

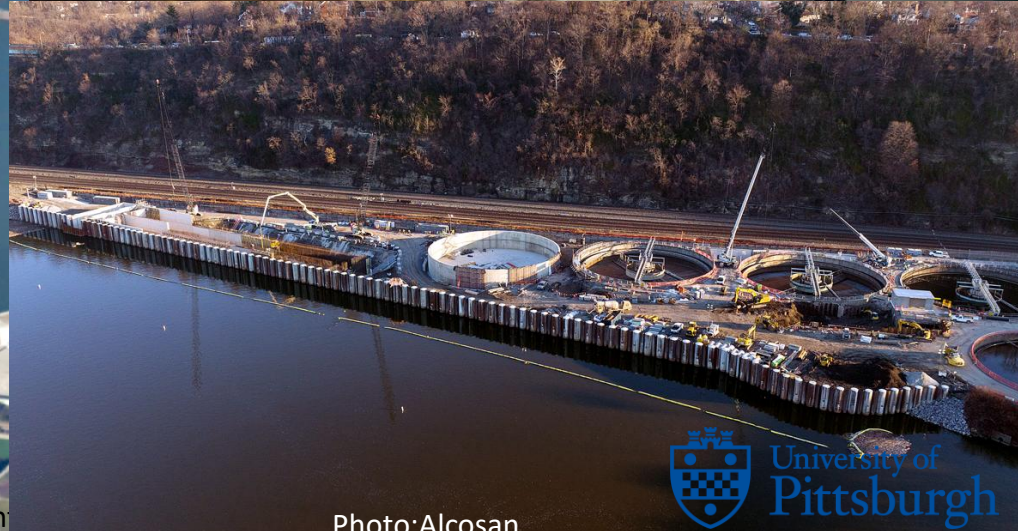
Water Connectivity and Sensing Needs



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June 3, 2026

Concepts of Water Infrastructure

Photo:sverdrupian



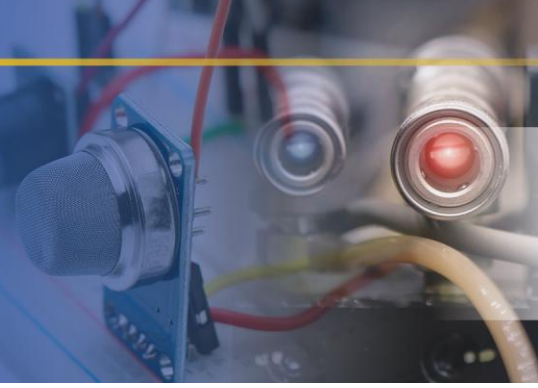
Energy production has profoundly impacted regional waters



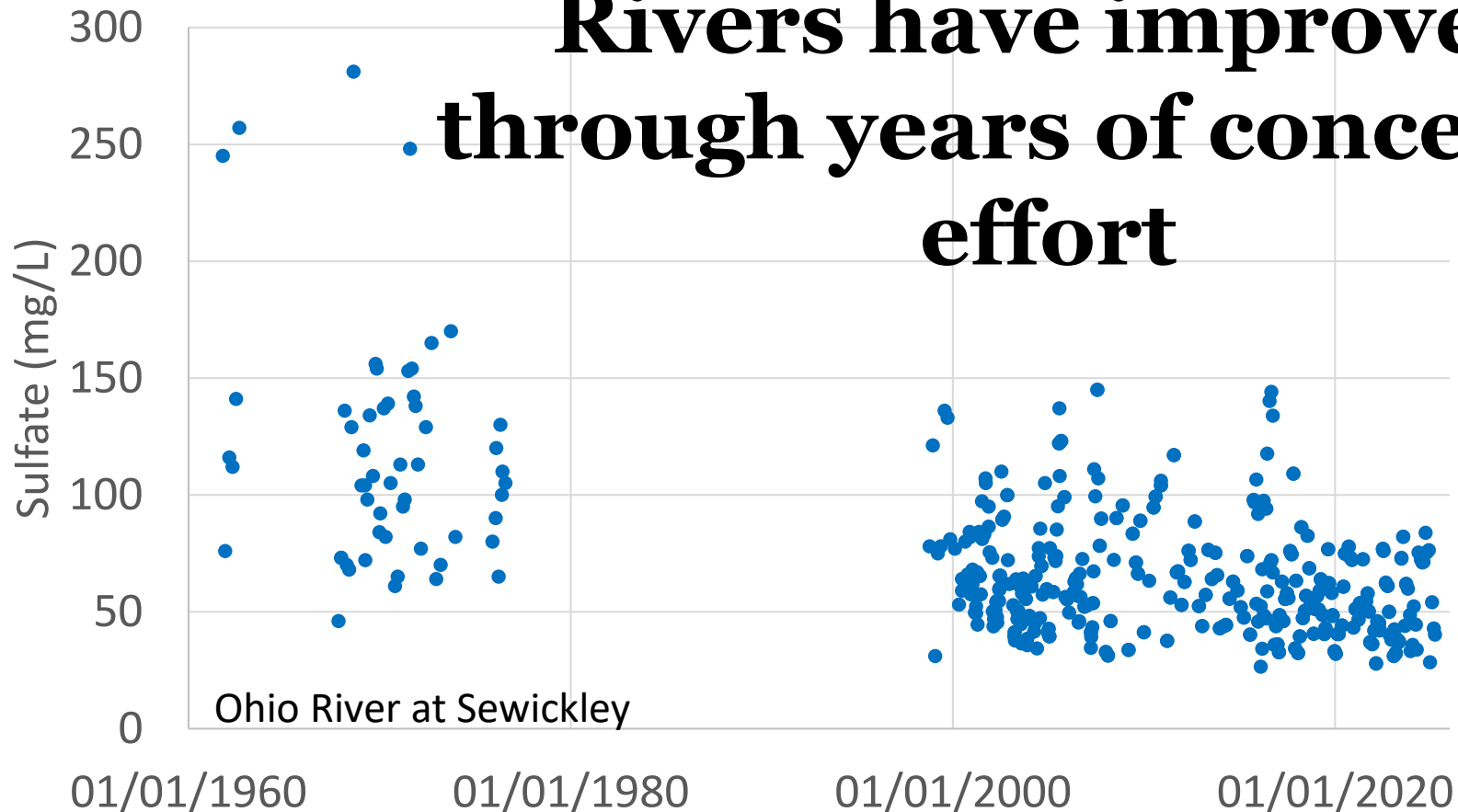
PA Imagery Navigator



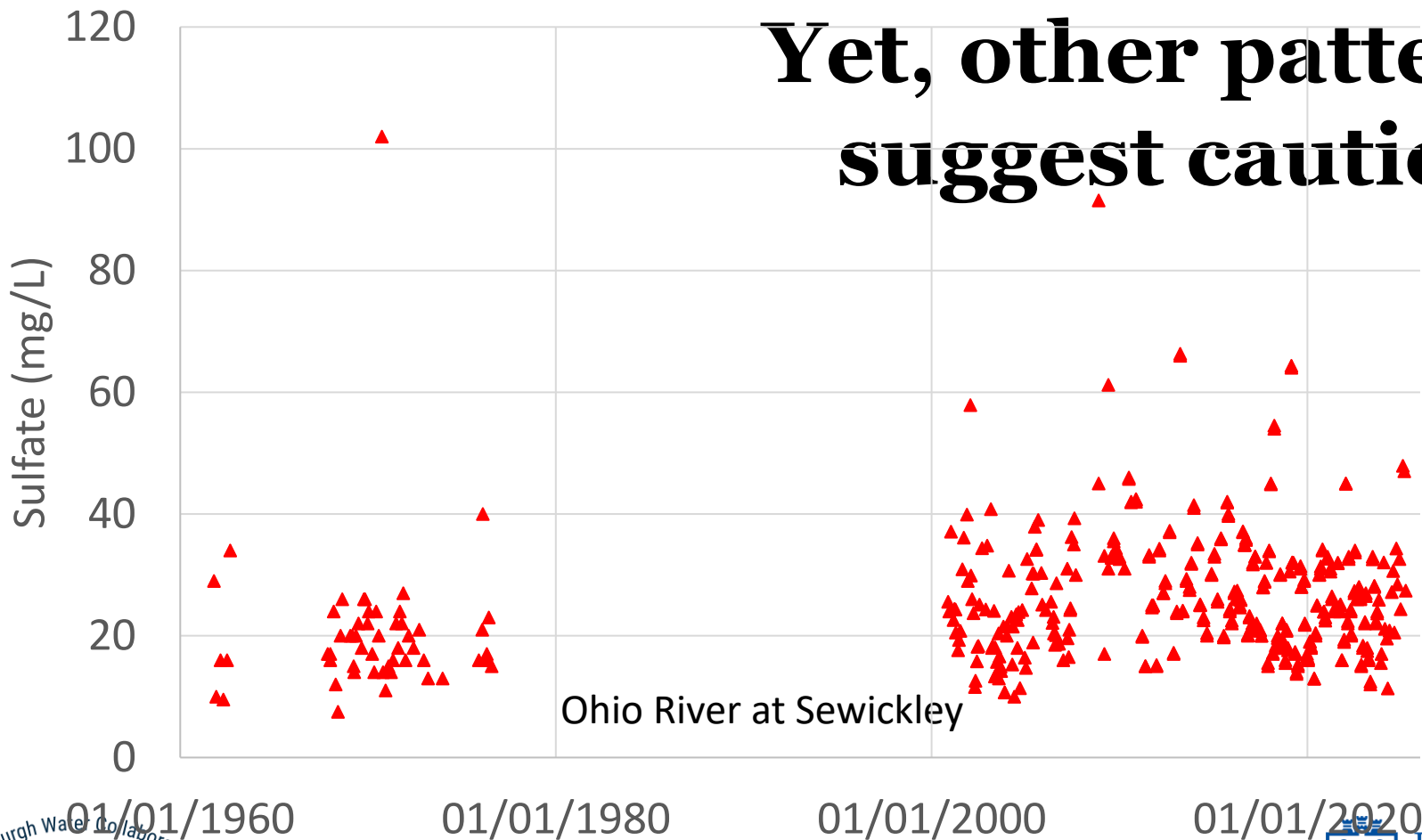
Photo:howderfamily.com



Rivers have improved through years of concerted effort

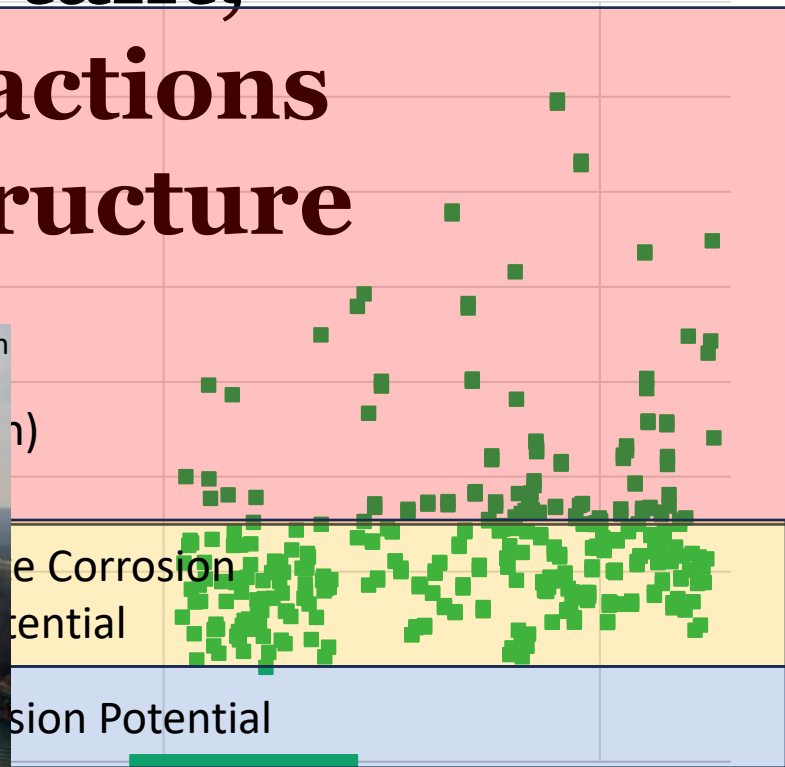


Yet, other patterns suggest caution



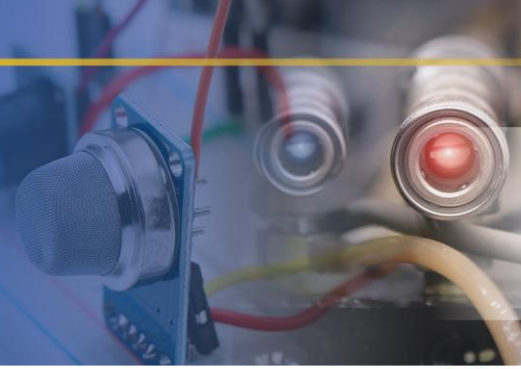
More important, pattern interactions create infrastructure issues

Photo: sverdrupian

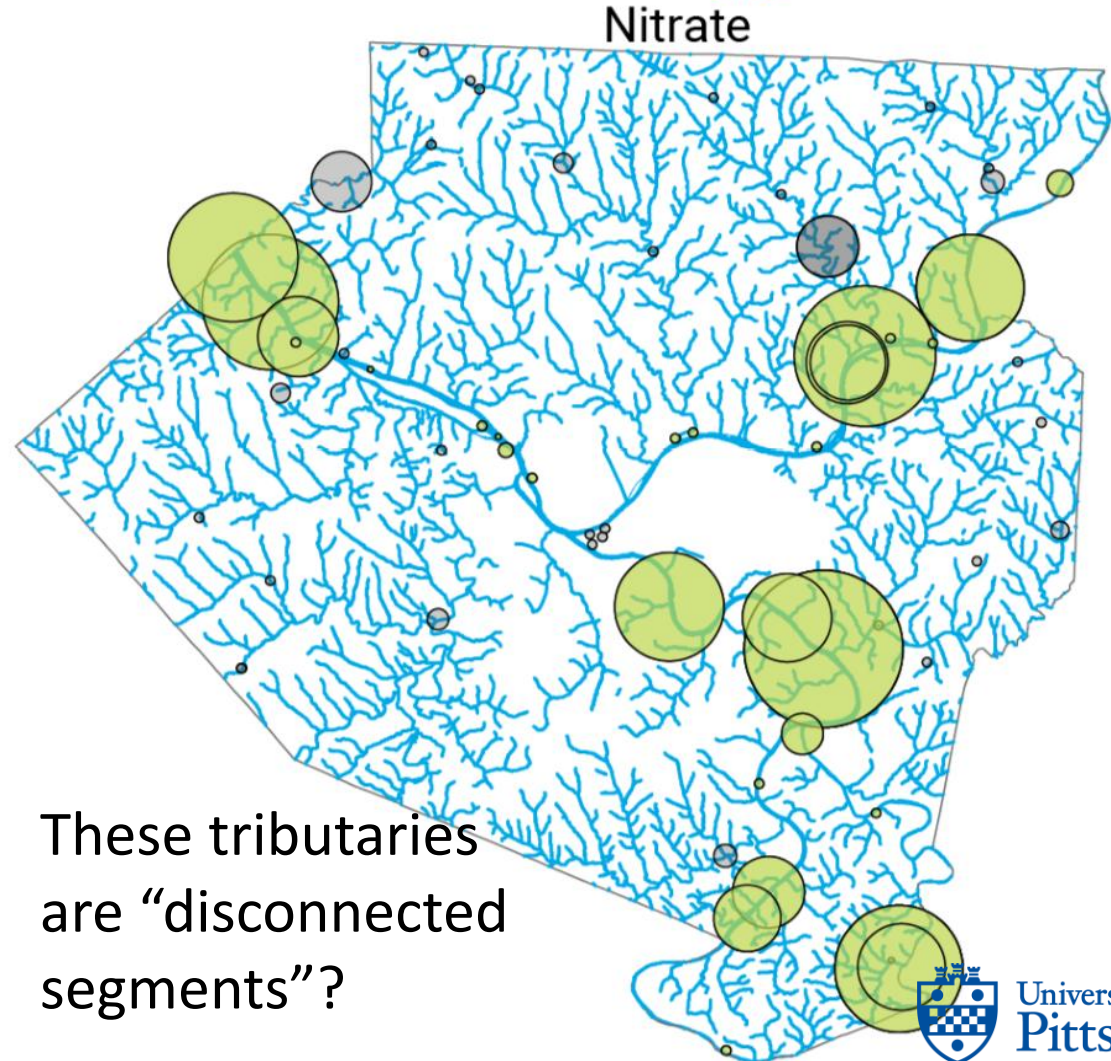


01/01/2000

01/01/2020



**While we
have okay
records for
the rivers,
we don't
understand
the
tributaries**



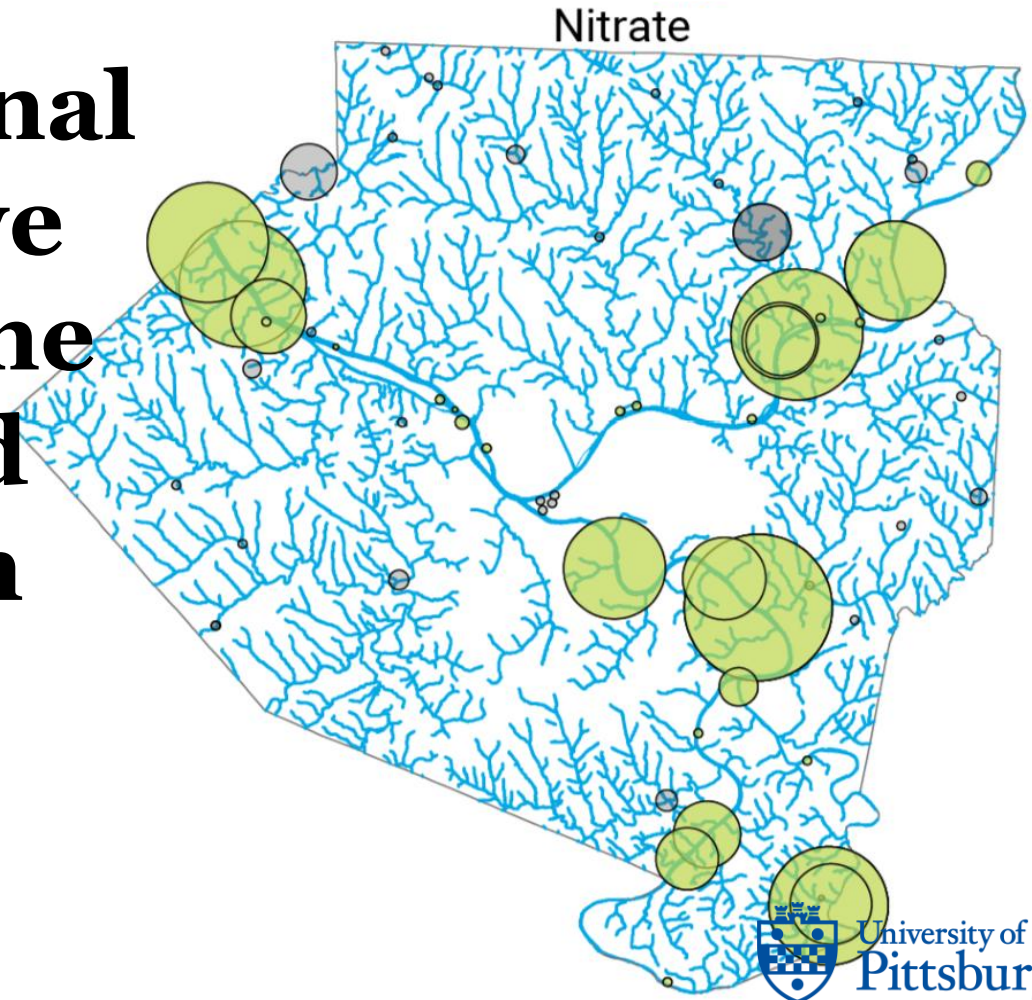
These tributaries
are “disconnected
segments”?

**If Pittsburgh is the City of Bridges,
hear me out...**

**Why not City of Bridges with
distributed water quality sensing
network?**

**There's already infrastructure for
scour sensing, etc.**

Without additional information, we are managing the network based solely on main stem signals



**However, this sensing still requires
substantial leg work and more than
just ML or AI**



**SUSQUEHANNA RIVER
BASIN COMMISSION**

NY ■ PA ■ MD ■ USA

Acknowledgements

THE HEINZ ENDOWMENTS

HOWARD HEINZ ENDOWMENT • VIRA I. HEINZ ENDOWMENT



Jonathan Burgess
Director



Megan Lange
Engagement
Programs Manager



Tetiana Cantlay
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