

2022 Fall Conference

Hyatt Regency-Indian Wells, CA

November 29th, 2022

Corporate Water Stewardship: How Companies are Addressing Water Risk

Presented by:

Eddie Corwin, Sustainability Partner, Real Estate & Workplace Services, Google



A satellite view of Earth's oceans, showing swirling patterns of green and blue. The colors represent different concentrations of chlorophyll and other oceanographic data. The swirling patterns are prominent, especially in the central and right portions of the image.

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Water Stewardship

Eddie Corwin, November, 2022

A view of our planet from Google Earth ©2020 Landsat/Copernicus



At Google, we build
technology that helps **people**
do more for the **planet**

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In 2021, Google released its water stewardship strategy, which includes a goal to replenish more water than we consume by 2030 and support water security and ecosystems in the communities where we operate.

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Water stewardship

Three key areas of activity



Advance responsible water use at Google

Enhance our stewardship of water resources across Google office campuses and data centers



Benefit watersheds and communities

Collaborate to replenish our water use and improve watershed health while supporting ecosystems and water-stressed communities



Support water security with technology

Share technology and tools that enable everyone to predict, prevent, and recover from water stress

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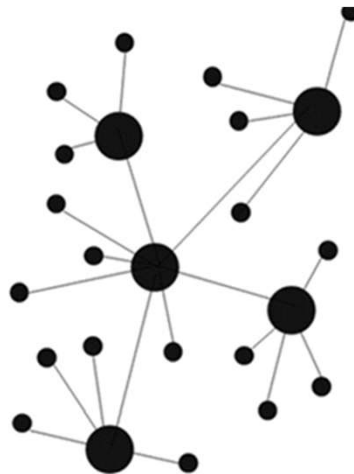
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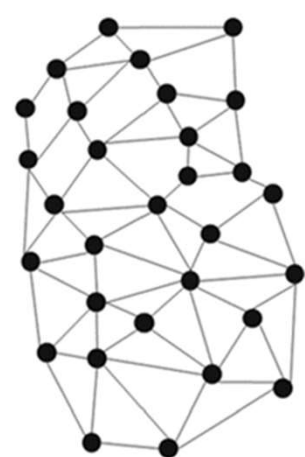
Quick note on networks



Centralized



Decentralized



Distributed

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≡ Advance responsible water use at Google

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Advance responsible water use at Google



Data Centers

In Georgia, we treat up to 30% of the sewer authority's water for cooling towers

In Belgium industrial canal water is used for cooling

In Finland used seawater for cooling

Ireland used chilled air to cool servers rather than water.

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Offices

We achieved the **Alliance for Water Stewardship Standards certification** for our Mountain View, Los Angeles, and Dublin, Ireland campuses.

Landscape conversions to native and pollinator friendly species drastically reduce water demand and support local ecology

100% recycled water in Los Angeles Cooling Tower

Rainwater collection for toilet flushing in Dublin, Ireland

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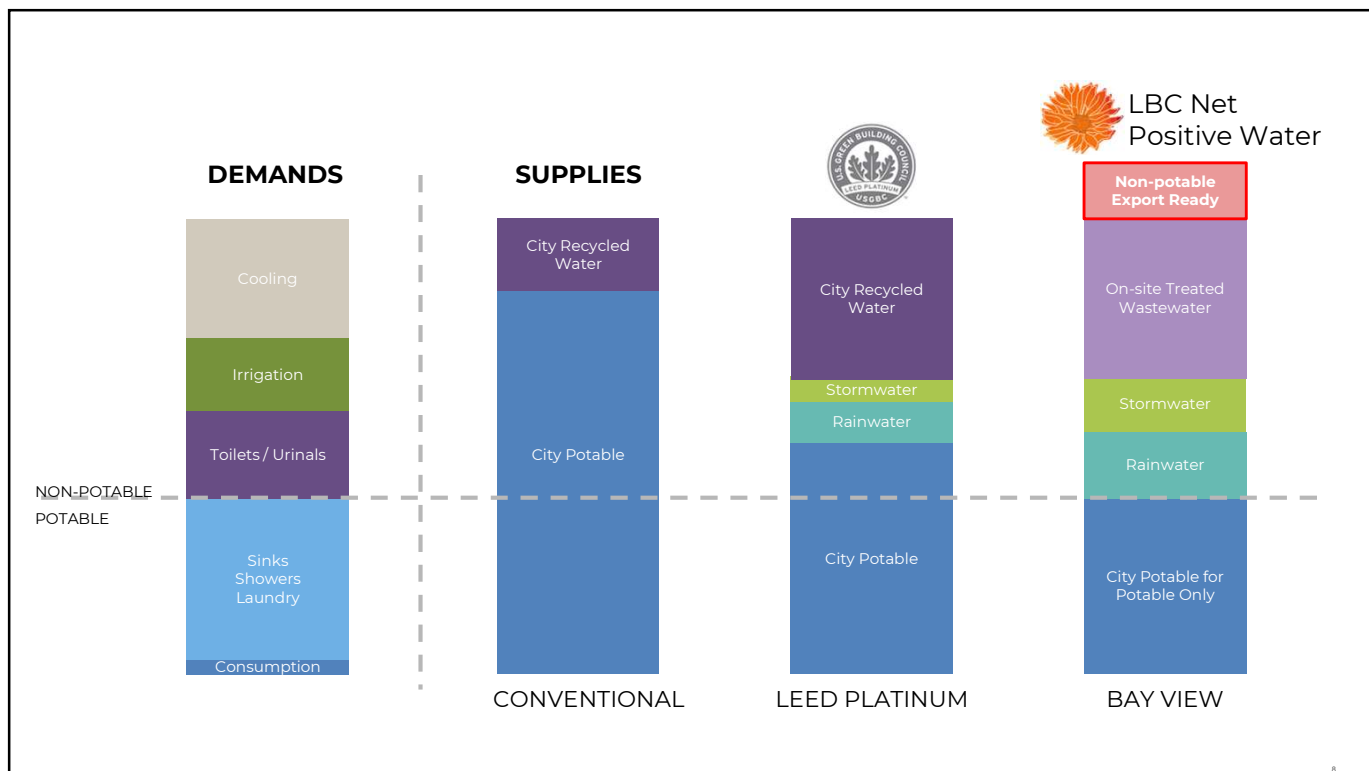
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Project Highlight: Bay View

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Geo-energy piles eliminate 60% of energy demands and 90% of water demands of the cooling system... 5M gallons/year!



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🌱 **Benefit watersheds and communities**

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Benefit watersheds and communities



Replenishment projects

Provide volumetric water benefits by increasing the amount of water in the watershed, compensating for the water we consume. Examples include wetland restoration, rainwater harvesting, and stormwater management.



Watershed health projects

Address local water challenges such as quantity, quality, and access to water and sanitation. Examples include access to water, access to sanitation, and best agricultural management practices.

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Project Highlight: CRIT System Conservation

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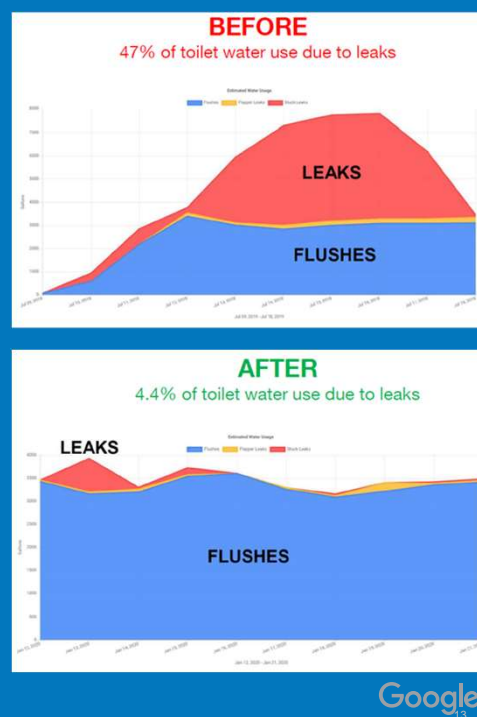
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Project Highlight: Toilet Leak Detection

Los Angeles & San Francisco + more to come

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Other replenish & watershed health Projects

Invasive Species Removal in the San Gabriel Mountains, CA

Spreckles Wetland & Fisher Creek Restoration in CA

Low-Tech Process Based Restoration of Meadows in CA

Well Restoration, Wake the Lake & Wash Stations in India

Desalter Water Treatment Improvements in Torrance, CA

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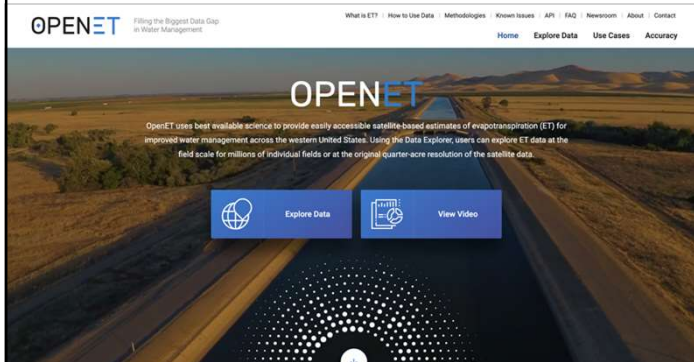
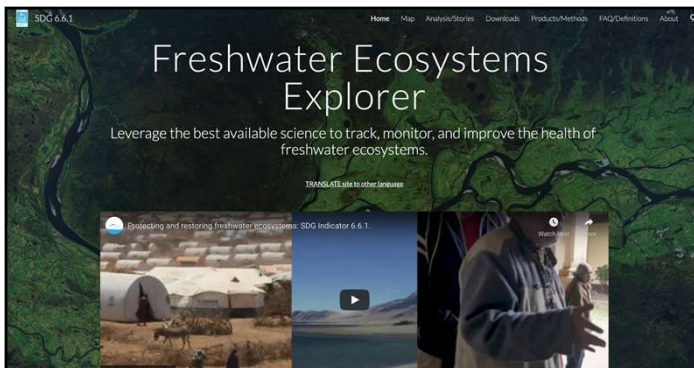
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Support water security with technology

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Our initiatives

We are building tools to make water data and technology universally accessible, enabling effective water stewardship and improving the resilience of watersheds and ecosystems.

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Project Highlight: Project EEager

EarthEngine Automated
Geospatial Element
Recognition



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Why Beavers?

Water Supply:

Beaver complexes store water in their ponds and sink 10X as much into the ground. Their water release water slowly, like a melting snowpack.

A typical beaver pond can store about 0.5 AF of surface and groundwater. We have potential for thousands of beaver ponds, especially in the Sierra.



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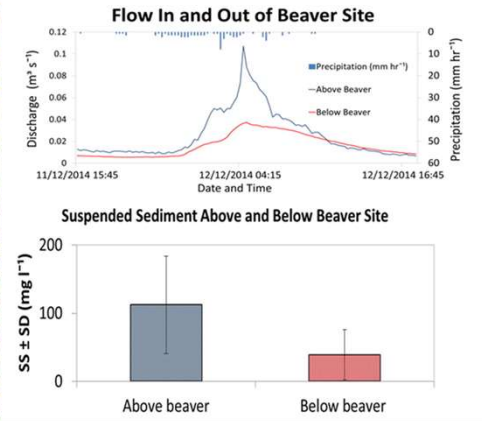
Why Beavers?

Water Quality:

Beaver dams collect tremendous amounts of *sediment, ash*.

Nitrate removal of >40% within beaver ponds.

Water temperature are reduced by ~3°C below a beaver complex.



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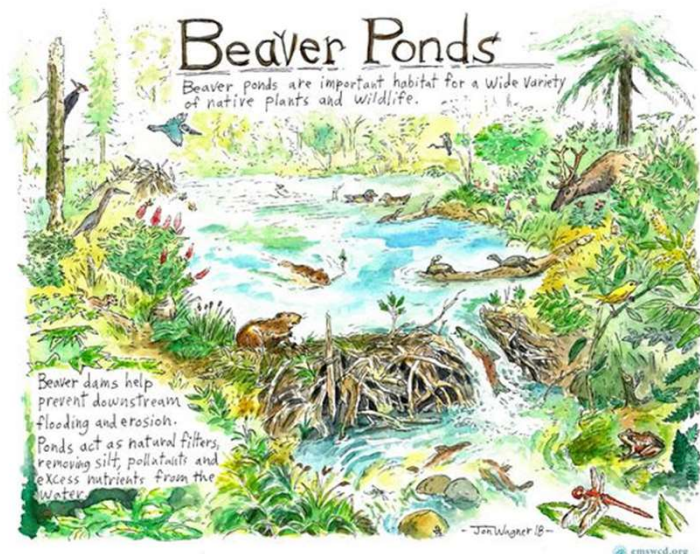
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Why Beavers?

Ecology:

Beavers are a keystone species because animals love beaver ponds. Beaver ponds are some the best and highest quality habitat for terrestrial and freshwater aquatic animals.

The best fishing holes you will find are in beaver complexes.



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Why Beavers?

Fire:

Beaver ponds may be used as a source of water during a firefight, and the riparian corridor is so well wetted that acts as an effective fire break.

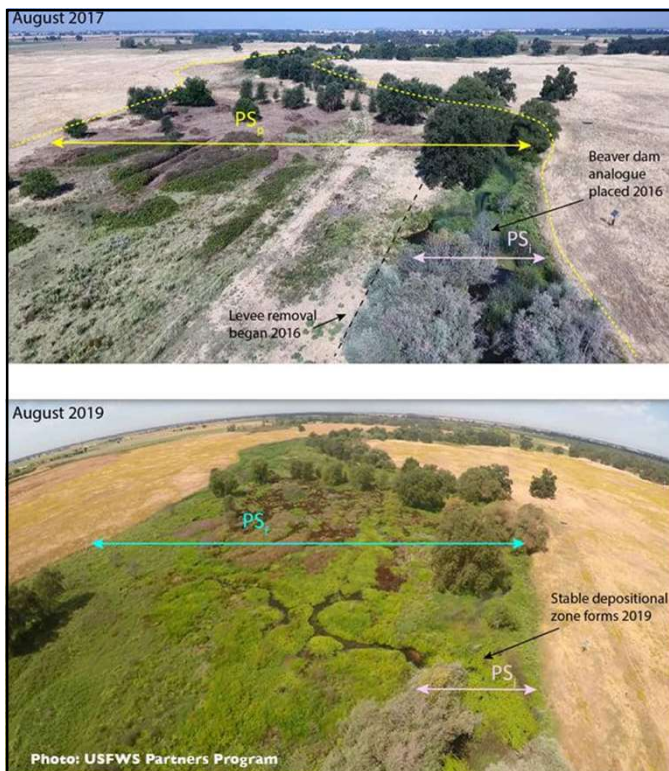
These locations provide refuge during a fire, and allow the site to rebound much quicker after a fire. Post-fire ash flows are also captured in the ponds.



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Why Beavers?

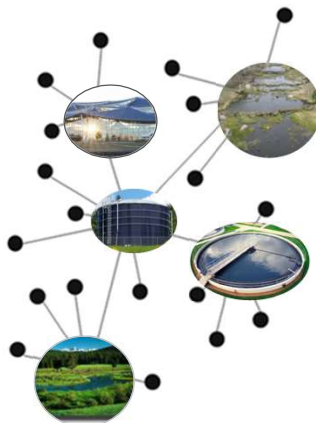
Low-Tech Process Based Restoration
+ Beavers
= **Cost Effective Replenishment**

← Doty Ravine After Low-Tech PBR +
Beaver Maintenance Crew

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Thank you!