



BIOMONITORING CALIFORNIA

MEASURING CHEMICALS IN CALIFORNIANS

**Flame Retardant Dilemma and Beyond
UC Berkeley – February 15, 2019**

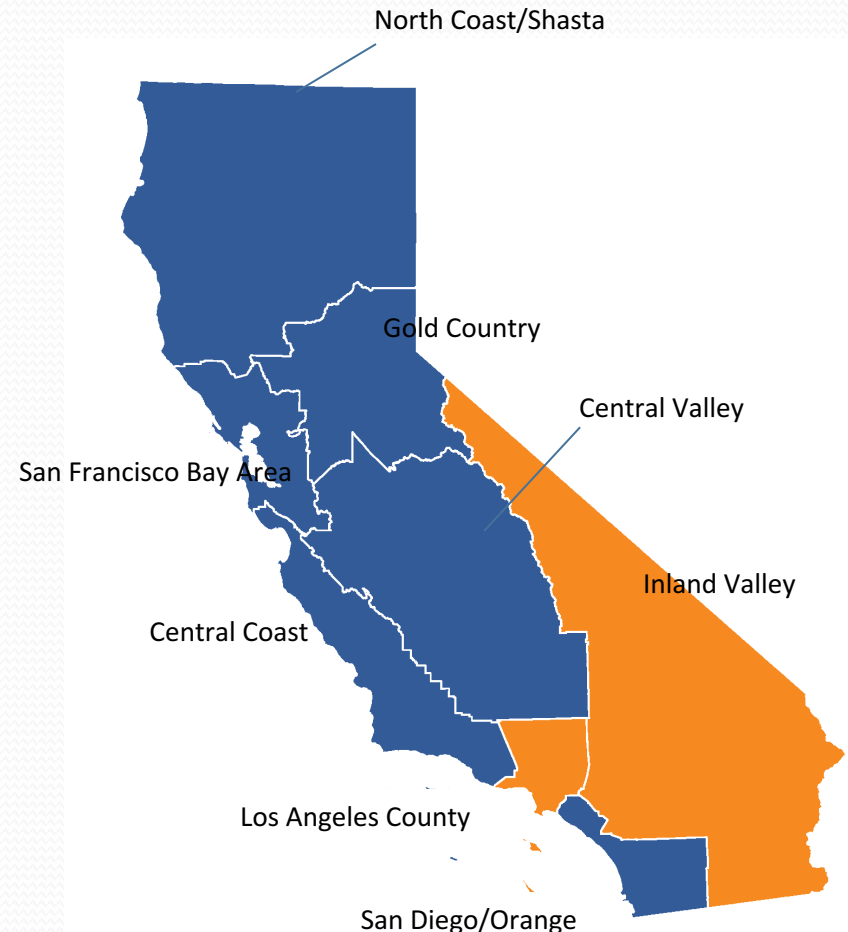
“...the establishment of a statewide biomonitoring program will assist in the evaluation of the presence of toxic chemicals in a representative sample of Californians, establish trends in the levels of these chemicals in Californians’ bodies over time, and assess effectiveness of public health efforts and regulatory programs to decrease exposures...”

- Tri-departmental structure
 - California Department of Public Health
 - Office of Environmental Health Hazard Assessment
 - Department of Toxic Substances Control
- Scientific Guidance Panel
- Results Return
- Statewide surveillance



The California Regional Exposure (CARE) Study

- Eight regions, based on geography and population
- Conduct sampling in approximately one region/year, with 300-500 participants per region
- Biomonitoring for metals and per- and polyfluoroalkyl substances (PFASs) and collection of exposure data
- Potential to include additional chemical panels, multiple samples per participant, intervention studies, etc. for a subset of participants

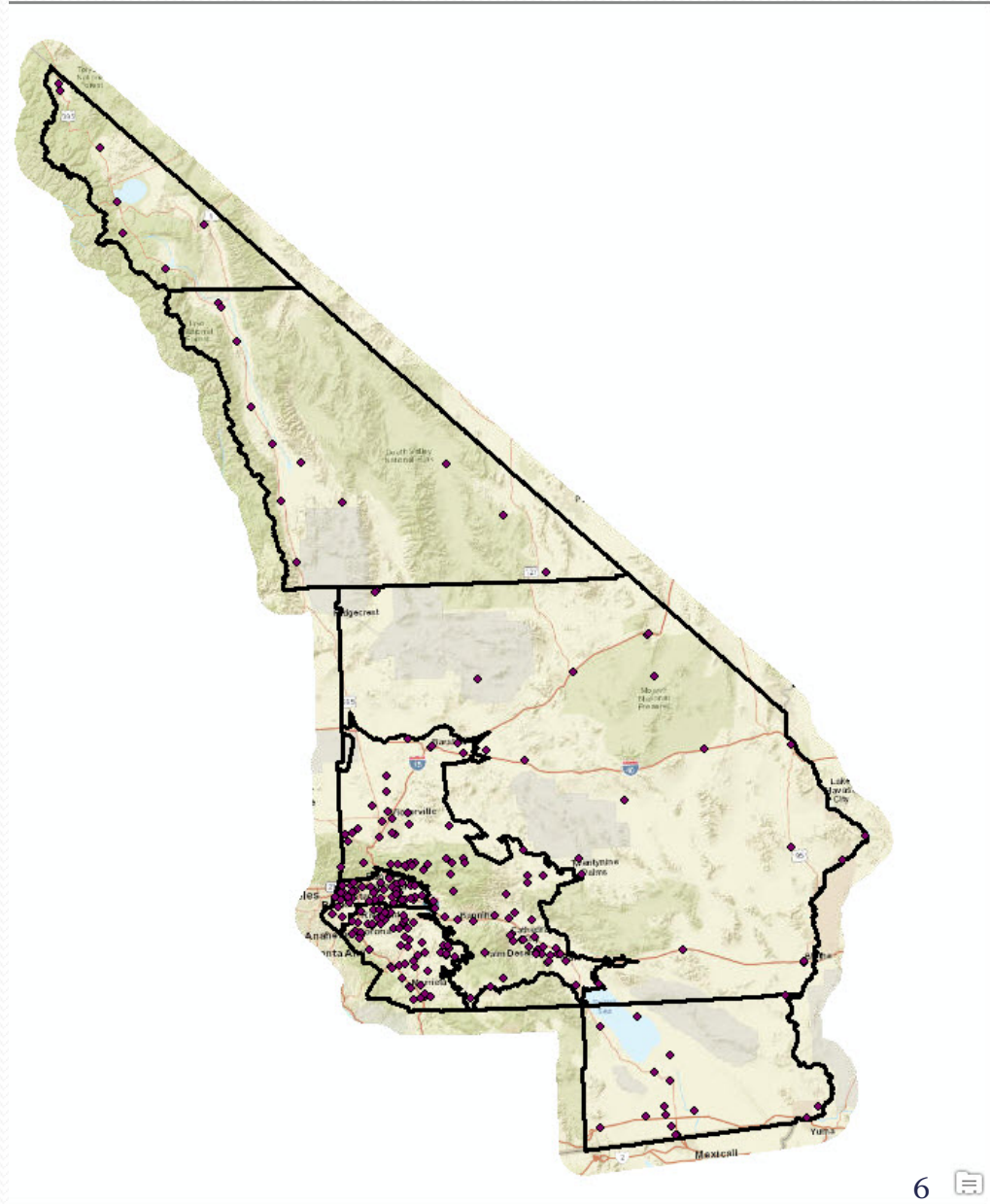




Projected Year	Region
2026	Region 1: Los Angeles County
2019	Region 2: Inland Valley
2020	Region 3: San Diego/Orange
2021	Region 4: Central Coast
2022	Region 5: Central Valley
2023	Region 6: Gold Country
2024	Region 7: San Francisco Bay Area
2025	Region 8: Northern Counties

CARE 2

- Riverside, San Bernardino, Imperial, Mono, and Inyo counties



Benefits of the CARE Study

- Development of baseline biomonitoring data for comparison with national exposure data
- Identification of differences between regions or particular communities at risk for exposure
- Opportunity to examine time trends on an 8-year cycle

Examples of Biomonitoring California Studies

Study	Partners	Sampling Years	Population	# Samples	Analytes
Maternal and Infant Environmental Exposure Project (MIEEP)	UCSF/UC Berkeley	2010-11	SF Pregnant women and infants	65 mom/baby pairs 27 moms	Metals POPs Phenols Pesticides Phthalates
Firefighter Occupational Exposures (FOX)	UC Irvine County Fire Authority	2010-11	Southern CA Firefighters	101	Metals POPs Phenols Pesticides Phthalates
Biomonitoring Exposures Study (BEST)	Kaiser Permanente	2011-12 2013	Central Valley	112 350	Metals POPs Phenols Pesticides Phthalates
Asian/Pacific Islander Community Exposure (ACE)	APA Family Services	2016	Bay Area Chinese population	80-100	Metals PFCs
FREES	UC Davis	2016	Bay Area households	25	Flame retardants

BIOMONITORING CALIFORNIA

10TH ANNIVERSARY

- **Established a nationally recognized biomonitoring program**
- **Developed laboratory capability for measuring close to 200 chemicals**
- **Integrated the Scientific Guidance Panel's recommendations in developing and implementing a scientifically robust biomonitoring program**
- **Conducted 20 biomonitoring studies with 30 collaborators**
- **Discovered elevated chemical exposures in at-risk populations**
- **Advanced the field of biomonitoring results return**
- **Demonstrated the effectiveness of public health efforts to reduce chemical exposures**
- **Empowered people to make informed decisions about reducing chemical exposures**
- **Promoted transparency and collaboration by sharing study findings, practical knowledge, and program activities through our website**
- **Identified emerging chemicals to provide early warning of new environmental hazards in California**

Proposed Schedule	Region	Population
2018	Region 1: Los Angeles County	11 million
2019	Region 2: Inland Valley (Imperial, Riverside, San Bernardino, Inyo)	4.7 million
2020	Region 3: San Diego and Orange Counties	6.5 million
2021	Region 4: Central Coast (San Luis Obispo, Santa Barbara, Santa Cruz, Ventura)	2.3 million
2022	Region 5: Central Valley (Fresno, Kern, Kings, Madera, Merced, Tulare, San Benito, Mariposa, Stanislaus)	3.5 million
2023	Region 6: Gold Country (Placer, Sacramento, San Joaquin, Sutter, Yolo, Yuba, Solano, El Dorado, Alpine, Amador, Calaveras, Mono, Nevada, Sierra, Tuolumne)	3.9 million
2024	Region 7: SF Bay Area (Alameda, Contra Costa, San Francisco, San Mateo, Santa Clara)	6.3 million
2025	Region 8: North Coast/Shasta (Butte, Del Norte, Humboldt, Lake, Lassen, Mendocino, Modoc, Plumas, Shasta, Siskiyou, Tehama, Trinity, Sonoma, Napa, Marin, Colusa, Glenn)	1.9 million
2026	Region 1	