WATER URBANISM: FISH MARKET DESIGN PROPOSAL
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ABSTRACT

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The first civilizations we have ever heard of were along the banks of mighty rivers like Nile, Euphrates, Indus and Huang. These civilizations developed along rivers as riverfronts provided opportunities for trade & transportation, fertile land to grow crops, water for drinking, washing, livestock & other domestic uses and food in the form of fish. Gradually, they came to define cities, became a part of the identities of people, such as "India" from "Indus", while providing a sense of place and connecting the populace to nature. Yet rivers have often ended up being abused and neglected in our course towards urbanization. It is this "neglect" that needs to be shunned. The relationship with the rivers needs to be re-forged. To develop a strategy for this shift in attitude, this research has chosen the case of the Potomac River on the Chesapeake Bay.

Chesapeake Bay is an estuary lying inland from the Atlantic Ocean. It has mainland North America to its west and Delmarva Peninsula on the east. It is the largest Estuary in the United States. More than 150 major rivers and streams flow into the Chesapeake Bay. The estuary provides habitat to several species of wildlife and aquatic life. Today, this bay faces many issues such as nutrient and sediment pollution, Storm water runoff, lowering of shellfish species etc. One of the major causes of the polluted bay is storm water runoff. Storm water washes pollution off the roads and other surfaces and takes them to the water. Stormwater is generally more polluted in urban areas than rural areas. The Potomac River is one of the major rivers flowing into the Chesapeake Bay and a major contributor of urban run-off.

This thesis, attempts to demonstrate what can be done with a pixel along the Potomac River in Washington to help the mosaic of the bay. The Maine Avenue Fish Market, sitting just upstream to the now being developed Southwest Waterfront, seems a perfect choice for this endeavor. This market, a small urban waterfront space, is ideal for exploring ideas and solutions to avoid water pollution by stormwater, cleaning the quality of water and also, in the process, develop the area in relation to the city and its surroundings.

This thesis aims to establish an ecological and social relationship between the natural resource of the Potomac River and the urban life.

GENERAL ABSTRACT

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Rivers are extremely important to our eco system. They provide fertile land, water, opportunities for trade and transport, support various marine lives, provide an identity to a city or region etc. Inspite of being a vital component of our eco-system, rivers are being neglected and abused in our course towards urbanization. Today, rivers face several issues such as water pollution and lowering of marine life. In urban areas, water washes away pollution off the roads and flows into the river. This water run off from land is one of the major causes of the increasing water pollution.

This thesis attempts to reduce water pollution by suggesting sustainable methods to treat storm water, improving the quality of water, and also in this process develop the chosen site in respect to the city and revitalize the relation of the river and the city.

The site I chose for this endeavor lies on the Potomac River of Washington DC. The Maine Avenue Fish Market, a small urban waterfront space, sitting just upstream to the now being developed Southwest Waterfront is being taken up to demonstrate possible ideas and solutions to clean the polluted Potomac River and also establish a relationship between the city and the river.
I am tremendously grateful for the time I have spent in the Washington Alexandria Architecture Center and grateful to the many people I met there, all of them unique and special in their own way. Wherever I go, the things I learnt within those walls will always stay with me.

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The Maine Avenue Fish Market is located on the Southwest Waterfront in Washington DC. It is the oldest open-air fish market in the United States, operating since 1805.\(^1\) The market has several seafood stores, including the famous Captain White's seafood, Jessie Taylor seafood, etc. Seafood is sold on floating barges that move up and down with the tide.

The Fish Market is located under Interstate 395. The National Mall is five blocks to the north of the market. On the eastern side is the Banneker Park, Washington Channel to the west and the upcoming mixed-use waterfront development, The Wharf to its south.

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The existing Fish Market has 10 shops on floating barges. The shops cover an area of 2050 sq. meters. The total area of the site is 2.28 acres.

Some structures are not in use. There is one floating pavilion that is used as a seating space, reserved for one of the shops.
The market is at a walking distance from the Smithsonian Metro station, L'Enfant Metro station and Waterfront Metro station. It takes 15 minutes, 9 minutes and 7 minutes respectively for pedestrians to walk from the stations to the market. Hence, the site is easily accessible by pedestrians and transit users.

There are 19 Capital Bikeshares proposed in the Southwest waterfront, 2 being adjacent to the market.

Vehicles can easily access the site as it lies on the Maine Avenue. There is enough parking within the site and there are several parking lots proposed in The Wharf.
The Fish Market today operates in a bad condition, which provides inconvenience to the visitors and vendors.

The existing market has seafood shops on floating barges that block the view of the river. The river is treated as the backside of the site and the only place where the river is actually visible is the large seating space on the southern end, which is not very welcoming and is reserved by one of the shops.
The historic oyster shed in the center of the market is currently not in use, accompanied by two more such structures. The entire market plaza serves as a large parking lot with no furniture for visitors to sit and enjoy their food. Vehicles causing obstruction in pedestrian circulation access almost the entire site.
6. PEDESTRIAN MOVEMENT OBSTRUCTED BY VEHICULAR MOVEMENT AND PARKING

7. THE MARKET LOOKS LIKE A PARKING LOT AND VEHICULAR MOVEMENT CAUSES INCONVENIENCE TO THE PEDESTRIANS

8. THERE ARE STRUCTURES THAT ARE NOT IN USE IN THE MIDDLE OF THE MARKET

9. THE ONLY FEW PLACES WHERE THE RIVER CAN VIEWED ARE USED FOR STORAGE AND HAVE NO ACCESS

10. THE FLOATING BARGES FACE THE ROAD AND OBSTRUCT RIVER VIEW

11. THE FLOATING BARGES FACE THE ROAD AND OBSTRUCT RIVER VIEW

12. NO SEATING SPACE

13. GOOGLE IMAGE SHOWING HOW THE MARKET HAS EXCESSIVE PARKING SPREAD ALL OVER THE SITE

14. THE ONLY SEATING PLACE WHICH IS RESERVED BY ONE OF THE SHOPS HAS AN UNCOMFORTABLE ENVIRONMENT AND NO FURNITURE TO SIT DOWN
The site is situated on the banks of the Washington Channel. Water can play a pivotal role in making the market vibrant and active. The Fish Market along with its shops, can also have a pleasant gathering space where visitors can enjoy their seafood as well as the view of the channel. The experience of going down to the water and being able to physically touch it can also be provided. The market can also have indoor seating spaces where the view of the river is not blocked.

The site is approximately 1 km to the south of the National Mall. The market's proximity to the National Mall might provide a substantial density of visitors to the Fish Market.

The market is at a distance of ½ a km from the Tidal Basin. The market has the potential to attract many pedestrians if the two are well connected by a pedestrian and bike trail.

The Fish Market is adjacent to the upcoming mixed-use waterfront development, The Wharf. The Wharf will be a vibrant blend of residential and commercial areas with several shops, offices and restaurants. This upcoming development will definitely add to the number of visitors to the market.

The market has an interesting location. It is nestled between the high-rise of the upcoming development and Interstate 395. It may not be wrong to say that the market is hidden because of these tall structures, but this can also be a positive feature of the market, as it is like the bottom of a bowl.

The other axis has Banneker Park on one side and the Washington Channel on the other. Which means the site is between two pleasant elements.
As mentioned earlier, it is established that in order to make the market an active and vibrant destination, it should be well connected to the National Mall, Tidal Basin and the Wharf.

The opportunities that can be taken advantage of are the redevelopments already proposed in the area: The National Capital Planning Commission ‘NCPC’ Banneker Park Redevelopment, The SW Ecodistrict Proposal and The Wharf.
‘THE WHARF’ ANALYSIS

The Wharf is a result of Hoffman-Madison’s vision of Southwest Waterfront. The project extends up to 24 acres on land and 50 acres on water. The boundaries of the project are Fort McNair and The Maine Avenue Fish Market.

The mile long, development will be a mixed-use waterfront opportunity. The Wharf is situated on a significant location for the district. Because of its location, it has the potential to become DC’s next commerce hub, great meeting place and recreational zone.

The Wharf restores the culture of the Southwest Waterfront, creates great opportunities for the people, connects the neighborhood to the rest of the city and creates remarkable public spaces that the people will greatly enjoy.¹

According to NCPC's proposal, the Banneker Park would be designed as a feature on the axis of the Smithsonian Castle, that visually and programmatically extends the qualities of the Monumental Core via the 10th Street. 10th street is envisioned as a boulevard that is beautifully landscaped by gardens, water features and tree lines, making it a pedestrian-centric avenue that connects the National Mall and the Banneker Park. 1

The Banneker Park will have a programmed and visually appealing pedestrian access to the Fish Market. The Banneker Park acts as a gateway from the Southwest Waterfront to The National Mall.

The project was featured in MoMA’s Rising Currents workshops and exhibition. The project proposed that an armature composed of a woven web of ‘Fuzzy rope’ can nurture an oyster bed in the river, which in return can help clean the water and support marine growth because of the biotic filtration quality of oyster, mussels and eelgrass.¹

Response: Oysters do not grow in fresh water but mussels can replace them in this case. Mussels clean millions of gallons of water every day and also support marine growth.

The project was featured in MoMA’s Rising Currents workshops and exhibition. The proposal included artificial wetlands, raised edge and sponge slips. The streets were proposed to consist of infiltrating porous elements that kept surface water out of the city. The wetlands help in cleaning water and encourage marine growth.¹

Response: Creating artificial wetlands can help in improving water quality as they absorb pollutants that clean water. In addition, using infiltrating porous elements on the surface can keep storm water/rainwater off streets.

First Avenue Water plaza  Scape Studio
New York, New York
(Under construction)

The Project explores a plaza’s capabilities as both a civic space and water filtration system. The plaza is activated by a layered water collection system. On the edges is a swale that collects stormwater. It also has an underground water retention system that diverts water to the East river.

Response: A market plaza can serve both as a market place and as a water filtration system. Storm water planters, green roofs, porous surfaces will help manage storm water and collect it into a storage tank. This would also stop unclean water from entering the Washington Channel.

Schouwburgplein | West 8  
Rotterdam  
1991-1996

The main aim of the design was to attract people to the square. The surrounded buildings; the Cinema of Rotterdam, theatre and concert hall already attract many visitors. The square is very flexible and hosts a variety of functions. The square remains active throughout the day.

Response: A successful urban place is the one, which is made for people where there is maximum interaction between people and the surroundings. It can serve a host of functions and remains active throughout the day.

Union Market | JCA Architects  
Washington DC

Union Market is large market hall in Washington DC. It hosts more than 40 food vendors. The market hall has indoor as well as outdoor seating. It is a very well programmed market and is a very active urban space.

Response: A good market place is well programmed that has proper circulation, gathering space and comfortable seating spaces (indoor as well as outdoor).
This is a composite design plan that is composed from different proposals; Maine Avenue Fish Market proposal [my proposal], The Wharf, NCPC Banneker Park proposal and the 10th street Eco-District proposal.

This plan takes us into the future of Southwest Quadrant of Washington DC. We can see how the dull and neglected waterfront will bloom into a rich and vibrant destination which is well connected to the rest of the city. We can also observe how the flavor of the Monumental Core will extend to the Banneker park via a pleasant Boulevard which then connects to the Southwest Waterfront, Banneker Park acting as the connection.

This plan also shows us how vital is the location role of the Maine Avenue Fish Market. It has the potential to be an active and greatly visited urban space.
SKY LIGHT
The northern side of the building has a skylight to improve energy efficiency, daylighting and ventilation.

FISH MARKET

TRELLIS
Welcoming gateway for the pedestrians from the Bonnecker Park to the river directly.

MUSSEL REEFS
Mussel reefs are placed right in front of the mussel bar in the market. Mussel reefs can also be viewed by the visitors, educating them in a casual way about the ecological state of the Washington Channel.

FLOATING BOARDWALK
Boardwalks go down to Channel where people can sit and physically touch the water.

FLOATING WETLANDS
Boardwalks are surrounded by wetlands. Wetlands clean the water and also provide a natural setting.
GROUND FLOOR PLAN

- MUSSEl BAR
- PAVING PATTERNS HIGHLIGHTING THE MULTIPLE ENTRIES TO THE FISH MARKET AND LEADING TOWARDS WASHINGTON CHANNEL
- STALLS FOR VENDORS TO SELL FISH
- FIXED INDOOR SEATING
- FLEXIBLE OUTDOOR SEATING
- SERVICES
The city receives an average annual rainfall of 103.58 cm, all of which is spread out to only 115 days per year.  

Although the site is next to the Washington Channel, and the water table may be comfortably high up, letting go of rainwater into the municipal storm line and into the river, is an opportunity lost. This rainwater may only need primary filtration, via a de-silting chamber and then is good enough for irrigation, washing & maintenance, flushing etc. The rainwater from the roof is directed into the harvesting system via pipes concealed in the façade, further travelling underground to reach the tank. The water from the plazos (sloping towards the storm water catching elements at 1:150 slope) and the overflow of the storm water planters is again directed towards the same tank via a de-silting chamber. The stored water may also be used for urban purposes outside the site. It can be looked as a way of “giving back to the city”.

The entire space is well illuminated, making it an active place throughout the day and night.
SECTION

through the market building & plaza showing storm water drainage strategy using sustainable elements
In the morning, a child comes to the market plaza with his mother for a morning walk. They enter from the entrance trellis and go straight towards the river.

The child plays next to the water. The child also touches the water by dipping his feet in. The mother walks around and sits on the toe wall, where several other neighborhood people, professionals working in adjacent buildings and even tourists are enjoying the river view while reading, enjoying seafood, having coffee or working on their laptops.

The mother then continues her walk with her child towards the Tidal Basin from the Fish Market. It is noon now, a DC resident from a different neighborhood just parks her car and stands there for a while enjoying the view of the river.
The visitor then goes to the famous mussel bar and gets some mussels for herself. She sits on the amphitheater steps in front of the mussel bar and enjoys her food under the shade of a tree, viewing the river.

It’s almost evening now. The visitor meets her friend in the front plaza and they walk towards the car parking. A tourist couple was visiting the National Mall. They walked the L’Enfant Plaza and reached Banneker Park, where they saw the fish market. After their long walk, they sat in the front plaza for some time, enjoying the view of the Banneker Park.

The couple then enter the Fish Market and have dinner there, sitting in the indoor space.

ONE SPACE, MULTIPLE FUNCTIONS
The tourist couple then sit on the steps facing the river and enjoy sunset.

After the sunset, the tourist couple walk on the illuminated boardwalks amidst the wetlands in the dusk.

The couple then exit through the trellis.


IMAGE SOURCES

7. Google image
8. Singh Smakshi, Maine Avenue Fish Market, 2016, Jpeg file.
10. Google image
14. Google image
15. Singh Smakshi, Maine Avenue Fish Market, 2016, Jpeg file.
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