

Climate Change Vulnerability Analysis

WCVC IRWMP
March 15, 2012

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Definition



- * Vulnerability:
 - * the degree to which a **system** is
 - * exposed to,
 - * susceptible to, and
 - * able to cope with and adapt to
 - * the **adverse effects** of climate change.

* Climate Change Handbook

Vulnerability Assessment (1)

- * **Characterize our Region:**
 - * Part of overall IRWM regional description
- * **Identify Qualitative Water-Related Climate Change Impacts – WCVC will examine:**

- Water Supply and Demand

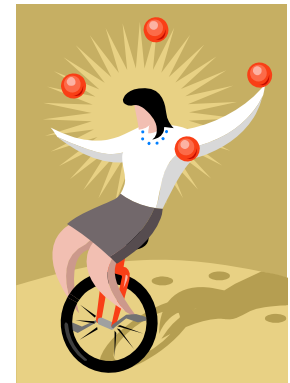
- Water Quality

- Sea Level Rise and Flooding

- Land Use Planning and Ecosystems

Vulnerability Assessment (2)

- * **Identify key indicators of potential vulnerability**
- * **Prioritize vulnerable water (related) resources**



WCVC Approach to Vulnerability Assessment



- * Today's meeting: common understanding
- * Meetings to be arranged with Ventura River, Santa Clara and Calleguas watersheds to:
 - * identify watershed-specific impacts and key indicators of potential vulnerability
 - * prioritize vulnerabilities to climate change impacts
 - * Plan and propose adaptation strategies (Bob Thiel)
- * Develop recommendations for future assessment and analysis

Tools Available for Understanding How Our Climate Is Changing

The screenshot displays the 'cal-adapt' website interface, which is designed for exploring California's climate change research. The site features a grid of interactive panels:

- View Local Profiles:** A panel titled 'QUICKLY EXPLORE CLIMATE PROJECTIONS FOR YOUR LOCAL AREA' showing a line graph of temperature projections from 1950 to 2100. The y-axis ranges from 62 F to 74 F.
- Explore Climate Tools:** A panel titled 'INTERACTIVE MAPS & CHARTS' featuring icons for sun, snowflake, water drop, and waves, with a 'PRECIPITATION' label below.
- About Cal-Adapt:** A panel with a 'NEWS' section for 'EXTREME HEAT TOOL' and a 'FAQS' section.
- Access Data:** A panel titled 'ACCESS THE RAW DATA USED IN CAL-ADAPT' with a download icon and text: 'Select and download data in a variety of tabular and GIS formats'.
- Resources:** A panel titled 'INFORMATION, ARTICLES & LINKS' with a book icon and text: 'Find out more about how climate change in California is relevant to your community'.
- Community:** A panel titled 'PARTICIPATE IN COMMUNITY BASED TOOLS AND ACTIVITIES' with an icon of three people and text: 'Find out how you can share your thoughts and findings, communicate with experts, and help to collect new data'. It includes social media links for 'Tweet 211' and 'Like 377'.

At the bottom of the interface, it states: 'Site developed by: Geospatial Innovation Facility' and 'Cal-Adapt is a product of the Public Interest Energy Research (PIER) program'. Copyright information for 2011 California Energy Commission is also present.

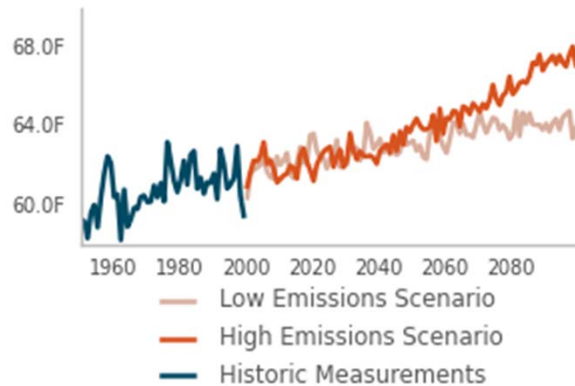
View Local Profiles: Examples

KAMALA PARK AREA

The information in the chart below corresponds to the selected area on the map (outlined in orange).

Historical Average	60.8 °F	
Low-Emissions Scenario:	64.1 °F	+3.3 °F
High-Emissions Scenario:	66.5 °F	+5.7 °F

Observed and Projected Temperatures



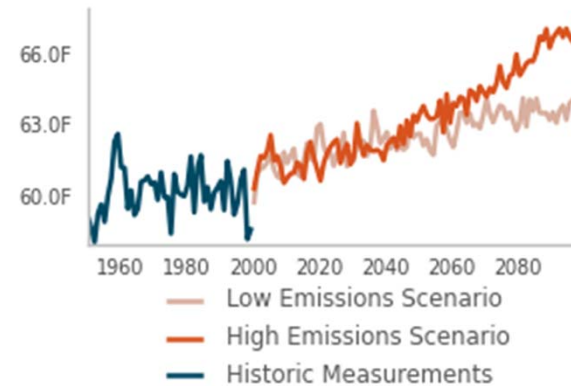
disclaimer

THOUSAND OAKS AREA

The information in the chart below corresponds to the selected area on the map (outlined in orange).

Historical Average	60.3 °F	
Low-Emissions Scenario:	63.6 °F	+3.3 °F
High-Emissions Scenario:	66.0 °F	+5.7 °F

Observed and Projected Temperatures

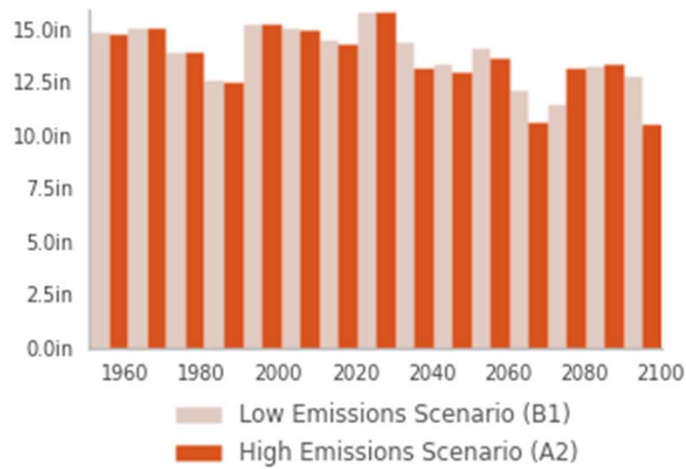


disclaimer

Precipitation

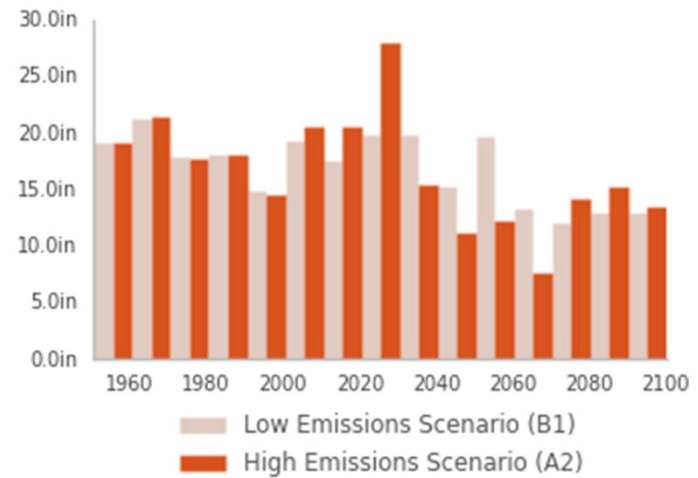
DATA: Projected Annual (Cumulative) Precipitatio...
 MODEL: Average of All Models
 SCENARIO: High Carbon Emissions (A2)

 Kamala Park Area
 Elevation: 37 ft

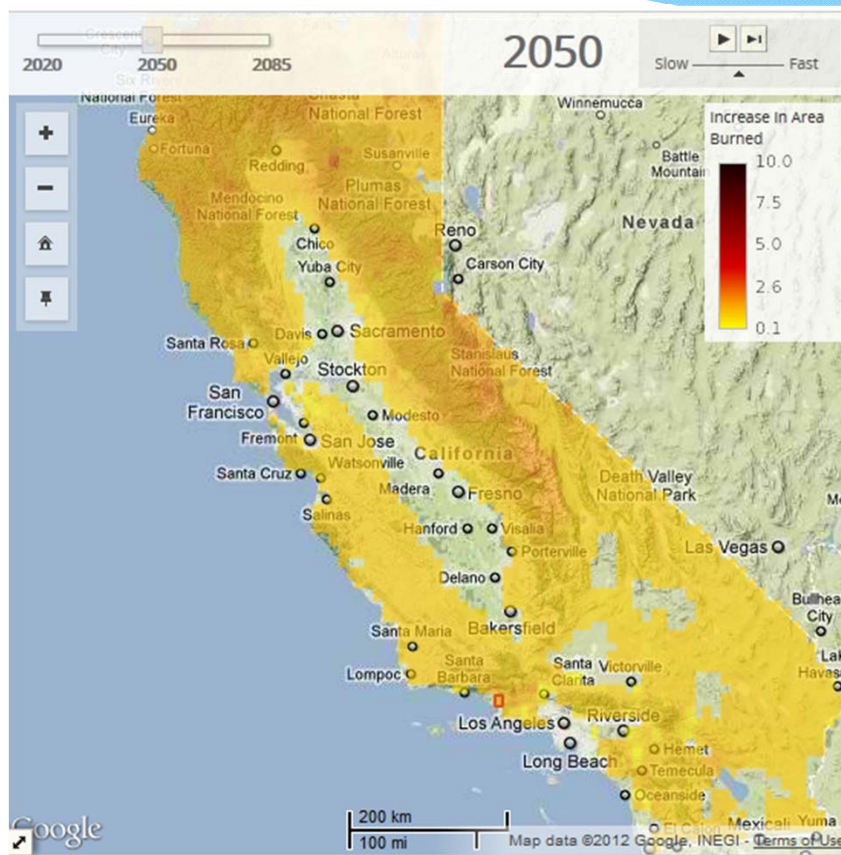


DATA: Projected Annual (Cumulative) Precipitatio...
 MODEL: CNRM Model
 SCENARIO: High Carbon Emissions (A2)

 Thousand Oaks Area
 Elevation: 1,334 ft



Wildfire



- While our WCV risk of increased wildfires appears to be lower than the Sierras and northern California, wildfires in those areas have consequences for our water and power supplies

Sea Level Rise



- * Important issue for all California coastal communities
 - * Maps available from Pacific Institute
- * Project underway by Nature Conservancy to address climate adaptation and sea level rise
- * Cross-analysis with flooding and extreme weather
- * Mapping of key infrastructure in coastal areas

Higher Level of Detail and Complexity

- * **Bias Corrected and Downscaled WCRP CMIP3 Climate and Hydrology Projections**
 - * Lawrence Livermore, range of models and emission projections
- * **More specific data, down to GPS coordinates**

If a tree fell in the forest



- * These changes in and of themselves don't tell us much
- * Impacts on ecosystems (including human ecosystems) define our planning boundaries
- * Proposing to look at impacts on:
 - * Water supply and demand
 - * Water quality
 - * Sea level rise and flooding
 - * Land use planning and ecosystems
- * Consistent with strategies in 2006 IRWMP, State Water Plan and State Adaptation Strategy

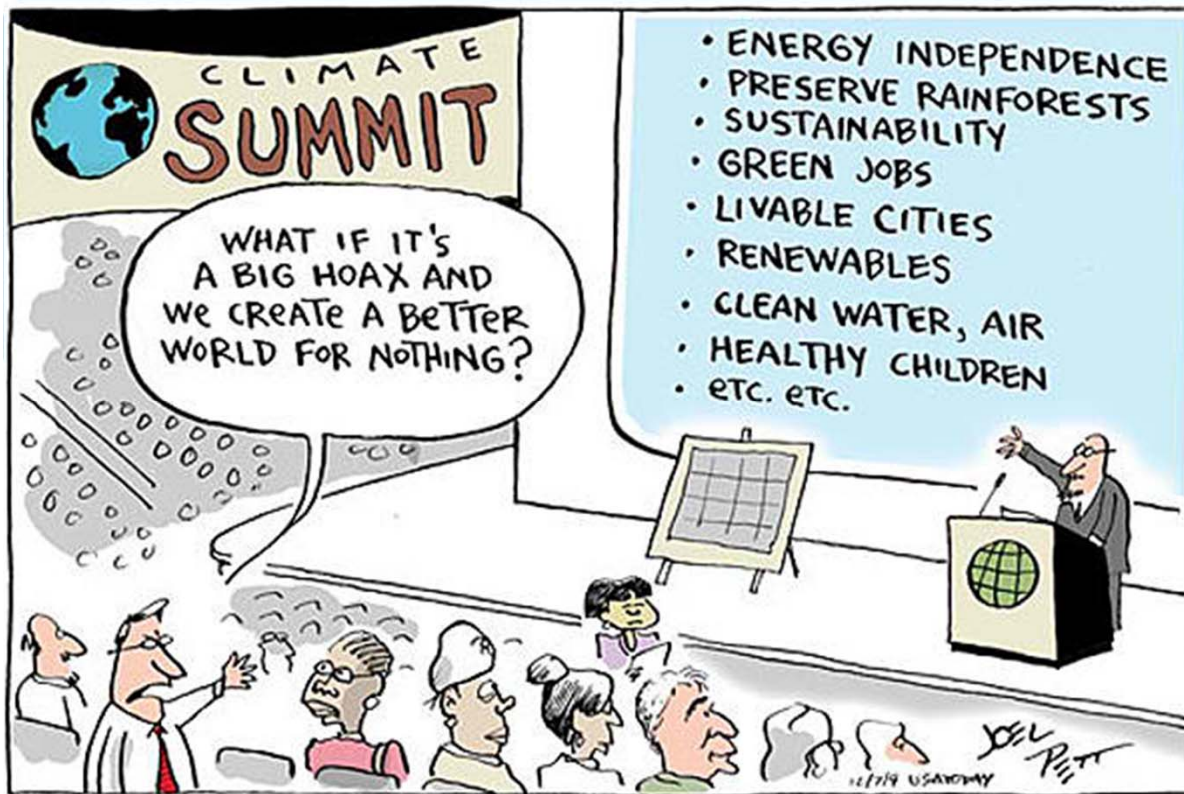
Our Watershed Meetings

- * Identify vulnerabilities (shared and unique)
- * Prioritize
- * Plan for future analyses

Keep in Mind

- * Projections are much more robust at global level
- * Less precision at the local level = planning uncertainty

“While climate change adds an additional layer of uncertainty to water resources planning, it does not necessarily alter the way uncertainty is addressed.”



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