEGAT SEA
SEAWEED
BOARDWALK
DUNES
HOTEL SKANSEN
KATTEGAT BIKE TRAIL
PLAN
SECTION THROUGH CENTER


SAUNAS BEYOND
STEEL STAIR
HOT POOL
Reception
SHALLOW BAY
DUNES

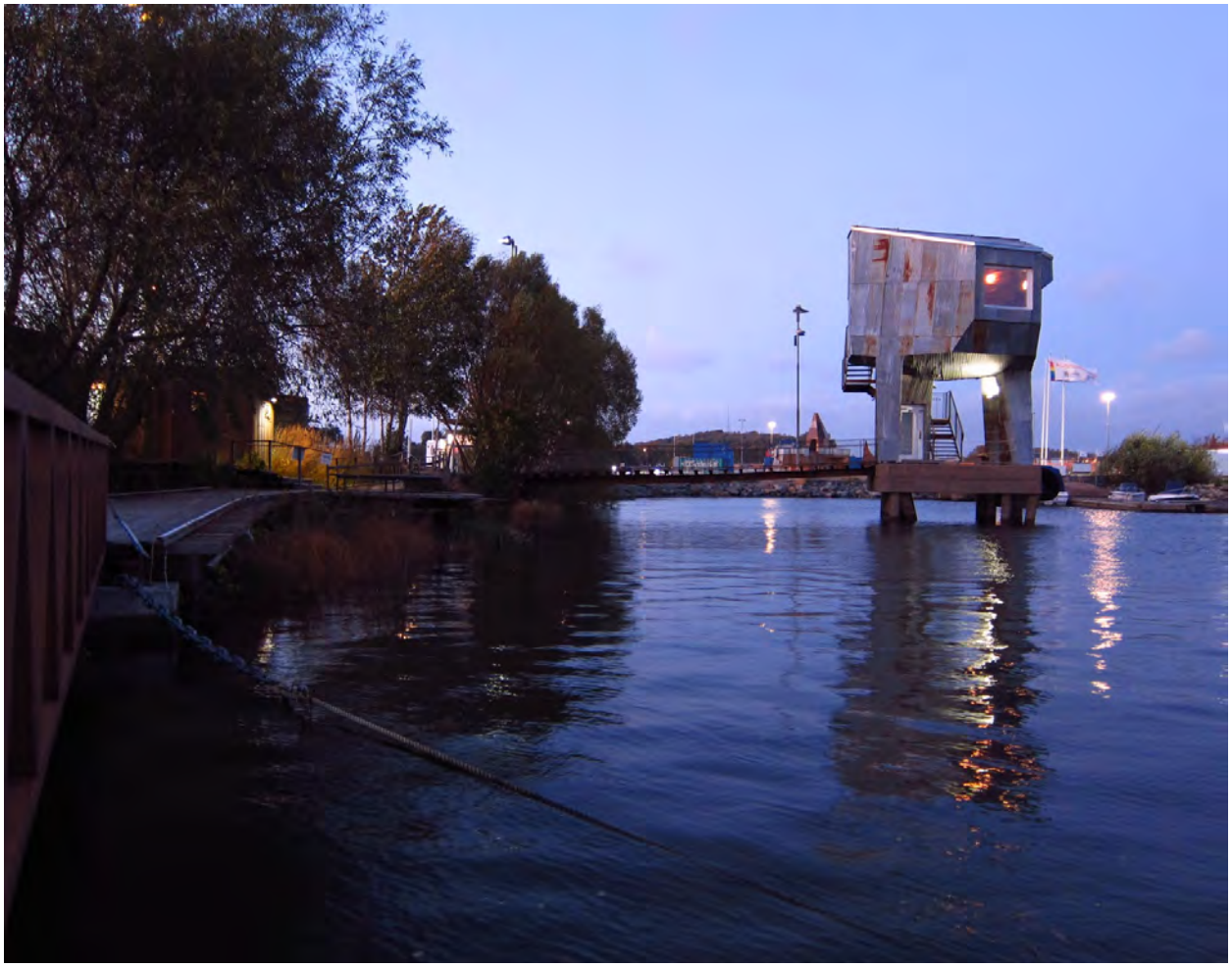
BASTUN i FRIHAMNEN

Göteborg's contemporary waterfront sauna was built as a collaboration of community and civic effort, leading to the coming 2021 celebration of the city's 400-year anniversary. The region surrounding Göteborg is a characterized by hilly swaths of farmland, fragmented by rocky topography and an archipelago to the west. Prior to the opening of Bastun i Frihamnen in 2015, the city did not have a public sauna. Bathers with means could visit "Hagabadet," an iconic spa-like public pool established in 1876. A more rustic experience is available at the simple 1908 Saltholmen Kallbadhus sited on the periphery of the archipelago, 40 minutes from downtown by bike or tram. Bastun i Frihamnen is a celebrated and accessible alternative, built as a part of Jubileumsparken, or "Jubilee Park," on the northside of Göteborg's central harbor, near underserved neighborhoods with substantial immigrant populations.[11]

Göteborg Regional Map; image adapted from: N.a (10 Aug. 2016.). Stamen Maps. *Maps.stamen.com*.

[11] Anne Johansson (17 Feb. 2015.). Nybyggd bastu med hamnutsikt. *Göteborgs-Posten*.

“Bastun i Frihamnen” (“the sauna in Freeport”) is a substantial shift from kallbadhus, demonstrating that a public sauna and bath may successfully apply a *wide* variety of structure and circulation strategies. The sauna, locker rooms, and pathways are creatively constructed from recycled material. The sauna itself is just one co-ed, clothing-optional space; it’s heated room is raised on thick stilts to overlook the harbor; an elevator runs up one of the legs of the structure to keep it accessible.



Frihamnen Bastu (sauna), an elevated structure on Göteborg's harbor. Image Source: Jesce Walz

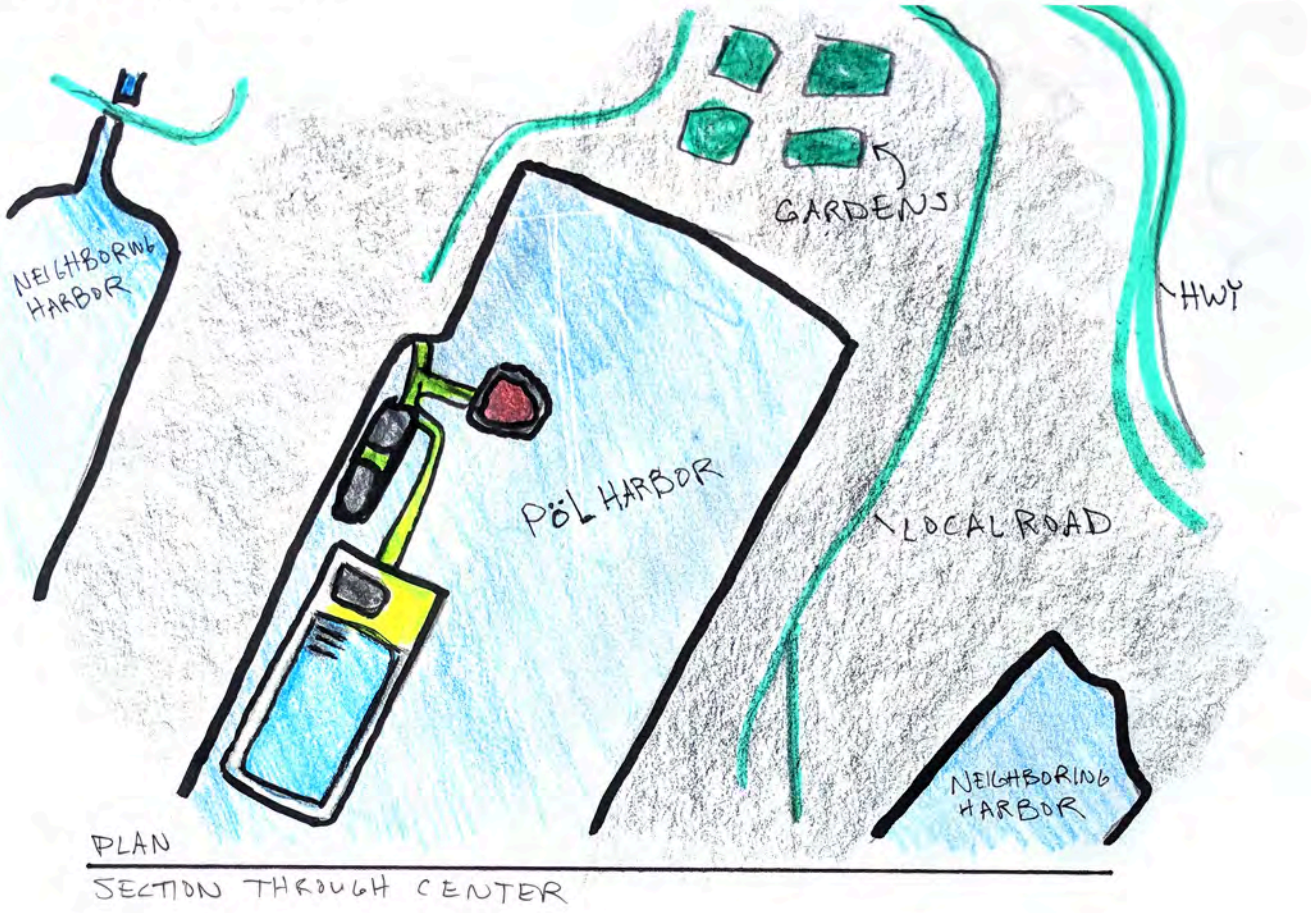
A visitor approaching Bastun i Frihamnen arrives through a vacant parking lot filled with haphazard community garden beds (also constructed from recycled material). An opening in a chain link fence leads to the sauna and pool complex, which are connected by a series of wooden walkways and footbridges that wind around the site and over the harbor. The bathing area itself is a contained pool that is built into a floating dock. The *cold* and clean saltwater does not pull from the harbor, but it abuts the harbor, separated only by a thin wall at the far end. The effect is that of a post-industrial public infinity pool with shipping activity and cranes on the horizon.

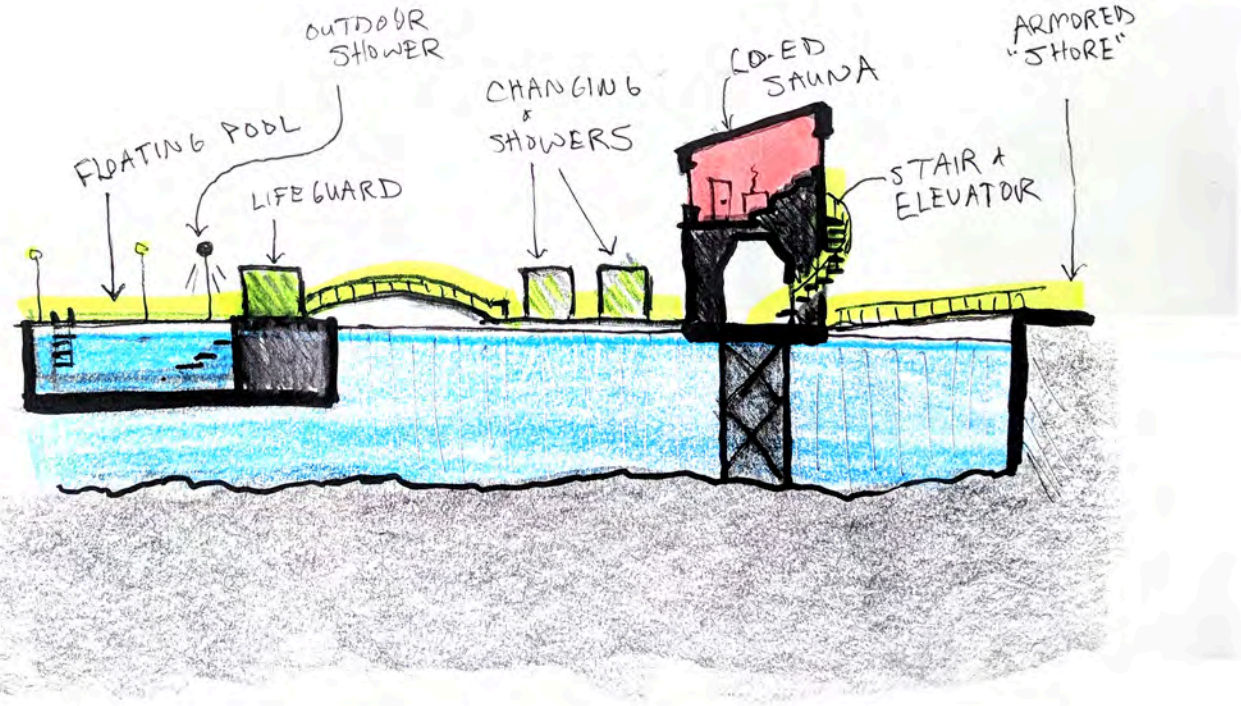
Frihamnen harbor pool dock, lighting, and outdoor shower. Image Source: Jesce Walz

The sauna, it's docks, and the pool were built via a temporary land lease from the city of Göteborg. The space has year-round open hours, is staffed by lifeguards, and is *free to the public*. Larger goals of this site include providing activities and healthy space for families, re-imagining a segment of waterfront that is currently polluted and underutilized, and networking the neighborhoods adjacent to Frihamnen, which vary widely in racial diversity and socioeconomic status. The sauna and bath are meant to be a community space, built with and for the people of Göteborg, signalling a new era of the city's strategies for planning and public space.

Frihamnen's lockers (plywood) and shower stalls (glass bottles). Image Source: Jesce Walz

FRIHAMNEN


NEIGHBORING HARBOR
GARDENS
HWY
PÖL HARBOR
LOCAL ROAD
NEIGHBORING HARBOR
PLAN
SECTION THROUGH CENTER

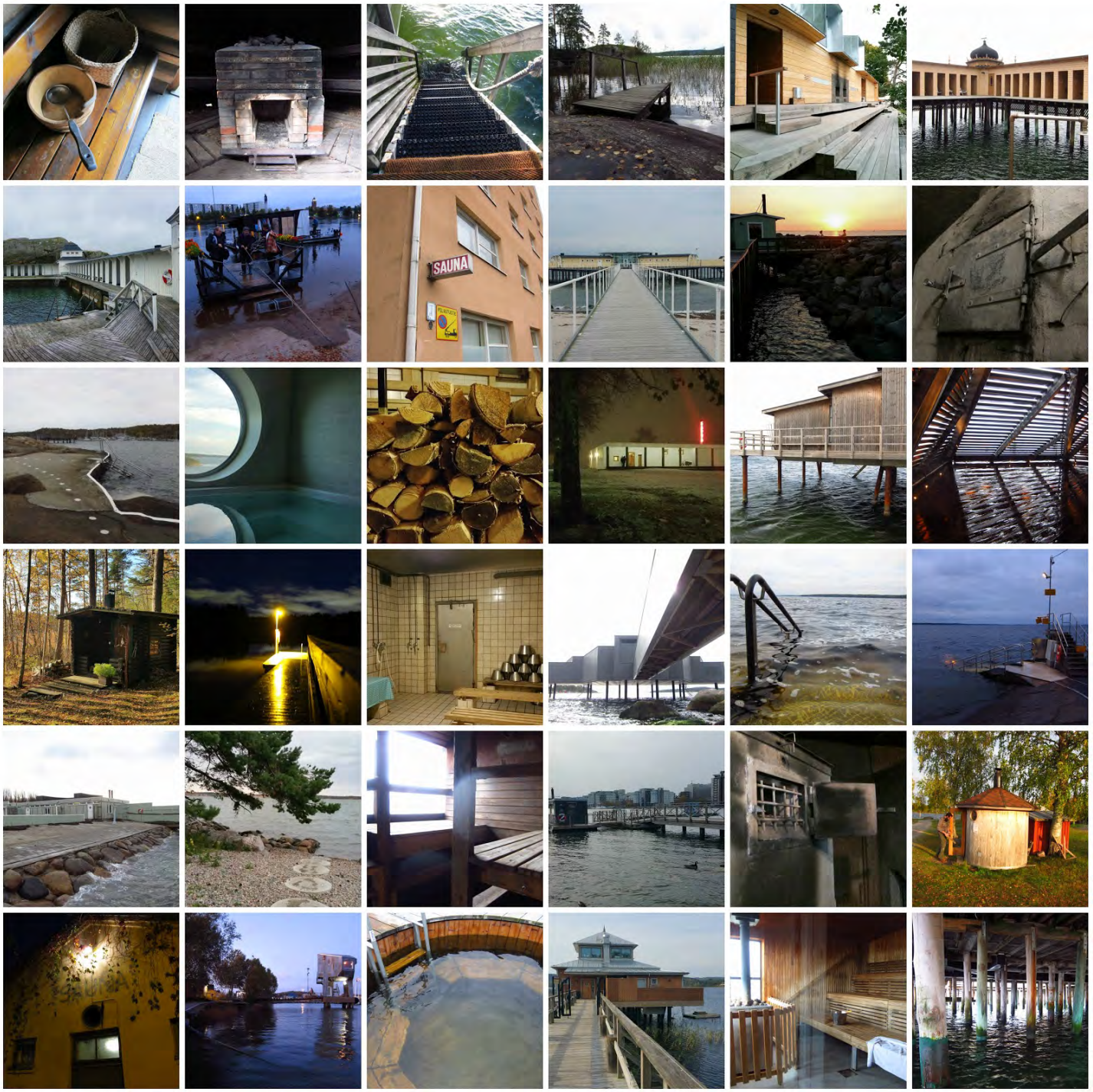

OUTDOOR SHOWER
FLOATING POOL
LIFEGUARD
CHANGING & SHOWERS
CO-ED SAUNA
STAIR & ELEVATOR
ARMORED "SHORE"

CONCLUSIONS

Collectively, these case studies illustrate the great potential for sauna and cold bath support to community health and inspire participation. Historically, these spaces have addressed individual well-being, housed social engagement, and offered tactile experience of ecology. Today, these same spaces can address contemporary extensions of these issues. Community spaces for health and healing are essential to our cities' futures. Their continued use pushes the bounds of what is "acceptable" for bodies and gender in space, provides a recreational outlet that is at once historic and culturally relevant, and draws attention to overlooked shorelines.

While more attention may be paid to waterfront health today than in the previous decades, many shores and estuaries remain degraded, and oftentimes this degradation continues without amelioration. Practices of connection between urban and ecological environments help to highlight the depth and breadth of intrinsic engagement between urban and ecological systems. Without such practices, ecology is pushed to the periphery, and may be taken for granted.

Future sauna and cold bath designs could include proposals for remediation of waterways, incorporate sustainable systems into their operations, and/or draw intentional connections between "civilized" and "wild" realms, stimulating dialogue and innovation across sectors. Both kallbadhus and sauna offer enduring and scalable examples of landscape and architecture that engages with ritual and health to increase interaction between urban and ecological space, self, and society.



Kallbadhus and saunas in Sweden and Finland during a 2017 research trip. Image Source: Jesce Walz

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Anne Johansson (17 Feb. 2015.). Nybyggd bastu med hamnutsikt. *Göteborgs-Posten*.

Jesce Walz

POOL PARTI

Swimability as an Incentive for Urban Waterway Remediation

Overview

This paper surveys creative urban water cleanup initiatives, focusing on cities that have incorporated *swimability*, either through swimming infrastructure, or by leveraging swimming as a tangible remediation goal, to motivate public and political support for waterway remediation.

While water health does not depend on human recreation to maintain its ecological function, protection of urban waters from the impacts of human waste and industrial processes does depend on humans' ability to value water as an essential and limited resource. Many urban areas have polluted their waters well beyond swimability, giving shorelines over to industry, waterway traffic, privatization, and effluent runoff. However, in the past four decades, clean water regulation has increased incrementally around the Western world.[1] Throughout this process, dozens of urban waterway cleanups have been accompanied by measures to keep or make waterways swimmable.[2] Such measures depend on urban planning, governmental initiative, and industrial compliance, yet public support is key to organizing these larger forces toward systemic change. Physically relatable goals and creative initiatives like gaining the ability to safely swim in river and harbor pools incentivize the public to understand water as a shared resource, and to demand its protection.

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[1] The United States' "Clean Water Act" was reorganized and expanded in 1972, and advanced water treatment began in many European countries at this same time; the United Nations "The Water Convention," an environmental treaty to protect transboundary waters, was first signed in 1992.

[2] As an example, in 2011, Baltimore, MD released a 10-year plan to make its harbor "safe for swimming and fishing:" "Healthy Harbor Plan | Baltimore Waterfront." *Baltimorewaterfront.com*. N. p., 2018. Web.

Switzerland's Historic Badi

"The story of the badi begins with dirty people: the necessity for public health and sanitation as rising industrialization resulted in urban populations that needed a place to take a bath."[3]

Bathing is an age-old tradition, and even today, the hard urban edges of Zürich, Switzerland give way to a waterfront that invites swimming. Zürich's waterfront features historic structures, or "badi" that contain pools or swimming channels within the flows of the Sihl and Limmat Rivers. These rivers flow *through* the city, into Lake Zürich, and provide 70% of Zürich's drinking water, which even straight from the lake is "clean enough to make ice cubes" with. [4]

While Zürich's first public baths were established in 1864, the rivers and lake haven't always been clean. Around the same time that baths were established, the river was used to wash human effluent and factory outputs into the lake. Yet in the 1970's, the Swiss were among the first to implement water treatment systems to combat algal blooms, phosphorus, *E. coli*, and other contaminants. As global movement stirred toward an understanding of water and the impacts of polluting it, Zürich's bathing tradition helped the city to become an early adopter of waterfront cleanup. In an era where many would be reticent to jump into urban waters, "water treatment plants, overflow sewers, and industrial pretreatment transformed [Zürich's] water from typical urban filth to drinking water." [5] Today, numerous public baths in Zürich, Basel,[6] and other Swiss cities stand as examples of the potential to breach the edge of the urban waterfront, adding swimming into the mix of public amenities.

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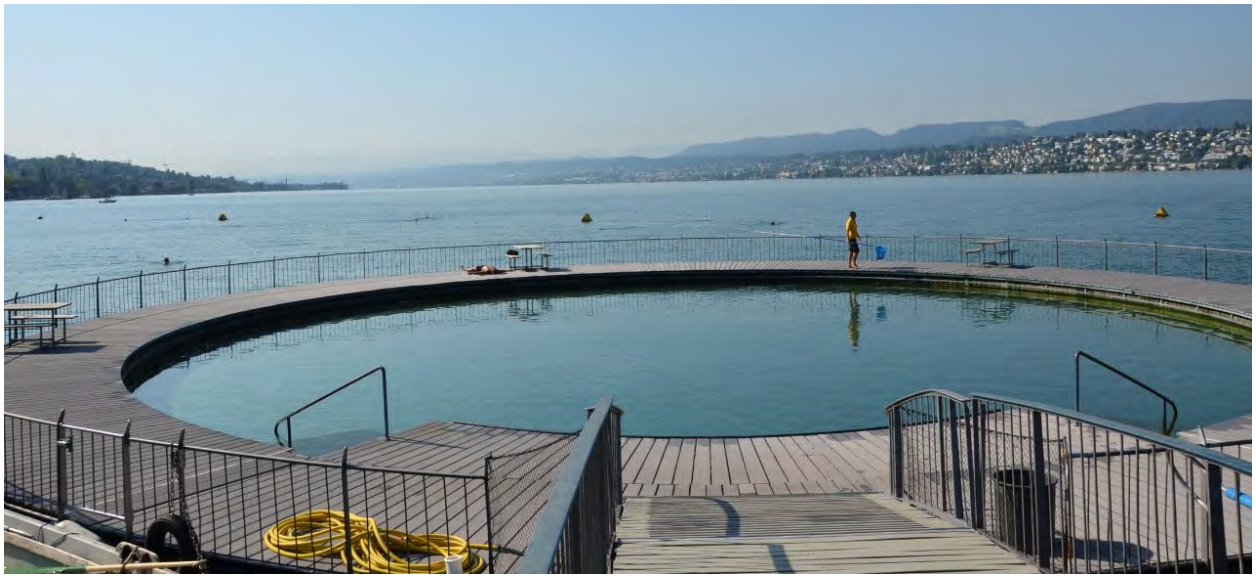
[3] "EVERYBODY INTO THE POOL!." Landscape Architecture Magazine. N. p., 2015. Web. 27
[4] ibid.
[5] ibid.
[6] "swimming in the Rhine in Basel dates back many centuries:
Basel : Guidelines For Rhine Swimmers." *Slrg.ch*. N. p., 2018. Web.



Strandbad Tiefenbrunnen, Zürich, Switzerland: Part of the historical “Seeuferanlage” (lakeshore) promenades that were built between 1881 and 1887, a milestone in Zürich’s development as a city [7]

Zürich’s Flussbad Unterer Letten, built in 1909 by architects Fissler and Friedrich in the Limmat River; this bath sits in a canalized portion of the river and boasts a grate at its downstream end to prevent swimmers from drifting into open water [8]

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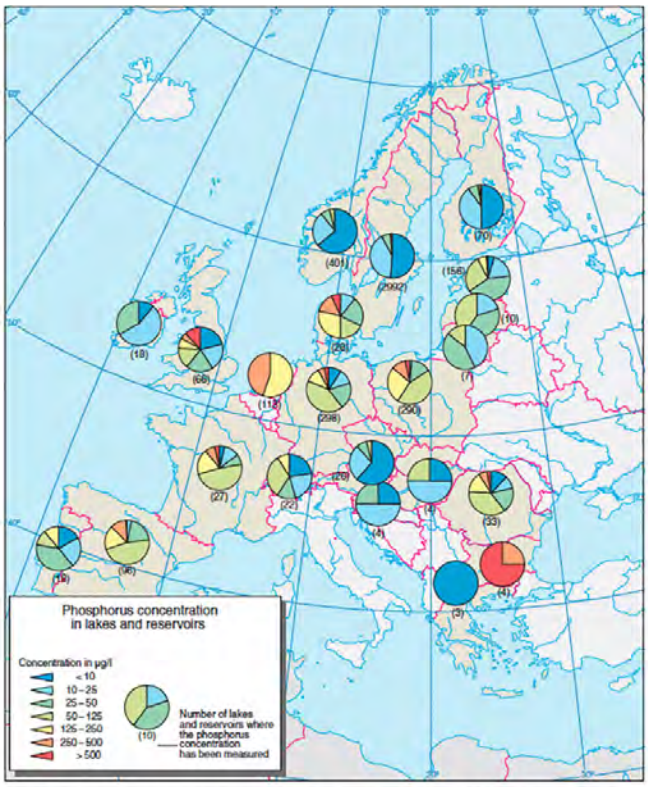
[7] Tiefenbrunnen, Strandbad, and DepartementssekretariatSchul- Sportdepartement. "Strandbad Tiefenbrunnen - Stadt Zürich." *Stadt-zuerich.ch.* N. p., 2018. Web.
[8] "Outdoor Pools In Zurich." *zuerich.com*. N. p., 2018. Web.

Basel Switzerland's "Guidelines for Rhine Swimmers" highlights a watertight bag that the city developed for swimmers, who are instructed to put their dry clothes in the bag and bring it downstream. The bag keeps clothes dry, floats, and its bright colors are easy for boats and shipping traffic to spot.[9]

[9] "Basel :: Wegleitung." *Slrg.ch*. N. p., 2018. Web.

Nordic Swimming

Finland and Sweden, like Switzerland, began to implement advanced methods for wastewater treatment in the 1970's and 1980's. In the mid-1970's, these countries were the first in Europe to apply additional measures to remove phosphorus.[10] Could this initiative be connected to swimming traditions and cultural intimacy with water? In Sweden, cities like Stockholm, Malmö, and Helsingbørg host "kallbadhus" (private and public cold bath platforms), whose earliest instances date back to 1793.[11] Meanwhile, Finland is the home of sauna, a tradition that whenever possible includes a swim in cold, clean water.



lumber of lakes per country: Austria 26; Belgium 4; Denmark 28; Estonia 156; Finlan 0; France 27; Germany ~300; Hungary 4; Ireland 18; Latvia 10; Nether ands 112; Norway 401; Poland 290; Portugal 18; Romania 33; Slovenia 4; Spain 96 Sweden 2992; Switzerland 22; the former Yugoslav Republic of Macedonia 3; Unite Kingdom 66.

Distribution of phosphorus concentrations in selected European lakes and reservoirs by country (from "Water and health in Europe: a joint report… 2002" p. 31)

[10] Bartram, Jamie, et al. "Water and health in Europe: a joint report from the European Environment Agency and the WHO Regional Office for Europe." *World Health Organization Regional Publications-European Series* 93 (2002). p. 3; p. 52.
[11] Lind, Helena, and Bert Leandersson. Kallbadhus. Stockholm: Byggförl, 2004. Print. p. 213.

Today, each Malmö, Gothenburg, Stockholm, Turku, and Helsinki boast multiple waterfront swimming spots in their harbors. Stockholm boasts at least six swim spots with physical infrastructure in the city,[12] while Helsinki has twenty-six beaches that are monitored for algae and accessible to the public.[13]

Of these spaces, some public saunas and bathing platforms have been in operation at the same site since the mid-1800's, boasting communities of users who continue to visit the same place for social bathing throughout their lives. The intimacy and appeal of such consistency is contagious, and the spatial typology of sauna and bath is expanding to include contemporary interpretations: a dozen or more public waterfront saunas and baths have opened in Sweden and Finland since the turn of the twenty-first century, and more are being built as local groups advocate for accessible bathing in their communities.[14]

While the history of "sauna" has been touched upon in many books and essays, less has been written on the history of cold-bathing, an essential counterpart to the health benefits that sauna provides. Fifteen (and counting) "kallbadhus," currently line Sweden's urban and small-town waterfronts; The first of these were established as simple bathing platforms with changing rooms (initially without saunas) along the Kattegat, a sea spanning between Sweden's west coast and Denmark's east coast.[15] While few complete original structures remain due to coastal

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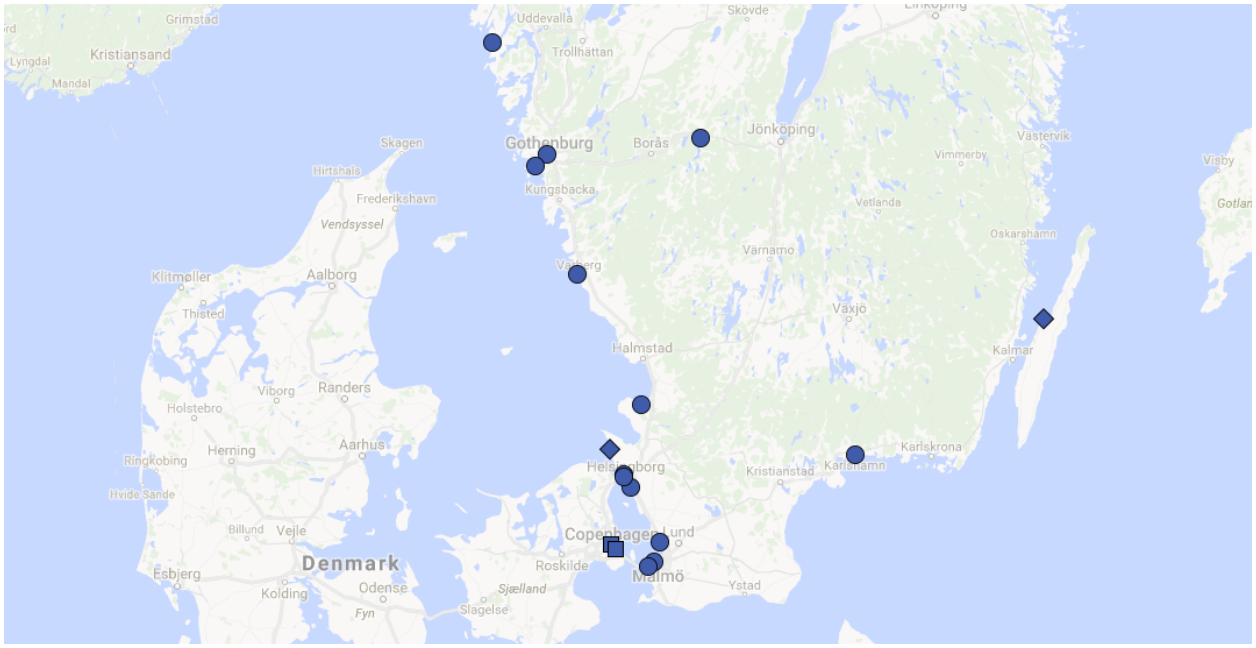
[12] Visitstockholm.com. N. p., 2018. Web. turns up Oxhålsbadet, Hellasgården, Fjäderholmarnas bad, Långholmens bad, Smedsuddsbadet, and Saltsjöbadens Friluftsbad; there's also Tanto Bastu sauna.
[13]Helsinki's public waterfront also includes Löyly, Kulttuurisauna, Lonna, and Sompasauna (urban public saunas) "Outdoor Swimming Pools And Beaches." Helsingin kaupunki. N. p., 2018. Web.
[14] I'm aware of twelve waterfront public saunas and baths built in the Nordic countries since 2004. Of these, six are located in Sweden. I've also encountered groups working to start new kallbadhus in Mariefred, Jönköping, and Ystad, Sweden, and assume that there are others beyond these.
[15] In addition to the web sources cited in this paper, my research on Kallbadhus was conducted in-person during Summer/Autumn 2017. I've also learned from two print books on Kallbadhus, written in Swedish. I have not quoted these directly paper, but have included them in the bibliography. In general, minimal

wind storms, many sites feature re-constructed kallbadhus. Over time, the majority of these platforms have expanded to include saunas, changing booths, and shower rooms. Some also feature cafe's, wellness businesses, or "fika" spaces (community rooms for coffee and cake).

The history of the kallbadhus is intertwined with histories of public health, society, city, and ecology. The bathing structures' site circulation interfaces with land, sauna and sea to draw connections between "public and private," "city and waterfront," and "urban and wild." These structures' continued development has capacity to address both public health and ecological needs of our present time.



Kallbadhus along Sweden's southern coast. Image made with: Google Maps (n.d.). *maps.google.com*

formal research exists on sauna and kallbadhus; I recently discovered a call for papers confirming this: N.a (24 Sept. 2013.). IJSS | The International Journal of Sauna Studies. *Saunaresearch.org*.

Lysekil Kallbadhus is built into its bouldered landscape, est. in 1847. Image Source: Jesce Walz

Ribersborg's Kallbadhus

Malmö is characterized as an industrial waterfront city. The initiative to establish a formal bathing structure at Ribersborg came from a "cane factory" owner CH Richter, who took advantage of harbor expansions to purchase the bath's site at an auction.[16] The cold baths at Ribersborg were inaugurated in June, 1898, fifty years into the kallbadhus movement of the 1800's. While the practice of sauna and cold bath can be traced to centuries before this time, the 1600's and 1700's had temporarily stunted the tradition during a "dark period in the history of swimming," when public and sea bathing were considered unhealthy.[17]

[16] The history of Ribersborgs Kallbadhus is translated and adapted from the bath's official webpage: N.a (4 Mar. 2018.). Ribersborgs Kallbadhus | kallbadhuset. *Ribersborgskallbadhus.se*.

[17] Brf, Simply (n.d.). Malmö Bastugille - Ribersborg Kallbadhus. *Bastugillet.se.*

Malmö Regional Map; image adapted from: N.a (10 Aug. 2016.). Stamen Maps. *Maps.stamen.com*.

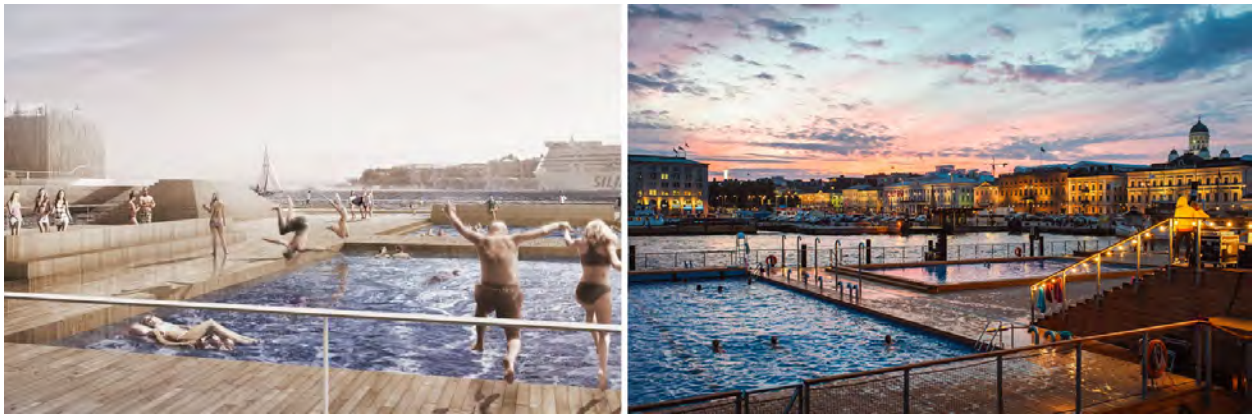
In Malmö, the city's historic Ribersborgs Kallbadhus contributed to rejuvenation of its entire waterfront after years of first industrialization and then neglect. In more recent times, these and other cities have begun to introduce a more contained typology into the mix: the on-water pool.

Helsinki's Allas Sea Pool was crowdfunded in 2015, raising 810,800 euros in just two months.[18] By 2017, the project was complete and surpassing projected levels of popularity. The facility is located in a ferry harbor next to major shipping traffic. Its main pool is filled with heated fresh water, but the sea water pool next to it is "filled with water pumped from much further out in the Baltic Sea, then filtered and treated using UV technologies, and is kept at exactly the same temperature as the surrounding sea."[19] While Finland has done well to treat wastewater and stormwater, pollutants from shipping are harder to control - thus the need for filtering seawater

[18] Savolainen, Mikko. "How Is Allas Sea Pool Doing Six Months After Crowdfunding?." *Home.invesdor.com*. N. p., 2018. Web.
[19] "Allas Sea Pool - Sauna Experiences & Swimming In Helsinki - Discovering Finland." *Discovering Finland*. N. p., 2017. Web.

into a contained pool. “Yarra Pools,” and advocate for swimmable waterways, aptly notes: ”If you can build a pool here in Helsinki in the middle of a working harbour with all that ice you can build one practically anywhere.”

"Yarra Pools On Instagram: September 10th, 2017" Instagram. N. p., 2018. Web.



Allas Sea Pool Rendering (2015) and completed structure (2017)

In Göteburg, Sweden, the port is older than the city itself, and is now a major shipyard and point of global exchange.[20] Making space for tactility and interaction has historically been “less relevant for seaport cities, where the river is less accessible and not made available for play or swimming.”[21] Yet Göteburg sees its port’s redevelopment as an opportunity to establish substantial public space, drawing activity to the area ahead of construction. As a part of the city’s 400th anniversary celebration, and in response to citizens’ call to get closer to the water, it built Jubileumsparken in Frihamnen harbor. Designed by Berlin-based architects Raumlabor, the park is made largely with recycled materials, is free to the public, and a floating pool and sauna are primary components. While pool is a fully enclosed structure (separate from harbor water), it does not use chlorine, and stays near the same temperature as the surrounding water.[22]

Allmänna badet i Jubileumsparken, Frihamnen. Foto: Beatrice Törnros

[20] "History of the Port Of Gothenburg." *Portofgothenburg.com*. N. p., 2018. Web.
[21] Hein, Carola. "Port cities and urban waterfronts: How localized planning ignores water as a connector." *Wiley Interdisciplinary Reviews: Water* 3.3 (2016): 419-438.
[22] "The Public Pool In Frihamnen." *Goteborg.com.* N. p., 2018. Web.

All Canals lead to Copenhagen

Dozens of Initiatives like Jubileumsparken world-wide point to Copenhagen's harbor cleanup as an inspiration and leading example. The story of Copenhagen's harbor cleanup is particularly remarkable because its clean up initiatives are fairly recent: "The Copenhagen harbor was active until the 1980s when many industries closed down. Since then, a large transformation of the sites along the harbor has been combined with major investments in sewage treatment to improve the water quality. The new neighborhoods mix residential and office facilities with new public spaces along the harbor, acting as a new leisure center for the city."[23] Removing industry from a city's harbor is no small task, and Copenhagen followed industrial removal with cleanup, including sewer modernization, wastewater diversion, and public waterfront park construction, most of which occurred in the past 20 years.

Today, Copenhagen's harbor and baths, which use the harbor water rather than filtering or importing water, are a best-practice example of public waterfront revitalization. Harbor Baths include Islands Brygge (PLOT), Kalvebod (JDS architects), Fisketorvet (JDS & and BIG), Svanemølle, and Sluseholmen. Islands Brygge alone has five pools with sufficient space for 600 bathers; it "was not only designed as a place for exercise, but as a place to socialize, play and enjoy the sun… a symbol of the harbor's regeneration." [24] Ultimately, *political will* was required to realize Copenhagen's swimming basins and public platforms. "The stated goal of bathing forced the authorities to act to significantly improve the quality of water from this space near the port of the city. Today, the image of this part of the city has changed thanks to the basins, and Islands Brygge is the real driving force of the urban development."[25]

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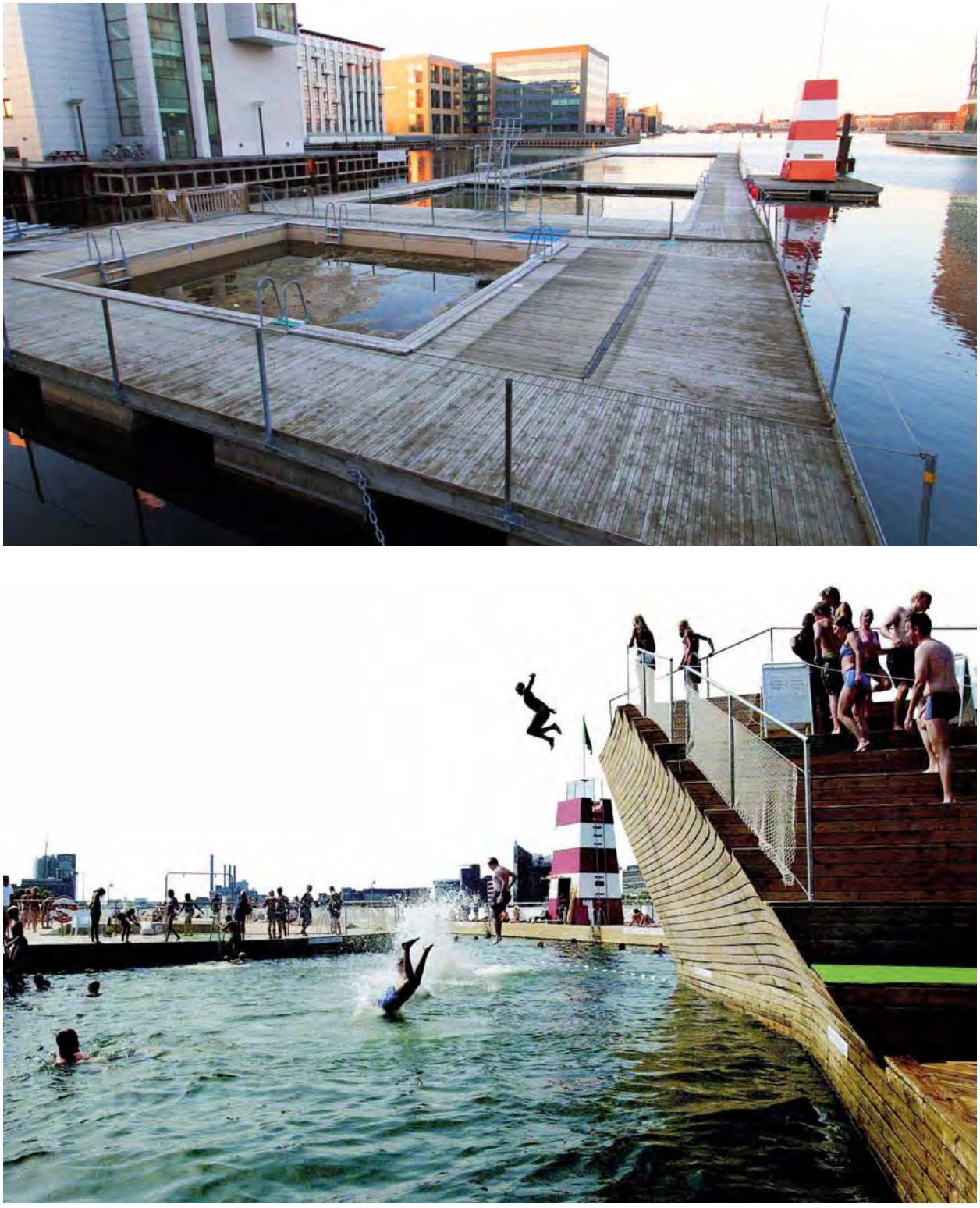
[23] "Copenhagen Harborfront: Critical Review | Urbannext." *Urbannext.net.* N. p., 2018. Web.
[24] Ibid. This references includes excerpts from: Casanova, Helena, and Jesús Hernández. *Public space acupuncture : strategies and interventions for activating city life*. New York: Actar Publishers, 2014. Print.
[25] " Des Rives Et Des Rêves – Les Baignades Urbaines – - ADUQ." *Aduq.ca*. N. p., 2018. Web.



Harbor Baths at Fisketorvet and Islands Brygge[26]

[26] "Copenhagen Harborfront: Critical Review | Urbannext." *Urbannext.net.* N. p., 2018. Web.

Swimmable Cities and the Baltimore Healthy Harbor Plan

“Cities grew up around rivers for many good practical reasons - transport, agriculture, defence, access to fresh water - historically rivers have been at the heart of urban leisure and cultural life. “It is paradoxical that while we settled around water, growing urban populations and industrialisation have turned our rivers into sewers, burying, barricading and polluting them to the point where they are no longer accessible or hospitable for human use.”[27]

Baths in Baltimore Harbor may seem like a distant reality, yet many initiatives today are working to clean up urban rivers and harbors in the United States. In 2011, Baltimore released its Healthy Harbor Plan, a ten-year plan to make the Harbor “safe for swimming and fishing”[28] through partnership between “government, businesses, neighborhood groups, and other area non-profits.” While its goals include reducing fecal bacteria, litter, and polluted stormwater runoff, the public focus targets swimability and fishability: “Baltimore’s culture and economy is defined by its waterways, especially Baltimore’s Inner Harbor; but the ecosystem is suffering. Healthy Harbor seeks to change that and make the water swimmable and fishable by 2020.”[29] The plan struggled at first, receiving an “F” grade for overall water quality on its own 2014 Healthy Harbor Report Card. In response, Baltimore’s Waterfront Partnership hired the Center for Watershed Protection to produce “Swimmable Cities: Lessons for Baltimore from Five Cities that Have Cleaned Up Their Rivers, Lakes and Estuaries,” a study of five cities in the United States, similar to Baltimore, that are undergoing waterfront cleanup and seeing greater success.[30]

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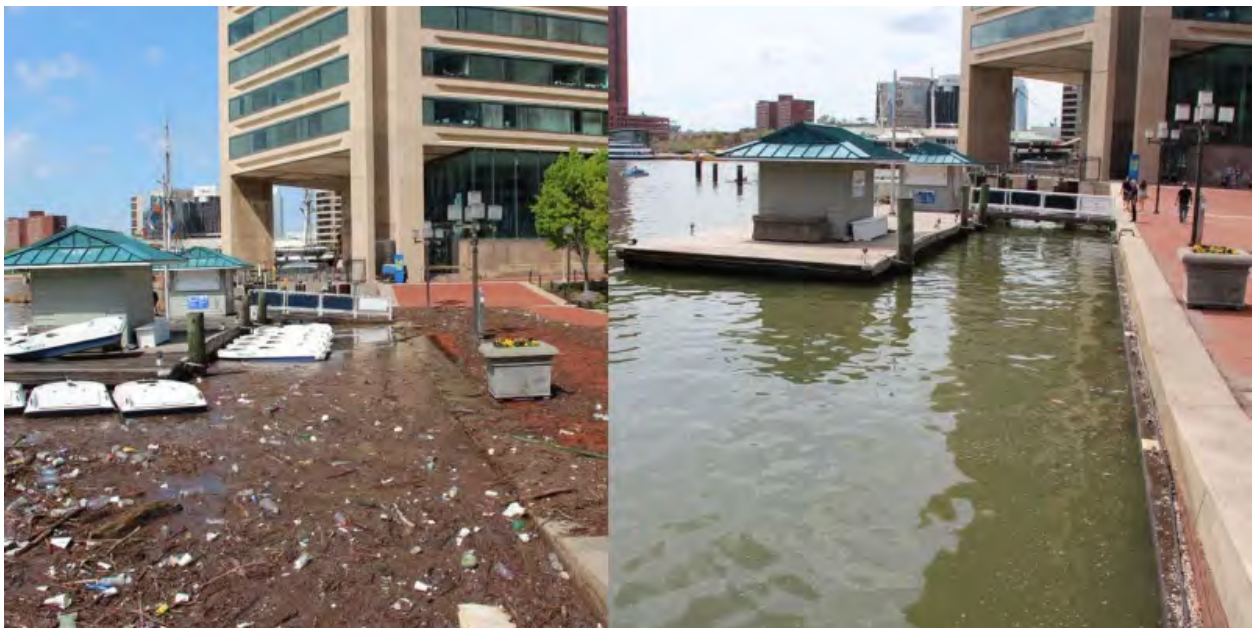
[27] “Urban Plunge” - essay available at - "janewithers.com" *Jane Withers Studio*. N. p., 2018. Web.
[28] "Healthy Harbor Plan | Baltimore Waterfront." *Baltimorewaterfront.com*. N. p., 2018. Web.
[29] "Take A Dip In Baltimore's Inner Harbor (In The Year 2020)." *Our Community Now at Maryland.* N. p., 2017.
[30] "Swimmable Cities Report | Baltimore Waterfront." *Baltimorewaterfront.com*. N. p., 2018. Web.



Top: “Mr. Trash Wheel, a 14-foot solar- and hydro-powered water wheel… scoops floating garbage out of the water and onto a barge headed for a waste-to-energy plant”
Bottom: Images from before (April 2014) & after (April 2015) Baltimore Harbor trash cleanup initiatives[31]

[31] "Baltimore Harbor Gets New Water Quality Monitor." *Nextcity.org*. N. p., 2018. Web. 28
Photos by Healthy Harbor Initiative

Swimmable Cities reports on Atlanta, Boston, Los Angeles, New Orleans, and Norfolk:

> "The City of Atlanta reduced their untreated sewage flows to the Chattahoochee by 99% from the 1990s to 2014.
>
> "In July 2013, recreational swimming for the general public was permitted in Boston's Charles River for the first time in over 50 years.
>
> "Los Angeles has reduced 83% of their sanitary sewer overflows since 2000.
>
> "Lake Pontchartrain was removed from the Louisiana Department of Environmental Quality impaired waters list for primary contact recreation as of 2006.
>
> "In 2014, the Virginia Department of Environmental Quality issued a draft report that the Lafayette River meets water quality standards for recreational contact."[32]

The full report investigates differences between what is required for waterway cleanup in Baltimore as compared to the above cities, and establishes key areas of effort that are lacking in Baltimore, such as proper measurement, enforcement, technological innovation, and state and federal support. While the larger cleanup plan would "cost about $220 million dollars,"[33] and change in Baltimore is happening more incrementally than it has in other cities, the Healthy Harbor Initiative celebrates Baltimore's most recent improvements as a dramatic success. Rightfully so, as the initiative's May 2018 "Harbor Heartbeat Report" shows that the inner harbor and its middle branch are simmable *more than 60%* of the time. In a recent interview, Initiative director Adam Lindquist proclaimed, "There is phenomenal improvement… We may need to find a bigger location for a public swim if things keep heading in this direction. Thirty-two out of 49 monitoring stations showed improvement, including every stream. There are parts of the Jones

[32] "Swimmable Cities Report | Baltimore Waterfront." *Baltimorewaterfront.com*. N. p., 2018. Web.
[33] "Baltimore Aims To Make Inner Harbor Swimmable By 2020 | WAMU." *WAMU*. N. p., 2018.

Falls that previously received a '0,' in terms of meeting fecal bacteria standards for safe swimming, that met those standards 100 percent of the time in 2017."[34]

The annual Baltimore Floatilla celebrates "a vibrant marine ecosystem and home to cutting edge environmental restoration projects like floating wetlands and Mr. Trash Wheel."[35]

First We Take Manhattan

In Autumn/Winter 2014/2015, London's Roca Gallery hosted "Urban Plunge - New Designs for Satural Swimming in our Cities" by artist and water advocate Jane Withers. While "Urban Plunge" focuses on conceptual designs in Manhattan, London, and Copenhagen, Withers's exhibition essay cites initiatives toward urban swimming in Montreal, Osaka, Berlin, and beyond. Her work is credited with "Capturing the zeitgeist for natural swimming experiences around the world, the projects reveal imaginative ways to enrich urban water experience and humanize our

[34] "Is Swimming In The Harbor By 2020 An Impossible Mission?..." *Baltimore magazine.* N. p., 2018. Web.
[35] "Home." *Baltimore Floatilla*. N. p., 2018. Web.

cities. They also act as a wake-up call to make us realize that what we flush down the toilet or pour down the drain impacts on our water environment and thus on the quality of urban life." [36]

A primary project featured in "Urban Plunge" was New York's +POOL. The idea came up for its promoters on "one of those humid, ambition-melting summer mornings. 'Just sitting and sweating near the river, and realizing, after years of living here, that it'd be sort of amazing if you could jump in, and kind of ridiculous that you couldn't.'"[37] Like Allas Sea Pool in Helsinki, +POOL was successful in meeting crowdfunding goals, yet the project was launched in 2010, and no pool has manifested to-date. Many factors come into play to stretch out the this pool's timeline, including its proposed filtration system, funding structure, and permitting timeline. A key differentiating feature of +POOL is that its filtration system aims to take in and clean the very water it sits in. The project is intended to sit in Manhattan's East River, acting "as a giant strainer filtering river water through its walls."[38] "Family and PlayLab" the initial team behind the pool, was quickly contacted by engineers from ARUP, who helped to develop and test filtration systems. As of 2014, a multilayered filter was being tested at a the temporary "Float Lab" on the Hudson. Google got into the game, and now "the + POOL team has launched a Dashboard for the public along with Google Drive, a digital tool that will monitor New York's water quality on LIVE time."[39]

Given its ambitions goals, funding benchmarks for +POOL are incremental and lacking in clarity. The project's initial kickstarter campaign raised $41K in donations, surpassing the initial $20K ask.[40] A second kickstarter in 2013 netted $273K, again surpassing its goals.[41] Yet ARUP's

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[36] "Urban Plunge | Roca." *Uk.roca.com*. N. p., 2018. Web.
[37] McGrath, Ben et al. "Swim, Swam, Swum." *The New Yorker*. N. p., 2014. Web.
[38] "Urban Plunge" - essay available at - "janewithers.com" *Jane Withers Studio*. N. p., 2018. Web.
[39] "Urban Plunge | Roca." *Uk.roca.com*. N. p., 2018. Web.
[40] "+Pool: A Floating Pool In The River For Everyone." *Kickstarter*. N. p., 2018. Web.

feasibility study estimates that a “doable” pool will cost a cool $21.5 million, as filtering the East River’s water means addressing eutrophication, pollution from human effluent, and risks like E. coli infection and cholera.[42] As of today, +POOL is a non-profit, has teamed up with sponsors like Heineken,[43] and is “selling” 70,000 tiles at $150 each to raise a further $15 million in funding.[44] On top of this, +POOL doesn’t have permits to build, and expects the permitting process to take between a year and a half and two years. Citing the success of Allas Sea Pool (two months to gain €810K from shareholders, two years to construct, and low admission fees) or Copenhagen’s full harbor clean-up may be comparing oranges to apples, yet these projects beg important questions: What is the greater value of leaving the river as it is and filtering it via a proprietary system, and what kind of public and political will might it take to reclaim the East and Hudson rivers themselves?

Crowdfunding Image from +POOL[45]

[41] "+ POOL, Tile By Tile." *Kickstarter*. N. p., 2018. Web.
[42] "A Floating Pool Has Inspired The World, But Will It Sink Before…?." *The Verge.* N. p., 2013. Web.
[43] "Backers - + POOL." + *POOL*. N. p., 2018. Web.
[44] "This Is What a $15 Million Floating Pool Would Look...." *Nymag.com.* N. p., 2018. Web. 30 June 2018.
[45] "+ POOL, Tile By Tile." *Kickstarter.* N. p., 2018. Web.

+Pool is just one in a slew of still-hypothetical proposals. A bit of research leads to a global rabbit trail of swimmable waterway initiatives. Pictured above are a line of swimmers preparing to demonstrate in favor of cleaning up Montreal's St. Lawrence River, a conceptual drawing from a city of Osaka proposal to build a pool in its Dotonbori Canal, and a conceptual filtration wetland designed by Flussbad Berlin, a proponent of making the River Spree swimmable.[46]

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[46] "Start." *www.flussbad-berlin.de.* N. p., 2018. Web.; "Montrealers Take The Big Splash In The St. Lawrence | *CBC News*." CBC. N. p., 2014. Web.; "Osaka Takes Plunge With Canal Pool | The Japan Times." *The Japan Times*. N. p., 2013. Web.;

Design as Instigation

“Urban Plunge” also highlighted two projects in London, one experimental and one proposed. The experiment was King’s Cross Pond Club, a man-made natural swimming pond designed by Ooze Architects and artist Marjetica Potrč. The chemical-free 10m x 40m pond, located in Lewis Cubitt Park “was purified through a natural, closed-loop process using wetland and submerged water plants to filter the water and keep it clear. The number of bathers was restricted by the amount of water the system was able to clean. Thus, the use of the pond remains in balance with what nature can absorb and regenerate." [47]

The other London Project, the Thames Baths, is a proposal by Studio Octopi. The architects propose a reintroduction of swimming in the River Thames, and their designs for natural swimming ponds are meant to be "replicated and licensed in cities across the UK and worldwide, enabling people to enjoy swimming safely in their own rivers." [48] Of the Thames, Withers writes: “In the London of the 18th and 19th centuries, the Thames was the city's watery playground, criss-crossed with craft for transport and leisure, pomp and pageantry, frequented by swimmers as well as home to floating swimming pools.” [49] She goes on to cite Caitlin Davis’ *Downstream : a history and celebration of swimming the River Thames*: “A culture of fear has grown up around The Thames, we have burdened it with dangers, real and imagined, and over time this has led to the deserted foreshores we see today. Yet in terms of water quality, the nadir was reached in the 1960s when the Thames was declared biologically dead. Since then it has improved considerably, and is now the cleanest in living memory.”[50]

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[47] "Of Soil And Water: King's Cross Pond Club - The Natural Bathing Pond." *King's Cross. N*. p., 2018.
[48] "About Thames Baths — Thames Baths — Blogs From Thames Baths." *Thamesbaths.com*. N. p., 2018. Web.
[49] “Urban Plunge” - essay available at - "janewithers.com" *Jane Withers Studio*. N. p., 2018. Web.
[50] Davies, Caitlin. *Downstream : a history and celebration of swimming the River Thames*. London: Aurum Press Ltd, 2015. Print.

Top: King’s Cross Pond Club; Bottom: Thames Baths Proposal [51]

[51] "Of Soil And Water: King's Cross Pond Club - The Natural Bathing Pond." *King's Cross. N*. p., 2018. Thames Baths." *Thamesbaths.com*. N. p., 2018. Web.

In addition to those mentioned above, projected and completed efforts toward cleanup in cities around the world include river restoration in Kitakyushu,[52] Yokohama, and Tokyo, Japan, Melbourne, Australia, and Paris, France, as well as massive collaborative undertakings like the reclamation of the Cheonggyecheon in Seoul, and continuing efforts to support historic sea pools like those in Sydney, Australia. While these projects vary greatly in their levels of physical access to water and ecological approach, each ultimately engages a much larger system boundary than its port or channel, and each is working to connect human action with ecological care in some way.

In recent years, technology and do-it-yourself initiative have further facilitated ways to engage the waterfront. Examples of this include apps, such as the Netherlands' Zwemwater app,[53] which lists over 800 swimming spots in the Netherlands, with information on water quality. The The Outdoor Swimming Society (OSS)[54] is a “worldwide collective of swimmers” that has reached 27,000 members. These and others contribute to Wild Swim[55], a worldwide crowd-sourced map with tips for swimming locations. On the low-tech side, illegal swimming groups like Paris’s clandestine Laboratoire des Baignades Urbaines Expérimentales (Laboratory of Experimental Urban Swimming) hold meetups to swim “against the law,” normalizing the practice in cities like as Paris, where bathing in rivers has been forbidden since 1923.[56]
The experimental swimmers cite William H. Whyte, who wrote: “One of the best things about water is the look, feel and sound of it... Water should be accessible, touchable, splashable.” [57]

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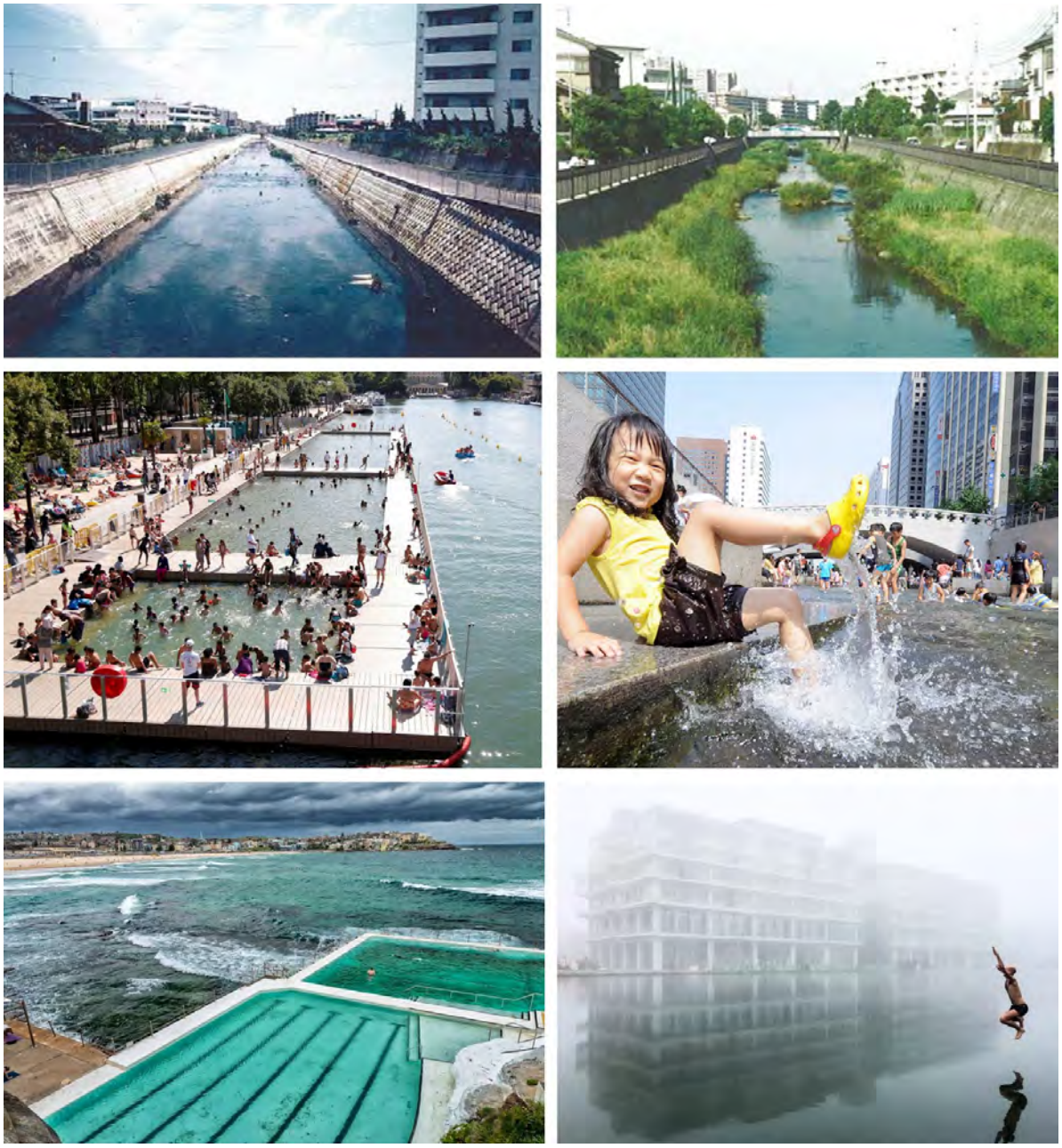
[52] Connor, Michael S. *Water Quality Improvements are Critical to Waterfront Development: Lessons from Boston, San Francisco and Kitakyushu*. San Francisco Estuary Institute, 2006.
[53] "Vind Een Zwemplek | Zwemwater.Nl." *Zwemwater.n*l. N. p., 2018.
[54] "The OSS Team – Outdoor Swimming Society." *Outdoor Swimming Society. N*. p., 2018. Web.
[55] "Wild Swim." *Wildswim.com*. N. p., 2018.
[56] Chrisafis, Angelique. "Paris Plunge: Daily Queues After City Opens Cleaned-Up Canal To Swimmers." the Guardian. N. p., 2017. Web.
[57] Whyte, William H. *The social life of small urban spaces*. New York: Project for Public Spaces, 2001. Print. pp. 48-49



Clockwise from top left: Before and after images from restoration of Yokohama Japan's Itachi River; Parisians pack the three pools in the city's once-fetid Bassin de la Villette; A girl plays in the waters of the Cheonggyecheon Stream in downtown Seoul; Sydney's Bondi Icebergs Pool (established 1929); a member of Paris's Laboratory of Experimental Urban Swimming[58]

[58] The Itachi River before (1981) and after (1993) restoration. Photographs: Shin-ichi Yoshimura. "You Can Swim In The Canals Of Paris Again." CityLab. N. p., 2018. (Getty Images)

Marshall, Colin. "Story Of Cities #50: The Reclaimed Stream ..." the Guardian. N. p., 2016. Web.

Conclusions: Visibilizing Change

“Urban projects connected with water demonstrate one way to activate and unfold underutilized areas. It is a medium that attracts all kinds of people around a common aquatic playground. The experience of collective urban swimming serves as a pretext to engage discussion regarding the future of the space and our occupation of it…Wild urban swimming places could have the same significance as pools in the city, but connect more intimately to urban metabolism and the non-human.”[59]

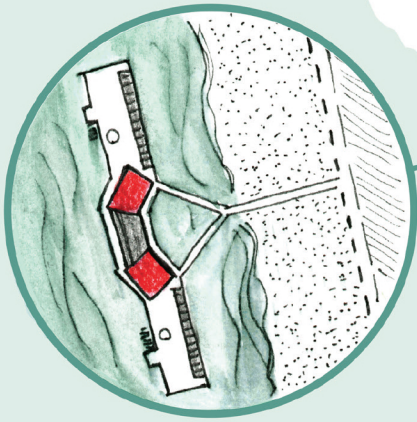
Movements to increase urban swimability bridge waterfront development (which often stops at the water’s edge) and ecological intervention (which is essential, yet may be less accessible to the public than swimming or fishing). Tactile interaction with water reconnects urban dwellers to a resource that was once commonly used, yet has recently fallen out of popularity and out of the peoples’ hands. Challenges to urban swimming projects occur when the water is heavily polluted or privately controlled, requiring long-term goals and continual public engagement, or when cities have to choose between shipping/industry or swimability, and settle for enclosed pools that draw water from outside sources instead of initiating cleanups. Yet amidst concrete-laden waterfronts, even the simplest opportunity for an urban-dweller to reconnect with the water is novel and inspiring. This paper offers a global set of precedents for swimmable urban interventions. These demonstrate increased interest in the ability, and right, for anyone to swim in their adjacent waterways. If this interest is leveraged, it may generate a shift toward valuing waterways as shared ecological resources that mandate long-term protection and care.

"Bondi Icebergs Pool - Swim Spot." *Wildswim.com*. N. p., 2018.

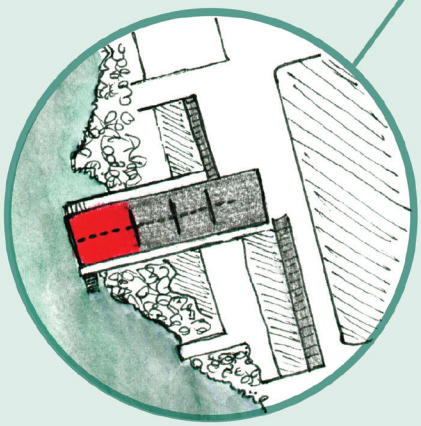
"Paris Wild Swimming: Urban Adventures...." Outdoor Swimming Society. N. p., 2017.

[59] Moracchini, Vincent. "THE PLEASURE OF DIVING IN PUBLIC SPACES: THE EXPERIMENTAL URBAN SWIMMING LABORATORY". *Scapegoat Journal, vol 9,* 2018, pp. 189-194.

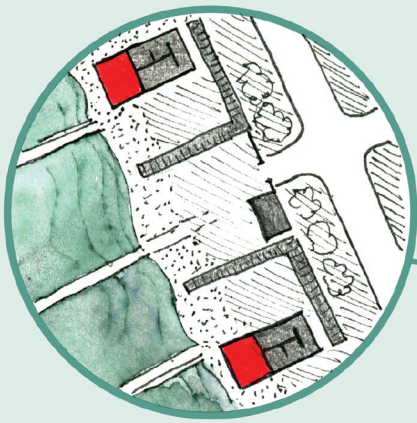
Public bathing on Swedish shores



PÅLSJÖBADEN



KALLIS



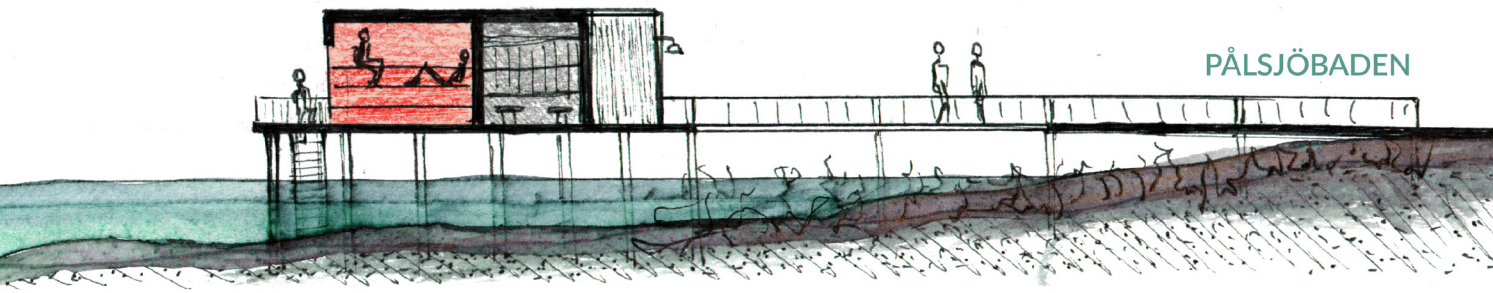
RÅÅ

Architectural designer Jesce Walz grew up in Minnesota on the border between Canada and the US. Her great-grandparents Signe and Waldemar were second-generation Swedish immigrants who shared their culture with her as she grew up in Minnesota on the US-Canada border. In 2016 Jesce travelled to Töreboda to visit the historic Backstuga of her great-great-great grandmother Erkera-Sofi. She fell in love with the bastu culture and returned the year after on a research grant to study sauna in Finland and Sweden, visiting 57 saunas and thermal baths in three months.

Last autumn as part of my research trip I set out to visit twelve specific kallbadhus that are open to the public year-round. I am fascinated by how the structure of each kallbadhus responds to its topography, urban context, and community. While each is unique, many take the form of a long pier stretching over shallow shores toward pools of deeper water. If the shoreline doesn't require a pier, the bath's structure may be built into boulders, as at Lysekil. Or, a cold bath may exist as a simple fenced off segment of coast with changing huts, a dock, and ladders to the sea, as at Saltholmen. Some kallbadhus extend from an urban waterfront, supporting the health of a district, while others are more remote, offering refuge.

There is no one "best" form for a kallbadhus. Oftentimes, a network of many baths is an effective way to meet the needs of a locality. I encountered a clear example of this around Helsingborg, Sweden, an area that boasts three kallbadhus with sauna/bastu: Pålsjöbaden, Kallis, and Råå. Each of these structures responds to the same segment of the Öresund's shoreline, whose green waters are laden with hundreds of species of seaweed. Yet of the three, Pålsjöbaden is the only kallbadhus whose entrance takes a traditional form of a long pier.

Pålsjöbaden was initially built in 1908, and recently re-finished after a coastal storm. Here, visitors venture across a promenade and enter via a café', which is flanked by gender-distinct bastu and bathing huts that extend as arms to the north and south, all set up on pilings. Nude bathers take bastu on one side or the other, and then venture into the sea by descending a long stair, all within clear sight of a public waterfront nearby, so the separation between private and public is informal. I met a somewhat younger group of bathers here than at Kallis or Råå; this kallbadhus community holds yoga twice a week and hosts a weekly family bastu, opening each side as mixed-gender.



Just over a kilometer south, Kallis is set into a stone-armored stretch of shoreline. It is the fifth incarnation in a series of bathhouses that have existed near this site since 1864. The bath's current form is a symmetrical block; each the lockers, showers, fika rooms, and bastu are set back-to-back, extending as one volume toward the water's edge. The bastu itself is organized around a full-height sliding wall that runs down the center. Twice a week this partition is opened for co-ed family nights, transforming the "damer and herrar" spaces into one large bastu. Bathers at Kallis enter the sea (and seaweed) via a few steps that lead from a generous deck. The baths are more screened from shore than those at Pålsjöbaden, yet are open to the working harbor and ferry traffic. I visited Kallis on a family night with a friend. We enjoyed an aufguss ceremony alongside several couples who had come to relax in the dark October rain.

Down the road in neighboring Råå, a third kallbadhus sits at the edge of a local business district. Råå kallbadhus was established in 1897, and rather than extending over the water, it stretches across a lawn in the form of three courtyards. The central yard is a shared space, and the courtyards to its north and south are gender distinct. Each is lined with bathing huts on two sides, open to the western coast, and hemmed in by a programmatic block on the outermost side. Each block hosts a fika room, kitchenette, showers, and a bastu. At the shore, a ramp and stairs lead to the water. All facilities are accessible, even the ramps to the sea. I met women and men at Råå who've been returning to this site to bathe year-round for over 70 years.

Through visiting these and other kallbadhus, I've come to understand sauna/bastu and kallbadhus as a participatory practice and a part of a network for healing on many levels. The form of a kallbadhus may respond to a particular topographic condition, cultural era, or group of bathers, and a well-sited public bath can increase connectivity between a city's waterfront, business, and residential districts. However, its primary role is to support contrast bathing and egalitarian space that is open to all, inviting individuals to physically engage ecology as well as their own minds and bodies. When a bath is both responsive to its context and accessible to many, it has potential to foster community, and to inspire that community to advocate for healthy selves and healthy systems over time.

- Jesce Walz, written for Britt Jurgensen's 2018 publication celebrating the opening of "Röstånga Bygdebastu," a community-built Swedish Bastu