Soft Infrastructure in the Urban Estuary / Palisade Bay

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Summary

The movement of water along a vertical scale draws attention to the subtle realities of topography and the consequential horizontal extent of flooding. During a flood, the section gives rise to new configurations and understandings of the city. Today, flooding has become synonymous with the impact of global sea level rise, and the threat of rising waters has taken on a new sense of urgency. Studying the planar transformation that takes place during a time of high water is an opportunity to reinvent and redesign the 21st-century city, and to consider new notions of urban and ecological development. We are particularly interested in questioning both the notion and the effectiveness of "hard infrastructure," exemplified by seawalls and storm surge barriers. These reduce the zone of floodwater absorption to a singular line in plan and a singular wall in section. We propose the development of a new strategic approach toward flooding that we call "soft infrastructure"—multiple and iterative strategies that buffer or absorb flooding. These strategies operate at the merged surface of the land's topography and the water's bathymetry, or in the shallow flats below the water. We envision the water's edge as a fluid and temporal limit between the water and the land. Our analyses include computational hydrodynamic and hazard models to predict flooding and their consequences in the New York and New Jersey harbor region.

Keywords: Soft Infrastructure, Aquaculture, Flood Hazard, Sea level Rise, Storm Surge

1. Inondazione

"At the end of a hundred leagues we found a very agreeable location situated within two prominent hills, in the midst of which flowed to the sea a very great river, which was deep at the mouth."– Giovanni da Verrazano, 1524 AD

During a flood event, a city is transformed. The displacement of a volume of water—the movement of a purely horizontal liquid datum along the vertical axis—creates radical planar reconfigurations. Rome is marked in many ways by the presence of the Tiber River and its historically relentless

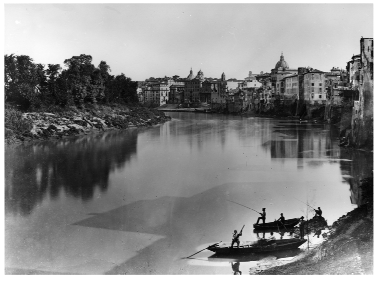

Fig. 1: Photograph of the Tiber River taken shortly before the construction of the modern embankment walls. Here, the city touches the water.

Fig. 2: Stretch of the Tiber River above the Ponte Garibaldi showing the resultant sectional displacement of the city from its river.

Fig. 3: Plan of Rome depicting the extent of the 1598 (dark gray) and 1870 (light gray) floods. The flood of 1870 led to the construction of the embankment walls.

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