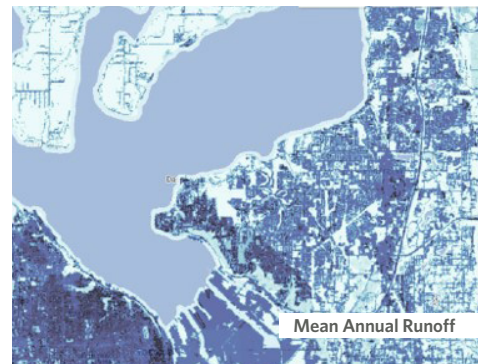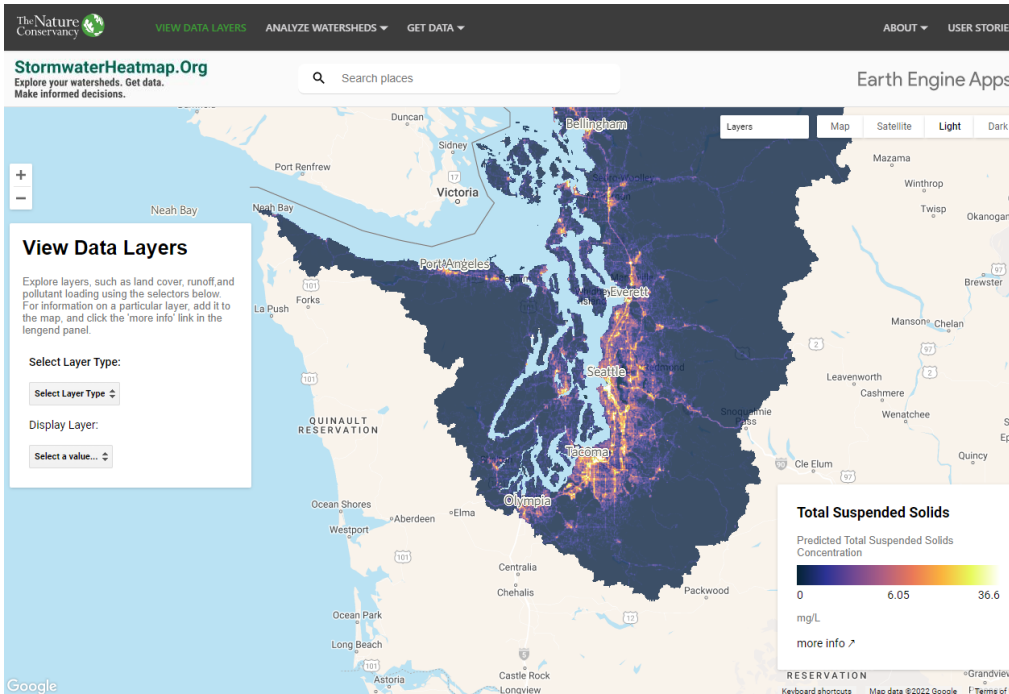# The Nature Conservancy
Washington

Stormwater Heatmap

A Puget Sound-wide Tool for Stormwater Planners to Prioritize Areas and Watersheds for Stormwater Improvements

Mean Annual Runoff

The Stormwater Heatmap is an interactive mapping tool, report generator, and data repository that quantitatively visualizes pollution hotspots generation and runoff throughout the Puget Sound watershed. By merging best available science with compelling visuals and flexible scaling, the heatmap improves our collective ability to prioritize stormwater infrastructure investments and puts data in the hands of those who need them.

STORMWATER HEATMAP

Grounded in Science:
Data and calculations meet current best practices

Compelling Visuals:
Tools help stormwater managers tell a story to different audiences

Multiple Scales:
Stormwater planning takes places at the parcel, neighborhood and watershed scale

Downloadable Data:
Serves as a data platform and resources for use with other tools

THE CHALLENGE

Each year, 370 billion gallons of stormwater runoff enters Puget Sound watershed's rivers, streams, lakes, and marine waters. Untreated stormwater carries a soup of pollutants that harms virtually all urbanized streams and rivers, as well as the waters of Puget Sound. As a result, the abundance, health, and survival of aquatic and marine species has declined at all levels of the food web, including orca whales. Human health and well-being also suffer from widespread pollution, particularly in communities of color.

THE OPPORTUNITY

The Stormwater Heatmap was designed to help communities take targeted, high-impact action on pollution. The heatmap harnesses the power of machine learning, cloud computing, innovative traffic modeling, local monitoring data, and a suite of spatial datasets to predictively map where water pollutants and runoff are generated across the landscape. From Olympia to Bellingham, and Snoqualmie Pass to Neah Bay, the pollution heatmap provides new and rigorous insight into where investments in stormwater infrastructure are needed in order to buffer against adverse environmental impacts to people and nature. The Stormwater Heatmap supports jurisdictions as they develop science-based stormwater management plans and helps decision-makers identify high-impact stormwater investments.

HOW TO USE

All spatial data layers, images, and report metrics are freely available through the interactive webtool, and can be downloaded for independent use. All code is open source—let's grow this tool as a community! To learn more about data and methods, visit the technical report page of the website: StormwaterHeatmap.org.

learn more >

Stormwater Heatmap

TOOL COMPONENTS

The Stormwater Heatmap is comprised of three modules: high-resolution landcover, hydrologic modeling output, and water pollution loading. Hydrologic output is based on the Western Washington Hydrology Model and includes historic, current, and future conditions.
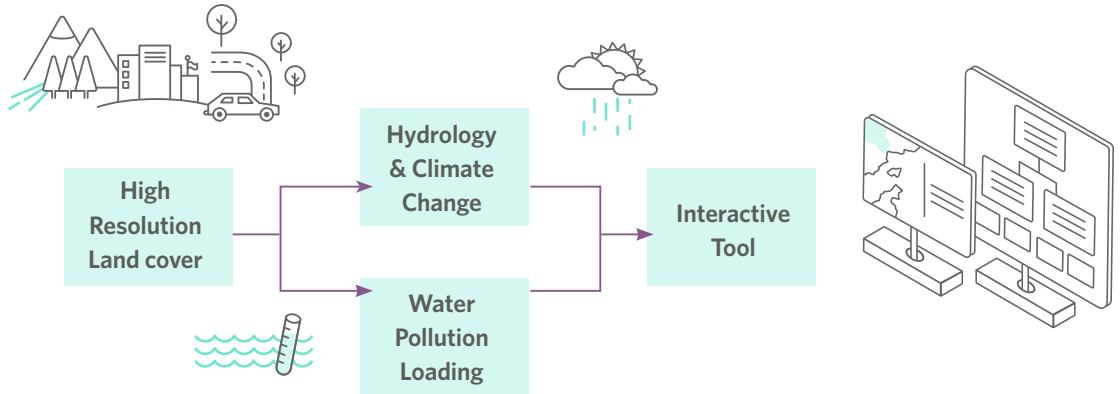
FOUNDATIONAL DATA LAYERS AVAILABLE FOR DOWNLOAD

Three data layer types are accessible via this tool: spatial inputs (15 layers), hydrology outputs (4), and pollution loading (6). Spatial data can be viewed, or data can be aggregated, reported, and downloaded according to user-specified watersheds.

Precipitation (mean annual)
Slope/ topography
Soils & Lithography
Landcover
Impervious surface
Average daily traffic
Land use
Age of Development
Mean annual stormwater runoff (hydrology)
Mean annual pollution loading
(Total Suspended Solids, Total Phosphorous, Total Copper, Total Zinc, Total Kjeldahl Nitrogen)

Total Phosphorous

Total Suspended Solids

Nitrogen (TKN)

Total Copper
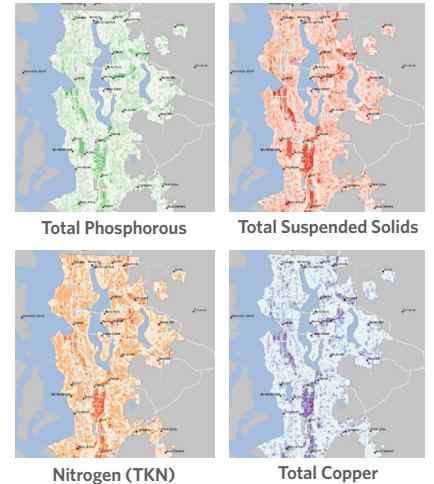
TESTIMONIALS

Early adopters are currently testing the capabilities of the data, analyses, and approaches. Three Puget Sound region entities, as well as two entities in Arizona, are folding elements of the heatmap into their planning and prioritization processes.

"We worked with the King County team to use The Nature Conservancy's data to do a culvert/fish passage analysis. As a result, we did in two months what it previously would have taken a team of four hydrologists two years to accomplish."

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StormwaterHeatmap.org

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