Water and the Post-Natural City
Reversals, Invasions, and Prospects for Sustainability

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Water in Chicago as postnatural: historical roots, present conditions

Transformations: changes in the Chicago River and relation to urban infrastructure

Connections among water systems: water supply, surface water, groundwater, wastewater

Future Prospects: water and urban nature in a postnatural age
Water as civic icon: approaching the confluence of the North and South Branches of the Chicago River, Oct. 2011 (M. Bryson)
A natural river? The North Branch at Ronan Park, Oct. 2012 (M. Bryson)
Maybe not. This is the Lawrence Avenue wastewater pumping station, also on the North Branch at Ronan Park, Oct. 2012 (M. Bryson)
Postcard depiction of the mouth of the Chicago River

Chicago in 1820
Postcard depiction of the mouth of the Chicago River, c. 1906
A chicken stands upon Bubbly Creek, c.1911 (Chicago Historical Society)
Lake Michigan and the Chicago Region's Rivers

Chicago Area Waterway System: rivers, canals, locks, and controlling structures

Note the relation of the CAWS to the Des Plaines River and Salt Creek
Urban wilderness: Upper North Branch of the Chicago River (M. Bryson)
Channelization: the riparian zone in the 21st century (M. Bryson)
Water supply infrastructure:
Jardine Water Filtration Plant on Chicago's lakefront
Wastewater infrastructure: Racine Ave Pumping Station (M. Bryson)
Wastewater infrastructure: the Stickney Wastewater Treatment Plant, the world's largest such facility (MWRD)
Wastewater infrastructure: Upper Des Plaines Tunnel section of TARP

(Chicago Tribune, 1998)
Deep Tunnel (TARP)

Map depicts project status as of 2010

Vast tunnel and reservoir system begun in the early 1980s and designed to store combined sewage/stormwater during rain events before it's transported to wastewater treatment plants.

(Expected completion: 2029)
Embracing the postnatural: 
Water in the city as a hybrid of nature and the built environment

**Water and urban sustainability**: improving water quality, restoring biodiversity, conserving water supply, enhancing human contact with urban nature

**Crises old and new**: persistent pollution, wasted water, invasive species (e.g., Asian carp)

**Emerging narratives**: watershed separation, green infrastructure
Water as waste sink: Combined Sewage Outfall, Bubbly Creek (M. Bryson)
Water for play: Kayaking the Main Branch of the Chicago River, Sept. 2013 (B. Quesnell)
Biodiversity: herons on North Branch, River Park, Oct. 2012 (M. Bryson)
A river reversed, a problem created

The Chicago and Calumet rivers were once tiny waterways that trickled into Lake Michigan. Beginning in 1900 the city dug a series of canals that reversed their flows so they could carry the city’s waste into the Mississippi River basin, and away from the lake—the city’s drinking water source. A push is now under way to engineer a system to re-establish the natural hydrological divide between Lake Michigan and the Mississippi.

Pre-1900 hydrology of the Chicago-area waterways (left); current flows, location of locks and water treatment plants, and Asian carp sightings as of summer 2010 (Milwaukee Journal-Sentinel / Great Lakes Fisheries Commission)
Mid-System Alternative

- Outflow to lake (completed barrier)
  - Wilmette Pump Station
- Upgrade North Side WWTP
- Floodplain storage
- Sewer separation program
- Outflow to lake (completed barrier)
  - Chicago River Controlling Works
- Flow augmentation (Lake Michigan)
- Green infrastructure program
  - Bulk cargo transfer
  - Recreational boat lift
  - Dry dock/maintenance facilities
- Intermodal transfer facility
  - Tunnel to lake
- Potential barrier locations

- Bulk cargo transfer
- Recreational boat lift
- Dry dock/maintenance facilities

Flow augmentation
- Stickney WWTP

1-way barrier with bypass flows (Phase I only)

TARP completion
- McCook Reservoir
- Thornton Reservoir

Sewer separation program
Green Infrastructure: Busse Woods / Cook County Forest Preserves
Postnatural water in suburbia: the MWRD's John Egan WTP in Schaumburg, around which flows the West Branch of Salt Creek into Busse Woods (right)
The future of water in postnatural Chicago: enhancing human interaction with the river. RU students canoe Bubbly Creek, May 2009 (M. Bryson)