



DATA VIZ

FOR LONG-TERM ECOLOGICAL RESEARCH AND CURRICULA

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CONTEXT

Over sixty years of ecological data has been collected at the Hubbard Brook Experimental Forest (HBEF) in New Hampshire, making it one of the longest continuous datasets of its kind.

GOAL

To create interactive and exploratory visualizations of the HBEF data for researchers and college-level students

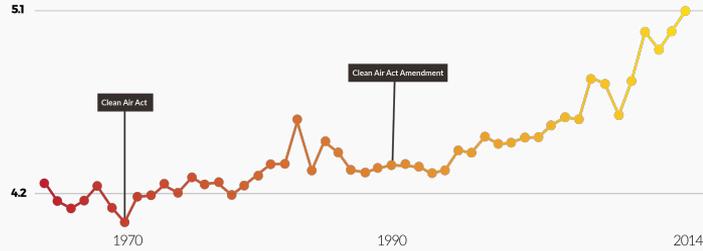
METHODS

The visualizations for this project were created using R shiny, specifically with ggplot wrapped in plotly. The data was cleaned in R using packages like dplyr and tidyr, and the website was formatted using css and HTML.

PRODUCT

[Website](#) with Data Stories and Exploratory Tools
Open source code on [Github](#)

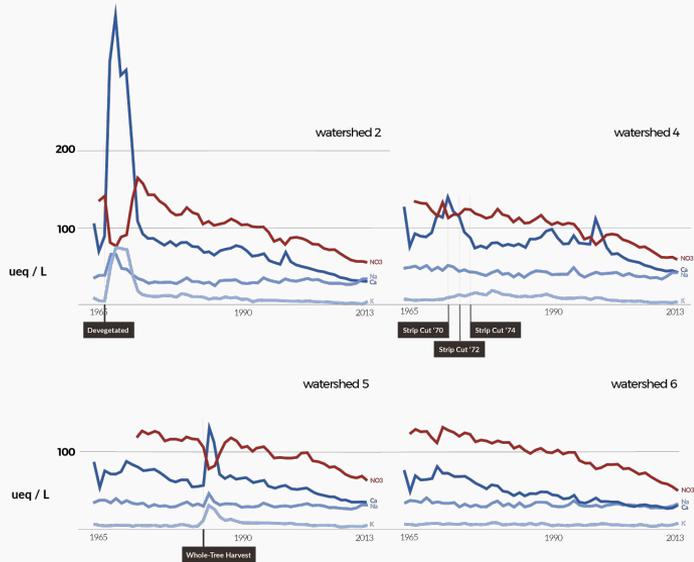
streamwater pH



DATA STORIES

The Data Stories section was created for advanced high school students and undergraduates in introductory ecology courses to teach them canonical lessons using tangible data.

Every data story was based on long-term water chemistry data for each of the experimental watersheds at HBEF. The trends of different solute concentrations in the precipitation and streamflow data all tell stories of ecological changes, some of which are yet to be explained by scientists. Acid rain is one of the canonical data stories, as the data shows long-term pH levels rising in response to US policies. Deforestation is another story that the data tells, by the increase in streamflow quantity and solute concentration. Dilutification though, is a story we have visualized of decreasing solute concentration that scientists have yet to explain.



EXPLORATORY TOOLS

We created an exploratory dashboard where researchers can readily look at precipitation, streamflow, cQ, flux, and concentration plots. The platform allows them to adjust different settings to fit their needs. An even more flexible panel allows researchers to test different hypotheses by plotting formulas on the x and y axes.

