



Maps on Acid:

Cartographically Constructing the Acid Rain Environmental Issue, 1972-1980

Brenden E. McNeil and Karen L. Culcasi, West Virginia University Department of Geology and Geography

Abstract

In the paper summarized by this presentation (see the reference and paper copies below) we trace how maps aided the conceptualization and ensuing debate over one of the first inherently spatial and multiscale environmental issues, acid rain. Through interviews with early acid rain ecologists and a critical cartographic analysis of printed maps, we show that mapping was central for constructing this environmental issue. Rather than static representations of a scientific reality, acid rain maps were interconnected and relational processes that operated within political and economic discourses. Accordingly, we suggest that increased critical engagement and participation with the process of mapping can productively aid dialog on many issues, including other current multiscale environmental issues, such as climate change.

Maps for Conceptualizing Acid Rain

"I've wanted to always do science that I could explain to my grandmother"

Dr. Gene Likens, early acid rain ecologist, in an interview with B.E. McNeil on July 9, 2004

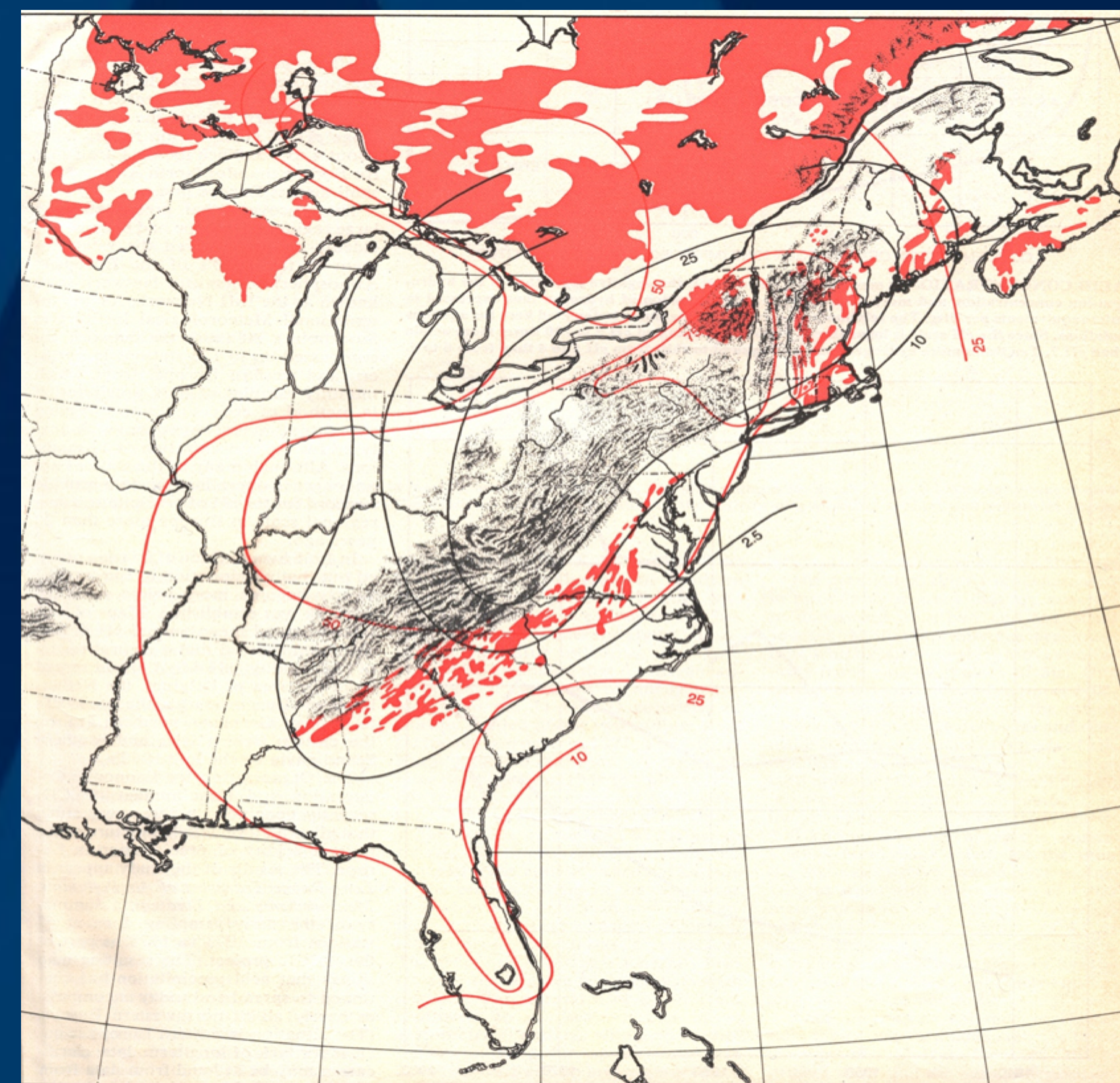
"The map presentation seemed straight forward, if a bit simple integration of the phenomenon." "

Dr. Charles Cogbill, early acid rain ecologist, in an interview with B.E. McNeil on February 23, 2004

Maps for Publicizing Acid Rain

"It is raining here as this is written, and judging from a map in Scientific American, the rain is steadily eroding the tiles of my roof."

J.K. Page Jr., Editor, Smithsonian, January 1980, p.22



Remapping by Andrew Tomko, staff graphic artist at *Scientific American*, including change in acidity from 1955 (black isopleths) to 1975 (red isopleths) and acid sensitive areas in red. Done for article by Likens et al. 1979

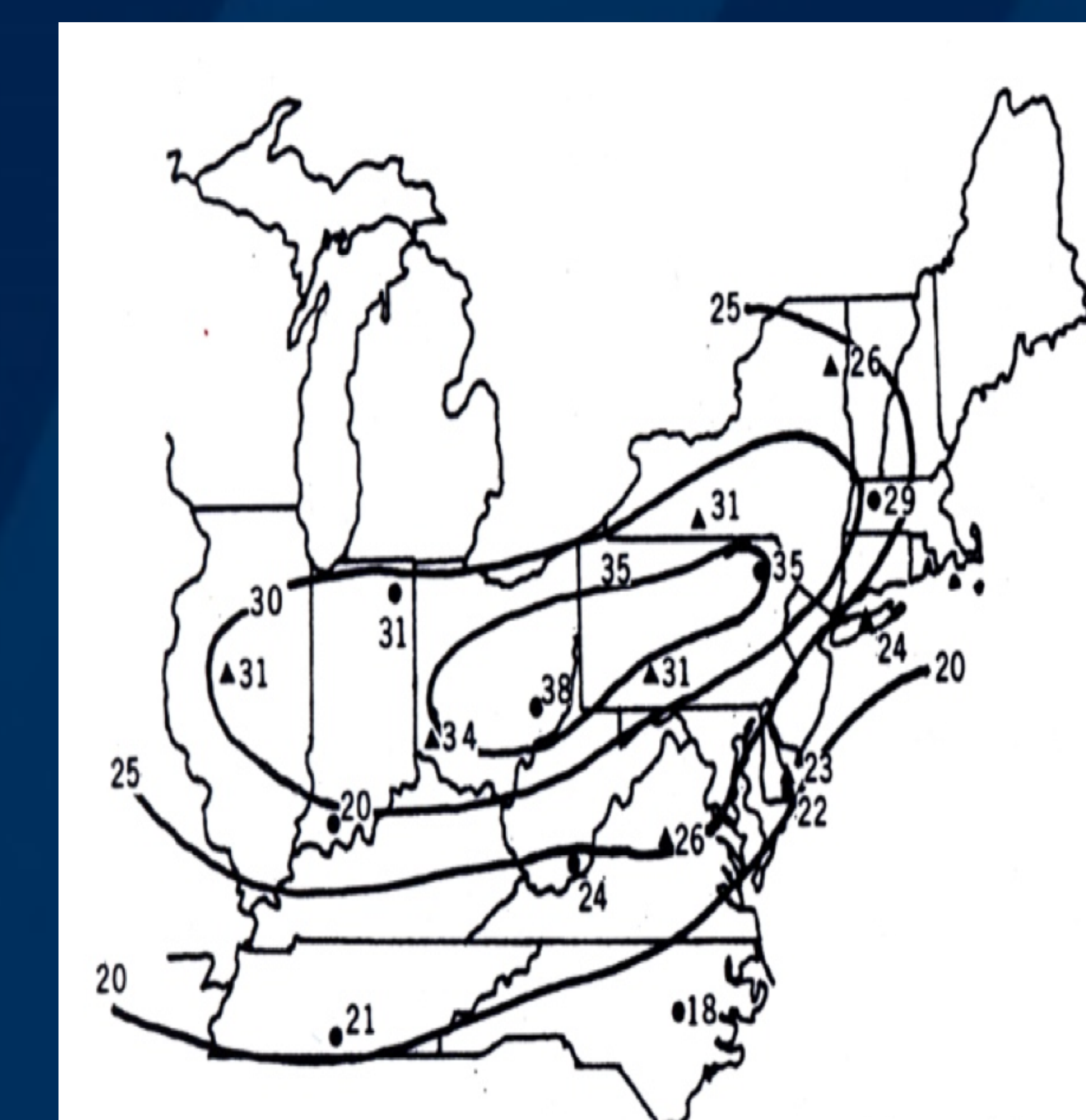
Maps for Debating Acid Rain

"Most of the claims for increasing acidity are based on maps."

Congressional testimony of Ralph M. Perhac, Director of Environmental Assessment for the Electric Power Research Institute, March 19, 1980, p.86



Remapping by the *New York Times*, Nov. 6, 1979



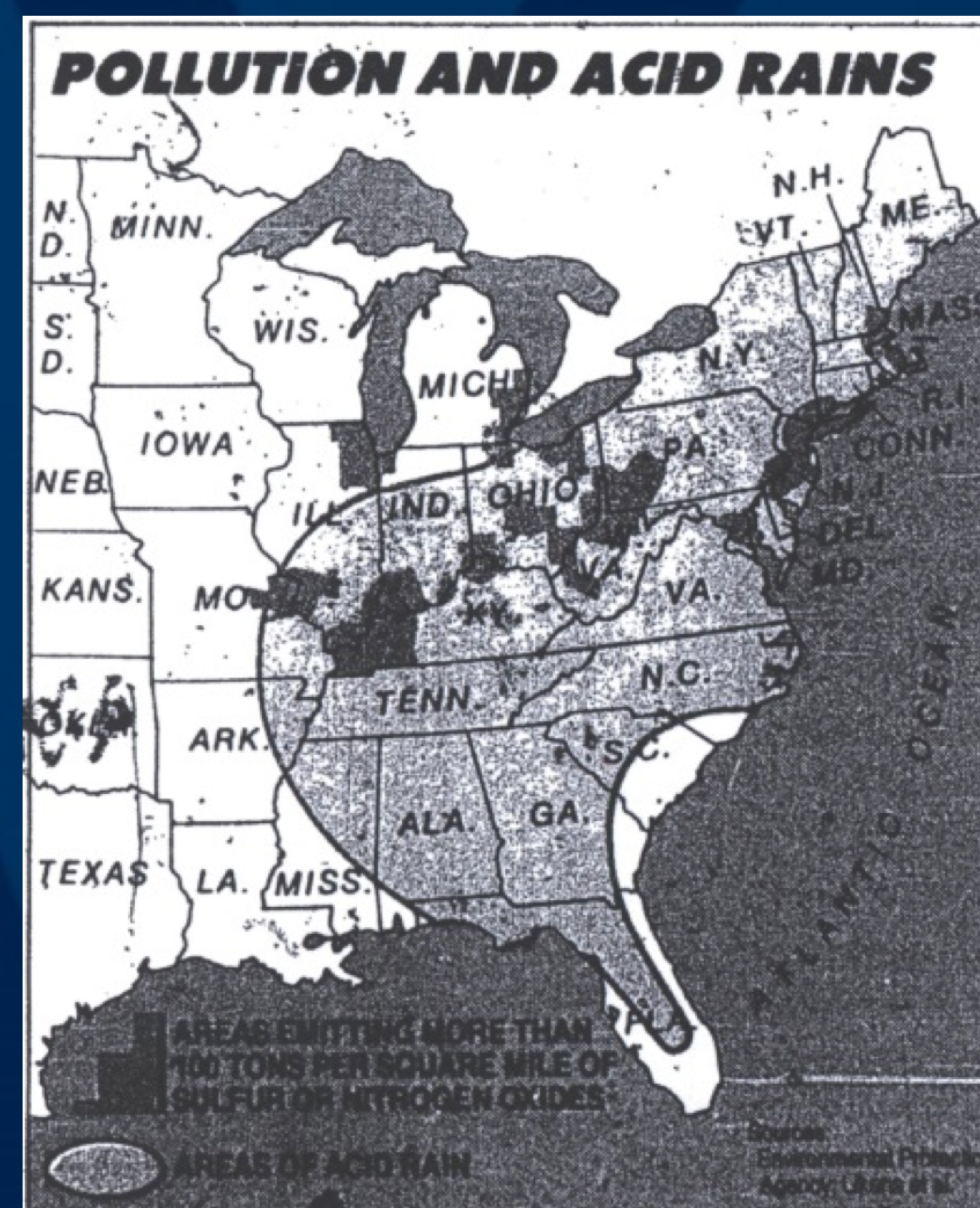
Counter-mapping in a study funded by the Electric Power Research Institute, used in congressional hearings, and later published in *Science* (Pack, 1980). Data and isopleths show sulfate concentrations, which shift the issue upwind to less populated areas

Lessons for Mappings of Multi-scale Environmental Issues, Like Climate Change

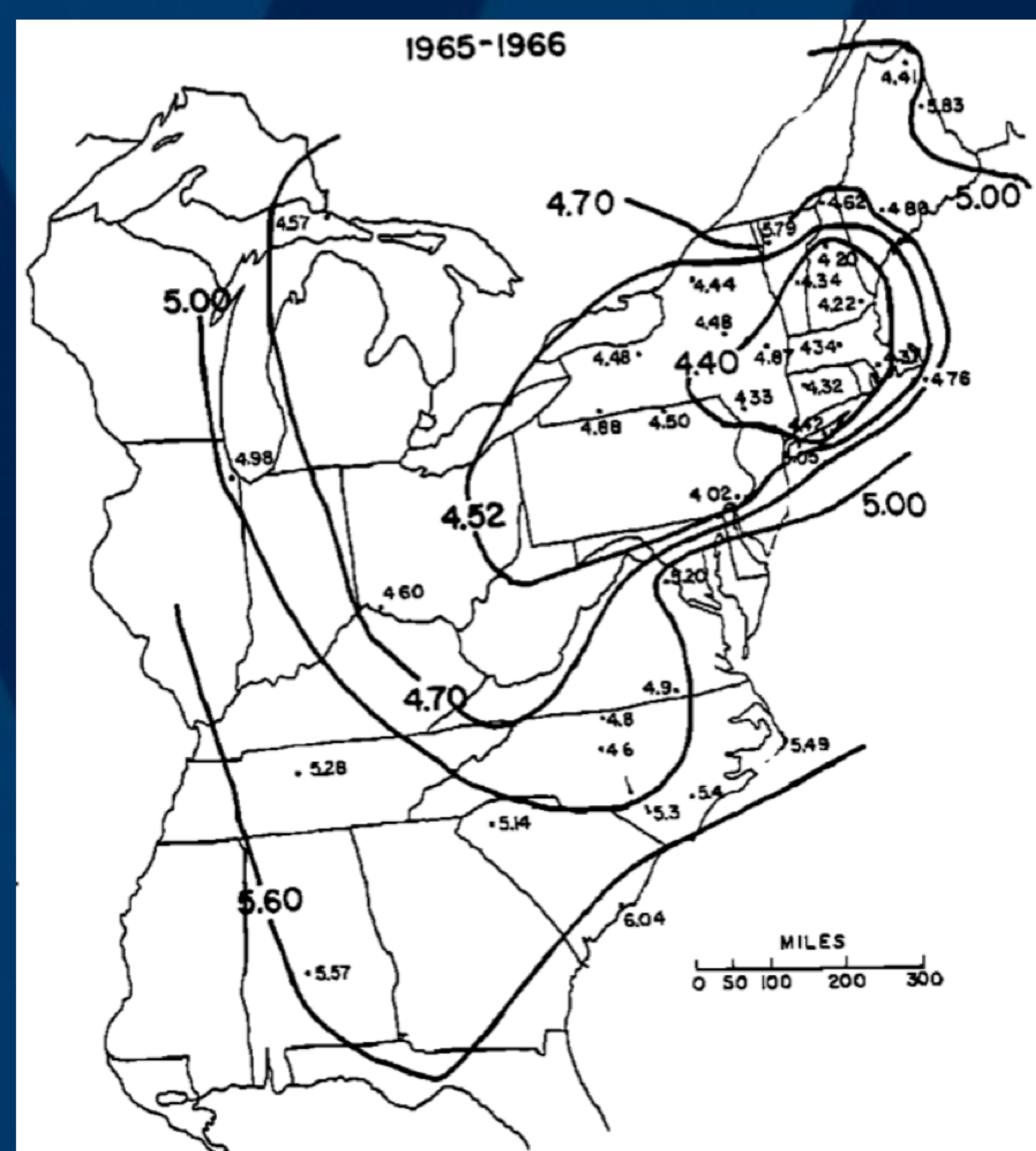
- Maps, re-mappings, and counter-mappings do essential **work** in all stages of constructing multi-scale environmental problems
- Rather than isolated objects, maps are **processes**. All maps engage with other maps and within the political and economic discourses of the map creators and map users
- Deeper critical engagement with the scientific **and social** aspects of mapping can open new dialogs, opportunities, and breakthroughs in the scientific and social construction of multi-scale environmental issues

For more, please read our paper!

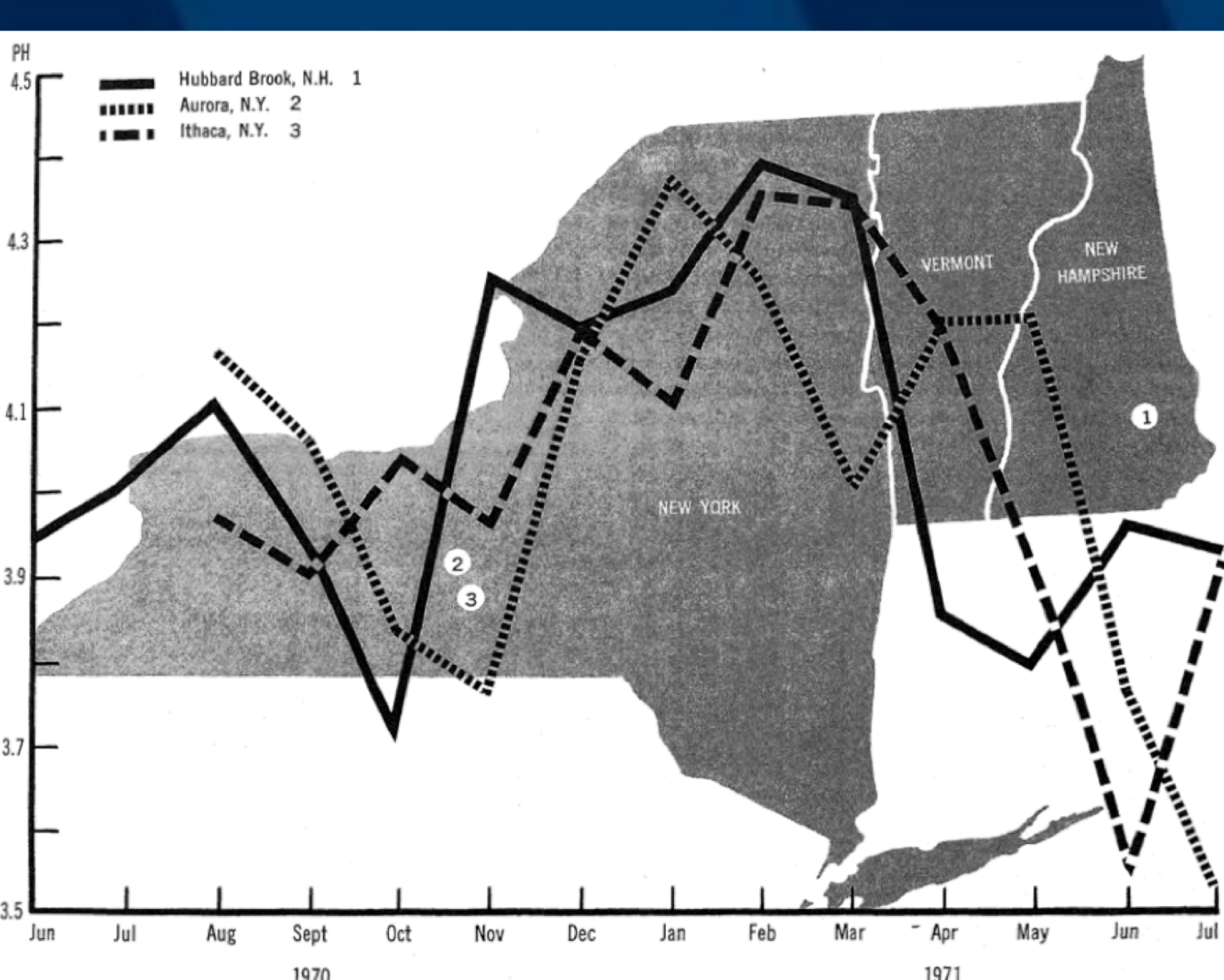
McNeil, B.E., and K.L. Culcasi (2015) *The Professional Geographer* 67(2):242-254
bemcneil@mail.wvu.edu karen.culcasi@mail.wvu.edu



Remapping by *Newsweek* Oct. 22, 1979



2nd North American acid rain map, isopleths of rainwater pH
Cogbill and Likens 1974 *Water Resources Research*



1st North American acid rain "map"
Likens et al. 1972 *Environment*