Chicago Rivers Advancements

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History Of the Chicago River

Early History of Chicago River

- Native Americans lived in Chicago for 13000 years before european settlement
- Indians led Jacques Marquette to the lake of illinois
- Marquette visited Chicago again on december 4th,1674
- Jean-Baptiste was the first man to permanently settle in chicago on march 4th 1837
- The river was made up the south/north branches that integrated into the main branch.
- The area became important for fur trade, by the Potawatomi and by European/African settlers.

Early History of Chicago River pt.2

- The river was the core of meatpacking and lumber industries
- In the 1870s waste was dumped into the Chicago river
- Metropolitan Sanitary District of Greater Chicago(1889 and 1910) directd the flow of the river

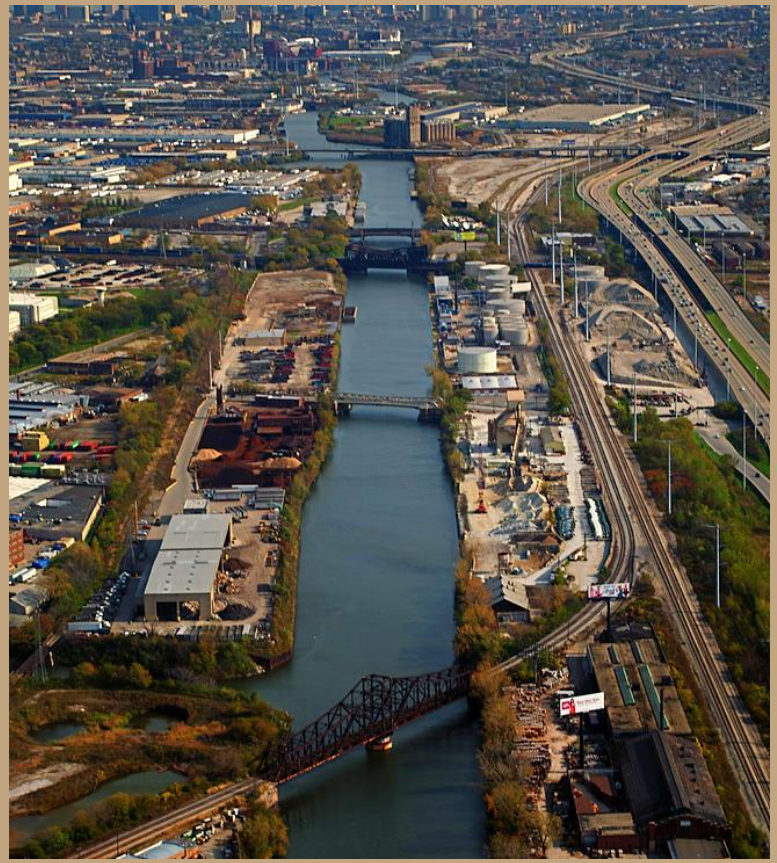
02

North Branch

North Branch

- The North Branch was originally named the Guaire river
- The North Branch roots from the suburbs of Chicago
- The North Branch has a north shore canal that helps increase the river's north branch flow.
- The north shore canal was built in 1907 and 1921
- The north shore flow was created in order to help pollution


03
South Branch
THE CITY OF CHICAGO.



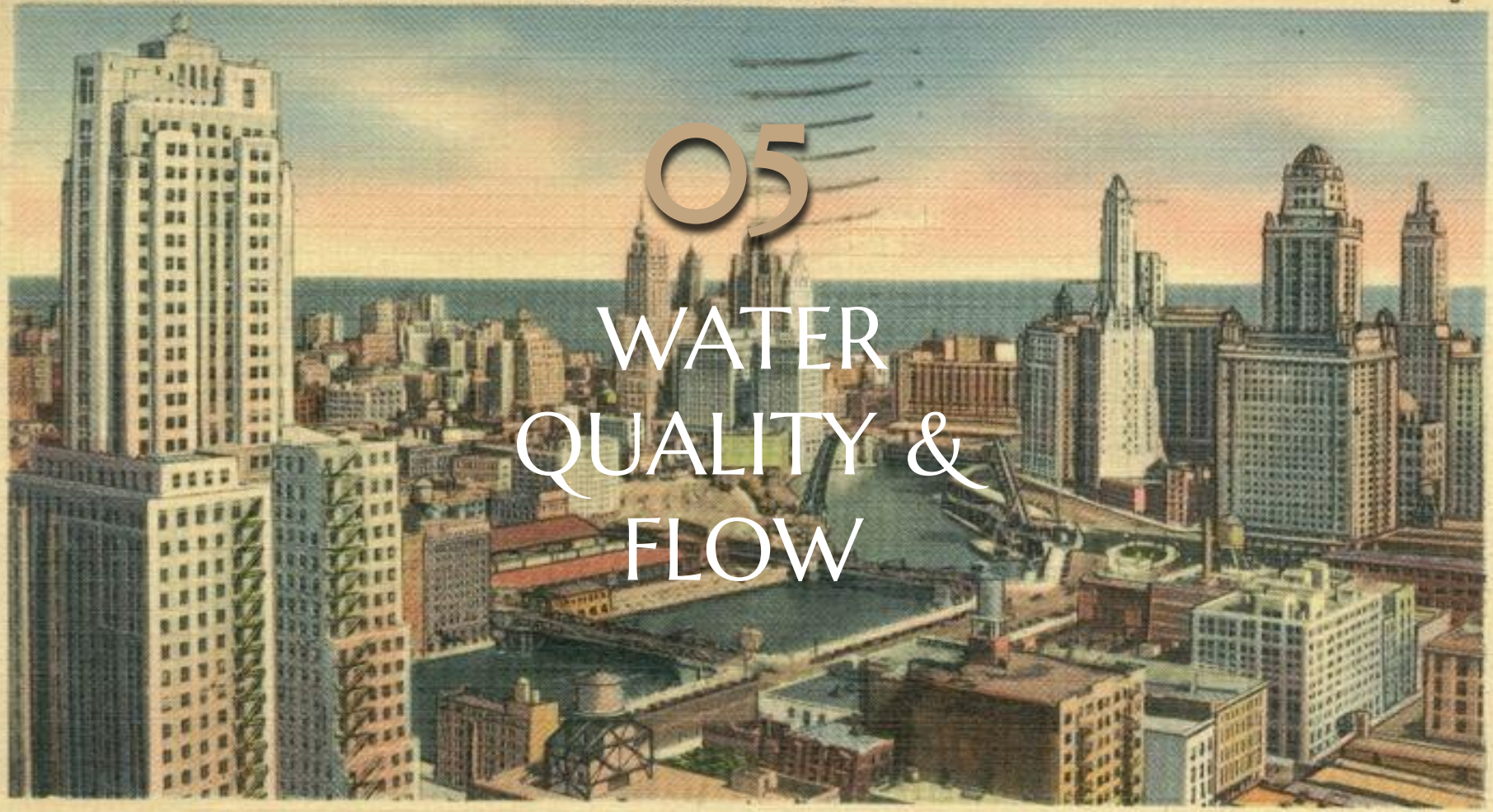
South Branch

- The South Branch was called “Bubbly Creek”
- The South Branch is commercial and industrial
- The Branch is located in Chinatown
- The South Branch has the lowest amount of open space per capita

04 MAIN BRANCH

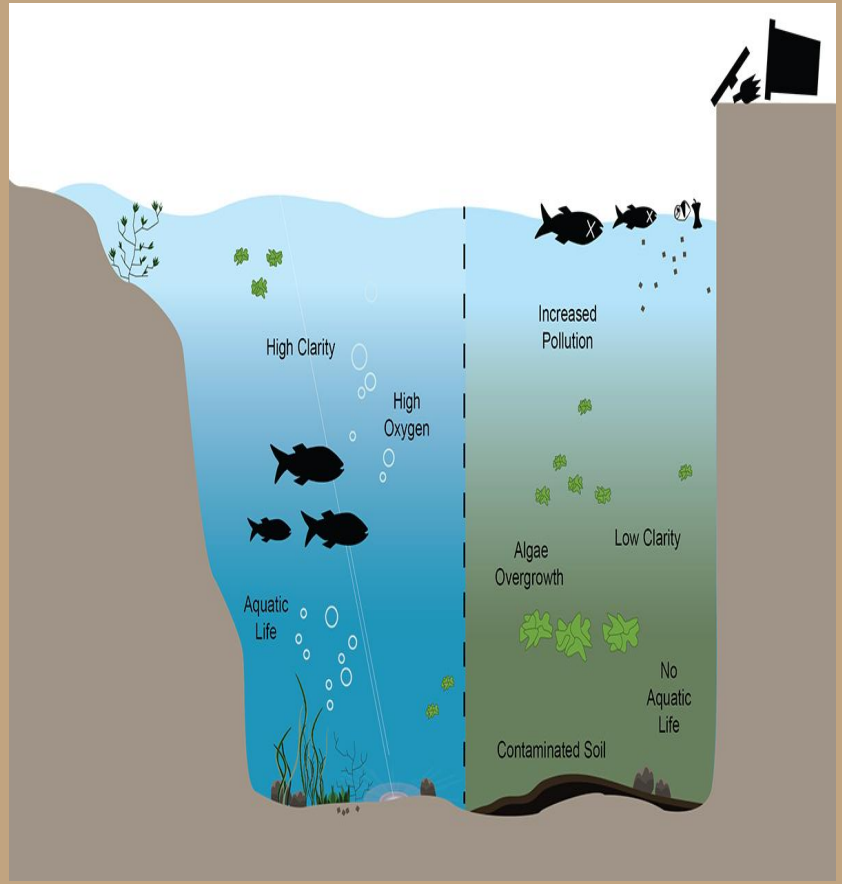
Main Branch

- The main stem of the Chicago River is rooted in lake Michigan
- The man stem flows 1.5 miles in the opposite direction of the lake
- The branch passes through Michigan Avenue, Dearborn Street, Clark Street, and Wabash Avenue
- People use the rivers riverwalk for walking, bicycling, and picnics
- Upper class white americans live in this area.



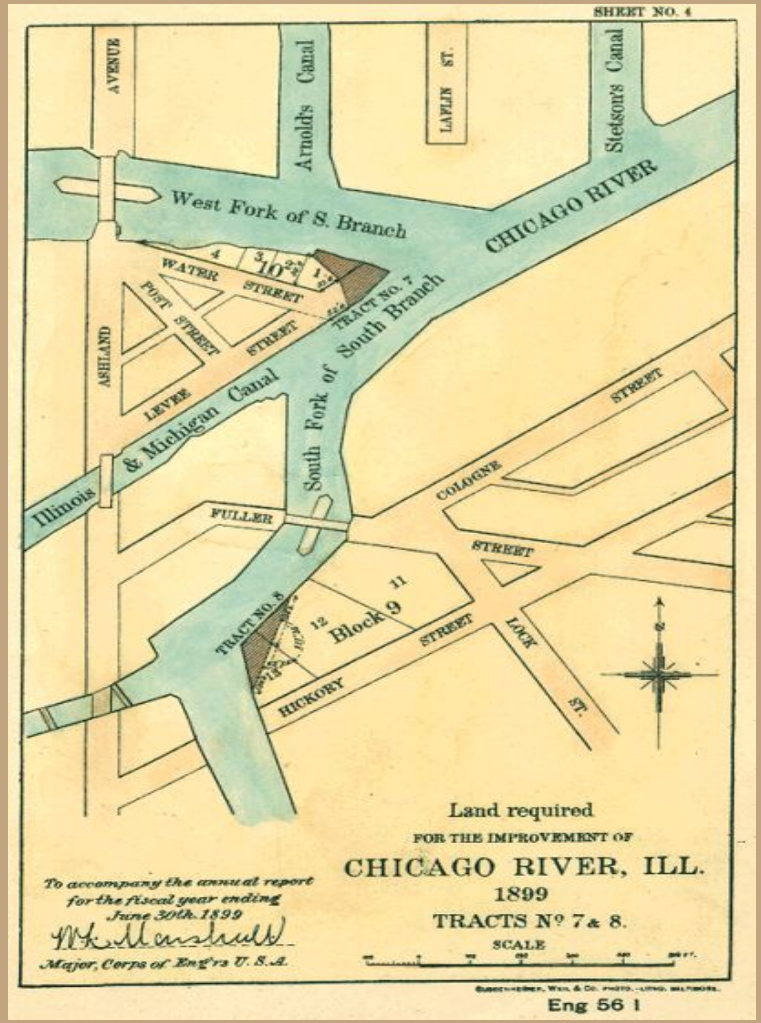
05

WATER QUALITY & FLOW



Water Quality

- Metropolitan Water Reclamation District of Greater Chicago helped change water quality in 1970s/80s
- Increase fish populations in the Chicago river
- The “Friends” of the river organized forums in 1991 and 1992
- The rivers watergate is made up of natural and channelized rivers
- The end of the use of chlorine to disinfect wastewater ended in 1984
- In in 1985, the TARP controlled pollution
- In 1974 there were only 10 types of fish in the Chicago River, this number multiplied in 2006 due to the increase in water quality



Flow Of the Chicago River

- The river originally flowed into Lake Michigan
- Animal waste and industrial chemicals polluted the river and lake
- People were drinking this water resulting in Cholera
- Chesbrough built the "Big Ditch" that was built in 1892; in order to reverse the flow
- Chicago's waste flowed down to the Mississippi to the gulf
- Mississippi was outraged and wanted to file a lawsuit
- On January 2nd, 1900, they broke open the last dam, and changed the flow of the river


06
“FRIENDS”
K Wood

“Friends”

- Improvements to water quality accomplished by the metropolitan water reclamation district of greater chicago
- “Friends” made people aware of the Chicago River
- Residents recognized the need for continued environmental improvements

Model Of the Chicago River

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Water quality

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- Abstract: Bidirectional flows in a river system can occur under stratified flow conditions and in addition to creating significant errors in discharge estimates, the upstream propagating currents are capable of transporting contaminants and affecting water quality. Detailed field observations of bidirectional flows were made in the Chicago River in Chicago, Illinois in the winter of 2005–06. Using multiple acoustic Doppler current profilers simultaneously with a water-quality profiler, the formation of upstream propagating density currents within the Chicago River both as an underflow and an overflow was observed on three occasions. Density differences driving the flow primarily arise from salinity differences between intersecting branches of the Chicago River, whereas water temperature is secondary in the creation of these currents. Deicing salts appear to be the primary source of salinity in the North Branch of the Chicago River, entering the waterway through direct runoff and effluent from a wastewater-treatment plant in a large metropolitan area primarily served by combined sewers. Water-quality assessments of the Chicago River may underestimate (or overestimate) the impairment of the river because standard water-quality monitoring practices do not account for density-driven underflows (or overflows). Chloride concentrations near the riverbed can significantly exceed concentrations at the river surface during underflows indicating that full-depth parameter profiles are necessary for accurate water-quality assessments in urban environments where application of deicing salt is common.
- Keywords: Density current; Gravity current; Bidirectional flow; Chloride; Deicing salt; Chicago Rive

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