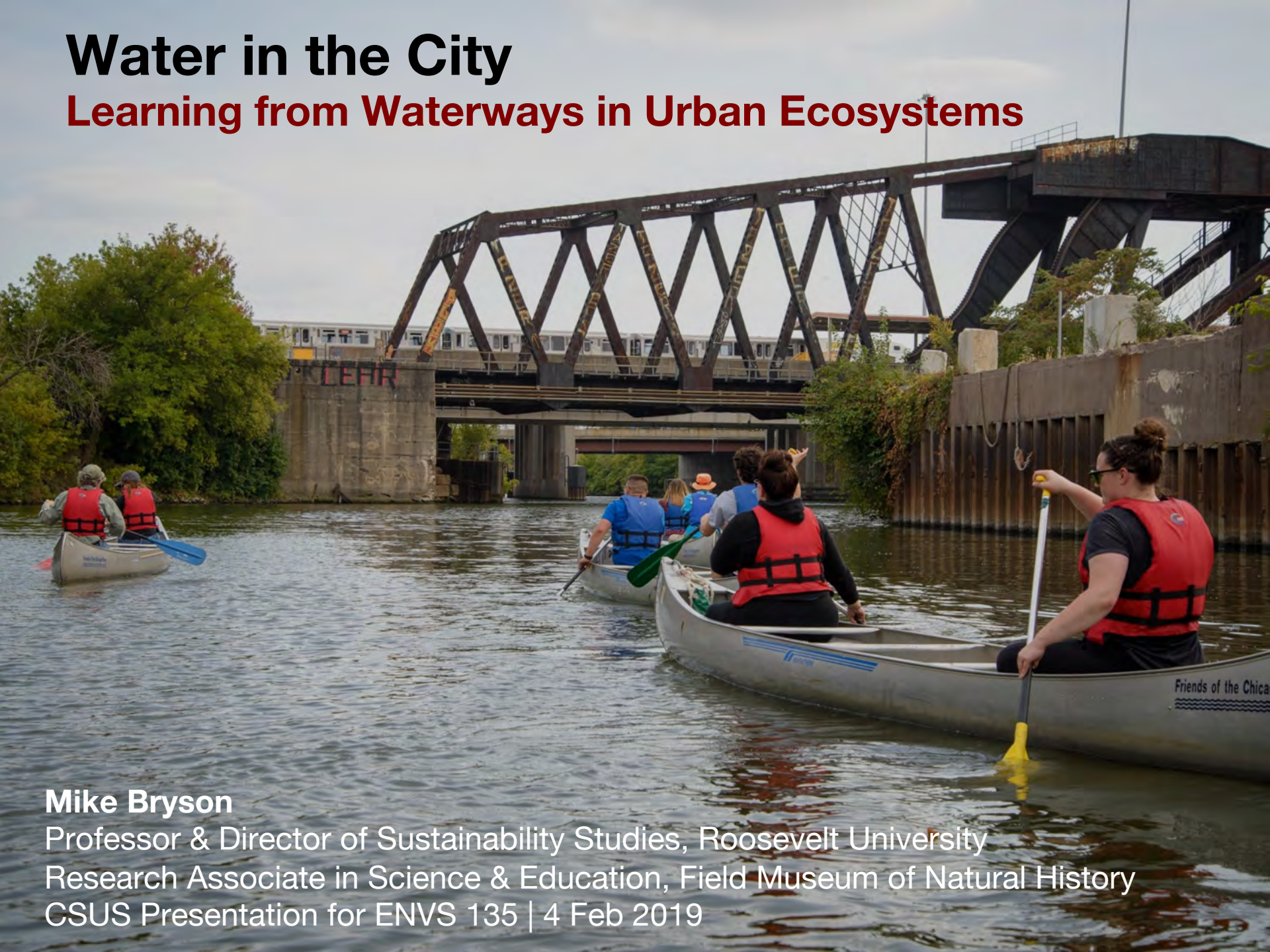
Water in the City

Learning from Waterways in Urban Ecosystems



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CSUS Presentation for ENVS 135 | 4 Feb 2019

Currents and Confluences:
Teaching, research, service, and water

Waterbodies:
A short writing and discussion interlude

The Chicago River:
Urban waterways and the control of nature

Bubbly Creek:
Infamous past, invisible present, uncertain future

The American River:
Thinking like a watershed

The Chicago River (photo: Ryan Hodgson-Rigsbee)

Currents & Confluences: Teaching

Sustainability

SUST 210 Sustainable Future*
SUST 240 Waste*
SUST 250 Sustainable University*
SUST 340 Policy, Law, & Ethics*

Urban Ecology

SUST 220 Water**
SUST 350 Service & Sustainability
PLS 391 Seminar in Natural Science*

Environmental Humanities

SUST 360 Writing Urban Nature*
PLS 392 Representing the Urban Landscape*

General Education

SUST 101 Humans & Nature
ACP 101 First-Year Seminar
PLS 399 Senior Thesis

* Water-related

Canoeing the Confluence

Heading south into the Loop where the branches meet;
Wolf Point in the background, October 2011 (photo: M. Bryson)

Exploring the North Branch Wilderness

Paddling the West Fork of the Upper North Branch: portage around
a fallen tree in the Cook County Forest Preserve, Oct. 2012 (photo: M. Bryson)

Investigating Suburban Wetlands

Assessing water quality of the RU detention pond, Schaumburg IL
October 2012 (photo: M. Bryson)

Fun with D-nets

Sampling benthic macro-invertebrate in the North Branch of the Chicago River, Cook County Forest Preserve, May 2010 (photo: M. Bryson)

Connecting with the Community

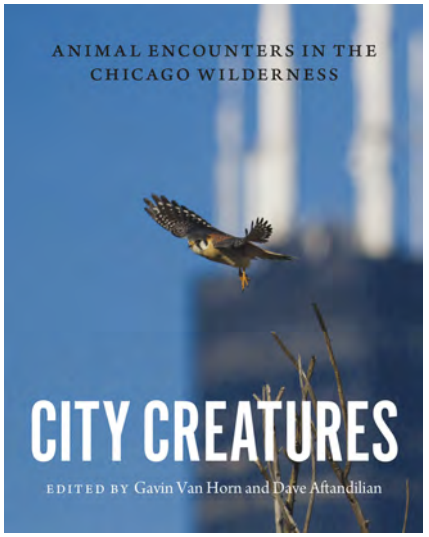
Identifying macro-invertebrates from the North Branch, May 2010, Irene Hernandez
Family Picnic Grove, Cook County Forest Preserve (photo: M. Bryson)

Currents & Confluences: Research/Writing

Urban Ecology / Environmental Humanities

"Canoeing through History: Wild Encounters on Bubbly Creek." *City Creatures* blog/book/art project (U Chgo P, 2015).

"Cultivating the Wild on Chicago's South Side" *Wildness: Relations of People and Place* (U Chgo P, 2017).



Environmental History

"Infamous Past, Invisible Present: Searching for Bubbly Creek in the 21st Century." With Carl Zimring. *IA -- The Journal of Industrial Archeology* (2013).

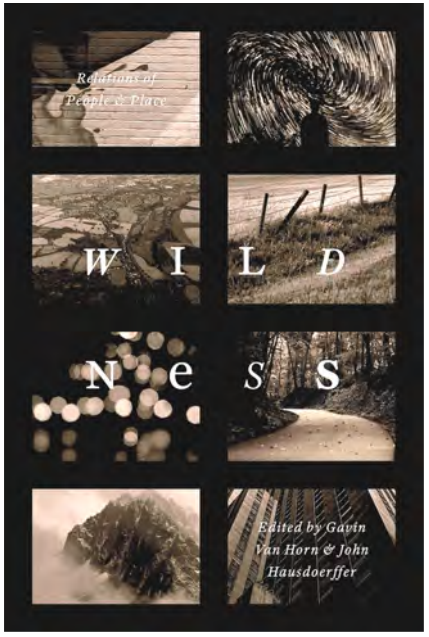
Ecocriticism / Science & Nature Writing

"Reading the Book of Nature: May Theilgaard Watts and the Art of (Teaching) Ecology" (in progress)

Sustainability, Science, & Education

"Using Citizen Science to Bridge Taxonomic Discovery with Education and Outreach." M. Konrat (lead author), T. Campbell, B. Carter, M. Greif, M. Bryson, et al. *Applications in Plant Science* (2018)

"Schaumburg's Sustainable Future: Student Research, Social Media, and the 'Edge City' Suburb." *Journal of Environmental Studies and Science* (2014).



Currents & Confluences: Community Service

Grab a bag! SUST 240 Waste students clean up the streambank of Bubbly Creek at Canal Origins Park, Oct. 2018 (photo: M. Bryson)

Mind-Body Activity: 3-Minute Freewrite

What *particular* waterbody do you have a connection to?

Think about a waterbody, past or present, that you have some kind of connection to. It could be anything -- large or small; well-known or obscure.

What is the *nature* of that connection?

Jot down some key words or phrases that characterize *your connection* with that waterbody – whatever or wherever it is.

Class Discussion: Learning from Water

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What do these waterbodies teach us?

Class Discussion: Learning from Water

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Jot down some key words or phrases that characterize *your connection* with that waterbody – whatever or wherever it is.

What do these waterbodies teach us?

Biodiversity, ecology, geography, environmental justice, history, sense of place, stewardship, urban sustainability, wildness . . .

Urban Waterways & the Control of Nature

Main Branch of the Chicago River, downtown Chicago, looking west
Sept. 2013 (photo: R. Quesnell)

Evolution of the Chicago River

Postcard depiction of the mouth of the Chicago River, looking west

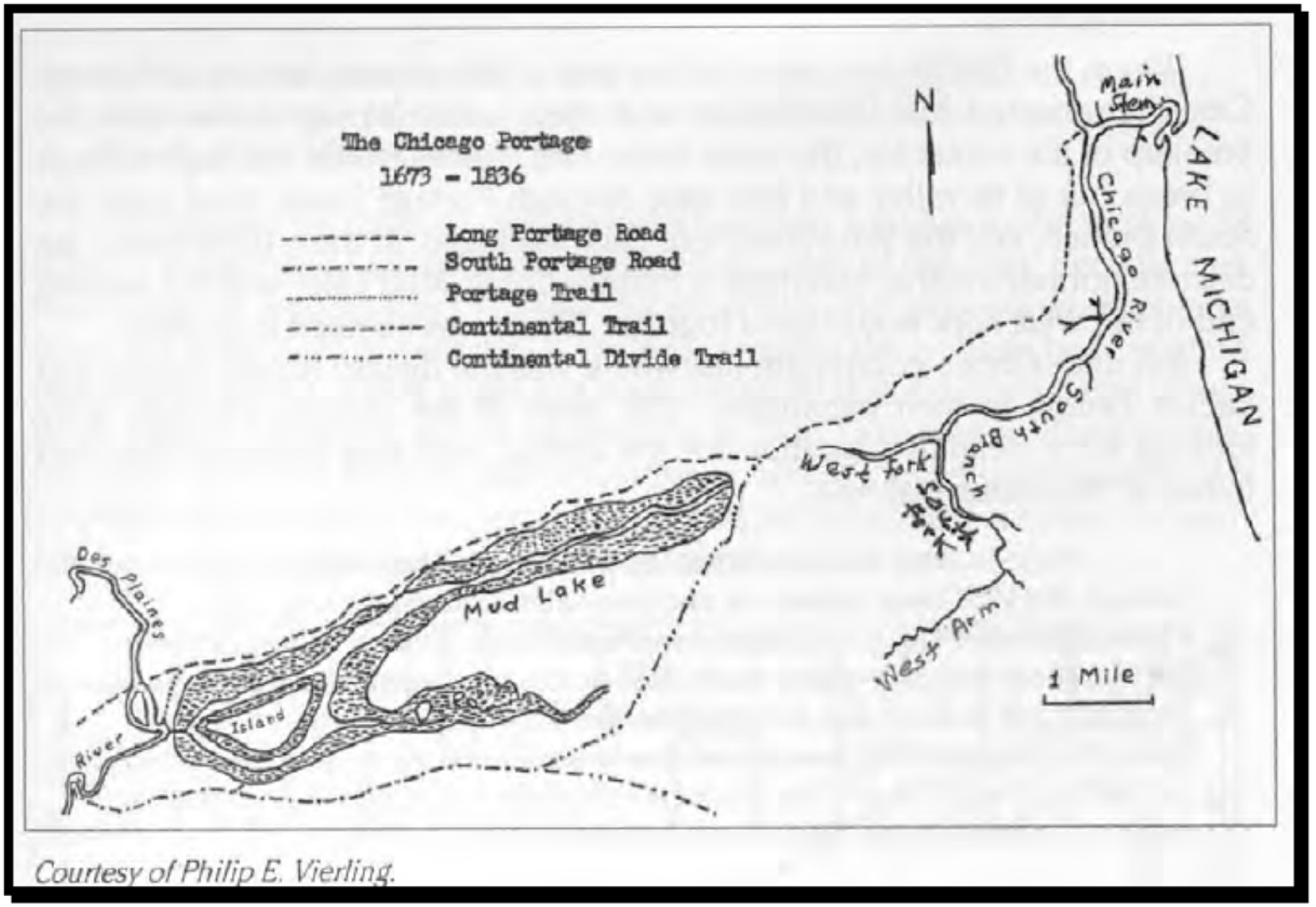
Evolution of the Chicago River

Chicago in 1857

Evolution of the Chicago River

Postcard depiction of the mouth of the Chicago River, c. 1906

Evolution of the Chicago River

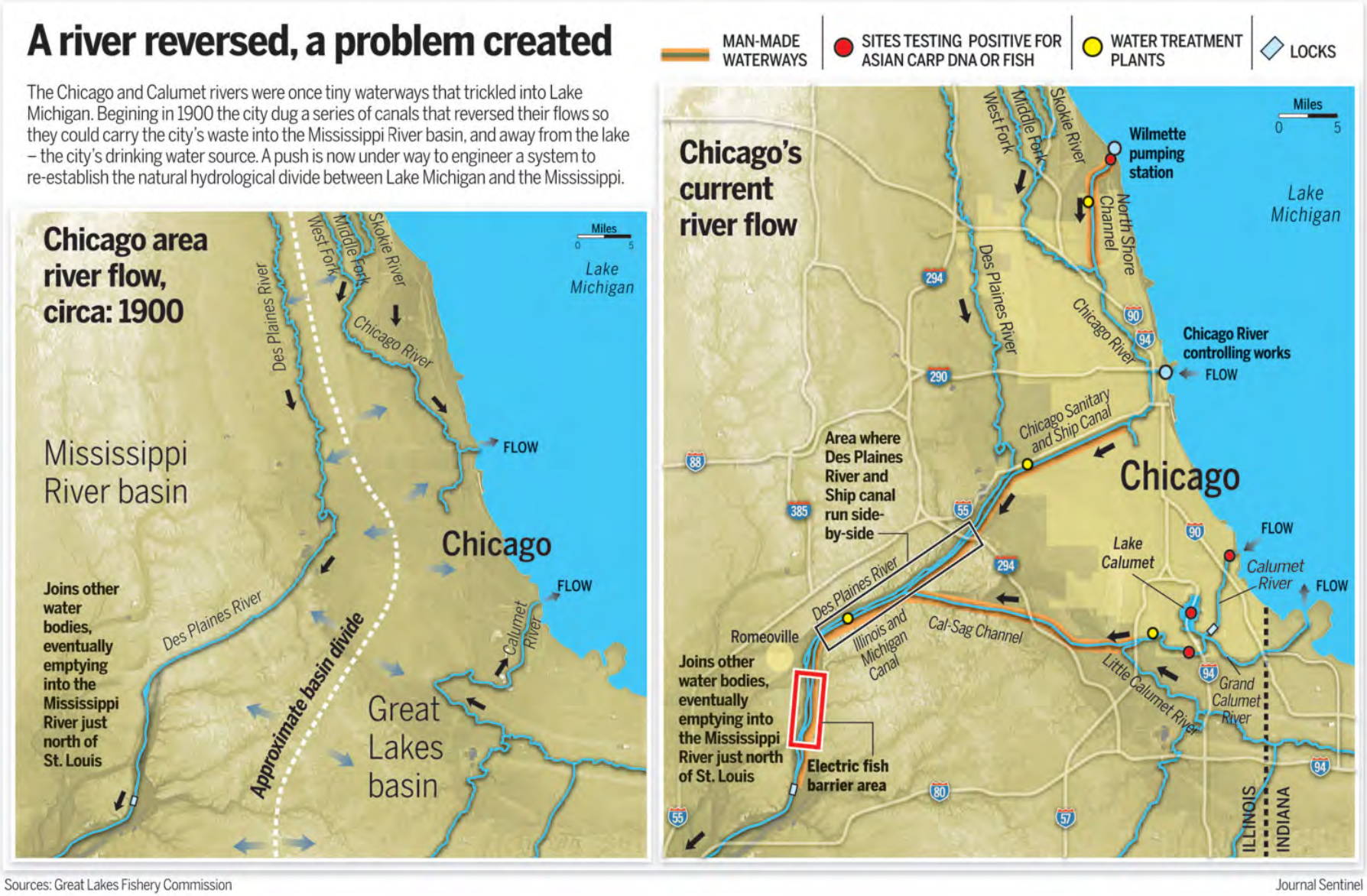


Map of the Chicago Portage: the South Branch of the Chicago River, Mud Lake, & the Des Plaines River (USACE Bubbly Creek Feasibility Study, 2015)

Evolution of the Chicago River

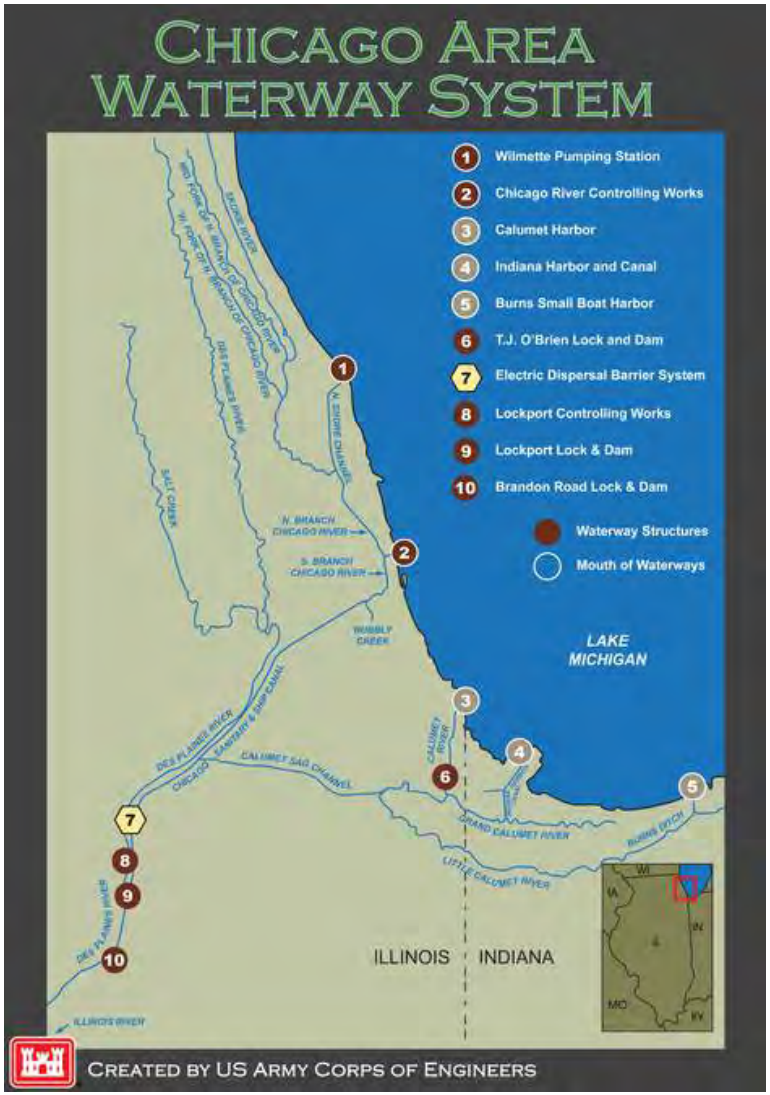
A highway of water: the I&M Canal, completed in 1848 (map: State of IL archive)

Evolution of the Chicago River



Comparison of historical and modified hydrology of the Chicago River, 2010

From "River" to "Waterway System"



Maps: US Army Corps of Engineers;
Metropolitan Water Reclamation District of Greater Chicago

Discussion Interlude, Part Deux

What are some of the *benefits* of engineering waterways?

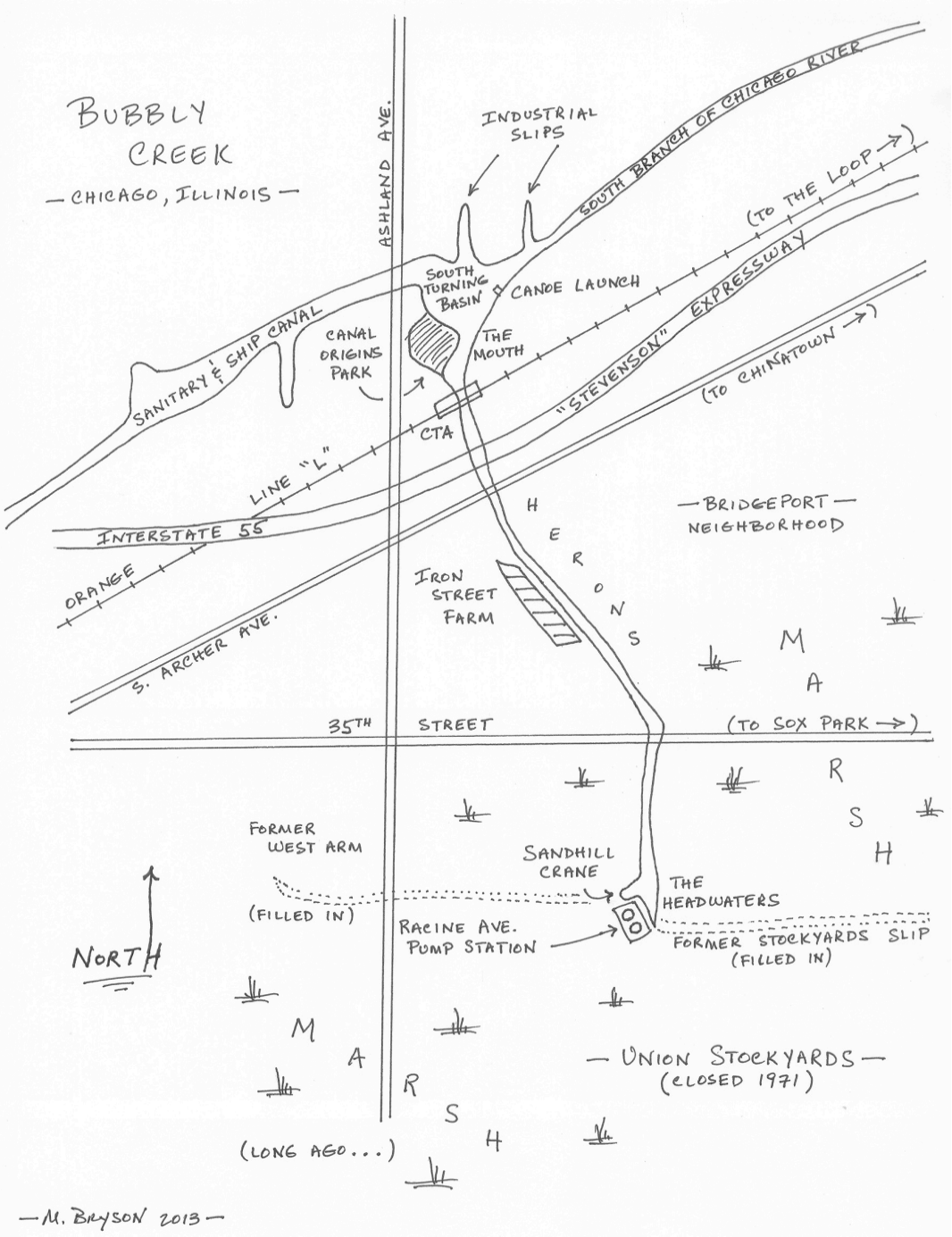
Hypothesize about the Chicago River; or contemplate a waterway you know first-hand. (Sacramento has a couple of interesting ones.)

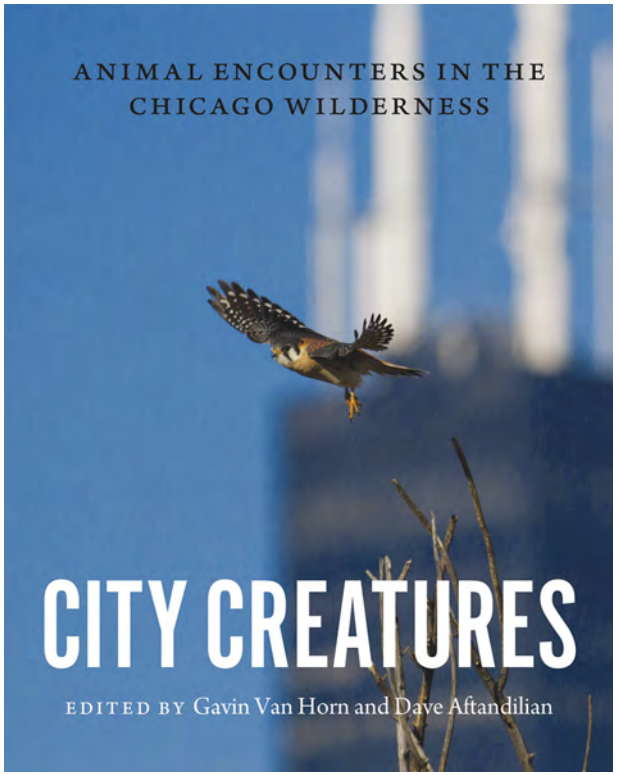
What unintended and/or adverse *consequences* might result (or have already occurred)?

Logic-based speculation is encouraged . . .

Wherefore Art Thou, Bubbly Creek?

Maps: US Army Corps of Engineers; US Geological Survey





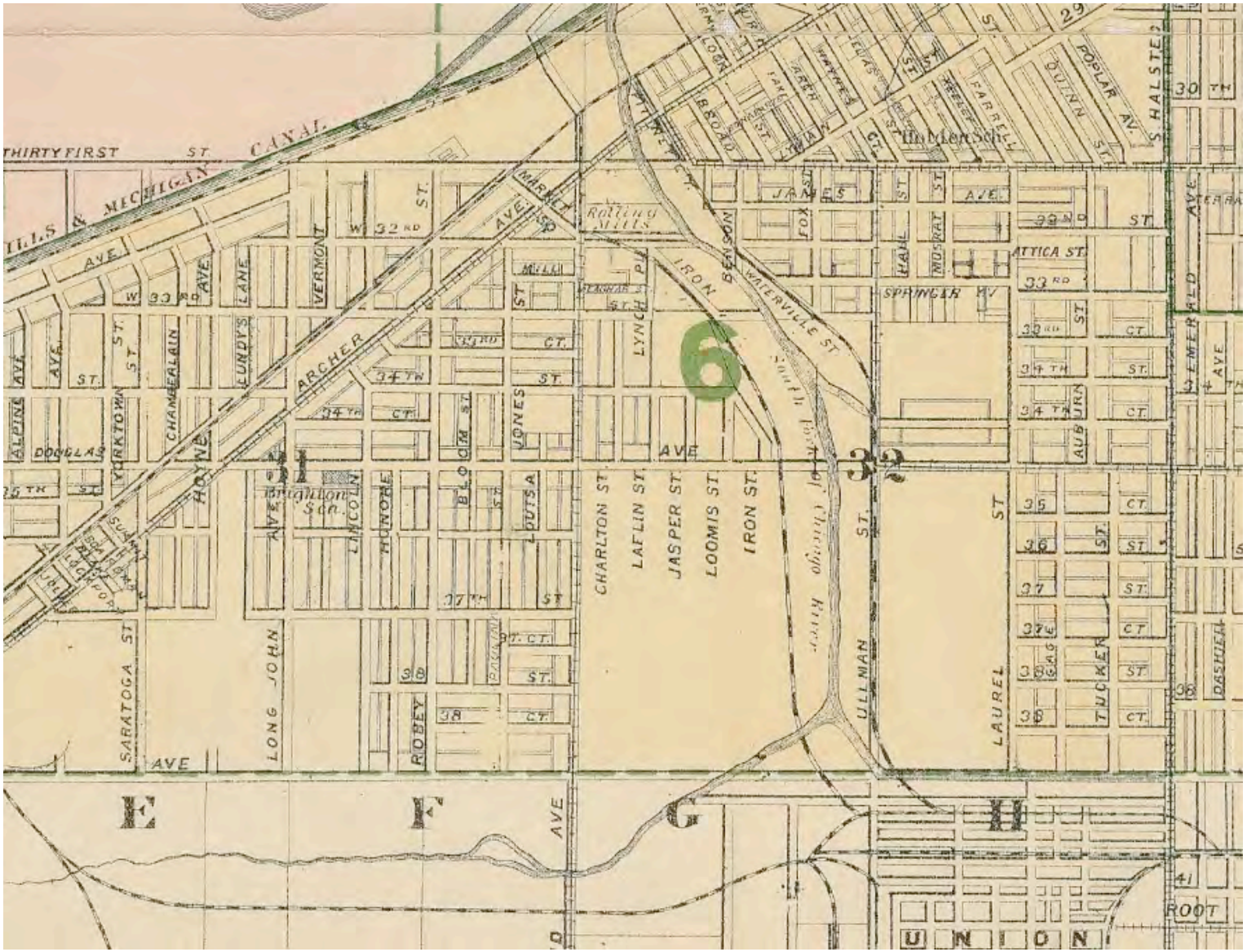
A place map from the essay "Canoeing through History: Wild Encounters on Bubbly Creek" (in *City Creatures,* Univ of Chgo Press, 2015).

The Chicago River: Glimpses of the Past

North Branch of the Chicago River, spring 2010 (photo: M. Bryson)

Bubbly Creek: the Past

A chicken stands upon Bubbly Creek, c.1911 (photo: Chicago Historical Society)



Inset of Rufus Blanchard, “Index Map of Chicago: Running South to Seventy-First Street,” 1888 (map: Univ. of Chicago Library reproduction, 2008)

Union Stockyards, Chicago, 1941. Photograph by John Vachon, Farm Security Administration - Office of War Information Photograph Collection (Library of Congress)

Man standing atop wastes on the surface of Bubbly Creek, April, 1911.
Photograph by Chicago *Daily News* (Chicago History Museum).

Bubbly Creek: the Present

Heading upstream Bubbly Creek, Oct. 2017 (photo: R. Winterpacht)

In Case You're Wondering . . .

Yes, the Creek still bubbles (photo: R. Winterpacht, 2017)

Channelization along Bubbly Creek, 2009 (photo: D. Bradford Hunt)

Riparian zone at the headwaters of Bubbly Creek, 2009 (photo: L. Bryson)

Down by the riverbank (photo: Ryan Hodgson-Rigsbee, 2010)

Black-crowned night heron along Bubbly Creek, 2017 (photo: R. Winterpacht)

Gentrification along Bubbly Creek, 2009 (photo: D. Bradford Hunt)

"Trash Tree" on Bubbly Creek, 2009 (photo: L. Bryson)

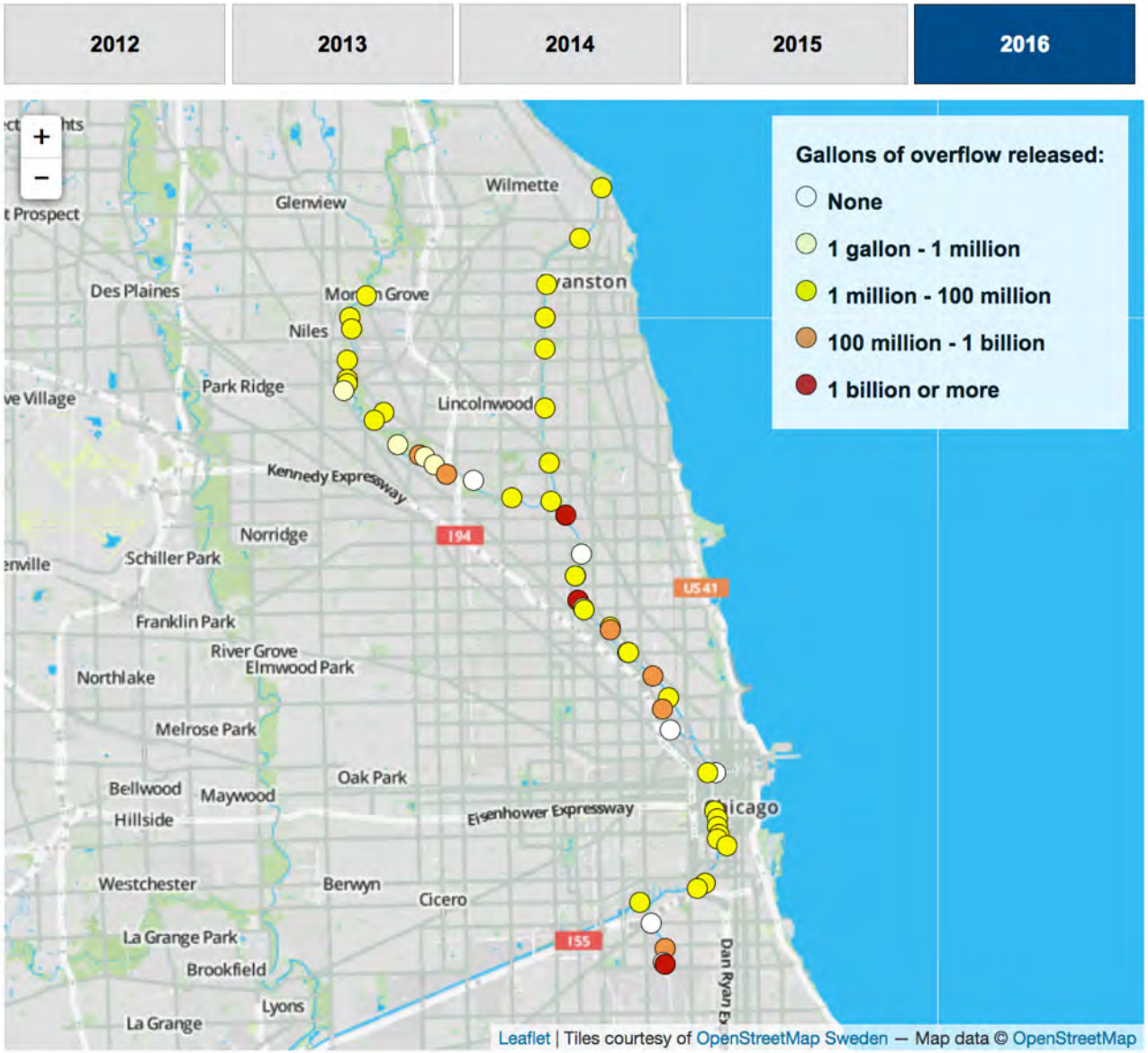
Headwaters of Bubbly Creek, 2009 (photo: L. Bryson)

Flotsam in Bubbly Creek, 2010 (photo: M. Bryson)

Floating sediment on surface of Bubbly Creek: "Odors produced by the gases and the appearance of these clumps are aesthetically unpleasing."
(source: USACE Bubbly Creek Restoration Feasibility Study, 2015)

Bubbly Creek Combined Sewage Overflow drain, 2010 (photo: M. Bryson)

Sewage overflows into the Chicago River, by year



Source: Metropolitan Water Reclamation District of Greater Chicago

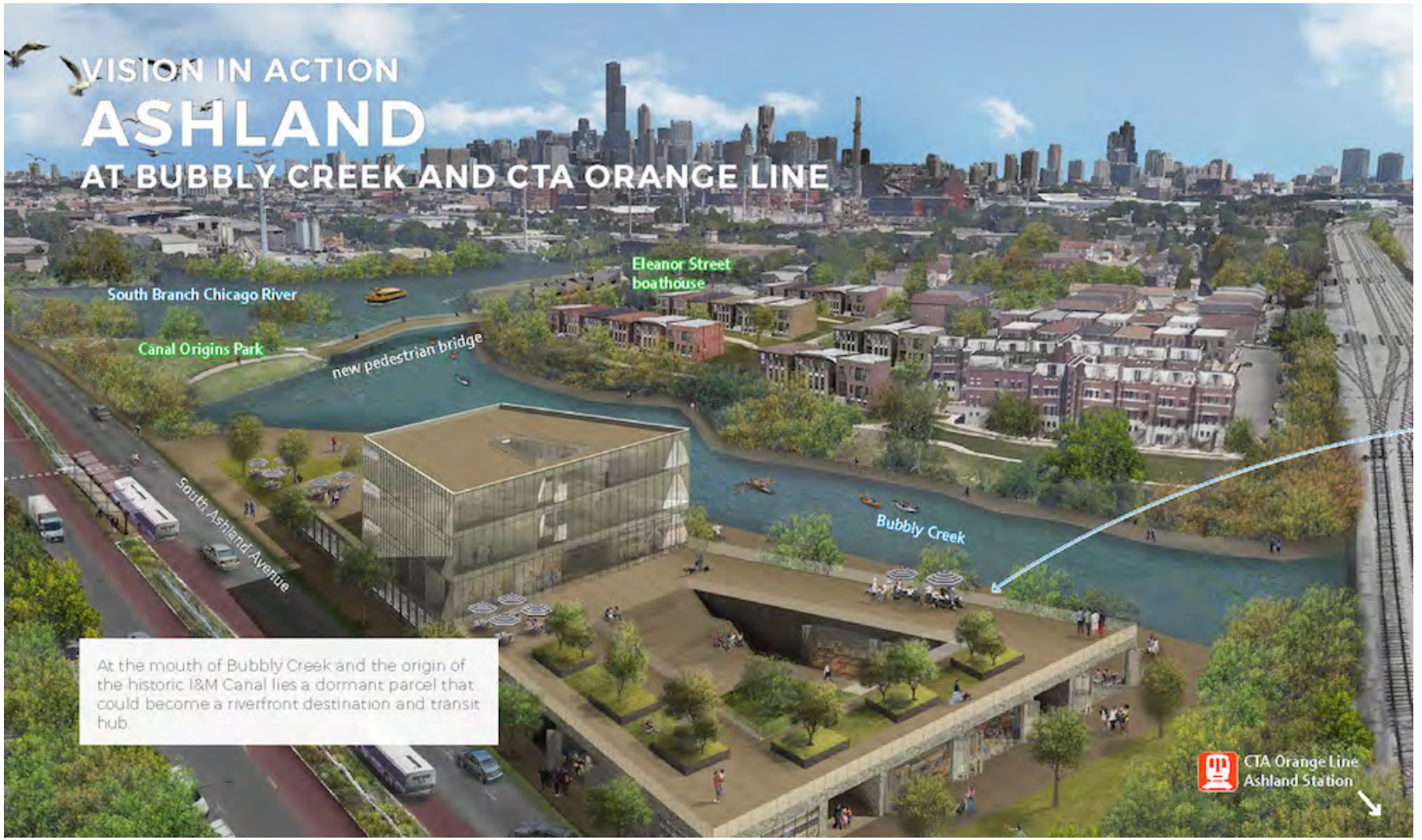
From River to Machine

Racine Avenue Pumping Station at the Headwaters of Bubbly Creek, 2017
(photo: R. Winterpacht)

From River to Machine

Stickney Wastewater Treatment Plant SW of Chicago
(photo: Metropolitan Water Reclamation District).

Bubbly Creek, What Future Awaits Thee?



Land Use and Planning: Vision concept for the mouth of Bubbly Creek at Canal Origins Park by Metropolitan Planning Council, Friends of the Chgo River, and Chgo Metropolitan Agency for Planning (*Our Great Rivers,* 2016)

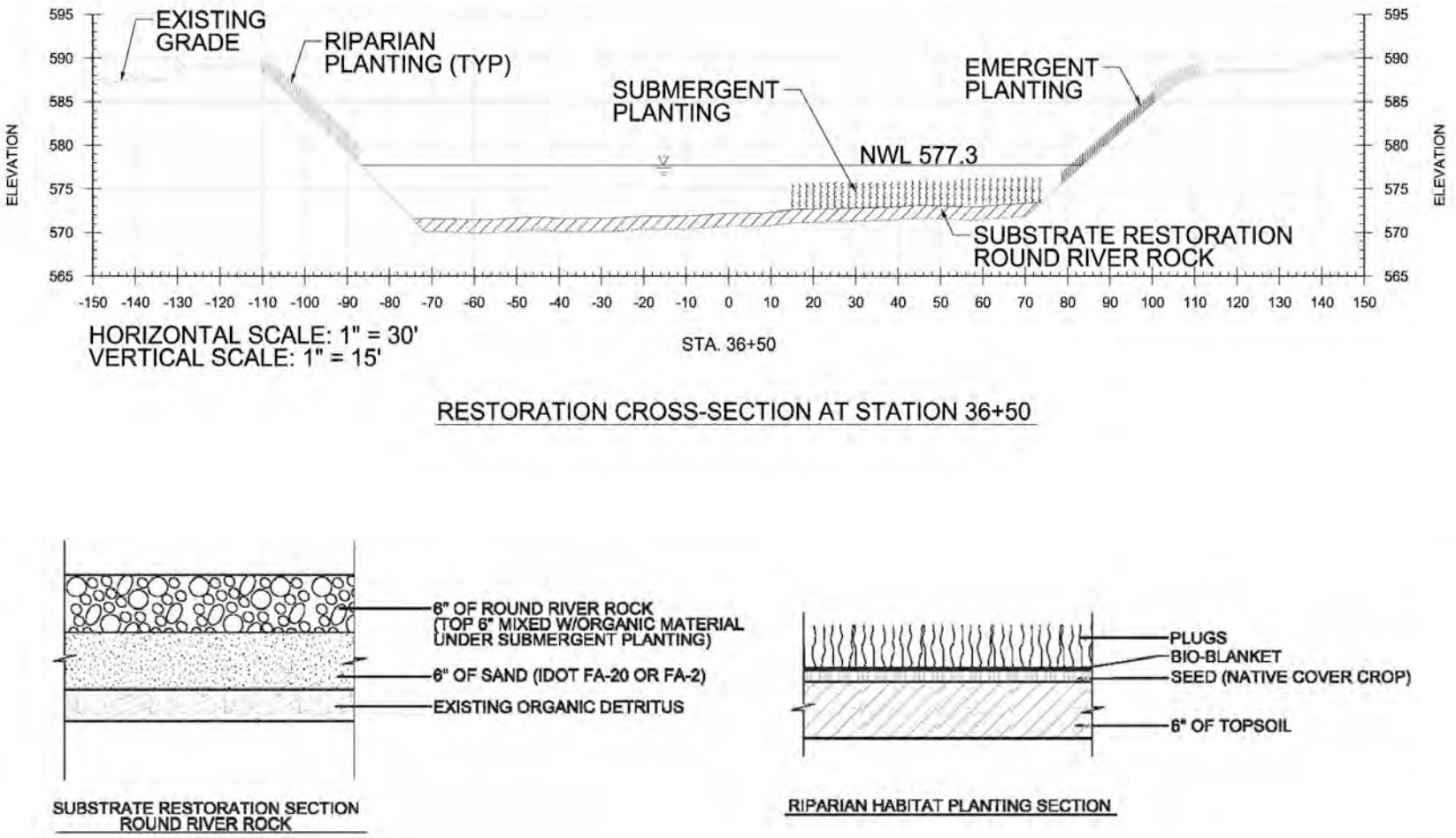
Parkland improvements: Eleanor St. Boathouse designed by Studio Gang; Park 571, Chicago Park District, 2018 (photo: M. Bryson)

Arts & Humanities: Bridgeport Arts Center, home of the Chicago Maritime Museum; east bank of Bubbly Creek, 2017 (photo: R. Winterpacht)

Biodiversity: Kingfisher skimming along Bubbly Creek, 2017 (photo: R. Winterpacht)

Green Infrastructure: Growing Power's Iron Street Farm in Chicago, on the west bank of Bubbly Creek, 2009-2017 (M. Bryson, 2012)

Gentrification: more new housing units along Bubbly Creek's east bank, 2018 (photo: M. Bryson)



DRAFT - April 2015

Ecological Restoration: Representative x-section of restoration stream profile of Bubbly Creek; total estimated cost: $15,384.000 (still unfunded)
Source: USACE Ecosystem Restoration Feasibility Study draft report (2015)

Connection through stewardship: Roosevelt University students in SUST 250 clean up the streambank of Bubbly Creek at Canal Origins Park, May 2018 (photos: M. Bryson)

Environmental Ethics & Sustainability

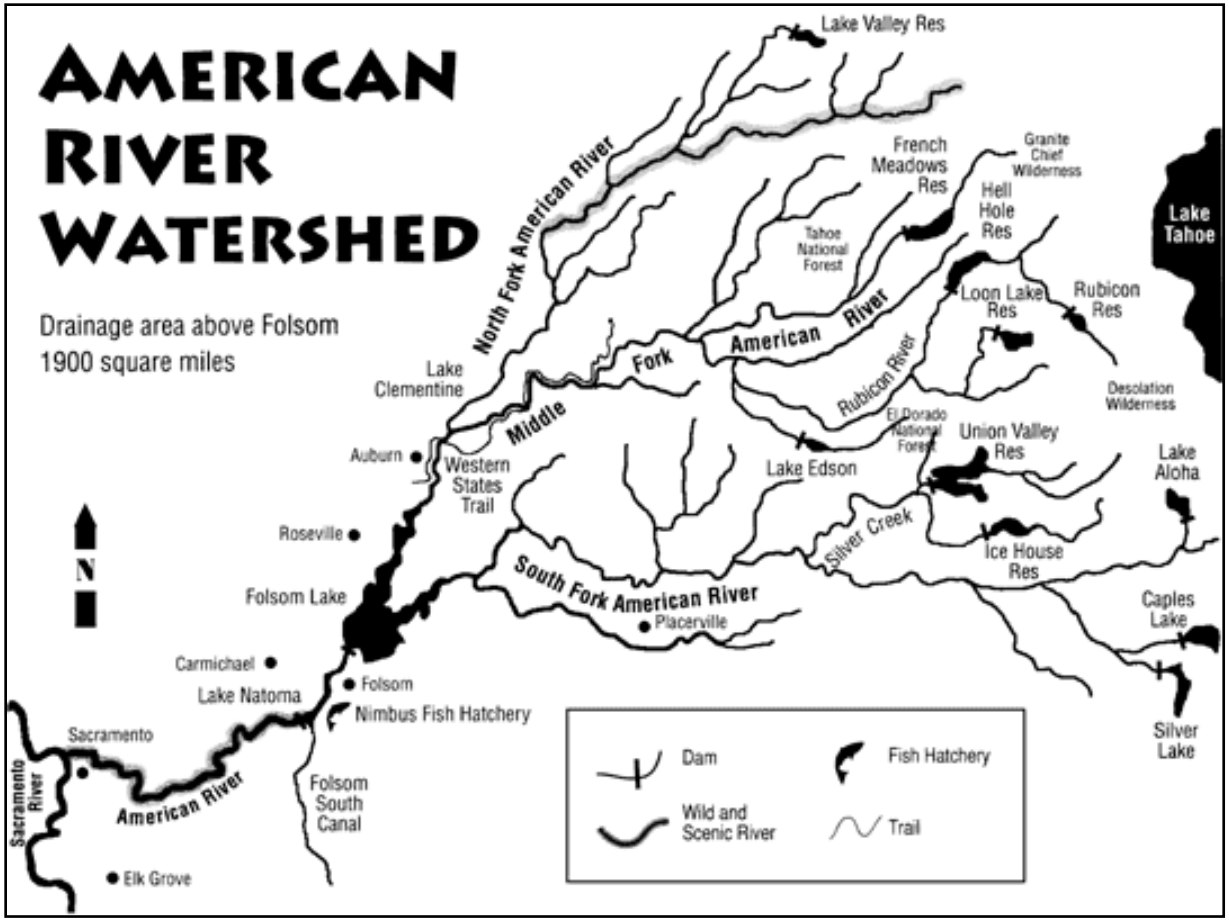
Some questions inspired by Bubbly Creek:

What does our treatment of waterways like Bubbly Creek reveal about our **views of nature**?

Who stands to benefit from its restoration and development?

How do matters of **Environmental Justice** apply to Bubbly Creek and other urban waterways?

Ethics: Thinking Like a Watershed



Discussion Interlude, Part Trois: What does it mean to have a watershed-based view of the world? How does a watershed perspective impact our views of land and water? Of people and communities?

Map: The American River

Discovery Park at the confluence with the Sacramento River.

What does the American River teach us?

Photo: American River Parkway Plan, 2008
Map: American River Parkway Foundation, 2017

Selected Resources

Bryson, M. (2015). Canoeing through history: wild encounters on Bubbly Creek." *City Creatures.* Chicago: U Chgo P.

County of Sacramento. (2008). American River parkway plan.

Great Rivers Chicago. (2016). Our great rivers: a vision for the Chicago, Calumet, and Des Plaines Rivers.

Metropolitan Water Reclamation District of Greater Chicagoland. (2019). Tunnel and reservoir plan (TARP).

USACE. (Apr 2015). Bubbly Creek integrated feasibility report and environmental assessment (draft). Chicago District.

USGS. (Mar 2016). Hydrology of and current monitoring issues for the CAWS. Washington: US Dept of the Interior.

Zimring, Z. and M. Bryson. (2013). "Infamous past, invisible present: searching for Bubbly Creek in the 21st century." *IA -- The Journal of Industrial Archeology, 39*(1-2), 79-91.