CALIFORNIA WATER BOARDS
COLLEGE OF WATER INFORMATICS
WATER DATA DIGEST August 2021 | Issue 8

SEMINAR SERIES:

Join us for "Stream Pollution Trends Monitoring Program: Large-scale Data Collection and Analysis"

The Stream Pollution Trends Monitoring Program (SPoT) has been generating sediment toxicity and pollutant data since 2008 from up to 100 diverse watersheds. Analysis has included toxicity testing with the amphipod Hyalella azteca and more recently, the midge Chironomus dilutus, as well as the measurement of metals, polycyclic aromatic hydrocarbons, polychlorinated biphenyls, legacy pesticides, current use pesticides, and emerging contaminants such as fipronil and polybrominated diphenyl ethers (PBDEs) in watershed sediments. This extensive data set has been analyzed in the context of watershed land use to understand the nature of identified water pollution and its trends. Ten years of data have demonstrated a number of trends, but the most significant relationships were observed among amphipod toxicity, pyrethroid insecticides and urban land use. Median concentrations of lambda-cyhalothrin, cypermethrin, deltamethrin and esfenvalerate are significantly increasing in ambient sediments collected from urban watersheds. Toxic unit analysis demonstrated a significant relationship between toxicity test results and the potential for pyrethroids to contribute to toxicity.

Bryn Phillips has worked at the University of California Davis Granite Canyon Laboratory since 1992. During his career, he has managed aspects of a number of large-scale monitoring projects that most recently include the Surface Water Ambient Monitoring Program, and the Stream Pollution Trends Program. Mr. Phillips has conducted a number of research project related to agricultural and urban runoff, as well as research projects funded through agencies such as the California Water Boards, the Department of Pesticide Regulation and various Resource Conservation Districts.

Register for our Seminar Series Thursday, August 26 at 12:00 PM Pacific by registering below:

https://waterboards.zoom.us/webinar/register/WN_1tAZk2jITpC1T6eXCoOVsQ

DATA BYTES

Effective Visual Communication: The Art and Science of Dashboards

"Graphical excellence is that which gives to the viewer the greatest number of ideas in the shortest time with the least ink in the smallest space."

—Edward Tufte

Dashboards are used to present large amounts of information in a condensed and visual form. Whether your audience are decision makers or the public, viewers are likely to decide whether or not to continue digging deeper based on what is presented up front. In the "scrolling age", a combination of limited attention span, a basic reluctance to read any extra words and a preference for doing less work, means less is definitely more when it comes to effective dashboard design.

Dashboards can be a powerful way to communicate. They are designed to be shown on a single screen, make efficient use of the space, avoid superfluous graphics, and include actionable, meaningful, and relevant data. To these objectives it is recommended to limit the number elements on a single page to avoid information overload and allow users to find answers with widgets and links. To witness, firsthand, how a dashboard is transformed from busy to balanced, visit **this fascinating thread** posted last year on Reddit's **r/dataisbeautiful**.

Questions to ask before building a dashboard:

- **What message is the dashboard trying to communicate?**
- **Is this the best format? Is a dashboard really necessary or can this be simplified?**
- **Who is the audience and how data savvy are they?**
- **What implicit bias or cultural assumptions may affect design choices?**

Dashboard Design Essentials:

- **Limit content to fit on one screen.**
- **Display data in a way that is not overwhelming to the eye by limiting the amount of visual clutter or noise.**
- **Keep your dashboard simple with only a 3 to 5 key values, charts, or tables.**
- **Provide adequate background, context, and references.**
- **Keep visualizations at the same level as the audience will be able to interpret.**

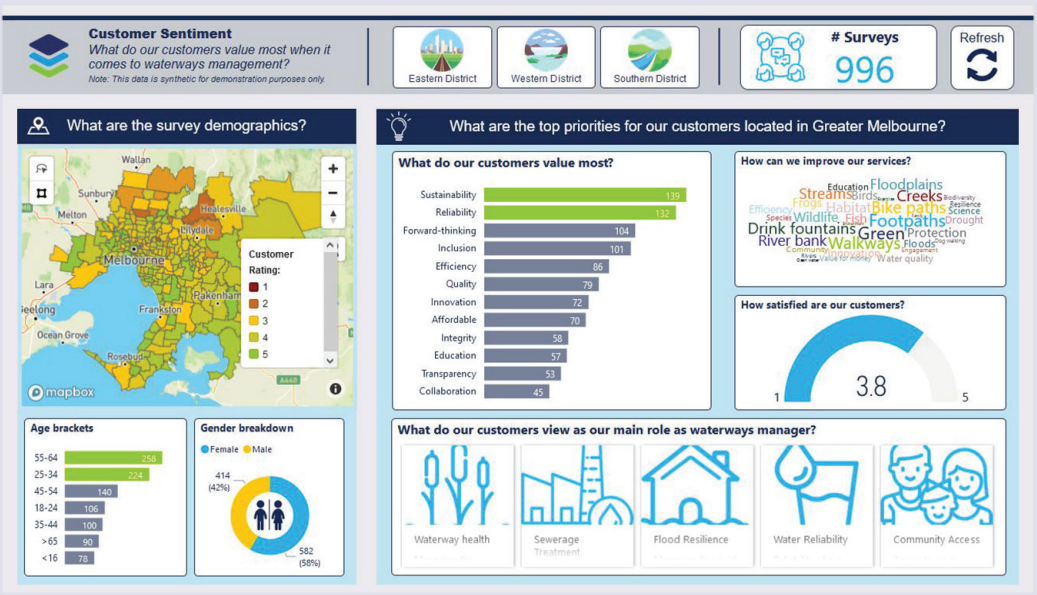
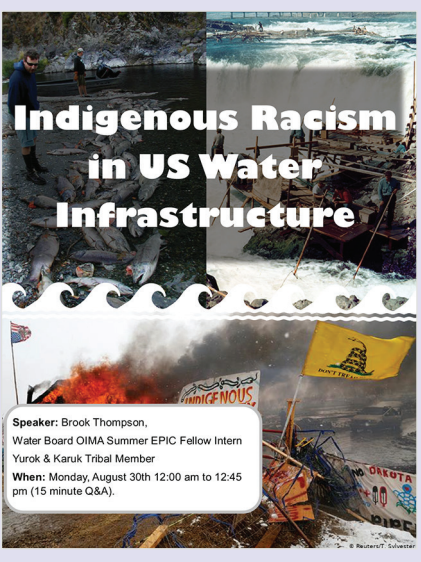


Figure 1: Screen capture of Customer Sentiment Analysis of Waterway Values using MapBox and WordCloud Dashboard.

Further Reading and Resources:

- **Storytelling with Data: A Data Visualization Guide for Business Professionals by Cole Nussbaumer Knaflic**
- **The Big Book of Dashboards: Visualizing Your Data Using Real-World Business Scenarios by Steve Wexler**
- **Envisioning Information by Edward R. Tufte**
- **Information Dashboard Design by Stephen Few**
- **Reddit: r/dataisbeautiful**
- **Eagereyes.org: Visualization and Visual Communication, digested for you and presented by Robert Kosara**
- **Kaiser Fung's website: Junk Charts (Data Viz critiques)**
- **YouTube video describing the Customer Sentiment Analysis of Waterway Values using MapBox and WordCloud Dashboard**

Webinar: Indigenous Racism in US Water Infrastructure presented by Brook Thompson



This event will be held August 30th at 12 pm Pacific. Follow the link below to register:

https://waterboards.zoom.us/j/95345649861?pwd=Rkg5amVOU-zc1Ni8raGZ6cXJKaVZHQT09

Brook Thompson is a Yurok and Karuk Native American from Northern California. Currently, She is a master's student at Stanford University in the Environmental Engineering program, focusing on water resources and hydrology. In 2020, Brook graduated from Portland State University's Honors College with a degree in Civil Engineering and a minor in Political Science.

She has been an intern for the City of Portland, Bureau of Environmental Services, The U.S. Senate Committee on Indian Affairs, West Yost Associates Engineering, Save California Salmon, and is currently the Office of Information Management and Analysis' Summer EPIC Fellow with the State Water Resources Control Board. She is a Gates Millennium Scholar, UNITY 2020 25 Under 25 Recipient, and a 2017 Undergraduate AIGC Student of the Year Awardee among other honors.

Brook's goals include bringing together water rights and Native American knowledge through engineering, public policy, and social action. Current fights for me include undamming the Klamath River, denying the Jordan-Cove LNG pipeline, MMIW awareness, Traditional Ecological Knowledge (TEK), and supporting women and Natives in STEM fields. At the moment I give public speeches and make artwork to raise awareness on these issues.

See more at **https://www.brookmthompson.com/**