DAYLIGHTING THE SAW MILL RIVER  
Self Guided Tour

Let’s take a walk through time and rediscover the 3 sections of the Daylighted Saw Mill River and see how this tributary of the Hudson River became a feat of modern river restoration here in Downtown Yonkers.

This self guided tour was prepared by the Sustainability Education department at Groundwork Hudson Valley with funding support from the City of Yonkers. Additional research on Yonkers’ cultural and industrial history, background on the Saw Mill River’s historical uses, watershed, and water quality data, as well as engineering plans provided by the following partners:

• Philipse Manor Hall Historical Site
• Sarah Lawrence College Center for the Urban River at Beczak
• Yonkers Riverfront Library
• U.S. Fish and Wildlife Service
• Riverkeeper
• NYS Department of Environmental Conservation
• PS & S Engineering
Introduction

The Saw Mill River is a major natural resource in Westchester County and a critical riparian corridor that runs from Chappaqua to Yonkers. It is the County’s southernmost tributary to the Hudson River and provides some of the only remaining habitat in this part of the County for a wide range of plants and animals. The swath of green land on the river’s perimeter is one of the few extended open space corridors below interstate 287, and it is used by thousands of bikers, joggers, rollerbladers, and fishermen.

The changeability of streams makes them a nuisance for development. Though they may be older than our cities, streams and rivers are constantly maturing. While it is normal for them to meander, flood, and ice over, these processes are destructive to roads, bridges, and buildings. As such, stream management techniques have traditionally included straightening, channeling, culverting, dredging, and building dams. These are examples of hard engineering, as they involve the use of heavy machinery to move material in the river bed and banks, as well as concrete and metal structures to divert, bury, or bridge the water. The conventional hard engineering approach to stream management used in the past has proven insufficient time and again. Flood damages and water scarcity still alternately plague these waterways, and the effects of climate change on the water cycle are only exacerbating this. Additionally, the aging infrastructure is deteriorating rapidly in many places necessitating ongoing and costly repairs.

In response a new approach focusing on river restoration has emerged in the past few decades. This new paradigm involves integrating our understanding of the geology, hydrology, and biology of a river system to design truly sustainable engineering solutions. From the Netherlands to Bangladesh to Texas, cities and suburbs are beginning to make “room for the rivers” by removing culvert lids, re-grading banks, adding riparian zone buffer vegetation, and creating public parks that double as temporary floodplains. According to American Rivers, in addition to filtering runoff and providing habitat, “an acre of wetland, saturated with water 1-foot deep, can hold 330,000 gallons of water—equivalent to the amount that would flood 13 homes thigh-high.”

Yonkers is one of these pioneering cities reclaiming its river by uncapping the Saw Mill River to the light of day, a process called Daylighting.
Phase I: Van der Donck Park/Larkin Plaza
- Located by Yonkers Riverfront Library and Yonkers Metro North Train Station
- Completed 2012

Phase II: Mill Street Courtyard
- Entrance at Warburton Avenue across the street from Phase I
- Completed 2016

Phase III: Daylighting at New Main Street
- Access along Nepperhan Avenue and New Main Street
- Completed 2019
Daylighting Ph. III at New Main Street
Let’s Begin!

Daylighting Ph. III – Found at the crossroads of Nepperhan Avenue and New Main Street

1) From its source in Chappaqua to its mouth in Yonkers, the Saw Mill River is a great treasure—rich in history and integral to the environmental health of the region. The commitment by the City of Yonkers and local environmental organizations to “daylight” portions of its passage and turn them into park space reflect the core values of Yonkers: a city with a resilient infrastructure and economy, recreational space for all, and a healthful environment. Though it took decades to come to fruition, once it was underway, the innumerable long-term benefits of the project quickly started to reveal themselves: fish and wildlife species that had long been absent returned, people congregated to enjoy festivals, music, or just take in the scenery and developers and businesses started flocking to the area.

2) Long before its rushing waters powered sawmills and gristmills to make Yonkers a booming industrial town, the Saw Mill River was used by the native Lenape people as a source of drinking water, and for trapping and travel. For over 7,000 years, the lower Hudson Valley region was inhabited by native people. By the Age of Discovery (1400’s-1600’s), the Lenape Tribe was a thriving culture here. They had a rich traditional knowledge of the flora, fauna, and seasonal changes, and they lived in relative peace with the neighboring tribes. The Lenape north of the Delaware Water Gap spoke Munsee, a dialect of the Algonquian language group. Those settled along the area now known as Yonkers, called their village Nappeckamack (“fish-trapping place”). They found rich agricultural soils and ample fisheries at the confluence of the Muhheakantuck (“the river that flows both ways” a.k.a the Hudson River) and its tributary, the Neperah (“rapid moving stream”). Now we know that rapid stream as the Saw Mill River.
Daylighting Ph. III – Found at the crossroads of Nepperhan Avenue and New Main Street

During the time that the Lenape lived on this land they respected, gave back to the land, by taking care of the resources that brought their people food, water, and shelter. Today we would give a name to that action, being sustainable. In fact native americans where the first to practice sustainable living or Sustainability. Sustainability refers to social and economic improvement that protects the environment and supports equity. There are 3 main pillars to Sustainability: Economic, Social, and Ecological. These 3 pillars are mutually interdependent and woven into the everyday life of the Lenape. Unfortunately the next wave of people would not feel the same.
The Age of Discovery brought a wave of European explorers to the Americas. The European colonists greatly disrupted the native Lenape's way of life. Sometimes, what natives believed were land-access permits for hunting and trapping rights, were in actuality land-acquisition deeds. Corporate trade placed a high economic value on select natural resources, leading to over-hunting and over-fishing and introduced diseases, like smallpox and measles, which devastated the Lenape people, who had no natural immunity. Eventually, initial distrust of the Europeans grew to outright hostility for many Native clans. Over time, the remaining Lenape dispersed or emigrated west.

In 1645, the Dutch West India Company granted Dutch settler Adriaen van der Donck a vast 24,000 acres expanse of land near the Neperah for his efforts in negotiating a peace between the Director-General of New Netherland, Willem Kieft, and the Lenape. His large new estate fetched him the name of “Jonkheer,” meaning “young gentleman,” which is how Yonkers got its name! He built a sawmill and a gristmill on that fast-moving stream that feeds the Hudson. Those and future mills established a strong economy in Yonkers, and gave rise to the name Saw Mill River. The current water wheel in front of you doesn’t grind grain but provides renewable power for the lights in this part of the Daylighted Saw Mill River.

3) As of 1813, there was a small wharf slightly upstream from the mouth where the sloops that carried river trade. Five small mills existed along the river above the village, all with its own dams, small mill ponds, and nearby tenements for the workers. The confluence of the Saw Mill and Hudson Rivers became a hub for commerce with and transportation to New York City during the age of the steamboat. More factories and businesses were built on the Saw Mill’s banks, including extensive carpet mills, a chemical factory, and several ice houses. Additionally, the river was used for irrigation, fisheries, fire-fighting, and bathing.
Of course, industrialization left a heavy mark on the Saw Mill River. Over time, industrialization and population growth stretched the limits of the small river to support these demands. With land in short supply, the river was squeezed into a narrow channel to make more room for urban development. It was also hidden and covered over in many places. Even though rivers are the life-blood of many communities across the country - providing power and water for living - they are often abused by the dumping of industrial and human waste. Yonkers was no different.

By the turn of the 20th century, unchecked sewage and refuse discharge made the river stagnant and heavily polluted. Growing concern over exposure to this cesspool in downtown Yonkers in the early 1900s resulted in the decision to bury the last 2,000 feet of the Saw Mill River under a concrete flume. Construction lasted from 1917-1922, and the river would remain hidden under a park and parking lot for nearly a hundred years until its “daylighting” in 2011.
Daylighting Ph. II — Mill Street Courtyard
Daylighting Ph. II - Found at the crossroads of Main Street and Mill Street

4) This area was created as a ‘slow’ street. It was fashioned after a Dutch street design called Woonerf, where people could walk slowly through the green streets and enjoy nature even in a heavily populated area. Here you will also enjoy some curated sculptures and murals, not to mention seeing a piece of history. One of the original millstones used on the Saw Mill River to grind grain can be found on site.

5) *Tribute To Yonkers Labor Statues* is a series of 7 sculptures whose images are fabricated from actual photographs and drawings of industrial workers in Yonkers from between 1820 and 1900. The sculptures tell the story of Yonkers’ past through life-sized steel figures named after the work processes that contributed to the industrial growth of Yonkers: *Saw Mill Worker, Otis Elevator, Tomato Packer, Chimney Sweeper, Female Carpet Loom Maker, Hat Tannery, Riveter.* The *As We Reflect* pole sculpture is covered in a mirror mosaic reflective skin much like armor representing the strength of our community and how we all have played a role in revitalizing the City. The reflections in the sculpture are much like the many diverse residents who each have a unique role to play in our City as we move forward.

6) This daylighted section provides visitors a place to view the Saw Mill River as it passes underneath buildings. During the summer the River carries a cooling effect that is wonderful to behold as people glimpse the rushing river between buildings. Stormwater mitigation techniques were employed here to absorb excess stormwater and filter runoff on its journey to the Saw Mill River and eventually the Hudson River.
As if not having enough green spaces was not enough of a challenge, there was also the challenge of having that greenspace accessible to everyone. Redlining was a racially discriminatory federal mortgage appraisal policy during the Great Depression. Lenders (banks) created imaginary boundaries and denied loans to non-white resident in areas deemed undesirable, simultaneously encouraging urban planners to remove greenspaces to build industrial infrastructure. Present day, redlined areas are associated with a variety of problems, including inadequate greenspace and tree canopy, excessive heat, and substandard health. Although redlining is now outlawed, the legacy remains. The burying of the river was not racist, redlining and later policies that placed public housing in such environmentally degraded areas were racist. Daylighting is a way to reduce the terrible effects of redlining.
Daylighting Ph. I — Van Der Donck Park
Daylighting Ph. I - Van der Donck Park

7) Completed in September 2012, Daylighting Phase I established an open air riverbed as part of a 13,775 square foot aquatic habitat. Instead of removing the entire concrete flume, PS & S engineers diverted the river and gave it a new channel with a more naturally-graded bank lined with a buffer of native grasses, perennial flowers, and hydrophytic trees. The old flume now serves as an overflow channel for floodwaters, preventing more combined sewage overflows from occurring in this strip. At the point where the river first emerges, a netting chamber was installed to trap trash and debris that could clog or pollute the river near its confluence with the Hudson.

8) Restoring ecosystem services for this impaired waterway was a high priority. As such, the design included several freshwater pools and a tidal pool as habitat for larger fish, such as the American eel and carp, and a fish ladder to facilitate upstream passage for smaller fish between the pools. Riprap (large boulders, stones, or cobbles) and a staircase waterfall add both ambiance and life-supporting oxygen to the water as the water bubbles over, and the surrounding park space includes permeable pavers and many garden beds to serve as an emergency floodplain during storm surge events (when winds push the brackish Hudson River up into the Saw Mill). At this stop, we can see that Van der Donck Park was designated as an Urban Fish and Wildlife Restoration site by the U.S. Fish and Wildlife Service, showcasing Yonkers' commitment to restore the local environment, including the daylighting of the Saw Mill River.
9) The intersection of the river and the land is called a riparian zone. When intact, this natural habitat is characterized by hydrophilic (water loving) plants, rich soils, clean waters, diverse animal communities, and strong food webs. Along the Saw Mill River, pin oaks, dogwood, black willows, speckled alders, and staghorn sumac trees are most common, and many species of frogs, turtles, snakes, ducks, and birds call it home.

Even with urbanization, the Saw Mill River has been a refuge for many fish, crustaceans, insects, and other visitors. Most importantly, studies have proven nature’s resilience here: the more the river is restored, the more life returns. Still, climate change leaves a lot of uncertainty regarding the resilience of our surrounding ecosystems and infrastructure. According to the theory behind reconciliation ecology, as urbanization continues, people must be intentional about offsetting our footprint on nature while we adapt for future challenges by creating habitats throughout our cities and suburbs. Phase I of the Saw Mill River Daylighting is a great example of reconciliation ecology in action. Uncovering the river and adding features like a fish ladder for migrating fish, riffles to oxygenate the water, and lots of native plants along the banks bring a functional habitat back to a busy city hub.
10) Colorful mosaics, an outdoor classroom, benches, and a foot-bridge with a sound installation add cultural and education value to the park.

Let’s stop at the Eel Mosaic to talk about Anguilla rostrata, the American Eel. This snake-like fish has two small pectoral fins found on the sides of the eel. Although these fish have small scales, a layer of mucus around their body makes them feel smooth and slimy, a perfect defense mechanism for getting away from hunters. American Eels don’t have many natural predators but they are highly sought after in human cuisine, so much so that their populations have been affected by overfishing.

The American Eel is known for its unique, 6 life stages: Eggs, Larvae or Leptocephali, Glass eels, Elvers, Yellow eels, and Silver eels, all of which are vastly different from each other. The American Eel lives in freshwater and brackish water, like the Hudson River, and travels 600 miles to the Sargasso Sea to spawn. This sea is located in the middle of the Atlantic Ocean that is formed by 4 ocean currents. Unlike other seas, it has no land boundaries.

The Eel eggs hatch and then are carried by ocean currents until they are strong enough to swim to fresh water to mature. The Eels’ natural distribution includes the Eastern North Atlantic Ocean coastline from Venezuela to Greenland. Eels are bottom dwellers and hide in mud and burrows during the day, and hunt for prey at night. American Eels have a keen sense of smell and use scent to hunt for its prey. They are generalists and have a diverse diet, eating any aquatic organism smaller than themselves.

The American eels return every spring to Yonkers from its journey to the Sargasso Sea. As the eels move up the Hudson River into the freshwater of the Saw Mill River, a trap called an eel mop can monitor its arrival and movements. We are often the first to see the baby eels return to our area. Since eels like to hide during the day, we place the traps in a perfect hiding spot to attract the creatures.
Organisms such as the American Eel are found where they are found because they fulfill a niche, or specific role in the ecosystem. The niche organism relies on the environment and the environment relies on the organism. It is this interdependence that is key for the health, diversity, and long-term well being of an ecosystem. When the Saw Mill River was covered and forced underground, the river biodiversity in downtown Yonkers was extremely limited. The daylighting of the river allowed for organisms to return and once again recycle the rich nutrients found in and round the resurfaced part of the Saw Mill River.

American Eel Life Stages

1) Eggs
2) Larva
3) Glass
4) Elvers
5) Yellow Eels
6) Silver Eels
11) Only time will tell if the Daylighting of the Saw Mill River will stand up to the environmental pressures posed by river maturation, human population growth and climate change. The Daylighting has earned global interest and praise and has attracted developers to the region. Initial water quality and biodiversity studies have been somewhat promising. Ultimately, it is up to Yonkers stakeholders from residential and business communities to non-profits, industries and et al to be diligent and vigilant in carrying out the responsibilities as environmental stewards to preserve this waterway for future generations.

For more information visit:

www.yonkersny.gov    www.groundworkhv.org