EPIC 2004 Update

Environmental Protection Indicators for California

California Environmental Protection Agency – California Resources Agency

PREFACE

The Environmental Protection Indicators for California (EPIC) project is a collaborative effort of the California Environmental Protection Agency (Cal/EPA), the Resources Agency, the Department of Health Services, and an external advisory group consisting of representatives from business, public interest groups, academia, and local government. The project, led by Cal/EPA's Office of Environmental Health Hazard Assessment (OEHHA), is responsible for developing and maintaining a set of "environmental indicators" for California.

In 2002, the EPIC Project released its first report, Environmental Protection Indicators for California). The report describes the process for developing environmental indicators under the EPIC Project, and an initial set of 84 indicators dealing with air quality, water quality, water supply and use, waste management, pesticides, transboundary issues, human health, and ecosystem health.

As lead agency for the EPIC Project, OEHHA has committed to publishing an update to the indicator report every two years, or as necessary. Although OEHHA no longer has funding for the EPIC Project, a modest level of effort has been devoted to compiling this update, and we are grateful to all who contributed.

January 2005

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ENVIRONMENTAL PROTECTION INDICATORS FOR CALIFORNIA (EPIC)
INDICATOR UPDATES
DECEMBER 2004

Updated data are available for 43 of the 50 "Type I" indicators included in the *Environmental Protection Indicators for California Report* (April 2002). Type I indicators are those supported by ongoing, systematic data collection, and for which sufficient data are available for presenting a status or trend.

On the list below, links are provided for those indicators for which updates are available. For a more detailed discussion of each indicator, consult the relevant section of the 2002 report.

AIR QUALITY INDICATORS

For an updated map showing California's air basins, click here.

- Days with unhealthy levels of ozone
- Peak 1-hour ozone concentration
- Exposure to unhealthy ozone levels (South Coast Air Basin)
- Emissions of ozone precursors – Volatile organic compounds + Oxides of nitrogen
- Days with unhealthy levels of inhalable particulate matter (PM10)
- Peak 24-hour inhalable particulate matter (PM10) concentration
- Annual inhalable particulate matter (PM10) concentration
- Days with unhealthy levels of carbon monoxide
- Peak 8-hour carbon monoxide concentration
- Carbon monoxide emissions
- Household exposure of children to environmental tobacco smoke

WATER INDICATORS

- Aquatic life and swimming uses assessed
- Spill/Release episodes – Waters
- Leaking underground fuel tank (LUFT) sites
- Drinking water supplies exceeding maximum contaminant levels (MCLs)
- Coastal beach availability – Extent of coastal beaches posted or closed
- Bacterial concentrations in commercial shellfish growing waters
- Fish consumption advisories - Coastal waters
- Statewide water balance summaries
  (*replaces "Statewide water use and per capita consumption*)
- Water use efficiency – Recycling municipal wastewater

LAND, WASTE AND MATERIALS MANAGEMENT INDICATORS

- Statewide solid waste generation, disposal and diversion, per capita
- Number of tires diverted from landfills
- Hazardous waste shipments
- Hazardous material incidents
- Hazardous waste disposal
- Soil cleanup
- Contaminated sites

PESTICIDE INDICATORS

- Area with pesticides detected in well water
- Simazine and breakdown products in a monitoring network of 70 wells in Fresno and Tulare Counties
- Percent of produce with illegal pesticide residues
- Number of reported occupational illnesses and injuries associated with pesticide exposure

TRANSBOUNDARY INDICATORS

- Carbon dioxide emissions
- Air temperature
- Annual Sierra Nevada snowmelt runoff
- Sea level rise in California
- Stratospheric ozone depletion
- Air pollutants at the California/Mexico border

ECOSYSTEM HEALTH INDICATORS

- Land cover of major terrestrial ecosystems in California
- Land management in California
- California threatened and endangered species
- Clarity of Lake Tahoe
- Status of Central Valley Chinook salmon populations
- California least tern populations
- Status of the desert tortoise population
- Change in habitat quantity in rangelands and forests
- Change in forest canopy
- Pest and disease related mortality in forests
- Wildfires in forests and grasslands
- Sustainability of California's forests
- Conversion of farmland into urban and other uses

INDICATORS OF ENVIRONMENTAL EXPOSURE IMPACTS UPON HUMAN HEALTH

- No Type I's

BACKGROUND INDICATORS*

Population demographics

- Total California population
- Annual population growth

Economy

- Gross State Product

Energy consumption

- Total energy consumption and Gross State Product
- Energy consumption per GSP
- Energy consumption in California by sector

Transportation

- Vehicle miles traveled, fuel consumption and fuel efficiency

Human health

- Life expectancy at birth
- Leading causes of death in California
- Infant death rate
- Asthma prevalence among adults

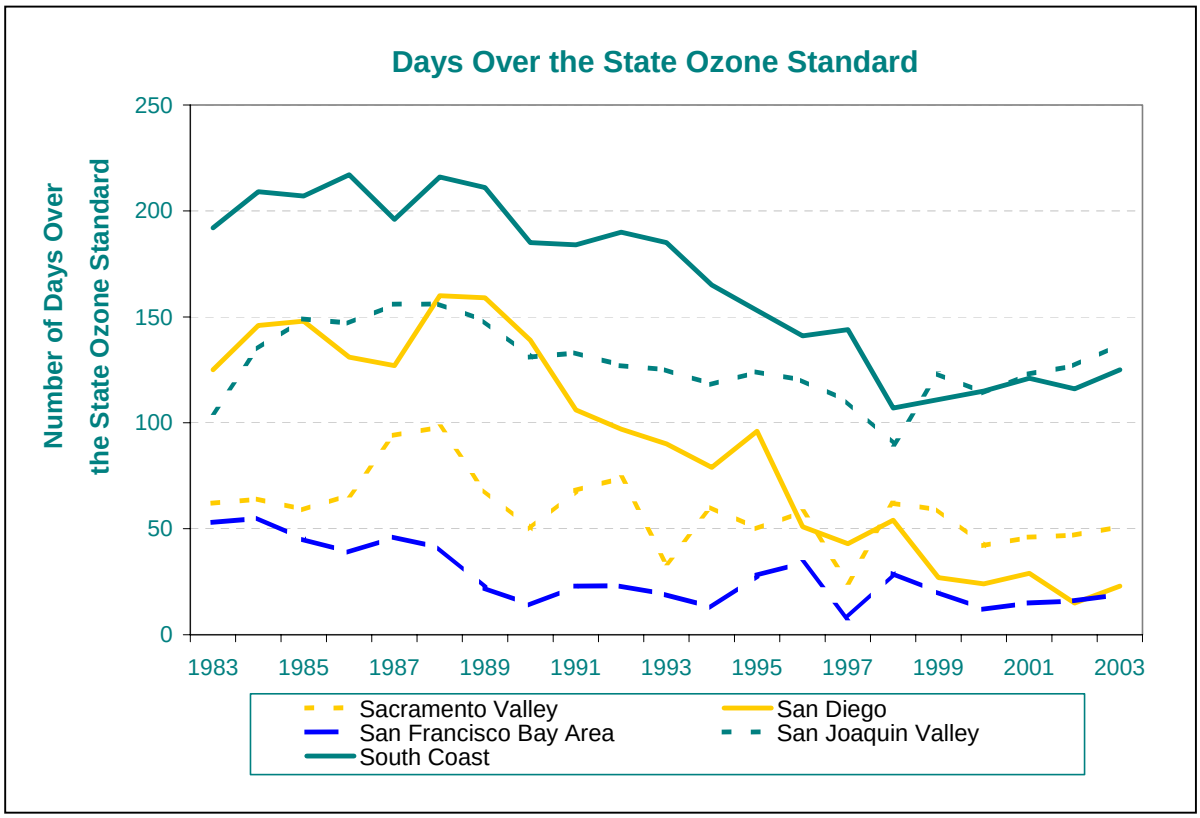
* Background indicators are intended to provide information with which to interpret environmental indicators.

California Air Basins

Source: California Air Resources Board

DAYS WITH UNHEALTHY LEVELS OF OZONE

The number of days with unhealthy levels of ozone has decreased substantially in most areas of California over the past two decades, with the exception of the San Joaquin Valley, which has seen little improvement. Decreases for most regions were modest during the 1980s but accelerated during the 1990s. Weather is an important factor in the year to year variability in the ambient levels of ozone.



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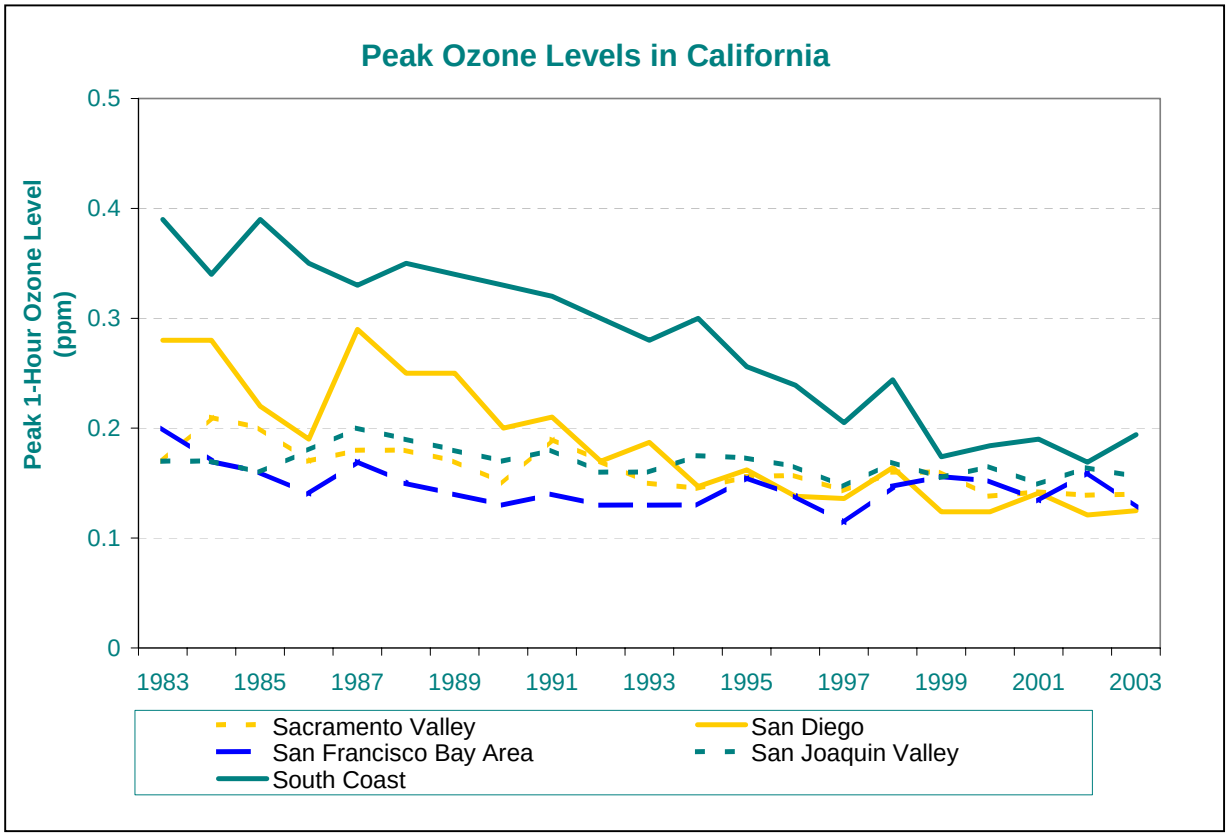
More information on ozone pollution is posted at:
http://www.arb.ca.gov/aqd/almanac/almanac05/almanac05.htm

A full discussion of air quality indicators can be found at:
http://www.oehha.ca.gov/multimedia/epic/2002reptpdf/Chapter3-2of8Air.pdf

PEAK 1-HOUR OZONE CONCENTRATION

Peak ozone levels have been declining over the last two decades. The peak level is the highest measured 1-hour concentration at any monitor within an air basin for a particular year. The greatest decline has been in the South Coast Air Basin, which continues to have the highest peaks.



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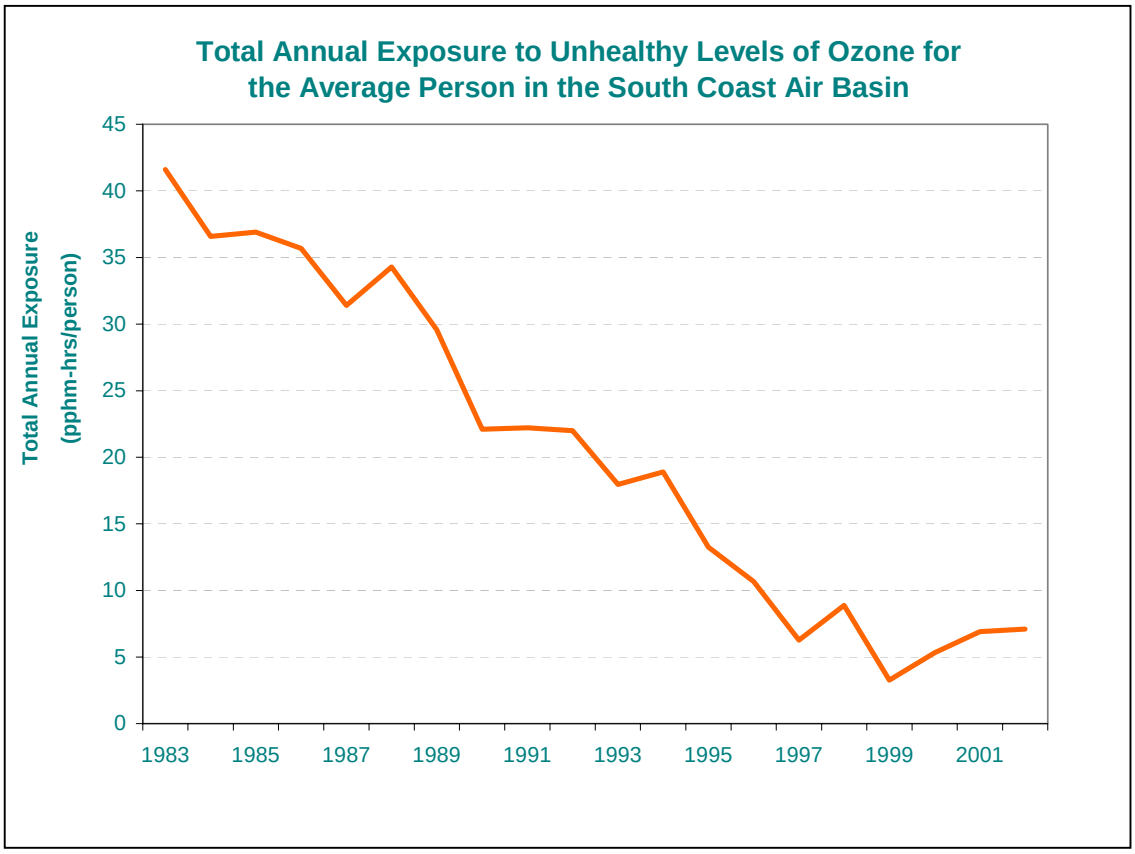
EXPOSURE TO UNHEALTHY OZONE LEVELS

Population exposure to unhealthy levels of ozone – based on duration of exposure and level of ozone pollution – has declined significantly in the South Coast Air Basin. This decline is expected to continue as cleaner vehicles enter the fleet, replacing older ones, and as additional emission controls are implemented. The graph below reflects total annual (population-weighted) exposures to ozone at concentrations above the 1-hour standard (0.09 parts per million), and incorporates both the magnitude and the duration of the average level of exposure to concentrations greater than the standard.



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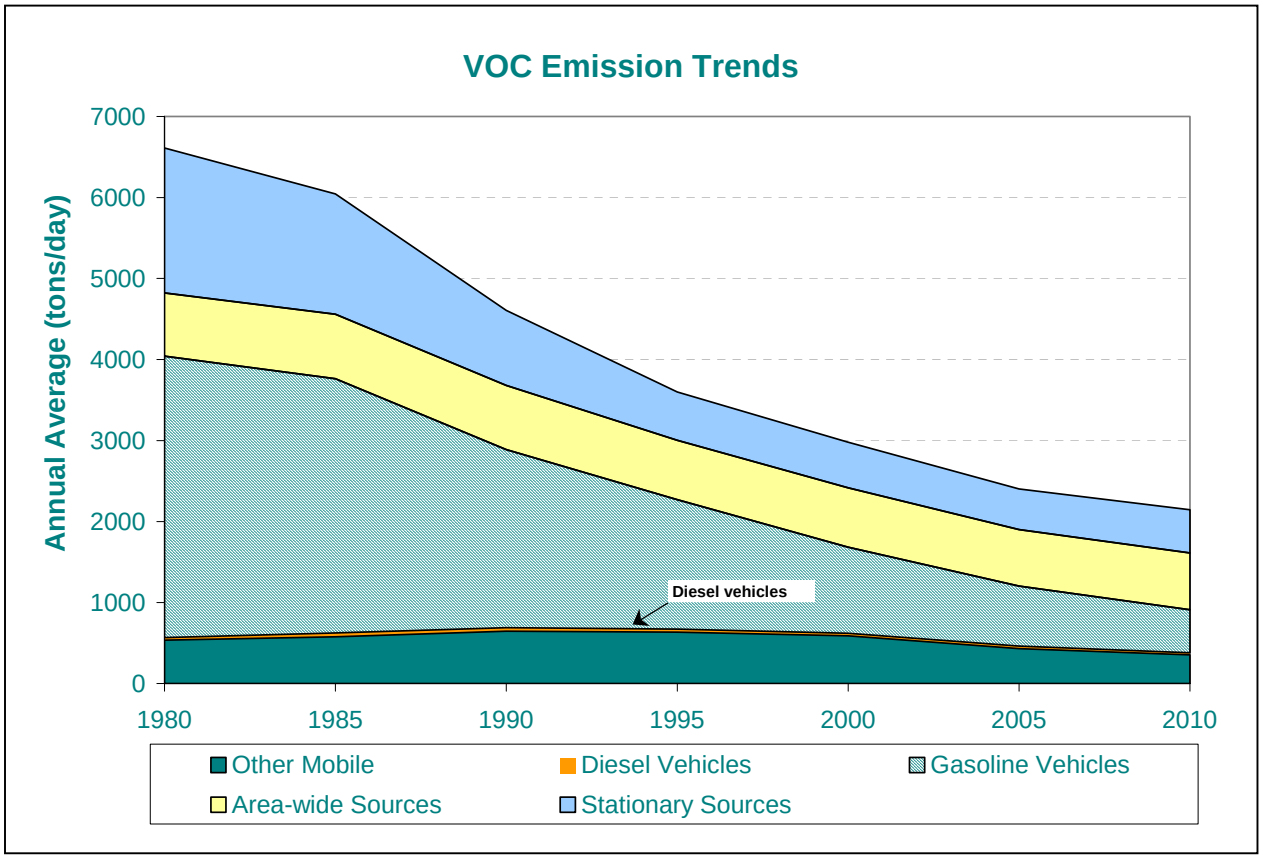
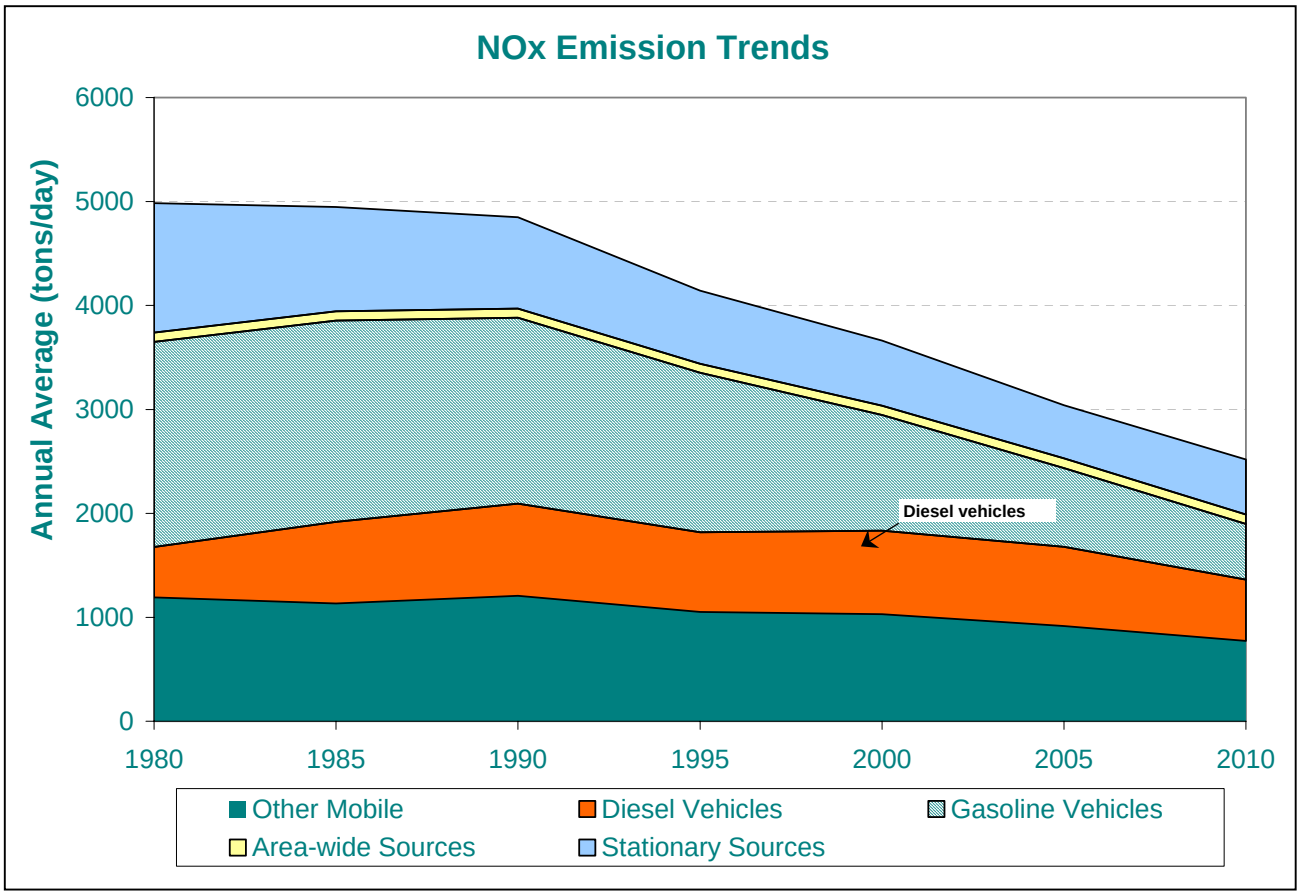
EMISSIONS OF OZONE PRECURSORS – VOLATILE ORGANIC COMPOUNDS (VOC) + OXIDES OF NITROGEN (N0X)

Total emissions of volatile organic compounds (VOCs) and nitrogen oxides (NOx) have been declining over the past 20 years. These pollutants react to form ozone in the atmosphere in the presence of sunlight. Even though motor vehicle miles traveled have increased by 105 percent and population has increased by 43 percent between 1980 and 2000, VOC emissions have declined by 55 percent and NOx emissions by 27 percent during the same period. The greatest declines have resulted from reduction of gasoline vehicle emissions. VOC emissions from gasoline on-road motor vehicles in California have decreased by 69 percent between 1980 and 2000, largely as a result of the state's on-road motor vehicle emission control program. NOx emissions from gasoline on-road motor vehicles have declined by 44 percent from 1980 to 2000, and are projected to decrease by an additional 52 percent between 2000 and 2010.





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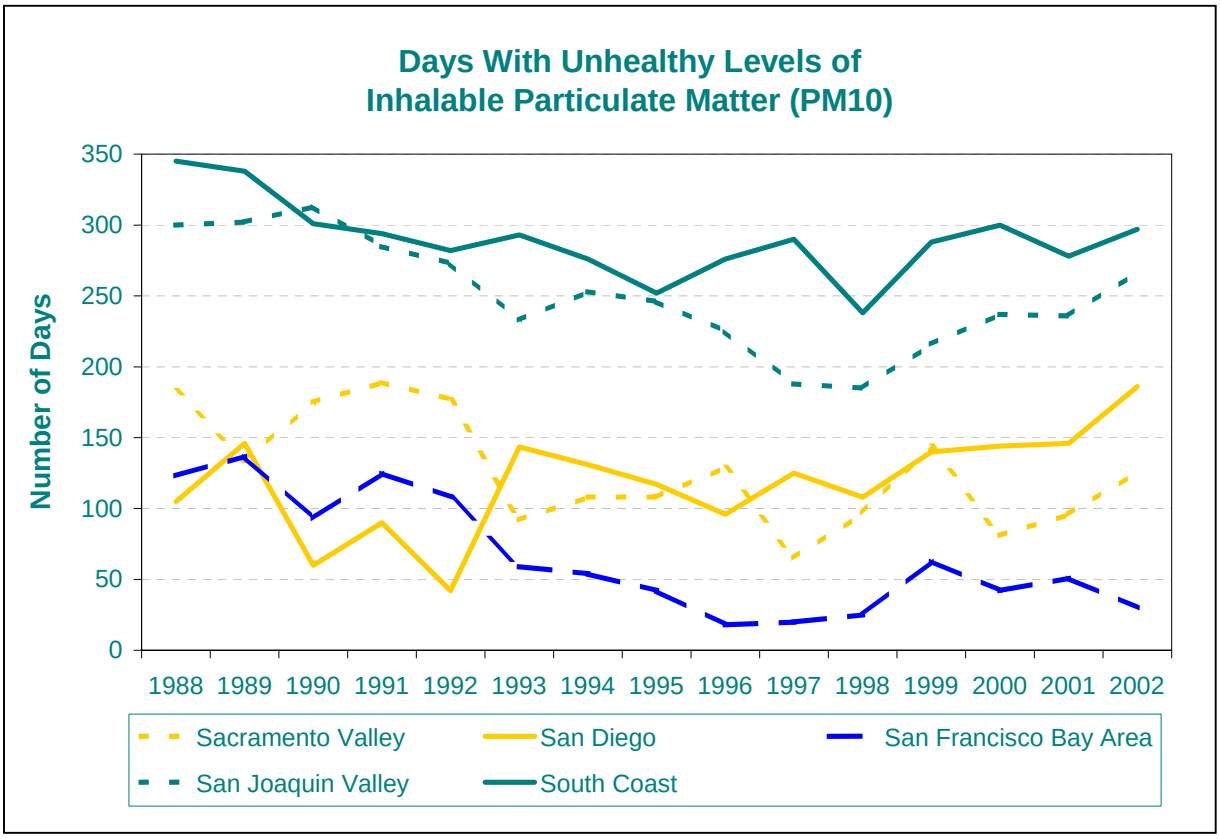
More information on VOC and NOx emissions is posted at:
http://www.arb.ca.gov/aqd/almanac/almanac05/almanac05.htm
http://www.arb.ca.gov/ei/ei.htm
http://www.arb.ca.gov/app/emsinv/trends/ems_trends.php

A full discussion of air quality indicators can be found at:
http://www.oehha.ca.gov/multimedia/epic/2002reptpdf/Chapter3-2of8Air.pdf

DAYS WITH UNHEALTHY LEVELS OF INHALABLE PARTICULATE MATTER (PM10)

Exposure to PM10 has declined or remained stable in most regions of the State. Most of the major air basins have shown a moderate decline in the number of days over the PM10 standard. However, as more particulate monitors were deployed statewide throughout the 1990s, there was a greater potential to record exceedances in previously unmonitored regions. For example, three PM monitors deployed in San Diego in 1993 contributed to that region's increase in days over the standard. Despite the increase in population in urban areas and subsequent increase in vehicle miles traveled, PM10 levels are decreasing within most regions of the State.



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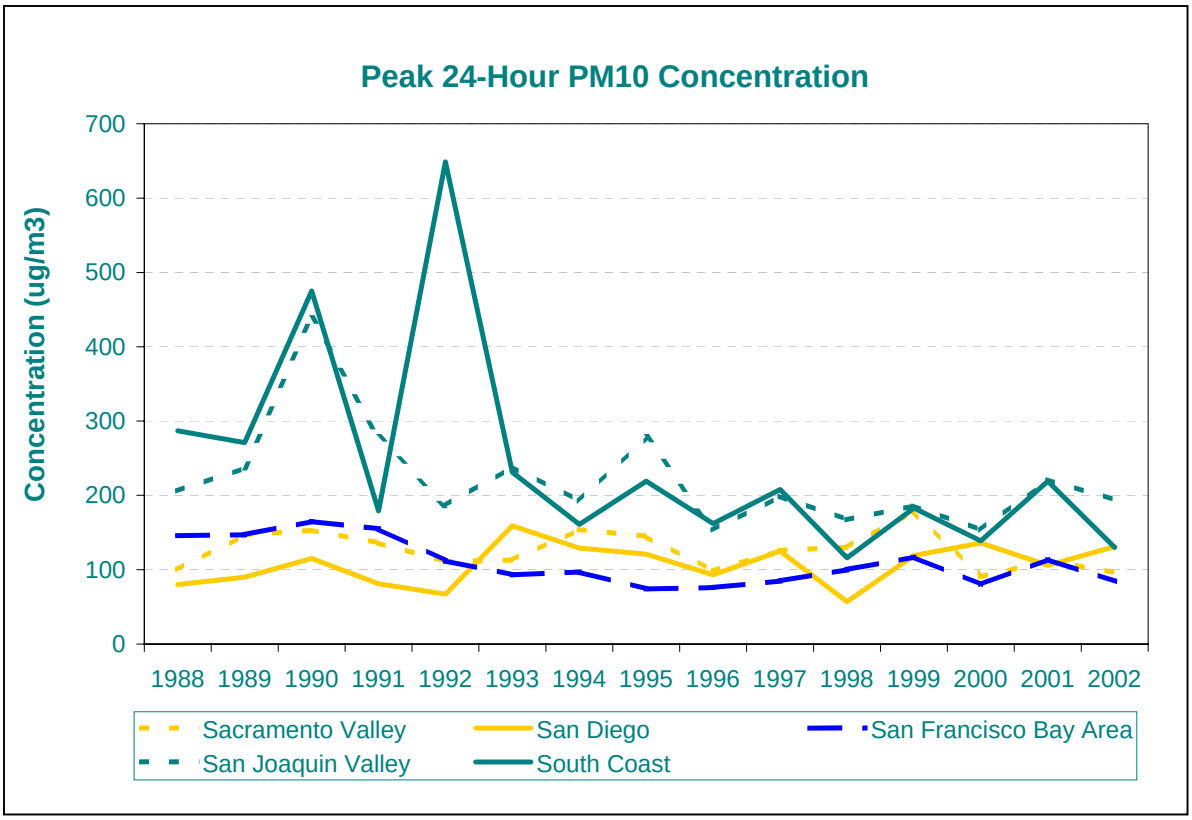
A full discussion of air quality indicators can be found at:
http://www.oehha.ca.gov/multimedia/epic/2002reptpdf/Chapter3-2of8Air.pdf

PEAK 24-HOUR INHALABLE PARTICULATE MATTER (PM10) CONCENTRATION

Most of the major air basins have shown a moderate decline in maximum 24-hour PM10 concentrations. The increased monitoring enabled by the deployment of additional particulate monitors statewide throughout the 1990s in some cases resulted in higher measured peaks. For example, San Diego added a PM10 monitor at the Otay Mesa border region in 1993; this monitor has recorded the San Diego basin's maximum PM10 levels each year since then. This indicator is also dependent on weather -- secondary particles are more easily formed in the atmosphere during colder winter conditions, while fugitive dust levels are more likely to be higher on dry, windy days. A combination of drought years and high wind events are likely to have contributed to the spikes in PM10 levels in the South Coast and San Joaquin Valley Air Basins in 1990, and in the South Coast Air Basin in 1992.



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A full discussion of air quality indicators can be found at:
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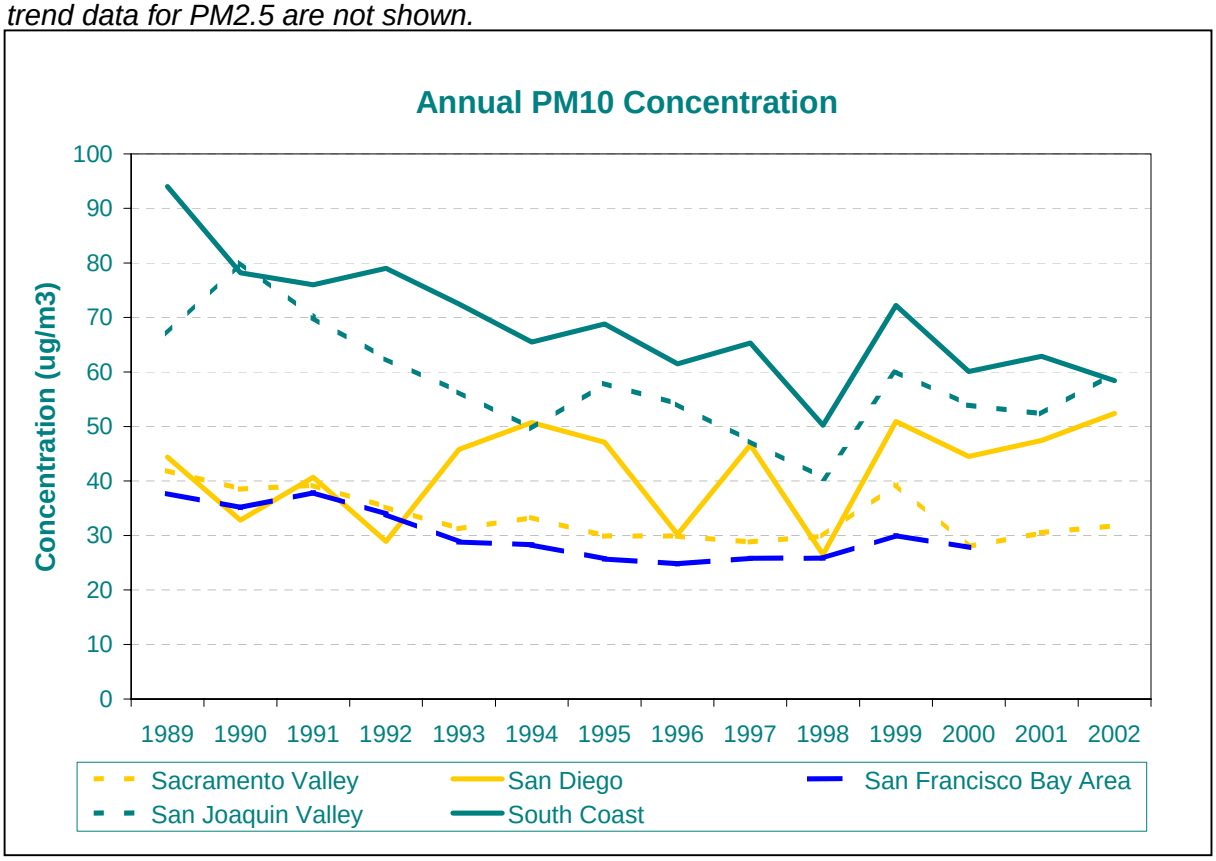
ANNUAL INHALABLE PARTICULATE MATTER (PM10) CONCENTRATION

Most air basins show moderate declines in annual PM10 levels. In 2002, California's annual PM10 standard was revised from 30 ug/m^3 to 20 ug/m^3, and is now calculated as an annual average of quarters instead of the annual geometric mean. All years in the graph have been adjusted to reflect this change. In addition, a new annual PM2.5 standard of 12 ug/m^3 was adopted. Because PM2.5 monitoring did not begin until 1999, trend data for PM2.5 are not shown.



Note: Data in the San Francisco Bay Area did not meet the criteria for calculating an annual average for State purposes in 2001 and 2002. Instead, the annual average for federal purposes is included for these years. State and federal annual averages are generally very similar.

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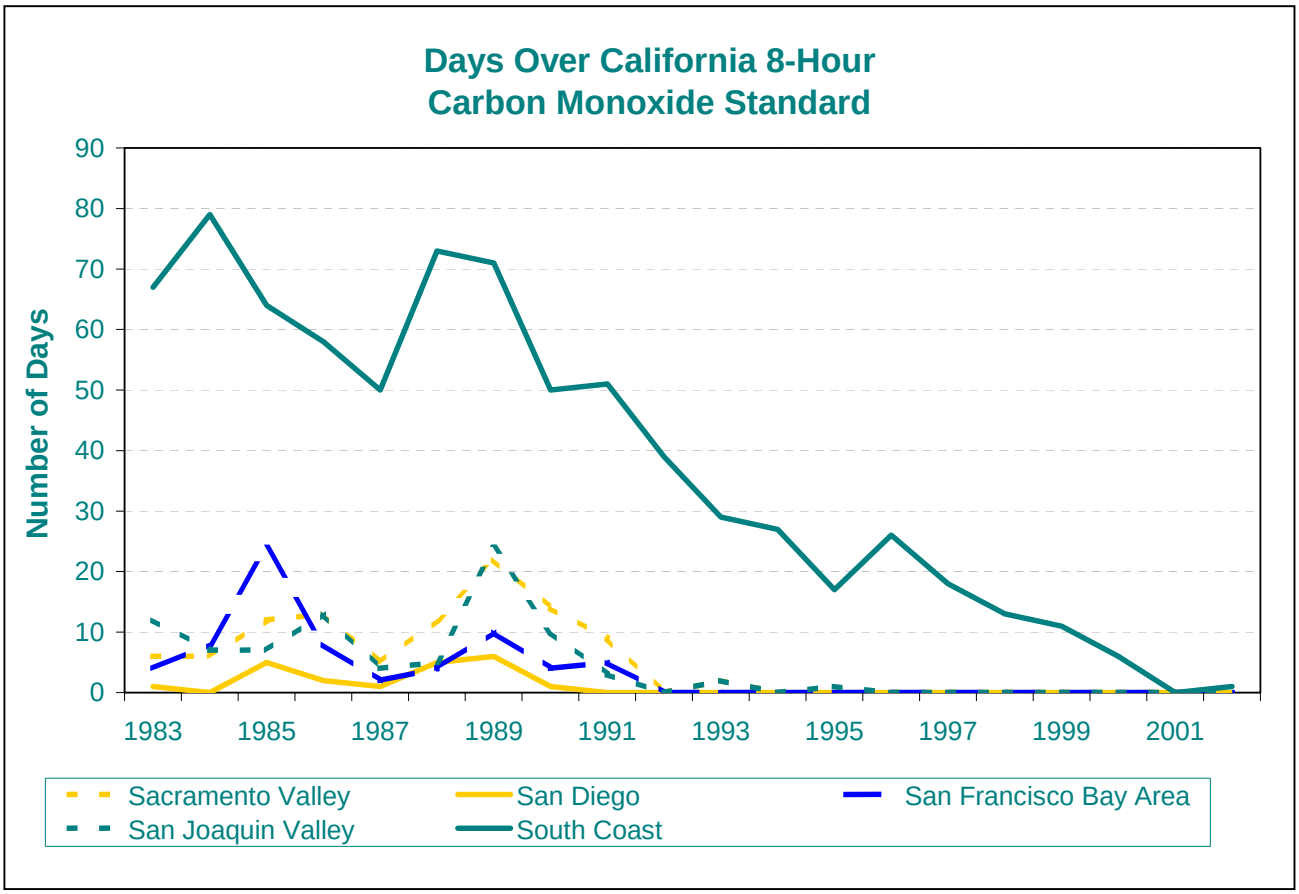
DAYS WITH UNHEALTHY LEVELS OF CARBON MONOXIDE

Days with unhealthy levels of carbon monoxide have decreased dramatically throughout the State. The Los Angeles area, which is part of the South Coast Air Basin, has been the only major urbanized area with any unhealthy days since the mid-1990s. Los Angeles now qualifies for attainment, and had only one day above the standard in 2001 and 2002.



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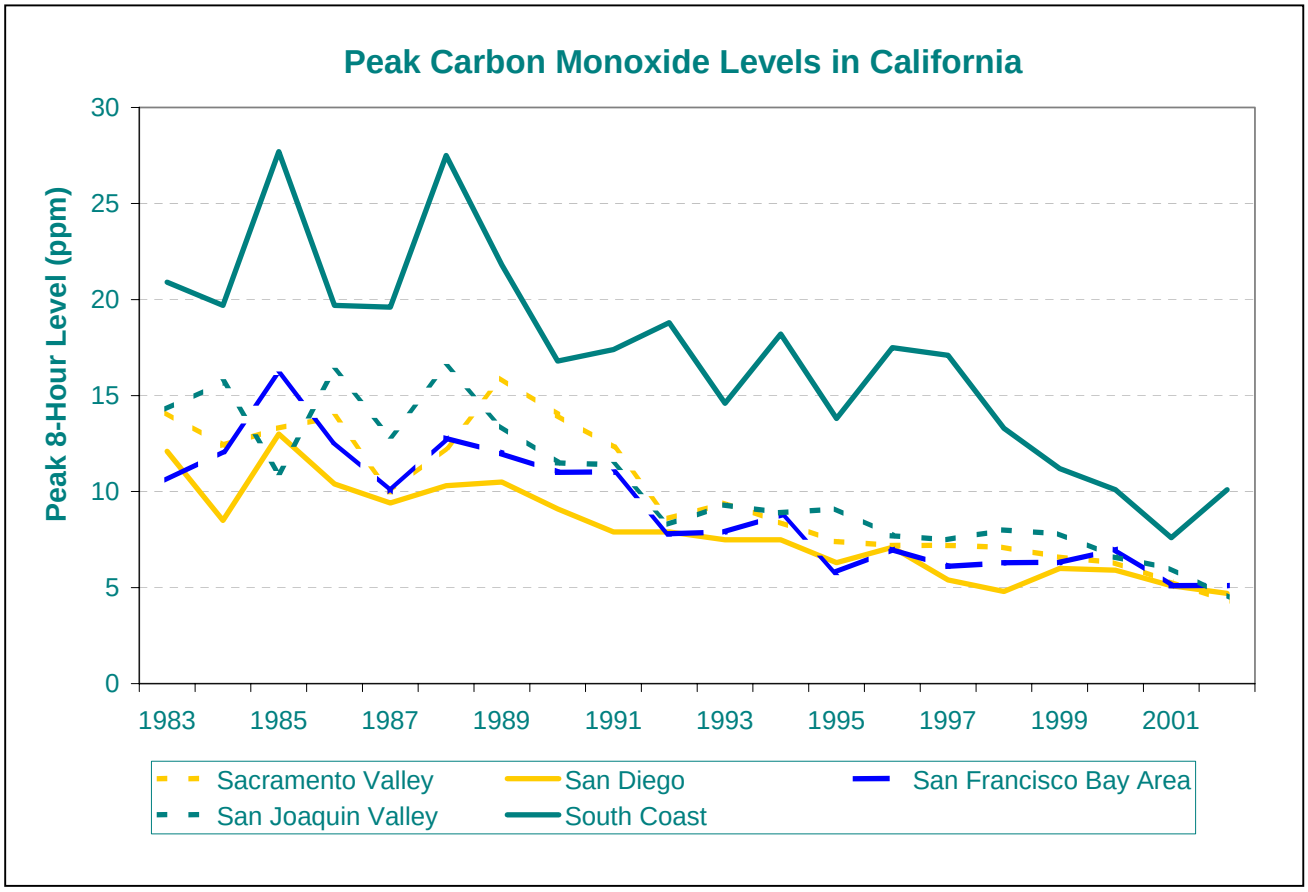
A full discussion of air quality indicators can be found at:
http://www.oehha.ca.gov/multimedia/epic/2002reptpdf/Chapter3-2of8Air.pdf

PEAK 8-HOUR CARBON MONOXIDE CONCENTRATION

Peak 8-hour carbon monoxide levels have declined and have remained well below the State 8-hour standard (9.0 ppm) since the mid-1990s in all urban areas except the South Coast Air Basin. Only the Los Angeles County portion of the South Coast Air Basin and Calexico in Imperial County (not shown on the graph) exceeded the standard in 2002. Compared to previous years, the South Coast experienced only one day above the standard in 2001 and 2002, and now qualifies for attainment.



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A full discussion of air quality indicators can be found at:
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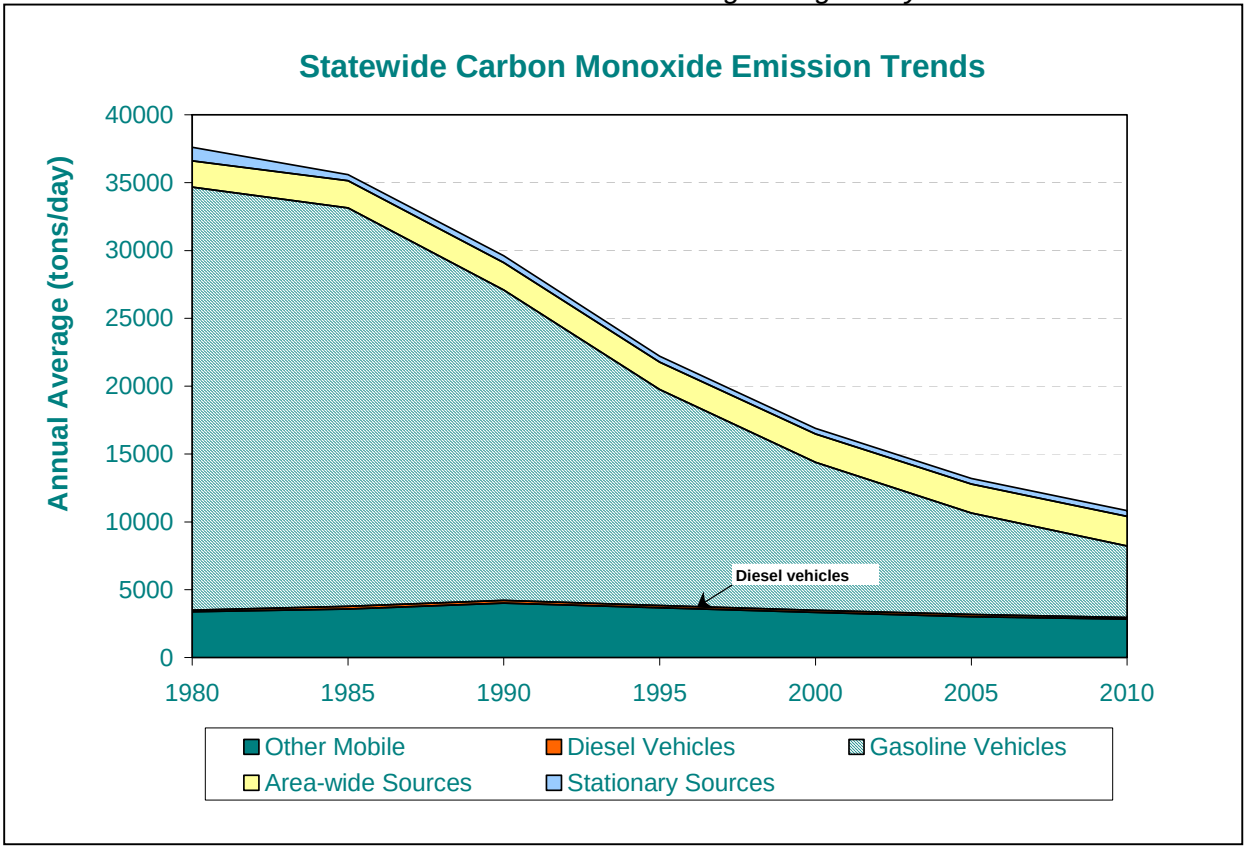
CARBON MONOXIDE (CO) EMISSIONS

Total emissions of carbon monoxide have been declining over the past 20 years, primarily due to gasoline vehicle emission reductions. Even though motor vehicle miles traveled have increased by 105 percent and population has increased by 43 percent between 1980 and 2000, the adoption of more stringent motor vehicle emissions standards has contributed to a 65 percent decline in statewide carbon monoxide emissions from on-road motor vehicles during the same period. With continued vehicle fleet turnover to cleaner vehicles and the incorporation of cleaner burning fuels, carbon monoxide emissions are forecast to continue decreasing through the year 2010.



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More information on CO emissions is posted at:
http://www.arb.ca.gov/aqd/almanac/almanac05/almanac05.htm
http://www.arb.ca.gov/ei/ei.htm
http://www.arb.ca.gov/app/emsinv/trends/ems_trends.php

A full discussion of air quality indicators can be found at:
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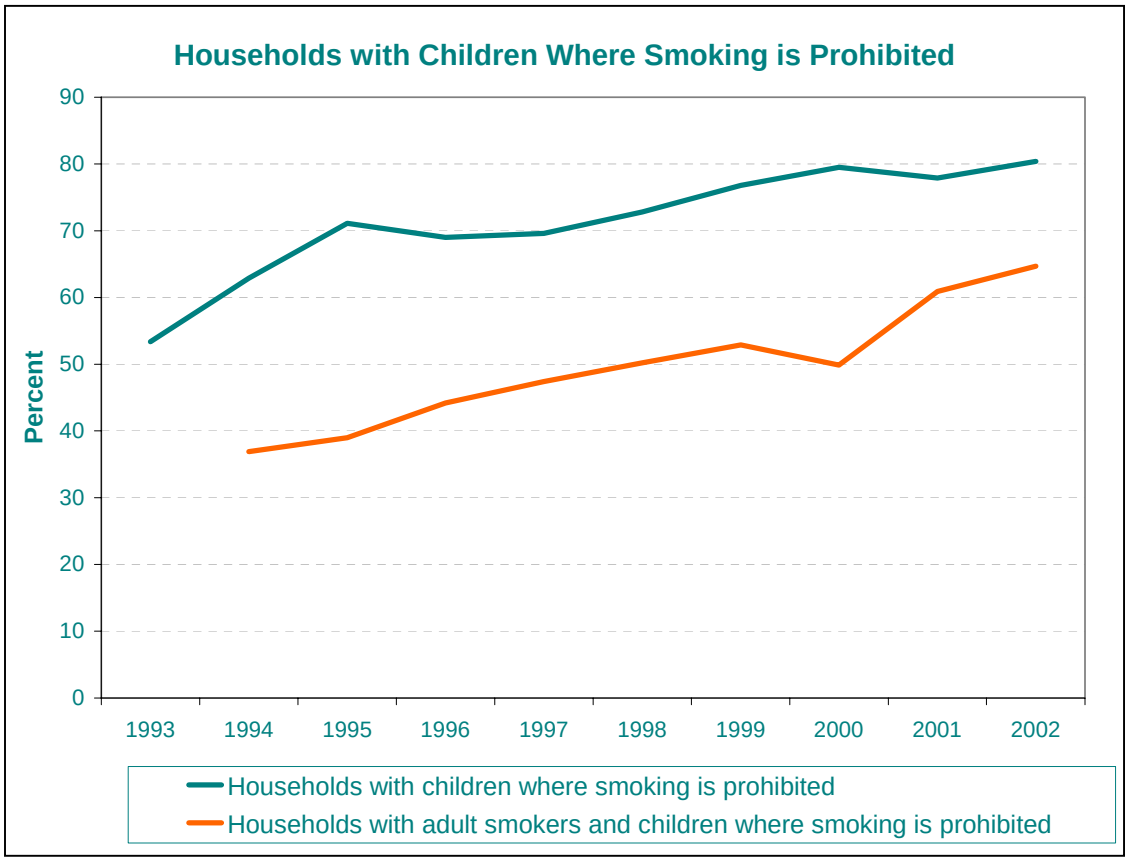
Correction to Reference cited in 2002 EPIC Report
California Air Resources Board. *Emission Inventory Procedural Manual, Volumes I-V*, 1996.

HOUSEHOLD EXPOSURE OF CHILDREN TO ENVIRONMENTAL TOBACCO SMOKE (ETS)

There has been a steady increase in the number of households with children under 18 where smoking is prohibited. Environmental tobacco smoke (or second-hand smoke) is a major toxic indoor air contaminant and is of particular danger to the young. For infants and children, the single most important location for ETS exposure is the home. This indicator is based on yearly statewide surveys, and provides an approximation of infant and child exposure to ETS in the home.



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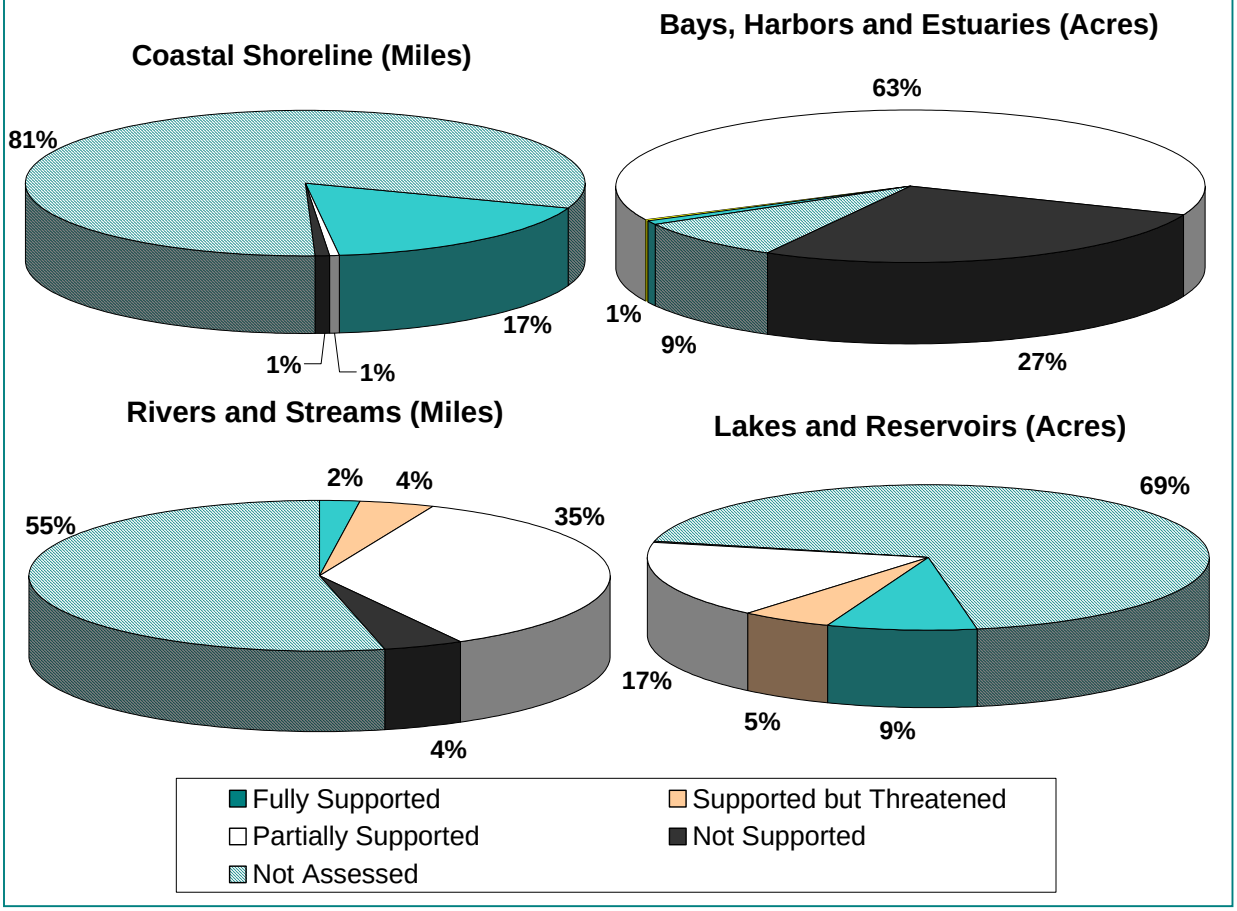
More information on tobacco use in California posted at:
www.dhs.ca.gov/tobacco/Index.htm

A full discussion of air quality indicators can be found at:
http://www.oehha.ca.gov/multimedia/epic/2002reptpdf/Chapter3-2of8Air.pdf

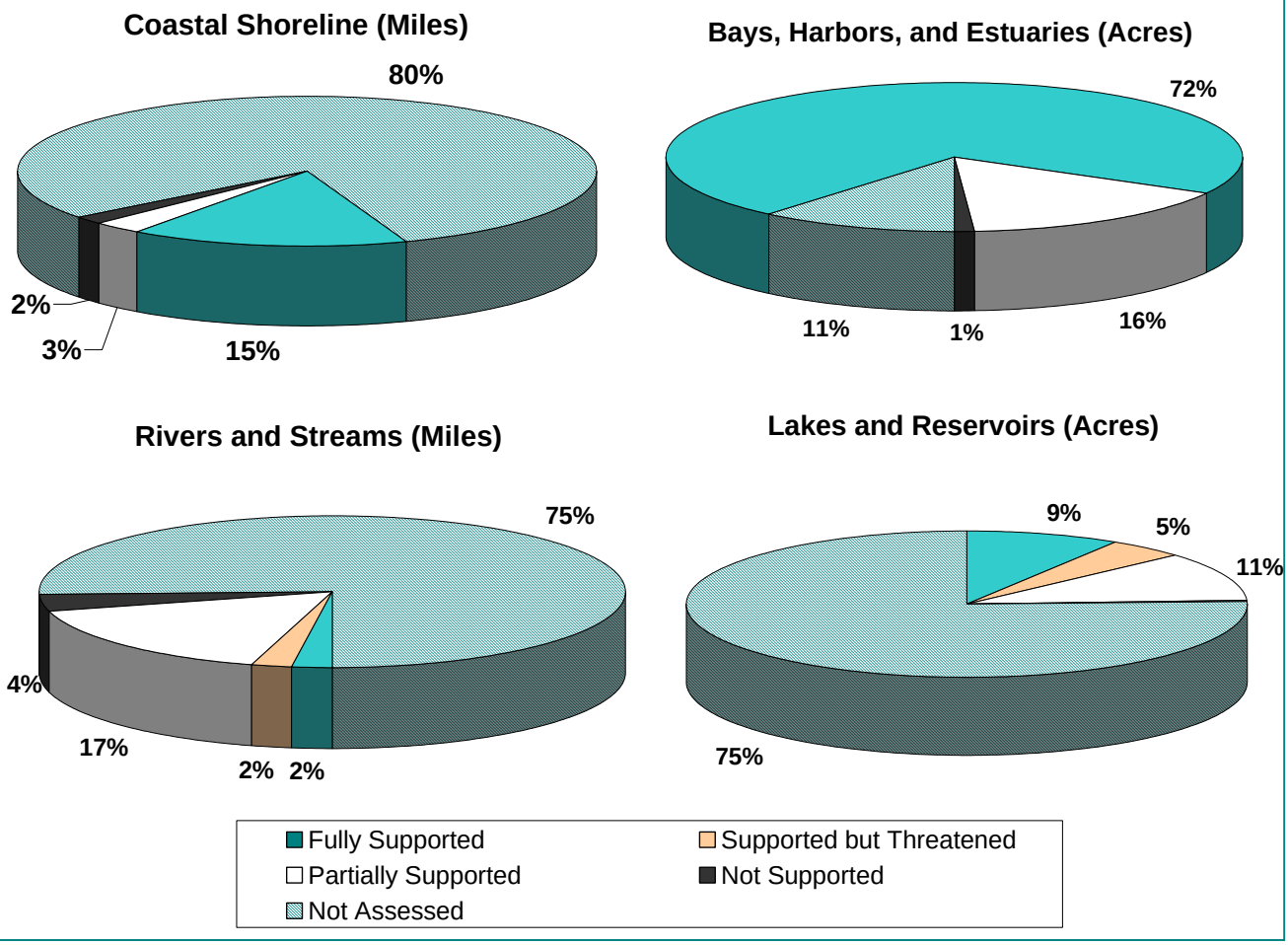
AQUATIC LIFE AND SWIMMING USES ASSESSED

The pie charts below reflect assessments for 2002 of the extent to which surface water bodies support two beneficial uses: aquatic life and swimming. This indicator is probably more influenced by changes in the assessment approach and availability of monitoring data than actual improvement or degradation of water quality. The quality of the data used, changes in the water body assessment database, and the lack of a comprehensive effort to monitor and assess these waters make it difficult to draw conclusions regarding water quality trends in California.

Percent of Water Bodies Supporting Aquatic Life, 2002



Percent of Water Bodies Supporting Swimming, 2002



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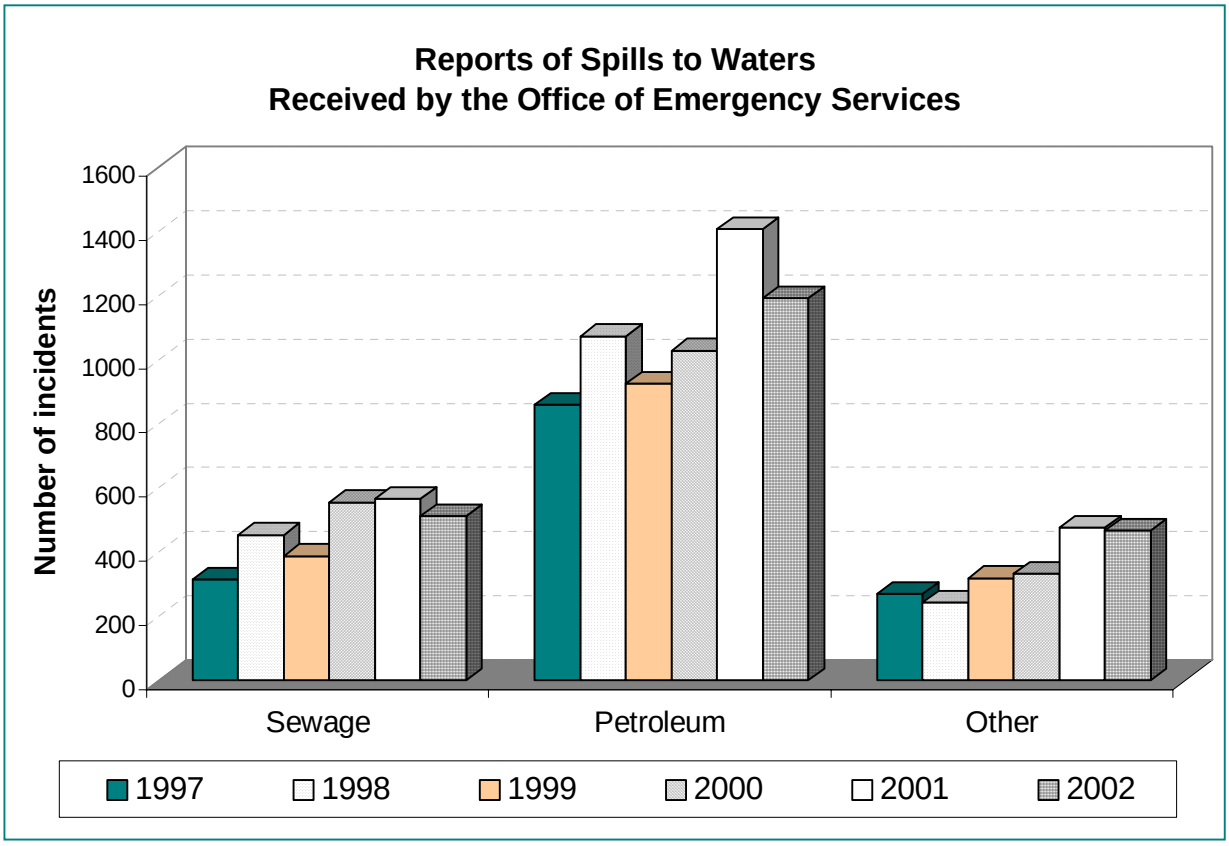
More information on aquatic life and swimming uses is posted at:
http://www.swrcb.ca.gov/tmdl/305b.html

A full discussion of water indicators can be found at:
http://www.oehha.ca.gov/multimedia/epic/2002reptpdf/Chapter3-3of8Water.pdf

SPILL/RELEASE EPISODES -- WATERS

From 1997 to 2001, spills reported to the Office of Emergency Services (OES) increased approximately 70 percent, although reported incidents decreased approximately 10 percent from 2001 to 2002. Spills of sewage, petroleum and other materials to water generally cause temporary conditions of pollution or nuisance.



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A full discussion of water indicators can be found at:
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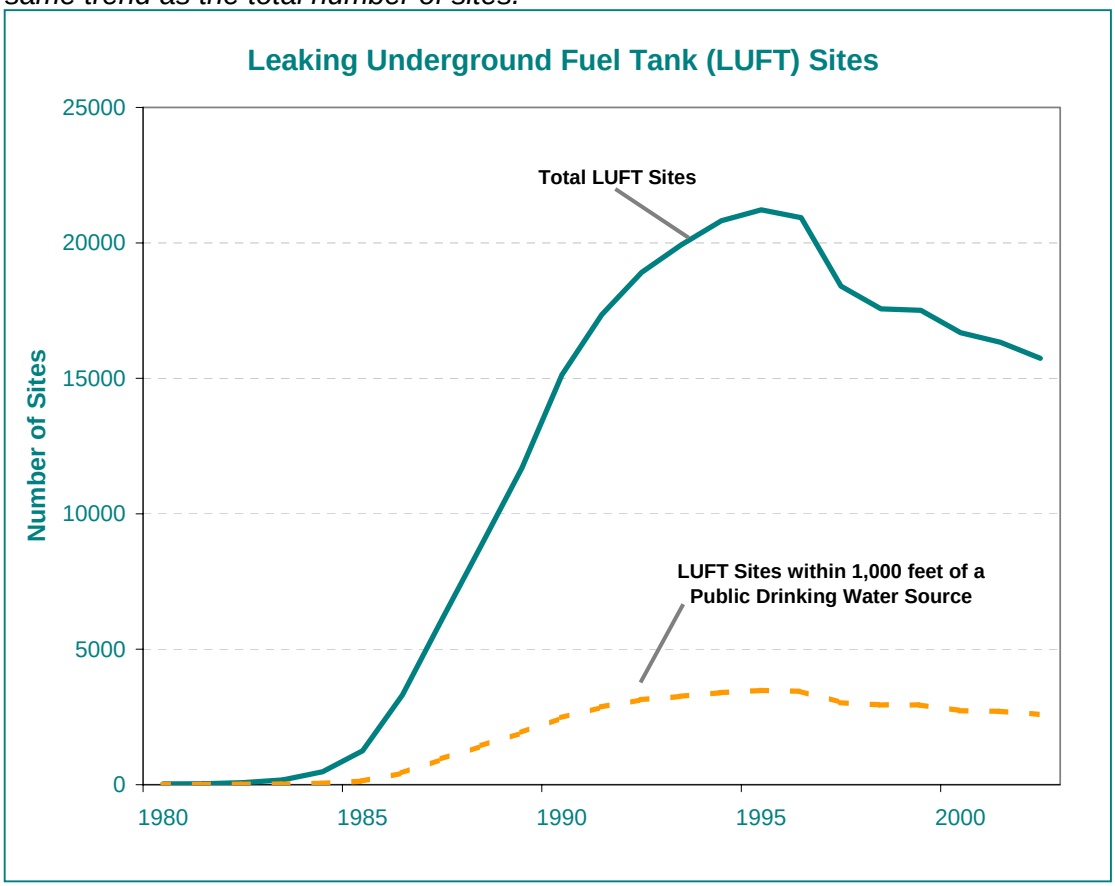
LEAKING UNDERGROUND FUEL TANK (LUFT) SITES

From 1985 to 1995, the number of LUFT sites increased significantly. This was likely due to increased monitoring and leak detections as a result of increased regulatory attention, such as tank upgrade activities. The trend peaked in 1995 and is now steadily decreasing. The decrease is attributed to the closure of numerous sites where the source of contamination was removed, and the remaining contamination did not pose a threat to human health. Currently, with nearly all active tanks having been upgraded, the total number of LUFT sites should continue to decline. The number of LUFT sites located within 1,000 feet of a public drinking water source has generally followed the same trend as the total number of sites.



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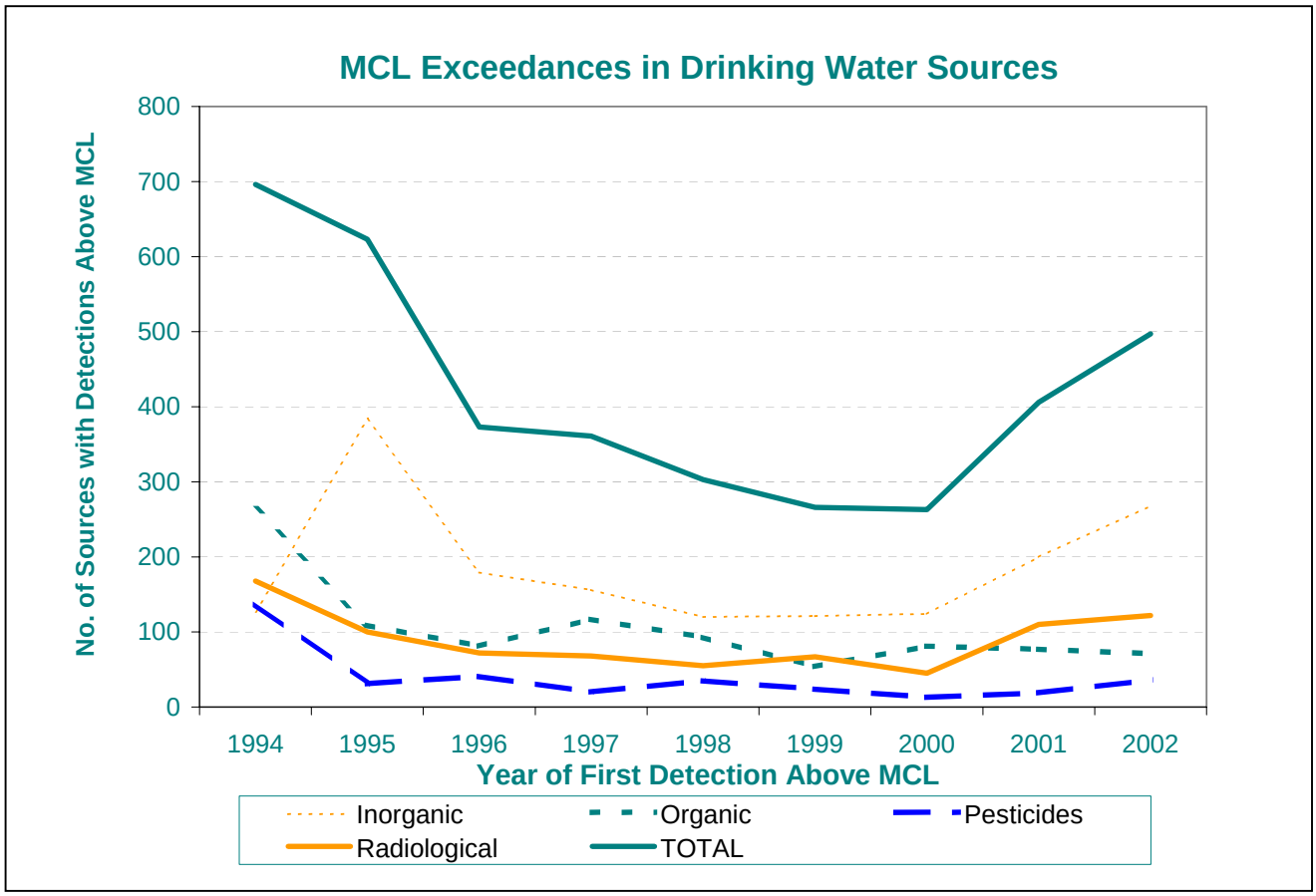
More information on LUFT sites is posted at:
http://www.swrcb.ca.gov/ust/tankpage.html and http://www.geotracker.swrcb.ca.gov

A full discussion of water indicators can be found at:
http://www.oehha.ca.gov/multimedia/epic/2002reptpdf/Chapter3-3of8Water.pdf

DRINKING WATER SUPPLIES EXCEEDING MAXIMUM CONTAMINANT LEVELS (MCLS)

Approximately 15,000 groundwater and 1,000 surface water sources of drinking water in California are regularly monitored for compliance with drinking water standards known as maximum contaminant levels (MCLs). Monitoring results show a slight decrease in the number of drinking water sources with first-time detections of contaminants at concentrations greater than the MCLs from 1996 through 2000 (1994 and 1995 data include some sources with detections from prior years). Increased detections in 2001 and 2002 likely reflect changes in data reporting, rather than increased contamination. [New requirements required laboratories to report analytical data directly to the Department of Health Services (DHS). This resulted in the reporting of data for small water systems regulated by local primacy agencies -- usually county health departments -- that had previously not been submitted to DHS]



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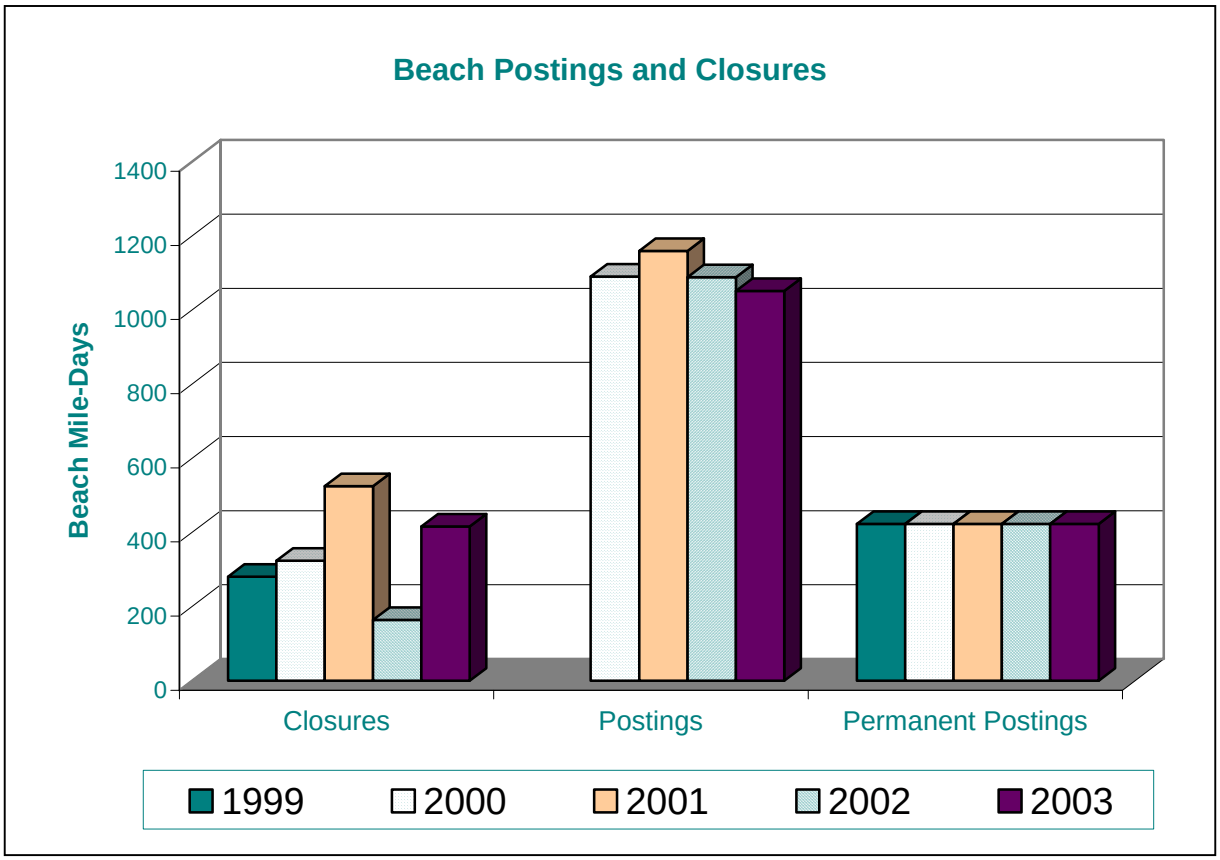
More information on drinking water is posted at:
http://www.dhs.ca.gov/ps/ddwem/, and
http://www.dhs.ca.gov/ps/ddwem/chemicals/monitoring/results94-02.htm

A full discussion of water indicators can be found at:
http://www.oehha.ca.gov/multimedia/epic/2002reptpdf/Chapter3-3of8Water.pdf

COASTAL BEACH AVAILABILITY – EXTENT OF BEACHES POSTED OR CLOSED

Coastal beaches are posted or closed when certain kinds of bacteria are found in the water at levels considered unsafe for swimming. Beach closures are most commonly the result of sewage spills. Beach postings have remained relatively constant from 1999 (when weekly bacterial testing began) to 2003. The increase in BMDs of closures in 2003 is primarily the impact of urban runoff and sewage flowing from Mexico. BMDs of permanent postings have yet to be accurately measured. A constant value is used as a placeholder until better information can be developed.



For more information, contact:
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State Water Resources Control Board
P.O. Box 100
Sacramento, California 95812-0100
(916) 341-5547
rmccraw@waterboards.ca.gov

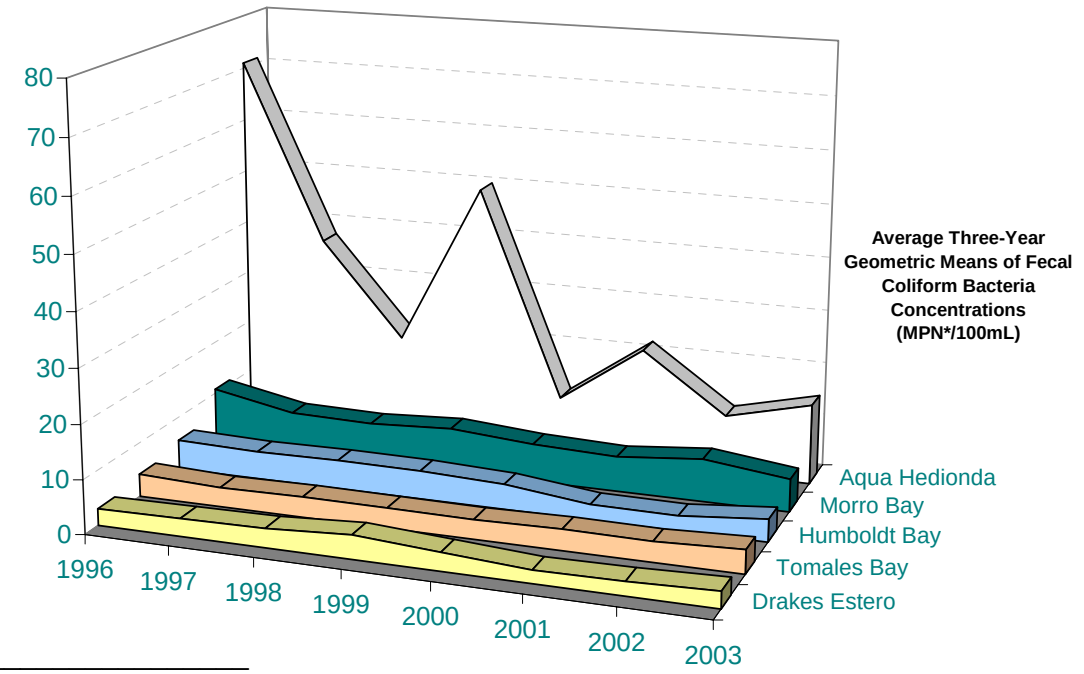
More information on coastal beaches is posted at:
http://www.swrcb.ca.gov/beach/index.html

A full discussion of water indicators can be found at:
http://www.oehha.ca.gov/multimedia/epic/2002reptpdf/Chapter3-3of8Water.pdf

BACTERIAL CONCENTRATIONS IN COMMERCIAL SHELLFISH GROWING WATERS

The average fecal coliform bacteria concentrations in approved commercial shellfish growing waters during periods of harvesting continue to be maintained within the regulatory standard of 14 MPN (most probable number)/100 mL. An additional site, Agua Hedionda Lagoon, is added to the indicator for this update; samples from this site showed higher fecal coliform concentrations than at the four other sites.

Average Three-Year Geometric Mean of Fecal Coliform Bacteria Concentrations in Approved Commercial Shellfish Growing Waters During Periods Open to Harvesting



***MPN** = Most probable number

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State Water Resources Control Board
Division of Water Quality
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Sacramento, California 94244
(916) 341-5455

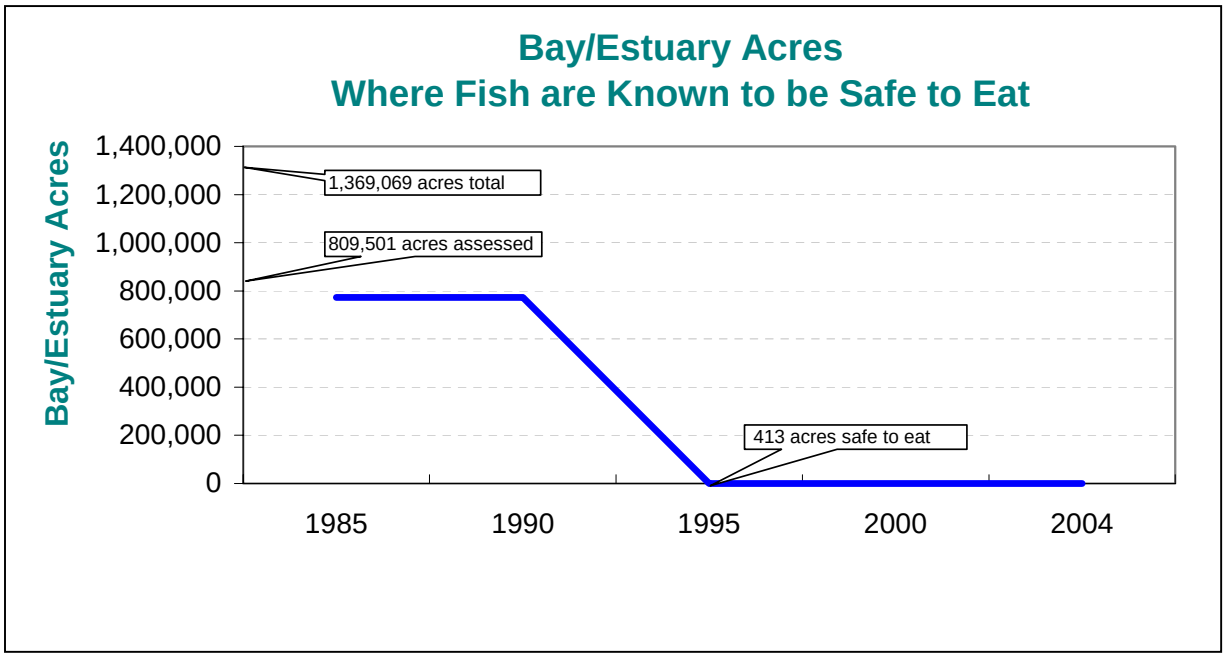
More information on commercial shellfish monitoring is posted at:
http://www.dhs.ca.gov/ps/ddwem/environmental/Shellfish/Shellfish.htm

A full discussion of water indicators can be found at:
http://www.oehha.ca.gov/multimedia/epic/2002reptpdf/Chapter3-3of8Water.pdf

FISH CONSUMPTION ADVISORIES - COASTAL WATERS

Data generated by the Coastal Fish Contamination Program for additional bays/estuaries were assessed in 2004. While this resulted in an increase in the total acreage of bays and estuaries assessed, it did not result in a change in the extent of bays and estuaries where fish can safely be eaten once a week by the general population. In addition, a reevaluation of assessed acreage found that total assessed acreage had been previously undercounted. This has been corrected in the figure below. The significant drop in 1995 in the number of acres where fish are known to be safe to eat is due to multiple factors, including the availability of data for additional contaminants and additional fish species for the same water bodies, and the use of more conservative toxicity criteria based on new toxicological information. Hence, the decline may not necessarily reflect increased water or fish tissue contamination over the period of time in question.

No additional coastline data were assessed, hence no update is presented for "Miles of coastline where fish are known to be safe to eat" (see page 91 of the 2002 EPIC Report). Sampling by the Coastal Fish Contamination Program ended in 2003 with the loss of program funding.



For more information, contact:
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rbrodber@oehha.ca.gov

More information on California fish consumption advisories is posted at:

http://www.oehha.ca.gov/fish/so_cal/index.html

A full discussion of water indicators can be found at:
http://www.oehha.ca.gov/multimedia/epic/2002reptpdf/Chapter3-3of8Water.pdf

STATEWIDE WATER BALANCE SUMMARIES

California Water Plan Update 2004 presents a range of actual water conditions that have occurred in recent water years. Water year 1998 represents a recent wet year in California. Year 2000 is a representative average water year, and year 2001 provides a snapshot of a drier water year.

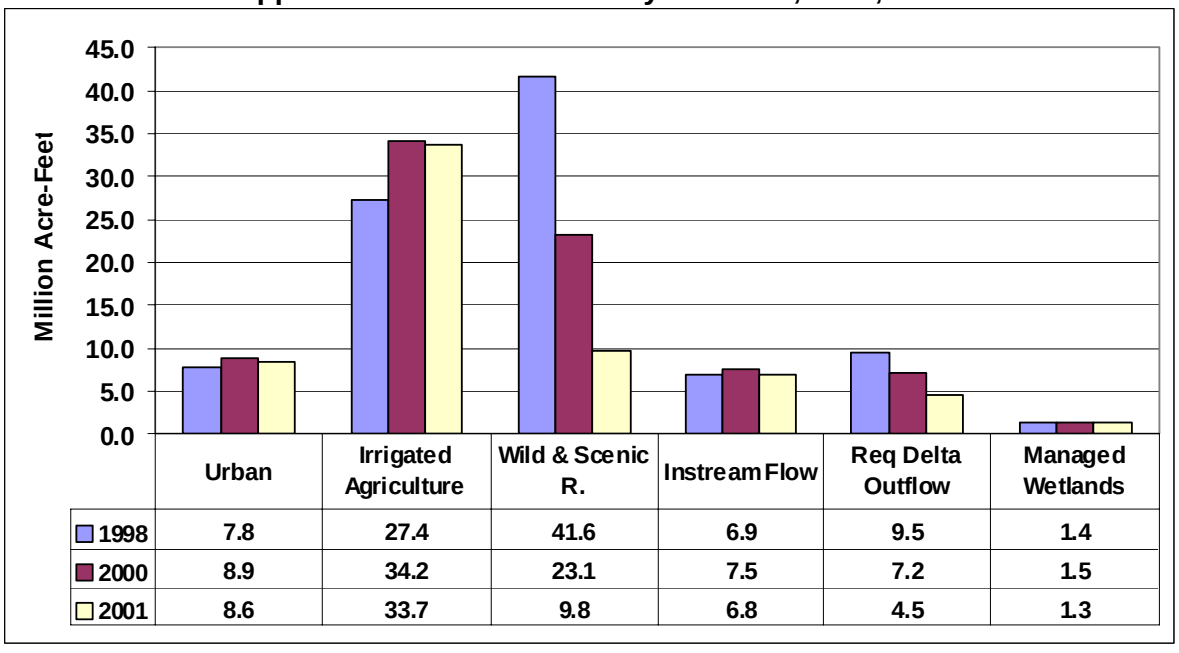
California water balance summary
(in million acre-feet)

	1998 (171% of normal)[a]		2000 (97% of normal)[a]		2001 (72% of normal)[a]	
Total supply (precipitation & imports)	336.9		194.7		145.6	
Total uses, outflows, & evaporation	331.4		200.6		160.0	
Net storage changes in state	5.5		-5.9		-14.4	
Distribution of dedicated supply (includes reuse) to various applied water uses						
Urban uses	7.8	(8%)	8.9	(11%)	8.6	(13%)
Agricultural uses	27.4	(29%)	34.2	(41%)	33.7	(52%)
Environmental water[b]	59.4	(63%)	39.4	(48%)	22.5	(35%)
Total dedicated supply	**94.6**		**82.5**		**64.8**	

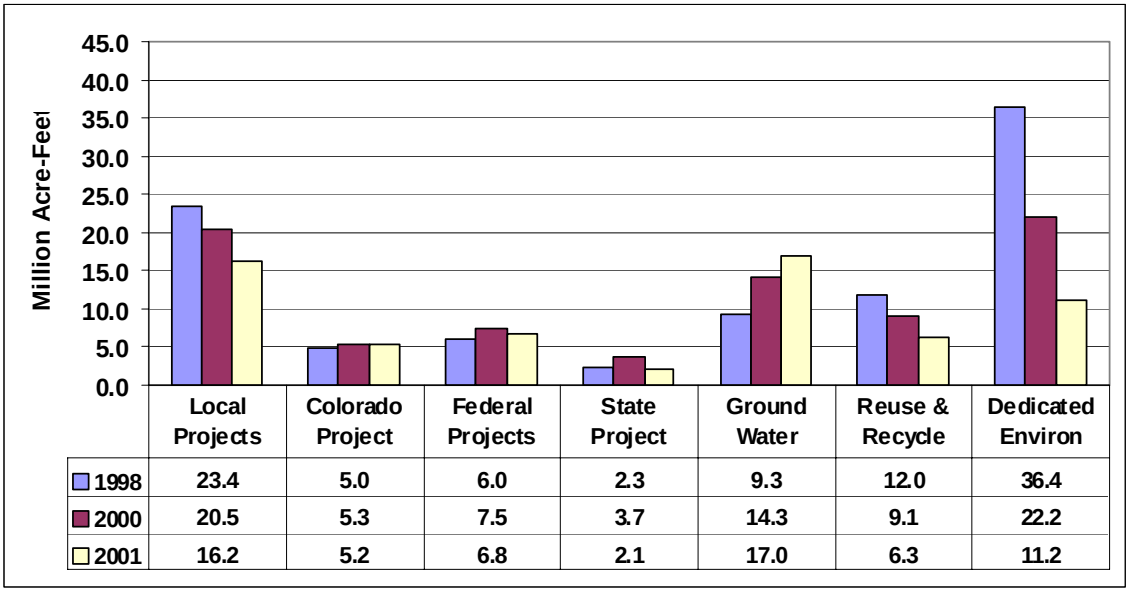
a. Percent of normal precipitation. Water year 1998 represents a wet year; 2000, average water year; 2001, drier water year.

b. Environmental water includes instream flows, wild and scenic flows, required Delta outflow, and managed wetlands water use.

California applied water uses for water years 1998, 2000, and 2001



California dedicated water supplies for water years 1998, 2000, and 2001



	Local Projects	Colorado Project	Federal Projects	State Project	Ground Water	Reuse & Recycle	Dedicated Environ
1998	23.4	5.0	6.0	2.3	9.3	12.0	36.4
2000	20.5	5.3	7.5	3.7	14.3	9.1	22.2
2001	16.2	5.2	6.8	2.1	17.0	6.3	11.2

In average water years like 2000, California receives about 200 million acre-feet of water from precipitation and imports from Colorado, Oregon, and Mexico. Of this total supply, about 50 to 60 percent either is used by native vegetation, evaporates to the atmosphere, provides some of the water for agricultural crops and managed wetlands (effective precipitation), or flows to Oregon, Nevada, the Pacific Ocean, and salt sinks like saline groundwater aquifers and Salton Sea. The remaining 40 to 50 percent (denoted as dedicated supply) is distributed among urban and agricultural uses, used to protect and restore the environment, or stored in surface and groundwater reservoirs for later use. In any year some of the dedicated supply includes water that is used multiple times (reuse) and water stored from previous years. Ultimately, about a third of the dedicated supply flows to the Pacific Ocean (in part to meet environmental requirements) or to other salt sinks.

In wet and drier years, like 1998 and 2001, respectively, the total supply and the distribution of the dedicated supply to various uses differ significantly from the example above for an average year. For more information on the state's recent water supplies and uses, see the California water summary in Volume 3 Regional Reports.

Through an ongoing collaborative process, the California Water Plan Update develops statewide and regional water balance information and forecasts which are published every five years. Some findings from the *California Water Plan Update 2004* are as follows:

- Advances in water conservation and recycling, combined with infrastructure improvements and new storage facilities, have reduced and met the additional demands of a growing population. Cities use about the same amount of water today as they did in the mid-1990's, while accommodating 3.5 million more people.

- Most agricultural water demands are met in average water years. However, in some areas, agricultural water is transferred to urban uses, environmental restoration, and groundwater replenishment. Even in average water years, some growers forego planting and other agricultural operations because they lack a firm water supply. Over the past 25 years, farmers have learned to grow 50 percent more crops per acre-foot of water by improving productivity and efficiency.

- Although more water is dedicated today to restore ecosystems, some environmental requirements are not always met. Further, we do not fully understand ecosystem needs and their response to flows.

- California relies on over-pumping its groundwater basins, a practice that reduces available water supply, increases pumping costs, and in some areas, degrades groundwater quality. In many areas, surface and groundwater contamination from natural and human sources has effectively reduced the water supply that can be used.

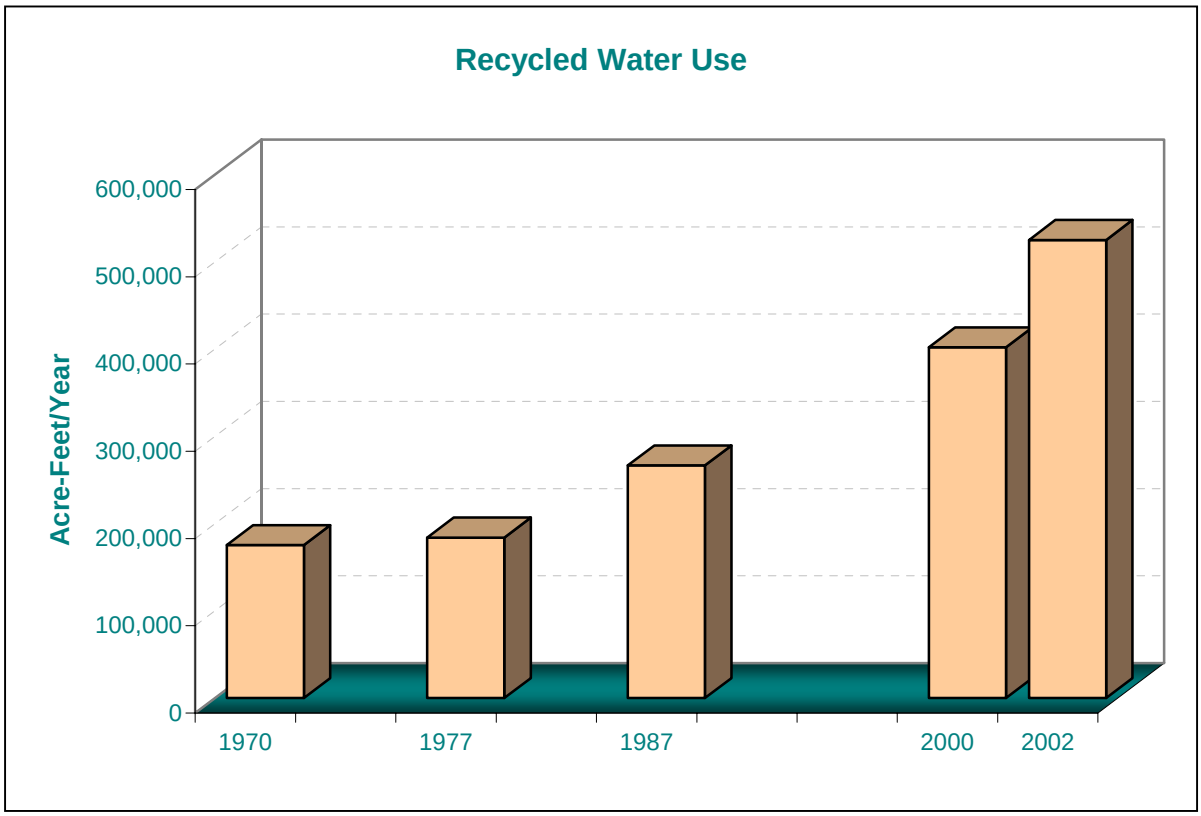
For more information, contact:
Department of Water Resources
Statewide Water Planning Branch
P.O. Box 942836
Sacramento, California 94236-0001
(916) 653-5666

More information on statewide and regional water supplies and uses is posted at:
www.waterplan.water.ca.gov

A full discussion of water indicators can be found at:
http://www.oehha.ca.gov/multimedia/epic/2002reptpdf/Chapter3-3of8Water.pdf

WATER USE EFFICIENCY – RECYCLING MUNICIPAL WASTEWATER

Between 2000 and 2002, there has been a 30 percent increase in the amount of treated municipal wastewater that was recycled. In 2002, 525,000 acre-feet of wastewater were recycled, which is more than 50 percent of the State goal for 2010.



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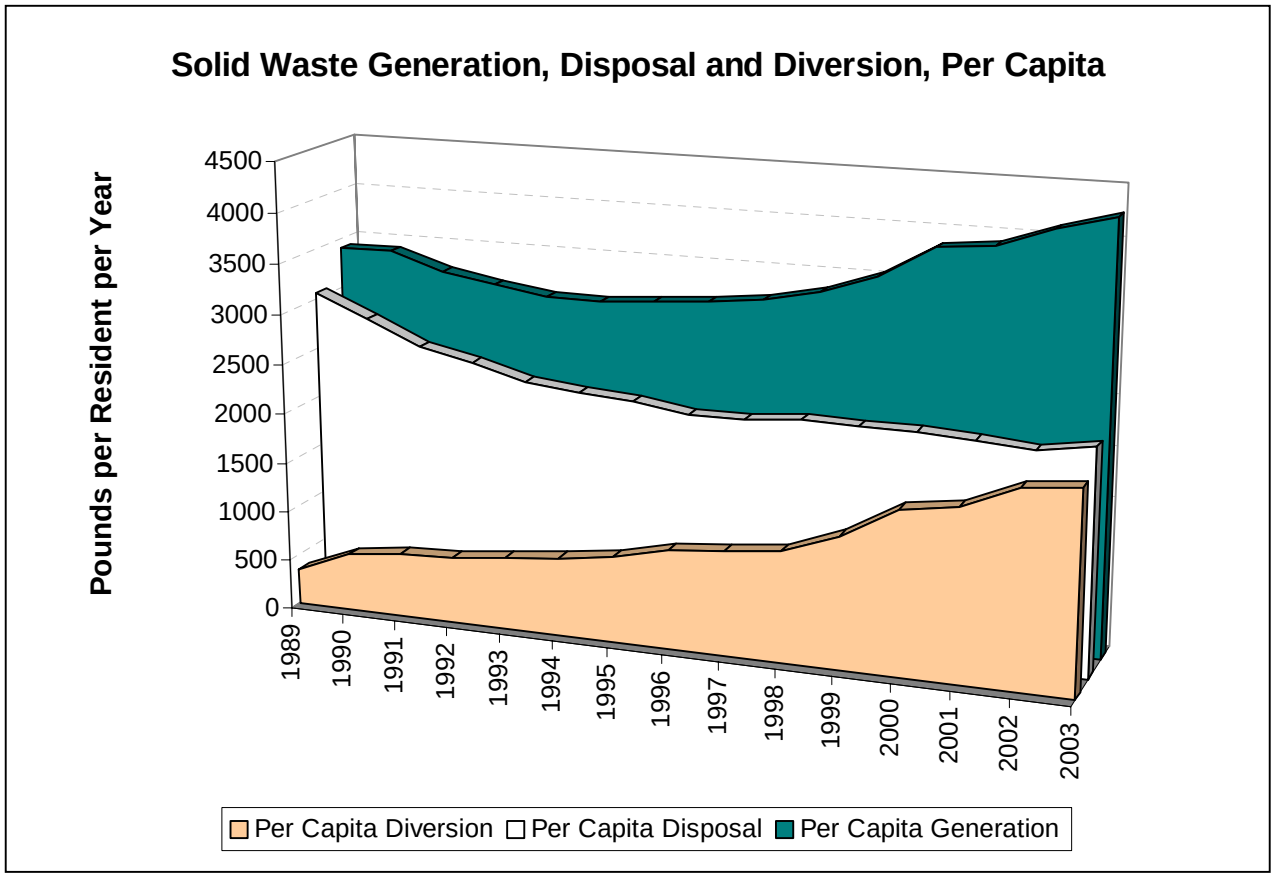
More information on recycled water is posted at:
http://www.swrcb.ca.gov/recycling/index.html

A full discussion of water indicators can be found at:
http://www.oehha.ca.gov/multimedia/epic/2002reptpdf/Chapter3-3of8Water.pdf

STATEWIDE SOLID WASTE GENERATION, DISPOSAL AND DIVERSION, PER CAPITA

Per capita disposal of solid waste has decreased, even as generation has increased. This is due to a sharp increase in diversion. The statewide diversion rate has increased from 10 percent in 1989 to 47 percent in 2003. Diversion involves recycling, composting and reduction in waste generation. Recent increases in generation and disposal may reflect an economy more dependent than ever on construction activities.



For more information, contact:
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California Integrated Waste Management Board
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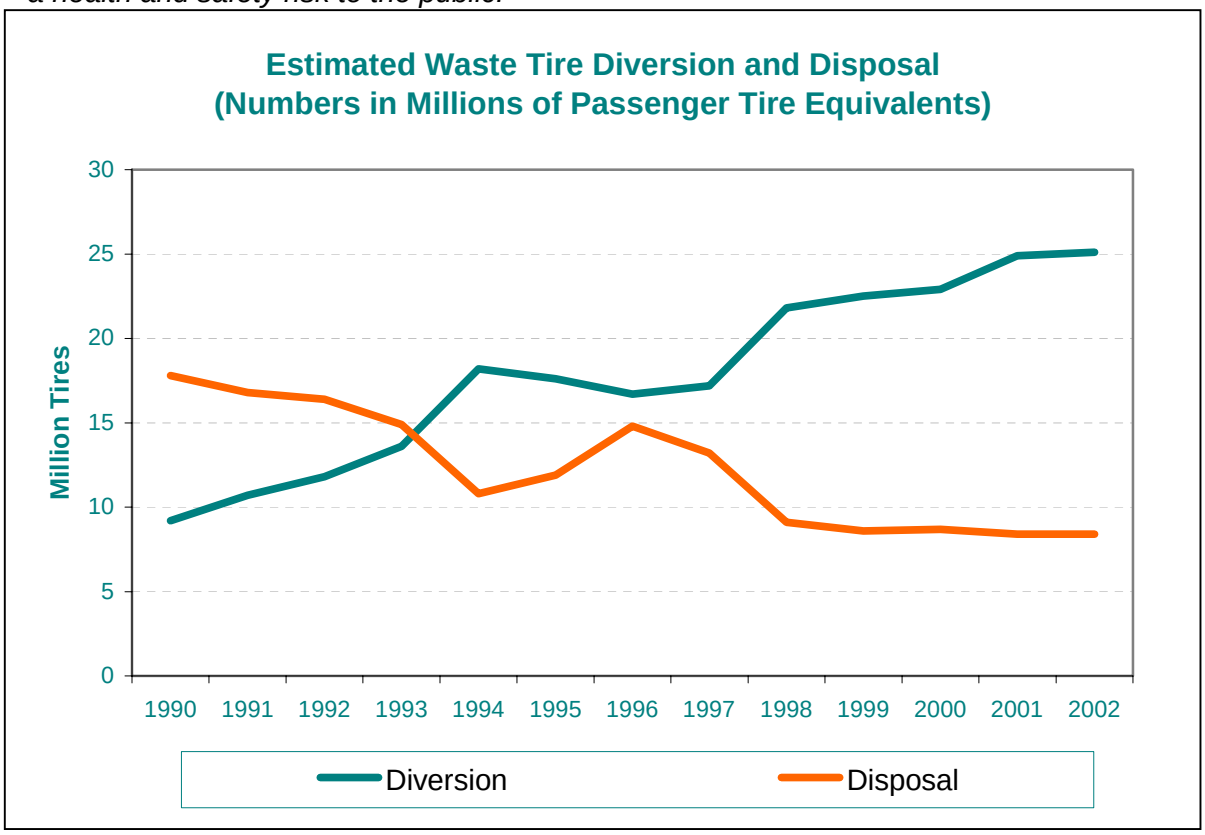
Sacramento, California
(916) 341-6226
sdhillon@ciwmb.ca.gov

More information on solid waste generation, disposal and diversion is posted at:
http://www.ciwmb.ca.gov/LGCentral/Rates/Diversion/RateTable.htm
http://www.ciwmb.ca.gov/LGCentral/Rates/default.htm

A full discussion of waste management indicators can be found at:
http://www.oehha.ca.gov/multimedia/epic/2002reptpdf/Chapter3-4of8-Waste.pdf

NUMBER OF TIRES DIVERTED FROM LANDFILLS

Over the past 12 years, the quantity of tires that have been recycled or reused in some manner has increased while those disposed of at landfills has decreased. For the year 2002, California was challenged with responsibly managing 33.5 million reusable and waste tires entering the waste stream. The California Integrated Waste Management Board estimates that more than 25 million tires (74.9 percent) are diverted annually for various alternative uses, including reuse, re-treading, recycling, and combustion. The remaining 8.4 million tires are shredded and disposed of in California's permitted solid waste landfills, stored at permitted sites, or illegally disposed of around the State. In addition, an estimated two million waste tires are stockpiled throughout the state, posing a health and safety risk to the public.



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California Integrated Waste Management Board
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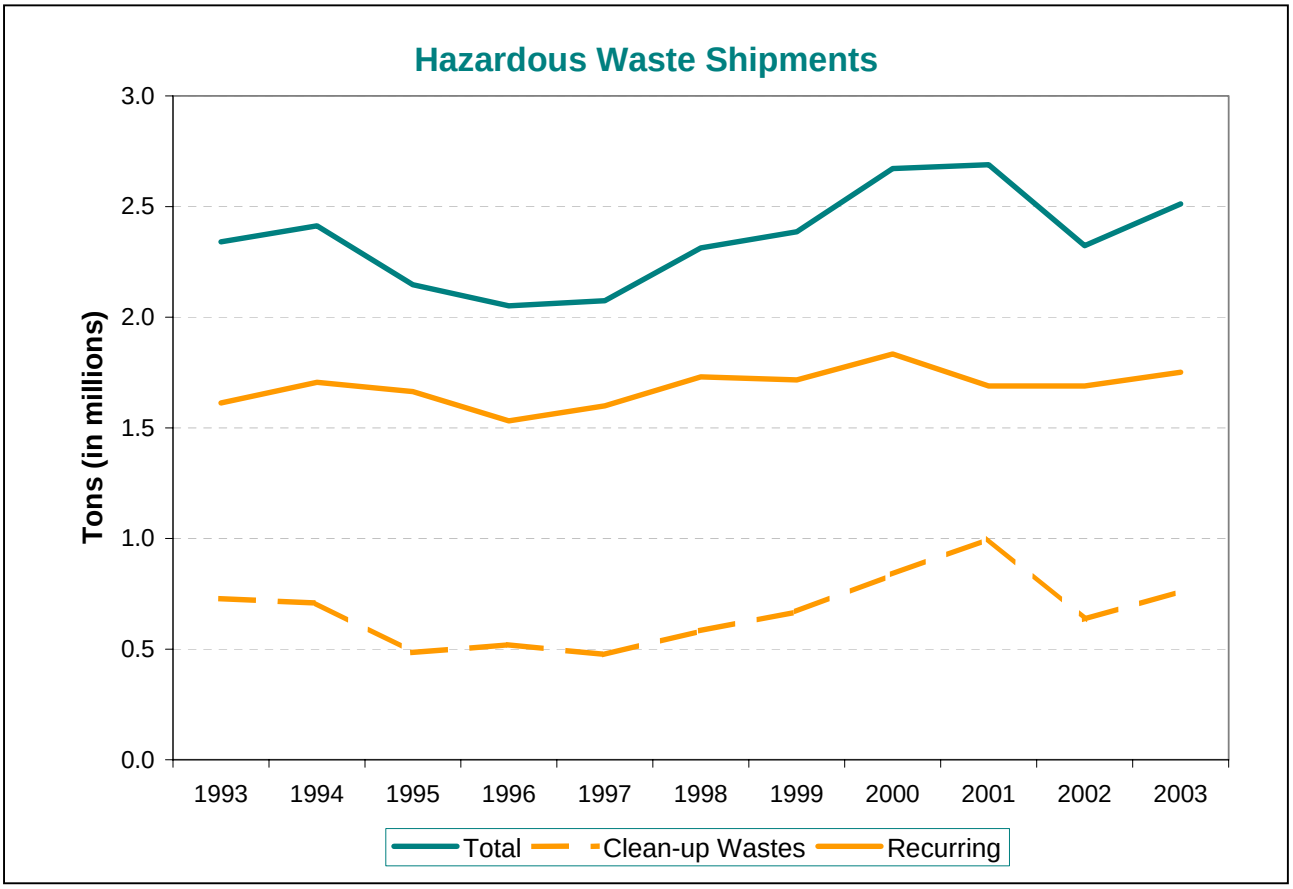
mdelmage@ciwmb.ca.gov

More information on waste tire management is posted at:
www.ciwmb.ca.gov/Tires/default.htm

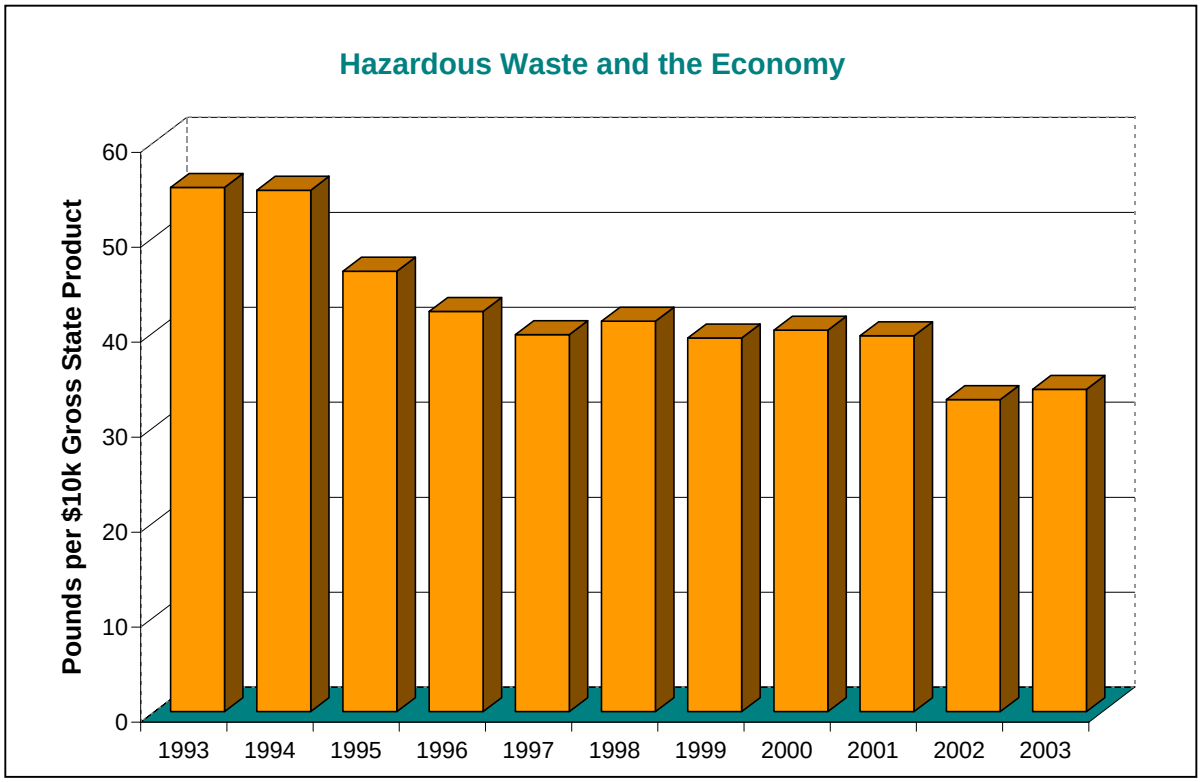
A full discussion of waste management indicators can be found at:
http://www.oehha.ca.gov/multimedia/epic/2002reptpdf/Chapter3-4of8-Waste.pdf

HAZARDOUS WASTE SHIPMENTS

The total amount of hazardous waste shipped for treatment, storage and disposal has fluctuated over the past decade, with the lowest amounts shipped in 1996 and 1997, and the highest in 2001. Over the same ten-year period, recurring hazardous waste (i.e., hazardous wastes generated in the course of commercial or industrial operations) shipments have shown a similar trend, peaking in 2000. Recurring wastes have made up 63 to 77 percent of the total amount of hazardous wastes shipped. Shipments of cleanup wastes -- which include wastes containing polychlorinated biphenyls (PCBs) and asbestos, and hazardous wastes generated following site cleanups – have increased since 1996, with a peak in 2001.



Overall, the amount of hazardous waste generated per unit of economic activity has continued to decline over the past decade.



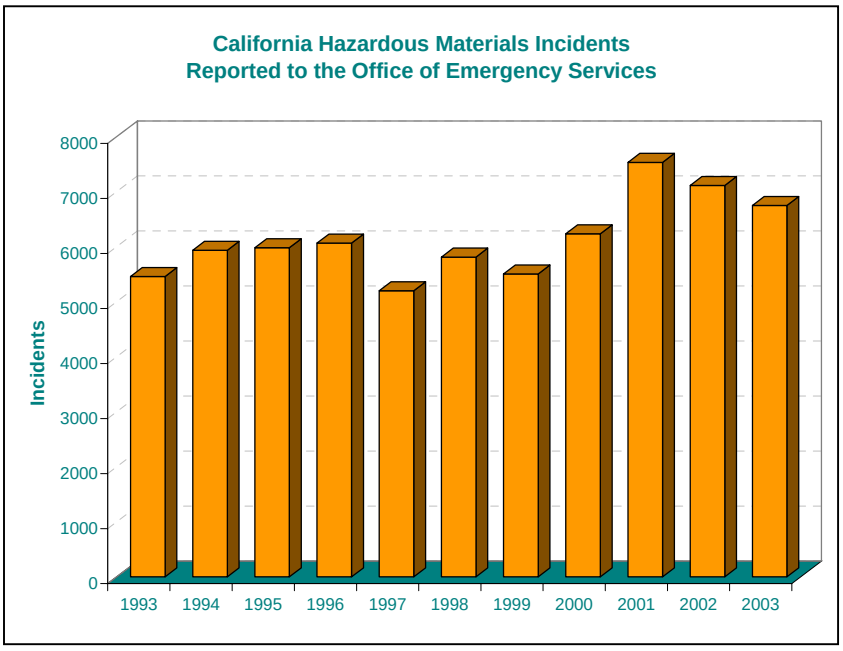
For more information, contact:
David Miller
Department of Toxic Substances Control
P.O. Box 806
Sacramento, California 95812-0806
(916) 322-2712
dmiller2@dtsc.ca.gov

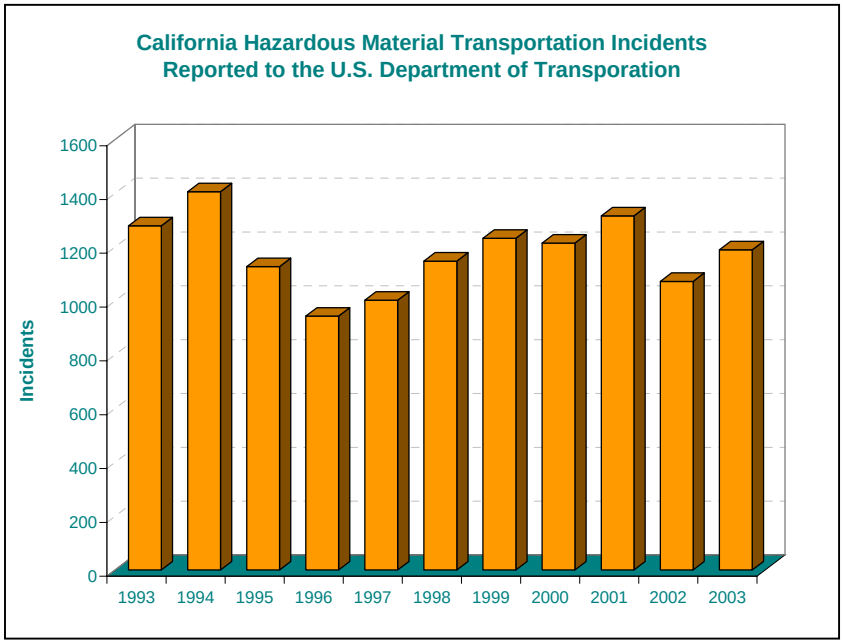
More information on hazardous waste management is posted at:
http://www.dtsc.ca.gov/HazardousWaste/index.html

A full discussion of waste management indicators can be found at:
http://www.oehha.ca.gov/multimedia/epic/2002reptpdf/Chapter3-4of8-Waste.pdf

HAZARDOUS MATERIAL INCIDENTS

Releases, spills or other incidents involving hazardous materials can pose an immediate and direct threat to humans and the environment. State law requires all significant releases or threatened releases of hazardous material be immediately reported to the Governor's Office of Emergency Services (OES). Since 1993, the number of such incidents reported to OES has fluctuated from year to year between approximately 5,200 to 7,500. Likewise, the number of transportation-related hazardous material incidents has fluctuated between approximately 900 and 1,400 a year. The latter are based upon Hazardous Material Incident Reports submitted by shippers or transporters of hazardous materials.





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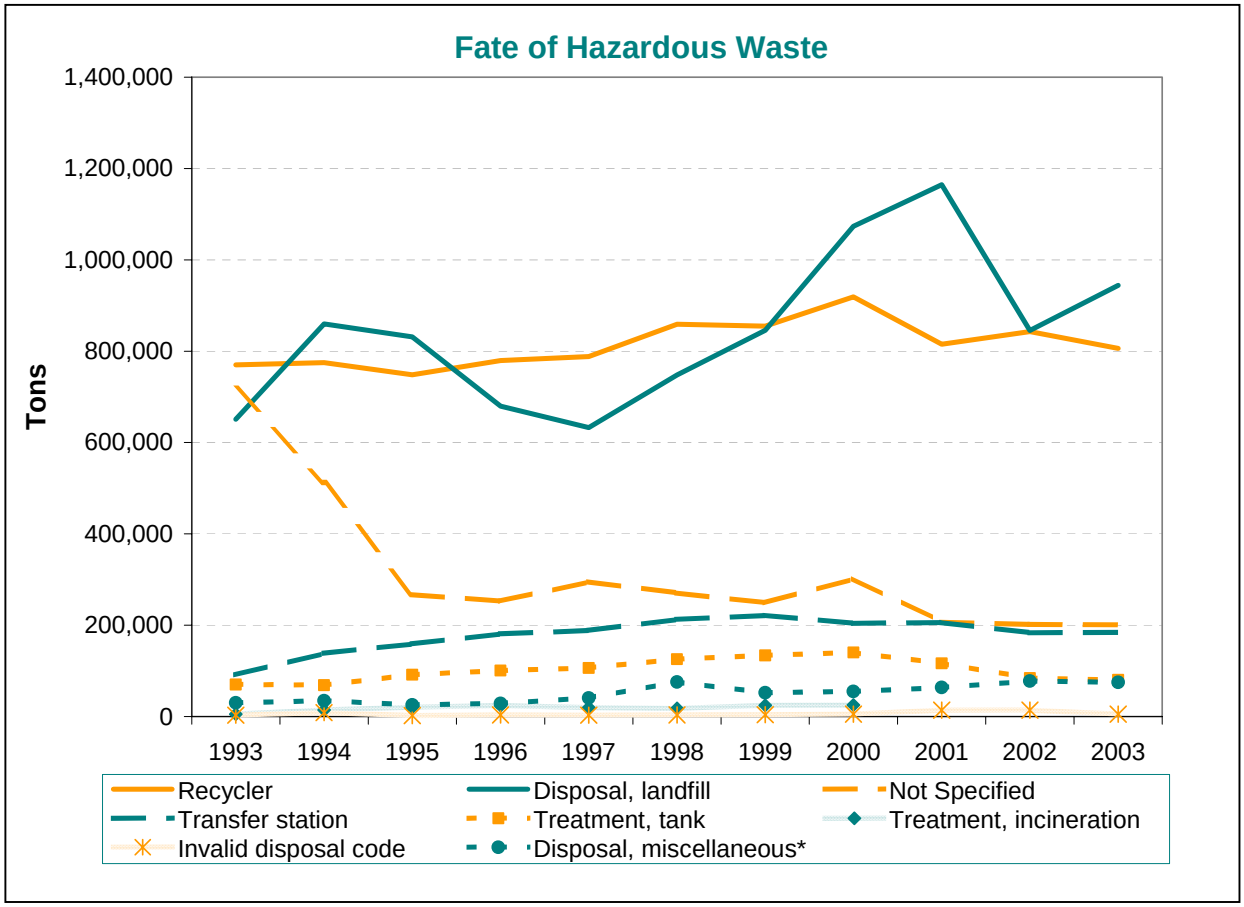
More information on hazardous material incidents reported to the Governor's Office of Emergency Services is posted at:
http://www.oes.ca.gov/Operational/OESHome.nsf/Content/2642671598689A0188256C2C00763702?OpenDocument

More information on hazardous material transportation incidents reported to the U.S. Department of Transportation is posted at:
http://hazmat.dot.gov/files/hazmat/hmisframe.htm

A full discussion of waste management indicators can be found at:
http://www.oehha.ca.gov/multimedia/epic/2002reptpdf/Chapter3-4of8-Waste.pdf

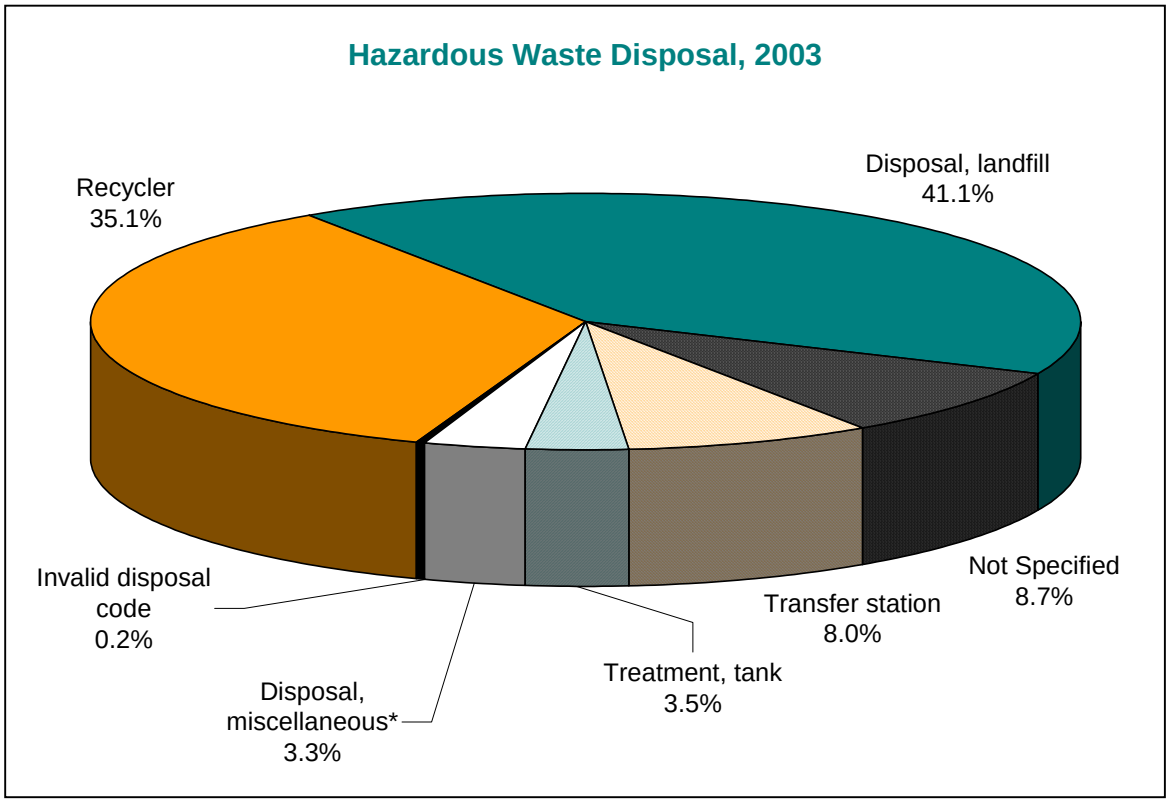
HAZARDOUS WASTE DISPOSAL

This indicator is based on data from hazardous waste manifests that must be prepared for each shipment of hazardous waste. Most hazardous waste shipped offsite is destined for disposal in landfills, or for recycling. The amount of hazardous waste disposed in landfills has fluctuated over the past ten years, but has increased overall; the amount recycled has increased slightly over the same period of time. The percentage of hazardous wastes shipped with manifests that did not specify a disposal or treatment method has declined significantly, while trends for other methods have remained relatively stable.



*Disposal, miscellaneous includes surface impoundment, land application, injection well, and others.

In 2003, more than 75 percent of hazardous wastes shipped were destined for disposal in landfills or recycling.



*Disposal, miscellaneous includes surface impoundment, land application, injection well, and others.

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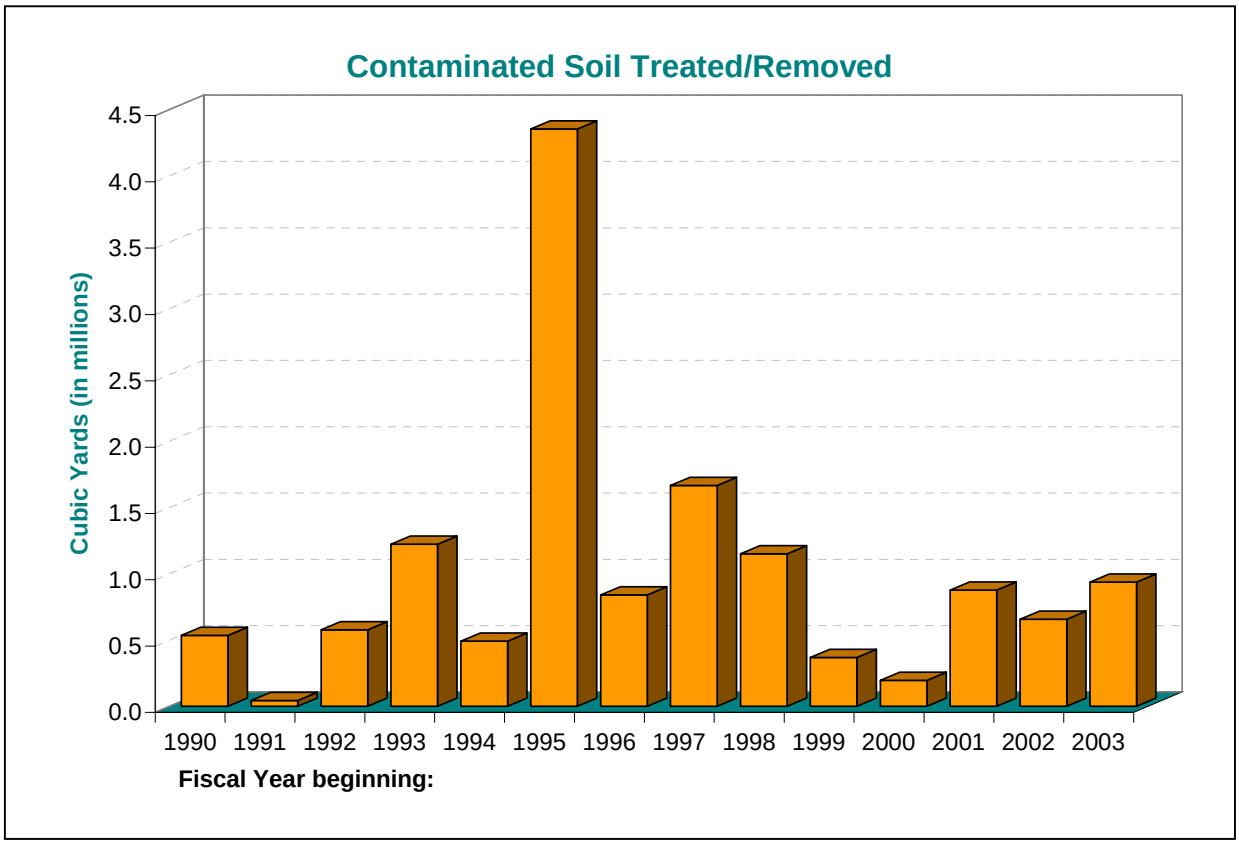
More information on hazardous waste management is posted at:
http://www.dtsc.ca.gov/HazardousWaste/index.html

A full discussion of waste management indicators can be found at:
http://www.oehha.ca.gov/multimedia/epic/2002reptpdf/Chapter3-4of8-Waste.pdf

SOIL CLEANUP

The volume of contaminated soil and other solids cleaned up at hazardous waste sites continues to fluctuate from year to year. (Note: Data were not routinely entered into the database used to track contaminated sites until fiscal year 1996/97.) Treatment or removal of contaminated soil may be influenced by the availability of resources, both within the regulatory agency having jurisdiction over the contaminated site, as well as the party responsible for cleanup. Other factors that influence soil cleanup or removal include prevailing policies, available treatment technology, and site-specific characteristics.



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dmiller2@dtsc.ca.gov

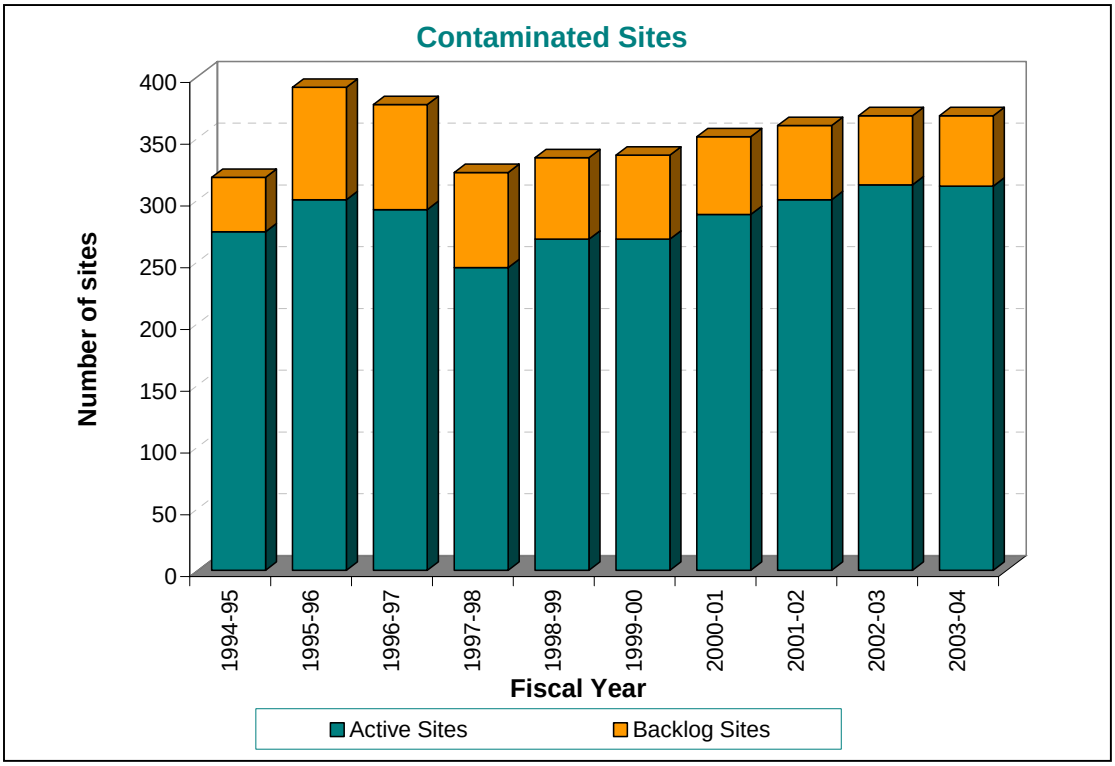
More information on site cleanup is posted at:
http://www.dtsc.ca.gov/SiteCleanup/index.html

A full discussion of waste management indicators can be found at:
http://www.oehha.ca.gov/multimedia/epic/2002reptpdf/Chapter3-4of8-Waste.pdf

CONTAMINATED SITES

The number of contaminated sites in California has remained relatively stable at about 350 sites since the 200-2001 fiscal year. A contaminated site is a property where the release of one or more hazardous substances has been confirmed by the Department of Toxic Substances Control (DTSC), including military facilities, legacy sites (with historical contamination or naturally occurring hazardous materials such as asbestos), and sites on the federal National Priority, or "Superfund" List. Contaminated sites at currently permitted facilities are not included.

An "active site" is one that DTSC is actively working to remediate, and is generally a high priority, high potential risk sites. A "backlog site" is one which is not currently under investigation or remediation. Backlog sites have made up twenty percent or less of all contaminated sites in the past six years.



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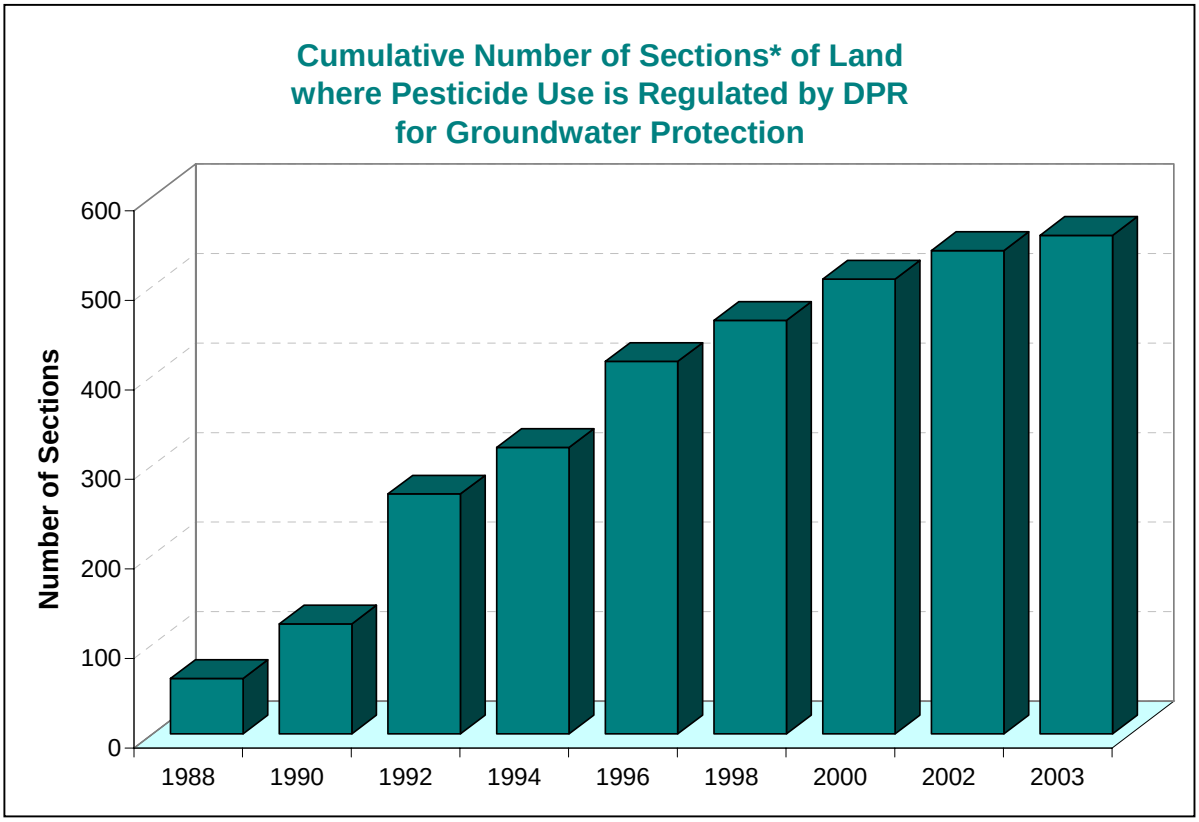
More information on site cleanup is posted at:
http://www.dtsc.ca.gov/SiteCleanup/index.html

A full discussion of waste management indicators can be found at:
http://www.oehha.ca.gov/multimedia/epic/2002reptpdf/Chapter3-4of8-Waste.pdf

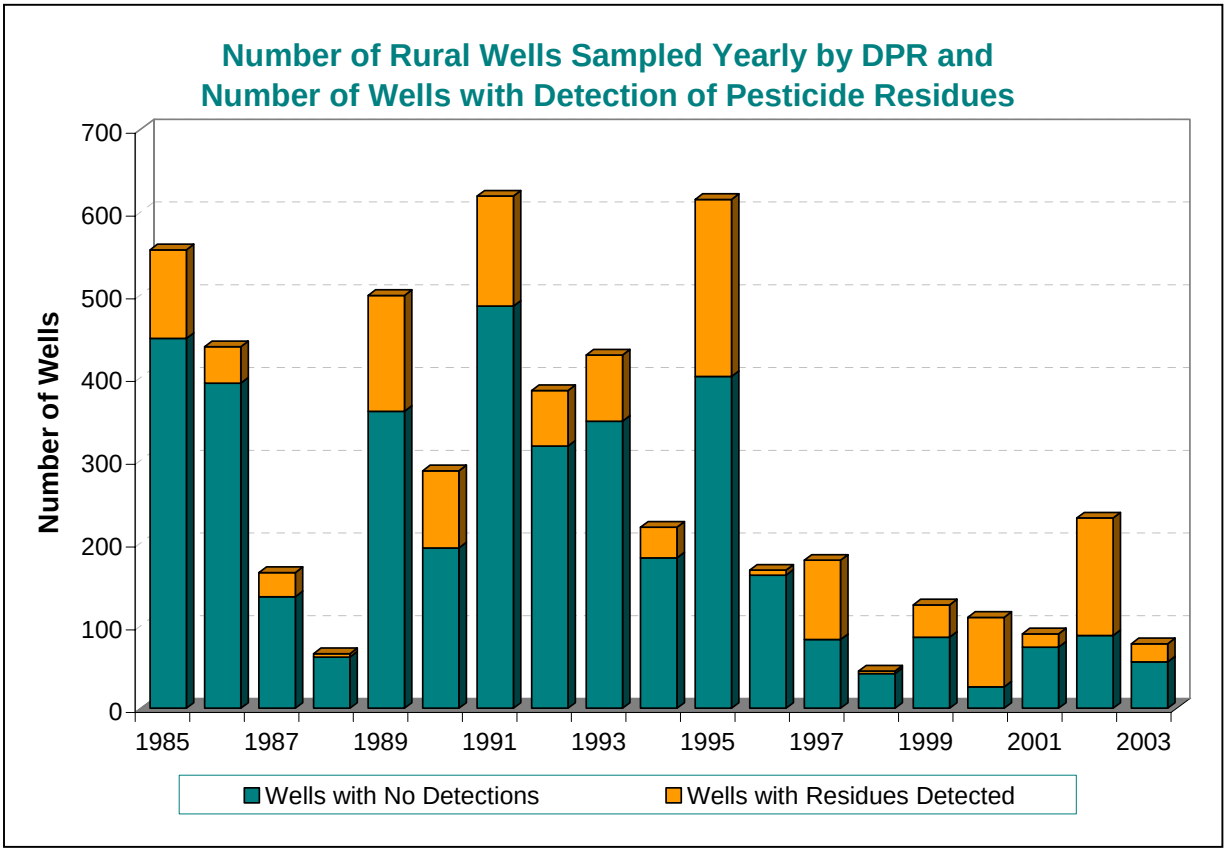
AREA WITH PESTICIDES DETECTED IN WELL WATER

The land area where pesticide use is regulated by the Department of Pesticide Regulation (DPR) following pesticide detections in well water samples has steadily increased since 1988. As of 2003, this area totaled approximately 560 square miles. However, the rate at which new sections of land have been added has decreased in recent years.

This lower rate is related to a decrease in the number of wells sampled annually by DPR (see second graph). The number of wells sampled and the spatial coverage have varied annually in relation to budgetary constraints. Pesticide residue detections are influenced by lower detection limits and patterns of pesticide use. Because DPR targets vulnerable areas for sampling, a large proportion of the wells has detections of pesticide residues. New regulations enacted in 2004 will increase the regulated land area to approximately 4,000 square-miles with vulnerable areas determined by similarity of soil and depth to groundwater conditions as compared to those contaminated areas indicated in the first graph.



* A section is a one-square mile area based on the U.S. Geological Survey Public Land Survey coordinate system.



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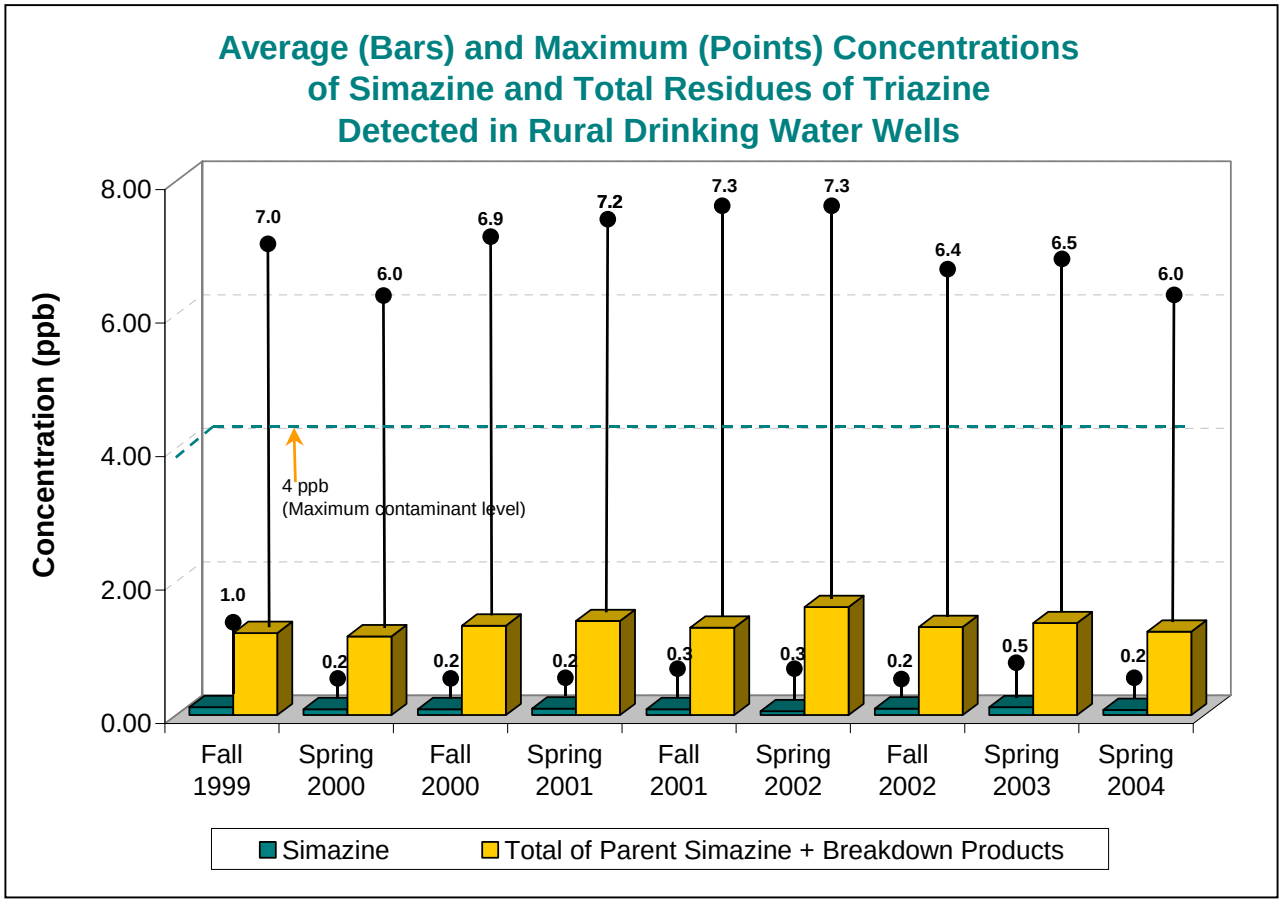
More information on pesticides in groundwater is posted at:
http://www.cdpr.ca.gov/docs/gwp/index.htm

A full discussion of pesticide indicators can be found at:
http://www.oehha.ca.gov/multimedia/epic/2002reptpdf/Chapter3-5of8Pesticide.pdf

SIMAZINE AND BREAKDOWN PRODUCTS IN A MONITORING NETWORK OF 70 WELLS IN FRESNO AND TULARE COUNTIES

Concentrations of simazine and its breakdown products have been stable in 70 domestic wells monitored in Fresno and Tulare Counties since the inception of monitoring in 1999. Detections of simazine have not exceeded the drinking water standard or maximum contaminant level (MCL) of 4 parts per billion. Simazine breakdown products, however, were found at higher concentrations; the total residue concentration of simazine and its breakdown products in some wells have exceeded the MCL each year. This indicator will be used to measure the effect of new regulations developed to modify pesticide use.



Note: Beginning in 2003, monitoring frequency was reduced to once a year; hence, no data are presented for Fall 2003.

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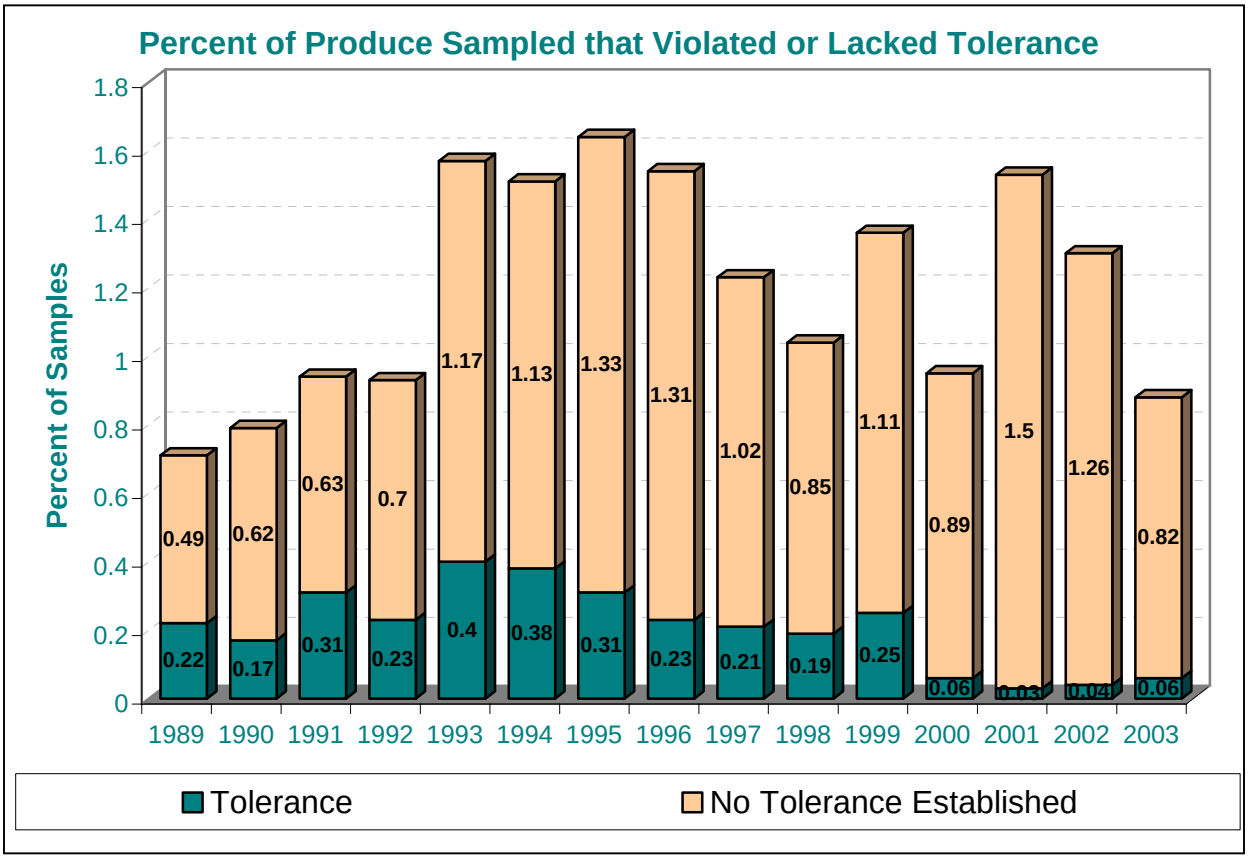
More information on pesticides in groundwater is posted at:
http://www.cdpr.ca.gov/docs/gwp/index.htm

A full discussion of pesticide indicators can be found at:
http://www.oehha.ca.gov/multimedia/epic/2002reptpdf/Chapter3-5of8Pesticide.pdf

PERCENT OF PRODUCE WITH ILLEGAL PESTICIDE RESIDUES

From 1998 through 2003, less than 2% of produce samples had illegal pesticide residues. Of these, less than half a percent exceeded allowable levels (tolerances); a higher proportion contained residues for which allowable levels of the pesticide have not been established for the produce in which it was found.



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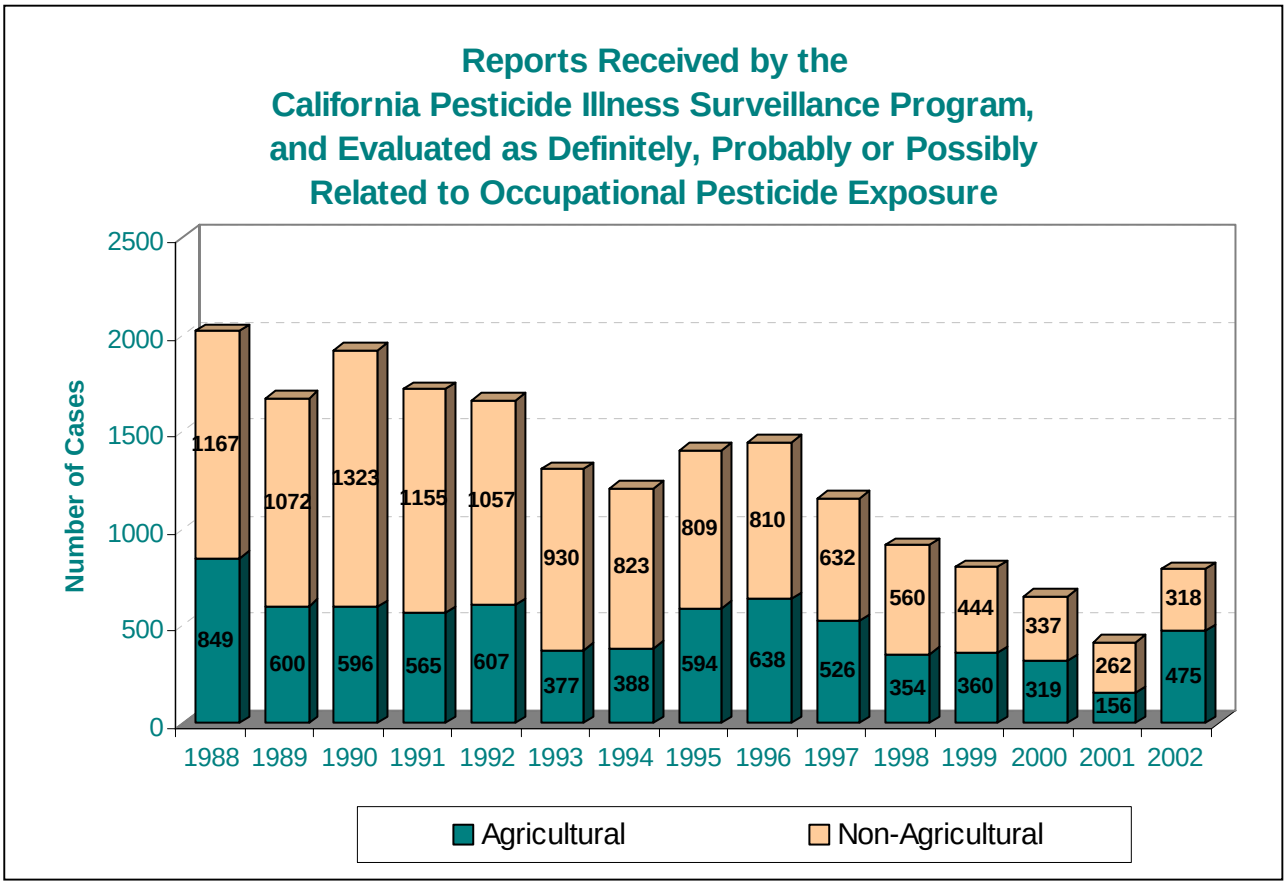
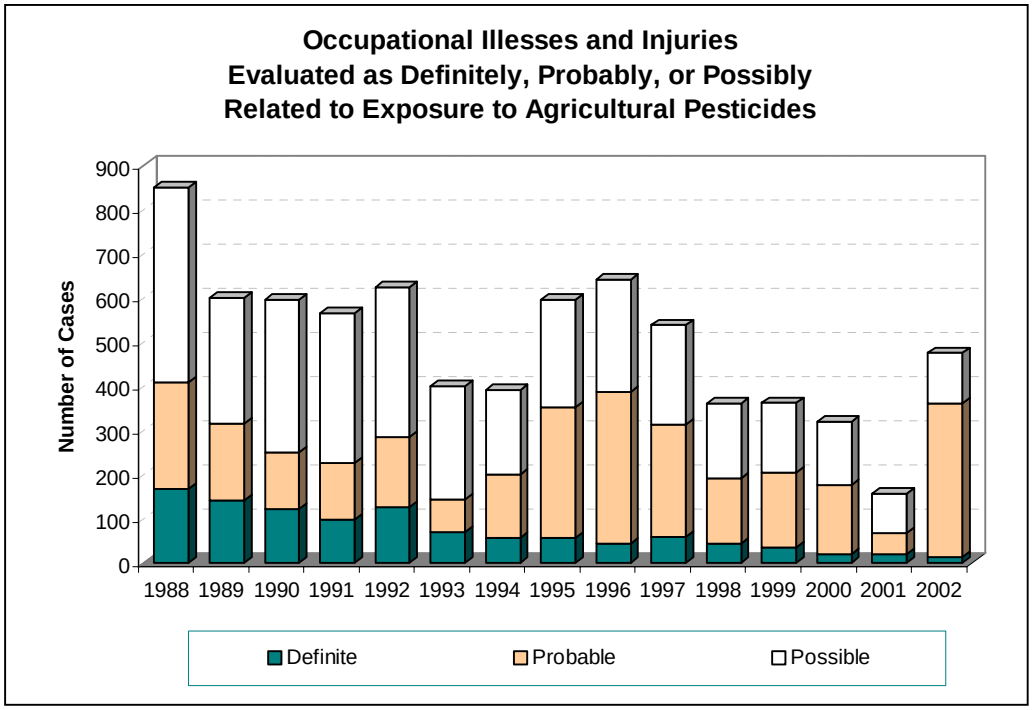
More information on pesticides in food is posted at:
http://www.cdpr.ca.gov/docs/pstrsmon/rsmonmnu.htm

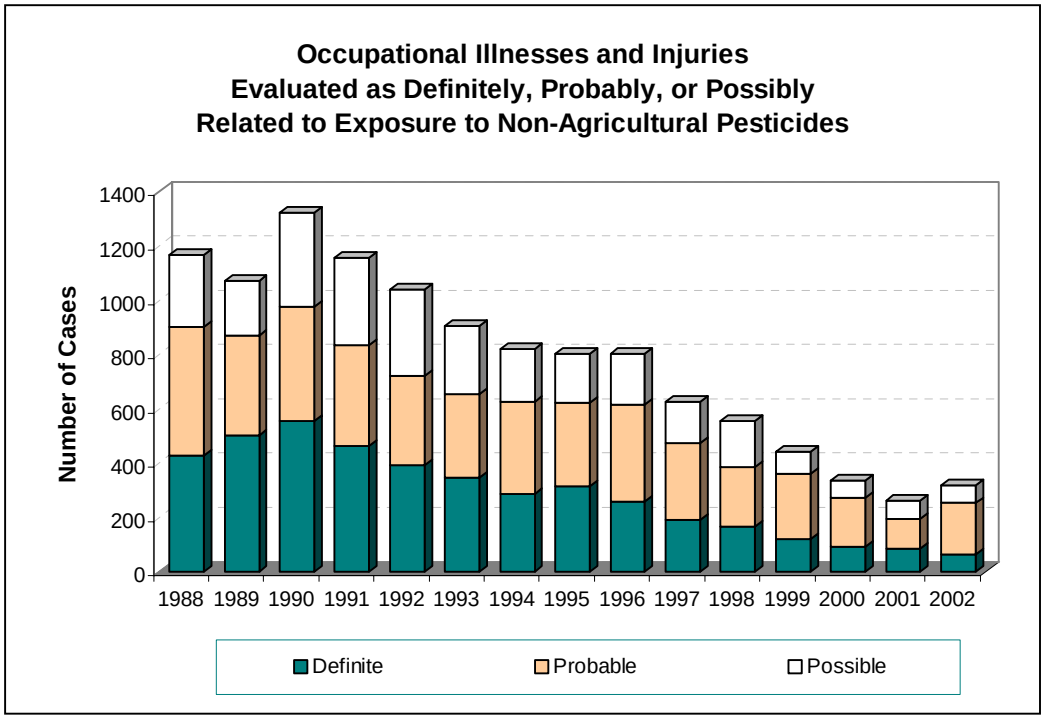
A full discussion of pesticide indicators can be found at:
http://www.oehha.ca.gov/multimedia/epic/2002reptpdf/Chapter3-5of8Pesticide.pdf

NUMBER OF REPORTED OCCUPATIONAL ILLNESSES AND INJURIES ASSOCIATED WITH PESTICIDE EXPOSURES

Although an increase in reported occupational pesticide illness and injury occurred in 2002, the overall trend continues to decline over the past 14 years. The increase in 2002 cases is the result of a few incidents in which a large number of people were exposed, primarily to offsite movement of pesticides or their breakdown products.







For more information, contact:
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Worker Health and Safety Branch
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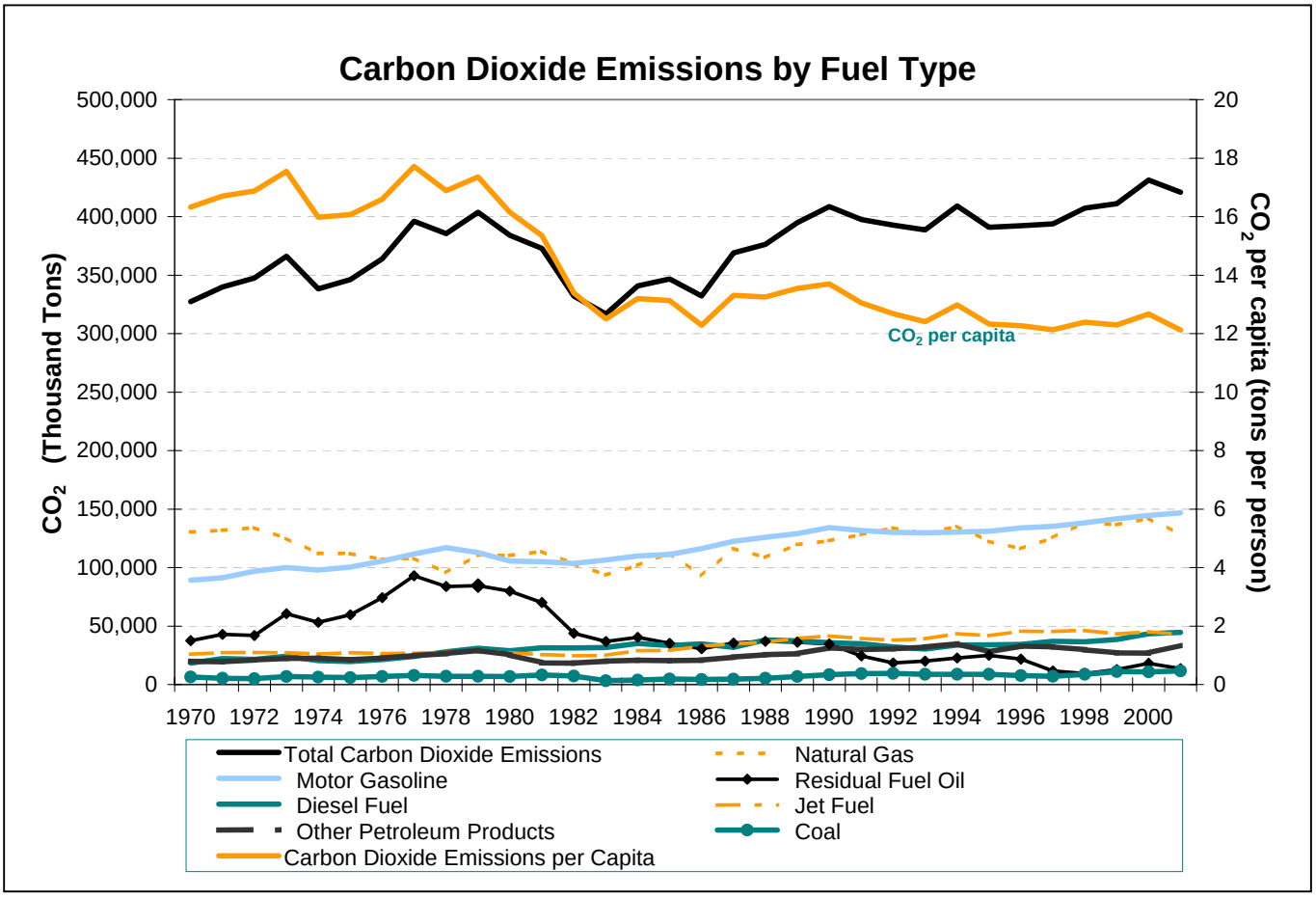
mverder@cdpr.ca.gov

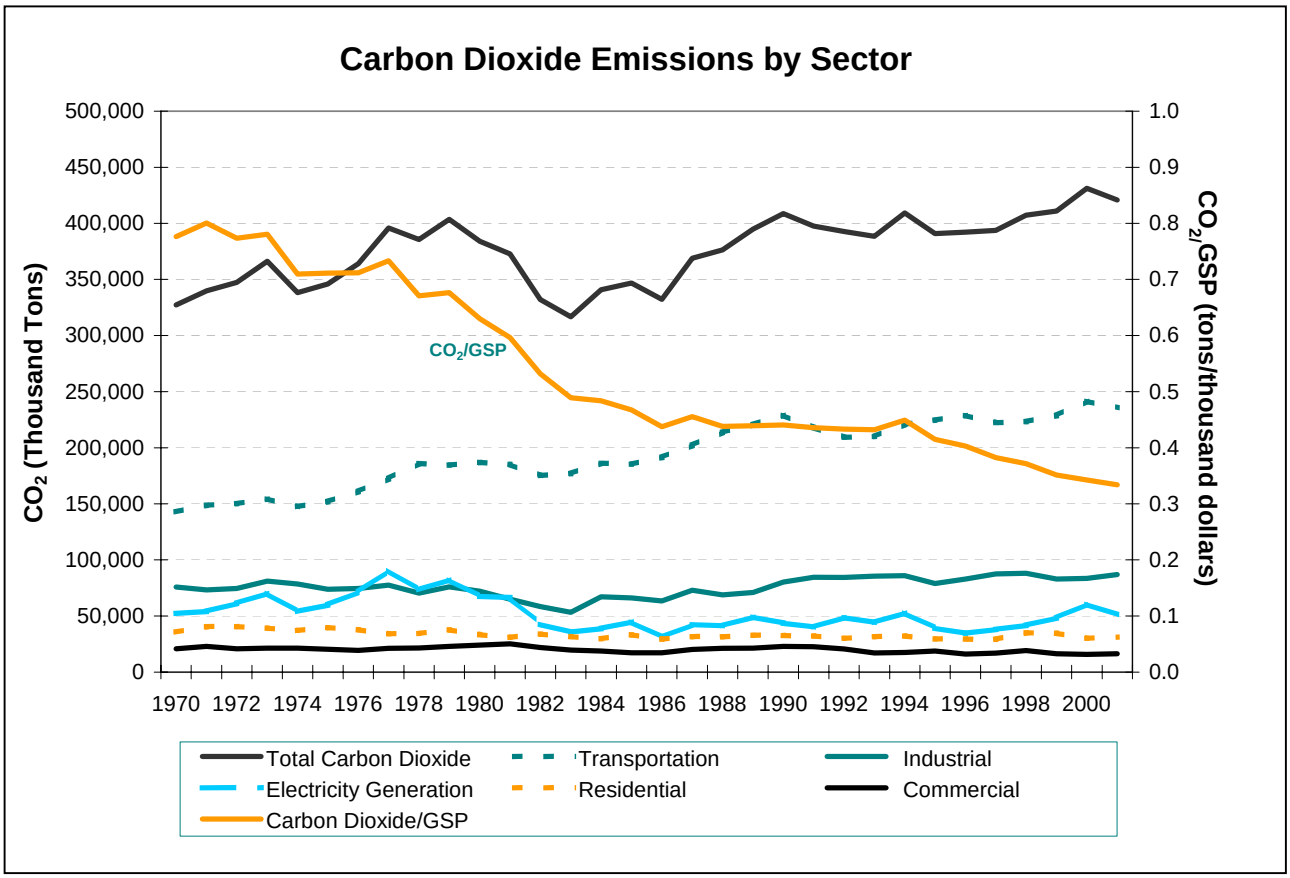
More information on pesticide-related illnesses and injuries is posted at:
http://www.cdpr.ca.gov/docs/whs/pisp.htm

A full discussion of pesticide indicators can be found at:
http://www.oehha.ca.gov/multimedia/epic/2002reptpdf/Chapter3-5of8Pesticide.pdf

CARBON DIOXIDE EMISSIONS

Greenhouse gases in the atmosphere retain heat radiated by the earth's surface back towards space. Such gases are emitted from both natural and anthropogenic sources (including carbon dioxide, methane, and nitrous oxide), and synthetic chemicals (including hydrofluorocarbons). Carbon dioxide emissions from the combustion of fossil fuels account for about 75% of greenhouse gas emissions. Emissions have increased nearly 30% since 1970. However, emissions have been decreasing, on both a per capita and a per $1,000 gross state product basis.





For more information, contact:
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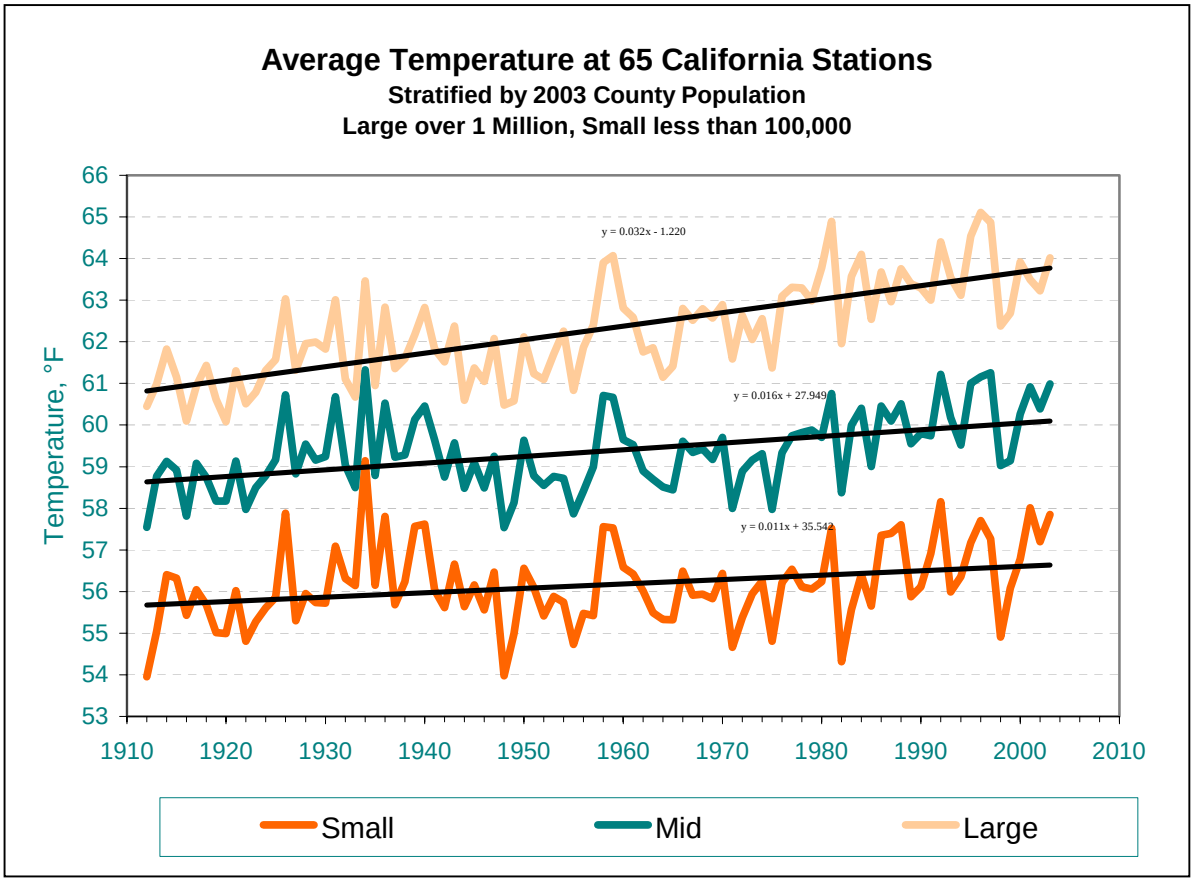
More information on carbon dioxide and other greenhouse gas emissions is posted at:
http://www.energy.ca.gov/reports/600-02-001F/index.html

More information on global climate change is posted at:
http://www.climatechange.ca.gov

A full discussion of transboundary indicators can be found at:
http://www.oehha.ca.gov/multimedia/epic/2002reptpdf/Chapter3-6of8-Transboundary.pdf

AIR TEMPERATURE

Air temperatures have increased over the past 90 years. Counties with large populations (over one million residents) had the highest temperature increase; those with populations less than 100,000 had the smallest increase. Large urban areas are generally warmer than rural areas, likely due to the "urban heat island" effect. Temperatures in coastal areas can be moderated by sea surface temperatures. Efforts are underway to collect data in a manner that will provide a better understanding of factors affecting temperature.



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More information on climate change is posted at:
http://www.energy.ca.gov/global_climate_change/index.html

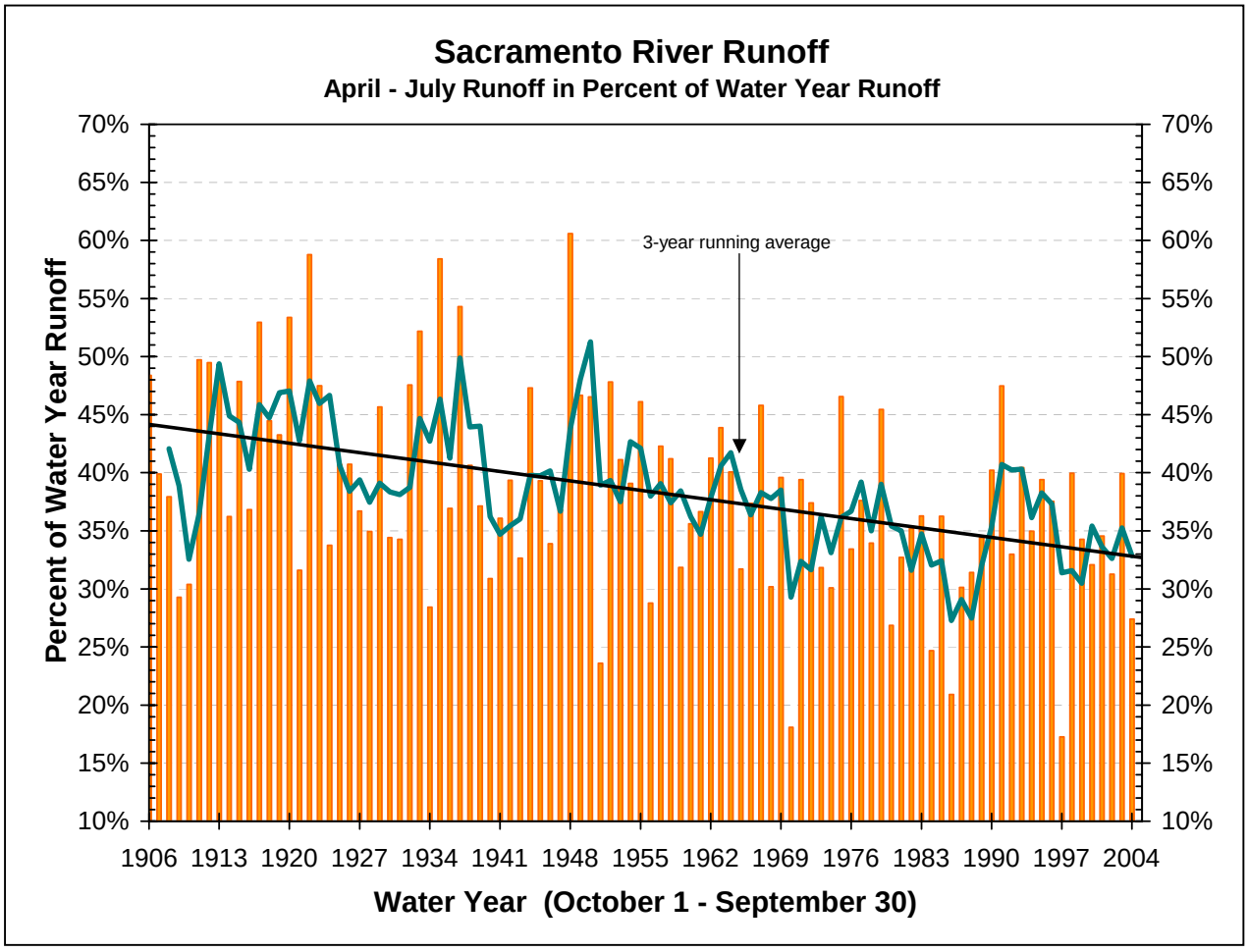
More information on climate for the western region of the United States is posted at:
http://www.wrcc.dri.edu/

A full discussion of transboundary indicators can be found at:
http://www.oehha.ca.gov/multimedia/epic/2002reptpdf/Chapter3-6of8-Transboundary.pdf

ANNUAL SIERRA NEVADA SNOWMELT RUNOFF

Average spring snowmelt from the Sierra Nevada into the Sacramento River has decreased by about 12 percent since 1906. Spring snowmelt runoff is presented in the graph below as the percentage of total runoff for the "water year" (October through September) that occurs during the spring and early summer (from April through July). This indicator provides a measure of temperature-related snowmelt runoff patterns into the Sacramento River. Heavy snow pack accumulates in the Sierra Nevada each winter. Spring warming causes snowmelt runoff, which generally begins in April and runs through July.

If winter or spring temperatures are unusually warm, more rain falls instead of snow, thus the later snowmelt runoff contains lower water volumes. In addition, increased winter flooding would also lower the snowmelt runoff percentage. The decrease in snowmelt, especially after 1950 is likely due to increased air temperatures and climate changes. Other factors, such as the Pacific Ocean sea surface temperature pattern oscillations, solar radiation, and air pollution probably contribute to the patterns observed.



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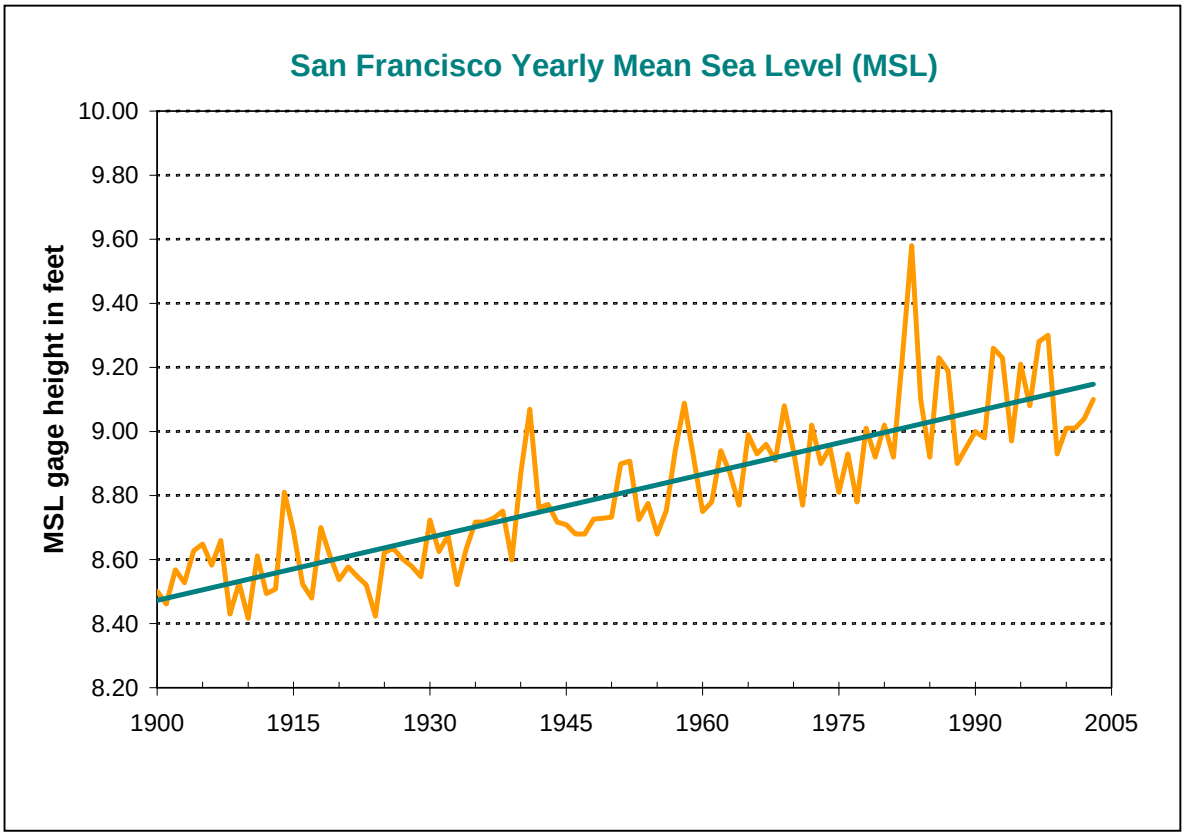
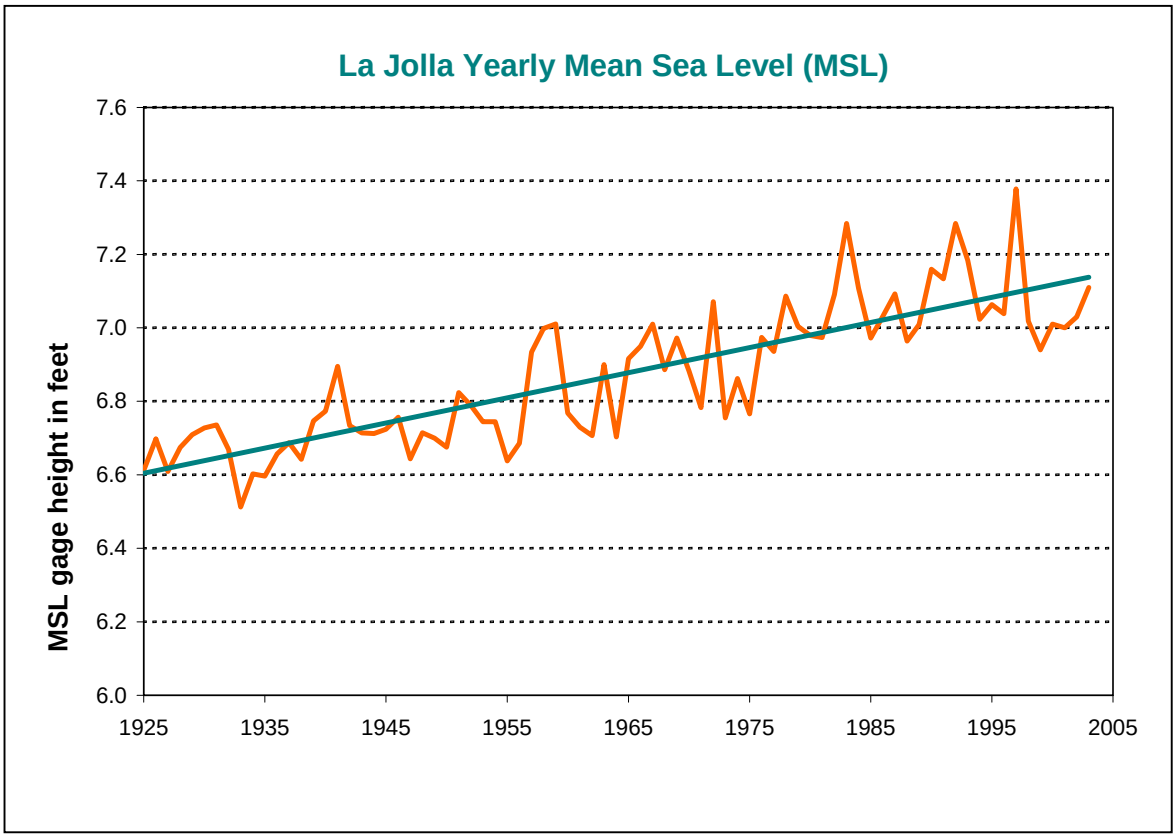
More information on snowmelt and other hydrologic data is posted at:
http://cdec.water.ca.gov/snow_rain.html

A full discussion of transboundary indicators can be found at:
http://www.oehha.ca.gov/multimedia/epic/2002reptpdf/Chapter3-6of8-Transboundary.pdf

SEA LEVEL RISE IN CALIFORNIA

Sea level rise provides a physical measure of possible oceanic response to climate change. This indicator shows the rising trend in sea level measured at two California stations: San Francisco and La Jolla. Long-term data from 10 of 11 California stations show increases in sea level at varying rates. The rise in global sea level is attributed to the melting of mountain glaciers and ice sheets around the globe and the thermal expansion of ocean water. Sea level rise is not a new phenomenon, having been a major natural component of coastal change throughout time. Differences in sea level rise along the coast can occur because of local geological forces, such as land subsidence and plate tectonic activity. However, there is concern that the rate of sea level rise may increase with possibly increased global warming.





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lewing@coastal.ca.gov

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More information on sea level rise is posted at the National Ocean Service, Center for Operational Oceanographic Products and Services:
http://co-ops.nos.noaa.gov

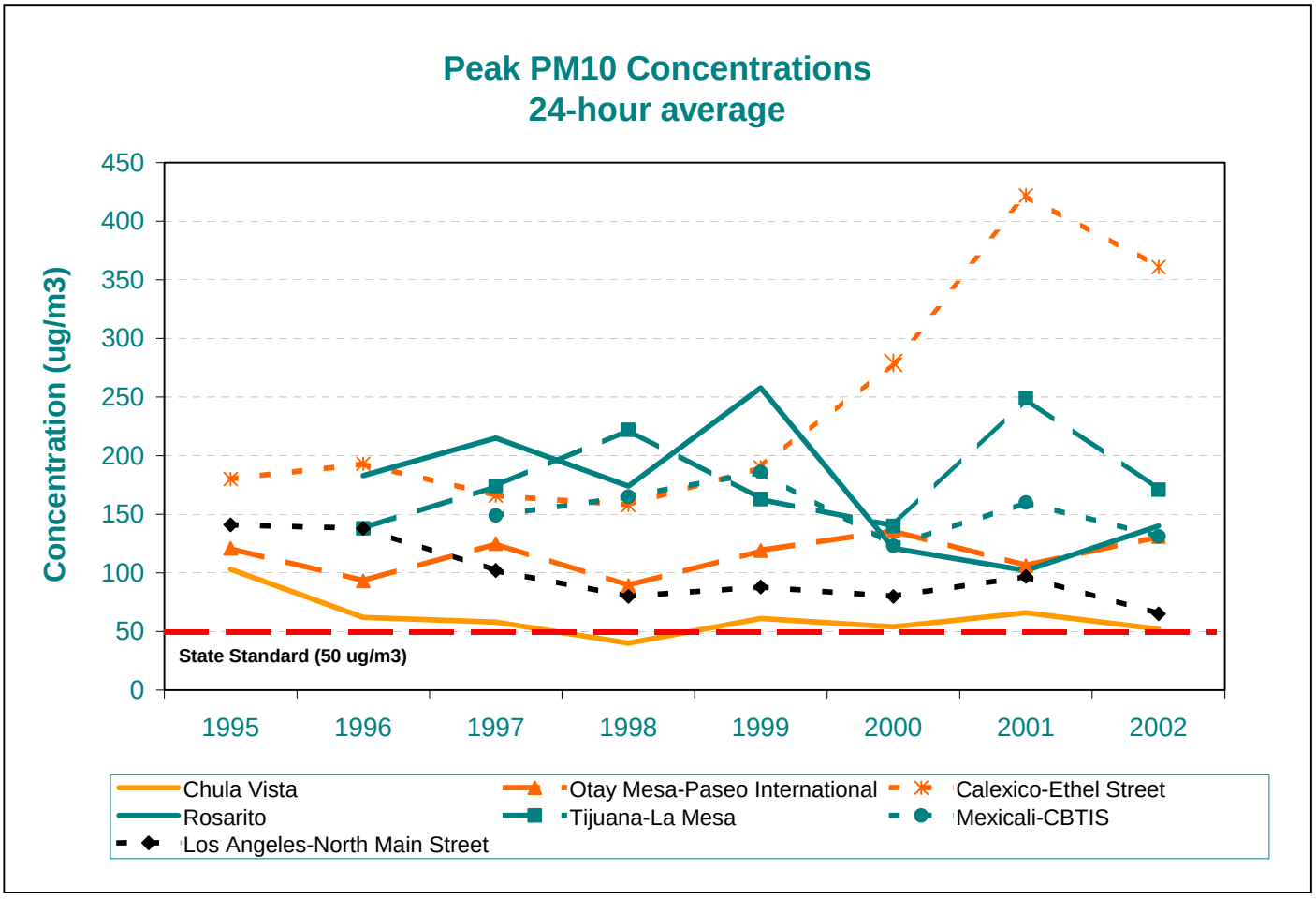
A full discussion of transboundary indicators can be found at:
http://www.oehha.ca.gov/multimedia/epic/2002reptpdf/Chapter3-6of8-Transboundary.pdf

AIR POLLUTANTS IN THE CALIFORNIA-BAJA CALIFORNIA BORDER REGION

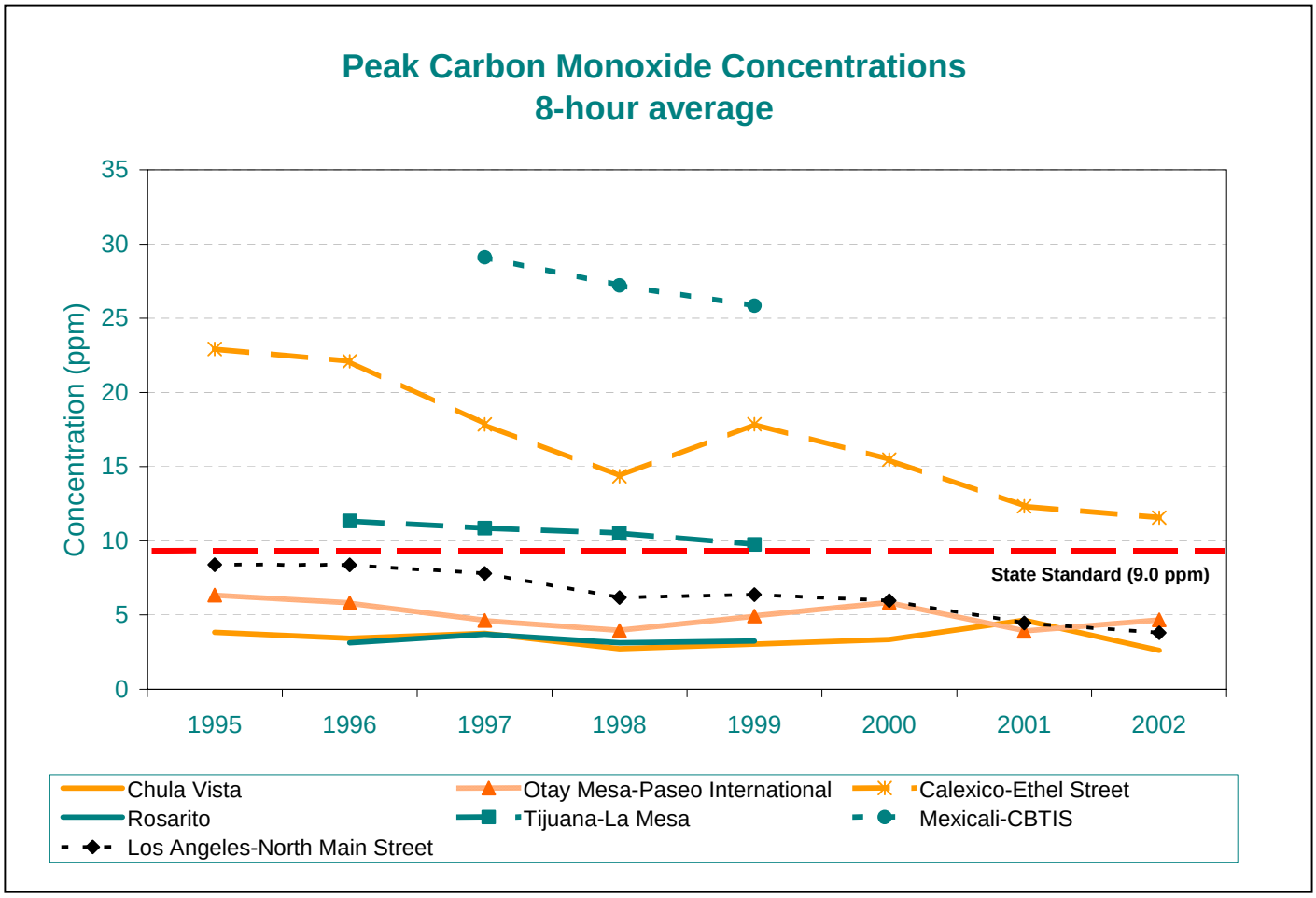
Cross-border air quality monitoring has been conducted in the San Diego/Tijuana region since 1995, and in Calexico/Mexicali since 1997. Data from these monitoring stations show that peak concentrations of inhalable particulate matter (PM10), ozone and carbon dioxide continue to exceed California air quality standards in the border region. Peak concentrations of nitrogen dioxide have remained below the California standard since 2000.

In the graphs that follow, data from Baja California monitoring sites are shown in teal, and data from the most comparable California sites shown in orange. Data for a monitoring station in Los Angeles are presented (dashed black line) to provide perspective

Inhalable particulate matter (PM10).
PM10 pollution continues to be a widespread problem in areas south of the border and the immediately adjacent California areas. Peak concentrations for most sites, with the exception of Calexico, show a slight decline or have remained relatively stable, but most are still well above the State standard. Higher than usual PM10 concentrations at Calexico-Ethel from 2000 to 2002 were probably caused by an increase in dust producing activities in the area combined with high wind events. The peak observed at Tijuana-La Mesa in 2001 was apparently caused by an episode of increased residential burning during the winter holiday season.

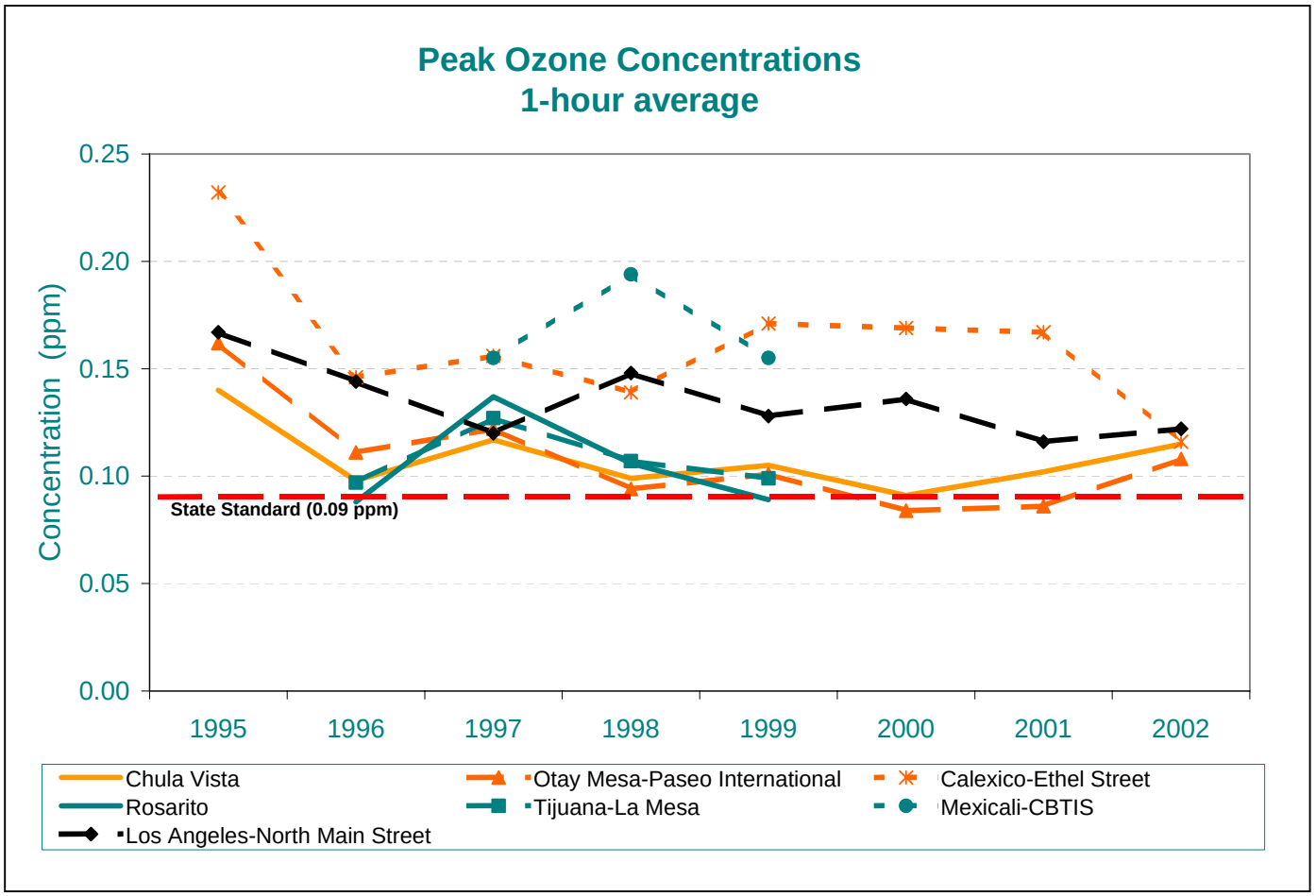


Carbon monoxide.
The Calexico-Mexicali region continues to exceed the State CO air quality standard, but a strong downward trend at Calexico indicates that the area may be nearing attainment. This downward trend can probably be attributed to the introduction of unleaded gasoline in Mexicali in the mid-1990's, which prevents the deterioration of catalytic converters in cars, and the introduction of newer, less polluting vehicles as part of the normal fleet turnover. All the other sites for which complete data are available show attainment of the State standard.



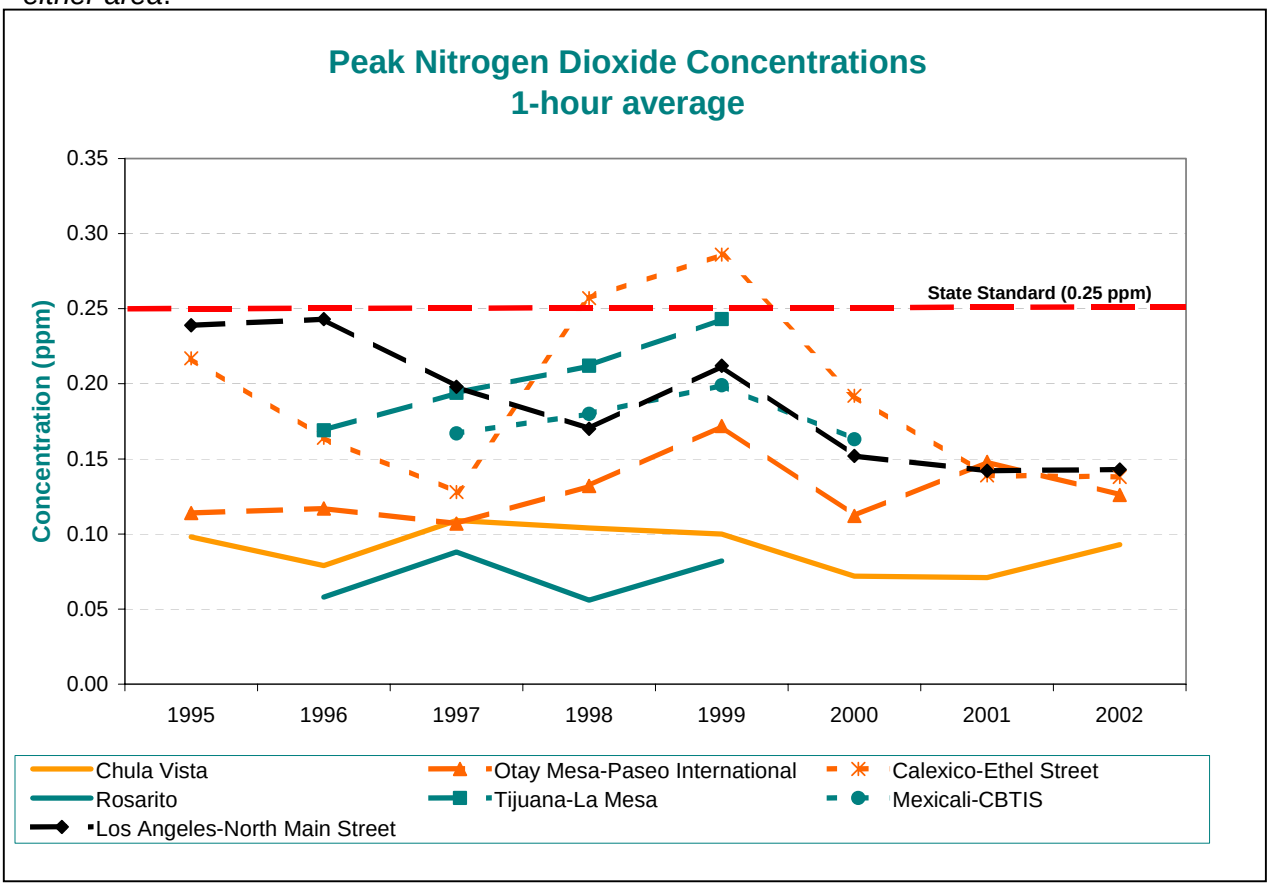
Ozone

Most of the border region continues to exceed the State ozone standard. Monitoring data show a decreasing trend in peak concentrations measured at the Calexico-Ethel Street monitoring station and in the number of days exceeding the standard (not shown in graph). Chula Vista and Otay Mesa show an increase in peak ozone concentrations in 2002, which could be attributed to normal year-to-year variations in emissions or weather patterns. However, if this trend continues, it could be an indication of increasing emissions in the border region.



Nitrogen dioxide

All sites for which complete data are available show attainment of the State standard since 1994. Concentrations above the level of the 1-hour State standard have occasionally occurred in the Los Angeles area and Imperial County; however, these exceedances have been very infrequent, and have not affected the attainment status of either area.



For more information, contact:

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1001 I Street
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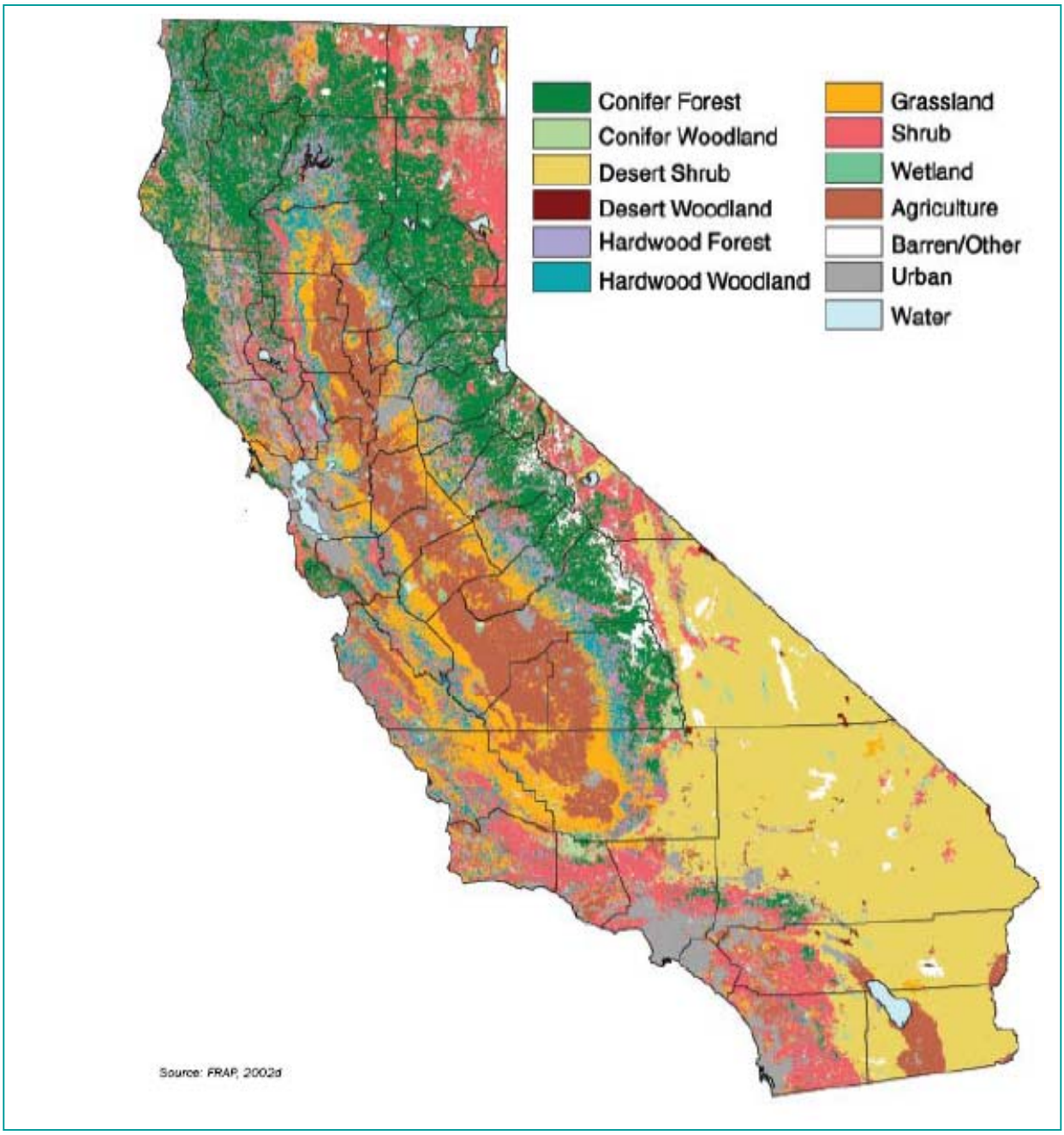
(916) 323-4397
gruiz@arb.ca.gov

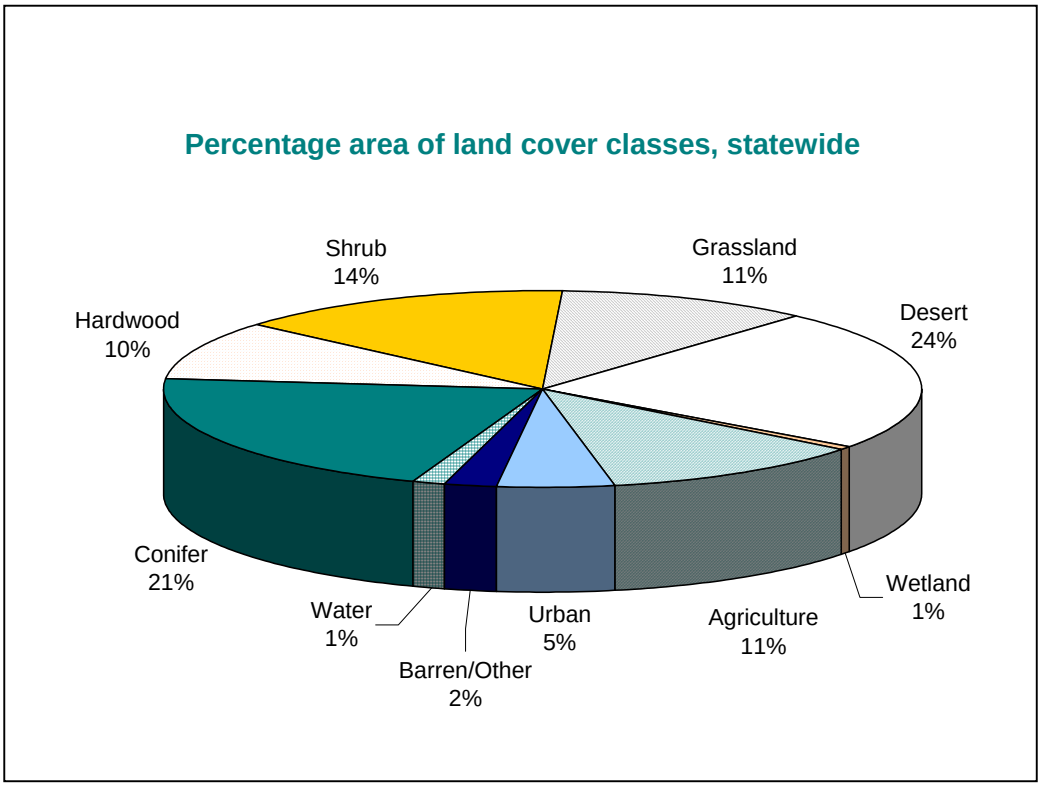
More information on air pollutants in the California-Baja California border region is available on a CD at
http://www.arb.ca.gov/aqd/aqdcd/aqdcd.htm

A full discussion of transboundary indicators can be found at:
http://www.oehha.ca.gov/multimedia/epic/2002reptpdf/Chapter3-6of8-Transboundary.pdf

LAND COVER OF MAJOR TERRESTRIAL ECOSYSTEMS IN CALIFORNIA

California contains approximately 100 million acres of land. The extent of land cover of the different ecosystem types is shown in the map and pie chart that follow. As the total acreages of land cover change over time, inferences can be made about changes to specific ecosystems or habitats that might be placed "at risk."





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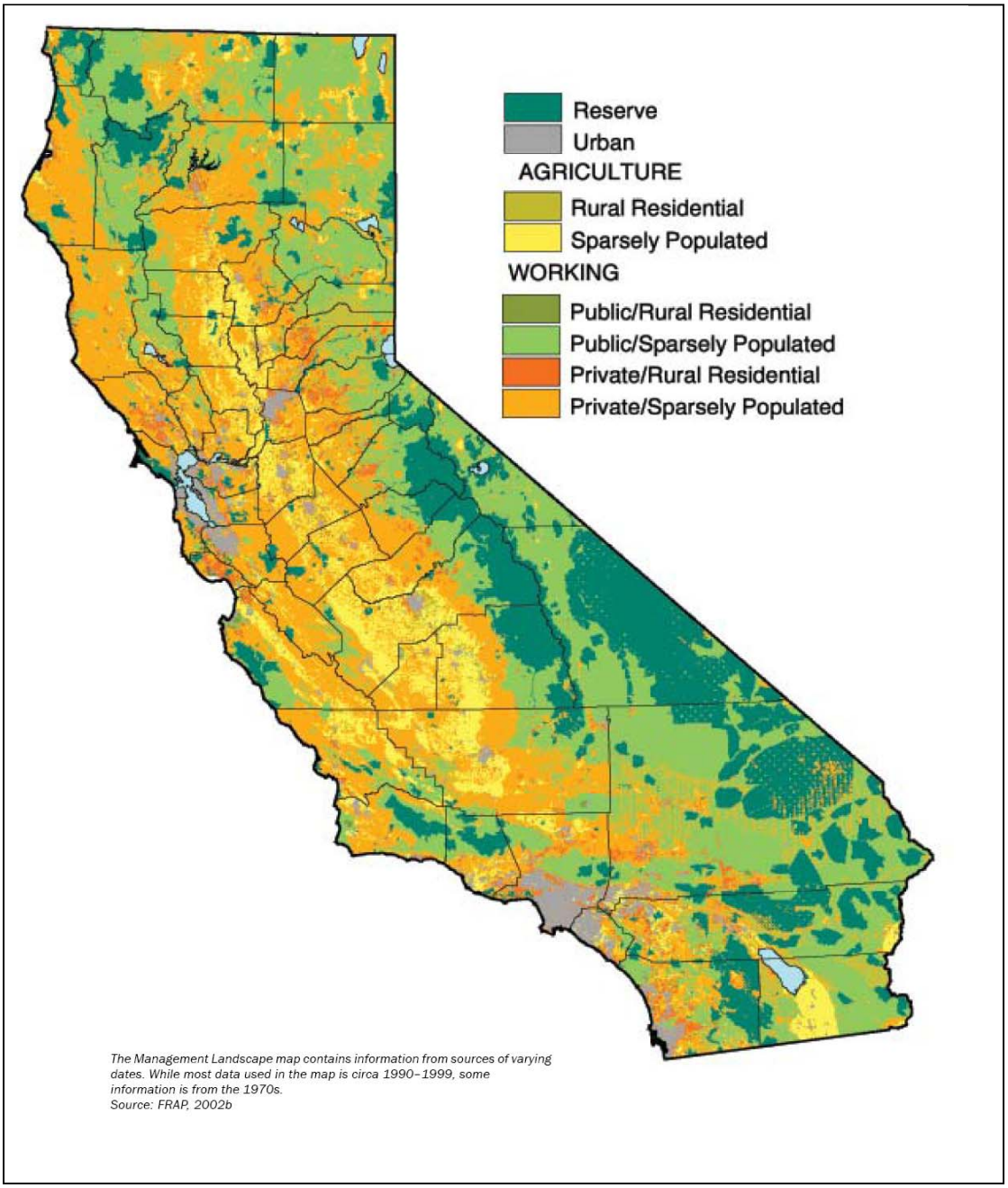
Department of Forestry and Fire Prevention
Fire and Resource Assessment Program
1300 U Street
Sacramento, California 95818
(916) 327-3939
Bill.Stewart@fire.ca.gov

More information on land cover is posted at:
http://www.frap.cdf.ca.gov/assessment2003/index.html
The map above and other maps can be downloaded from:
http://frap.cdf.ca.gov/data/frapgismaps/select.asp

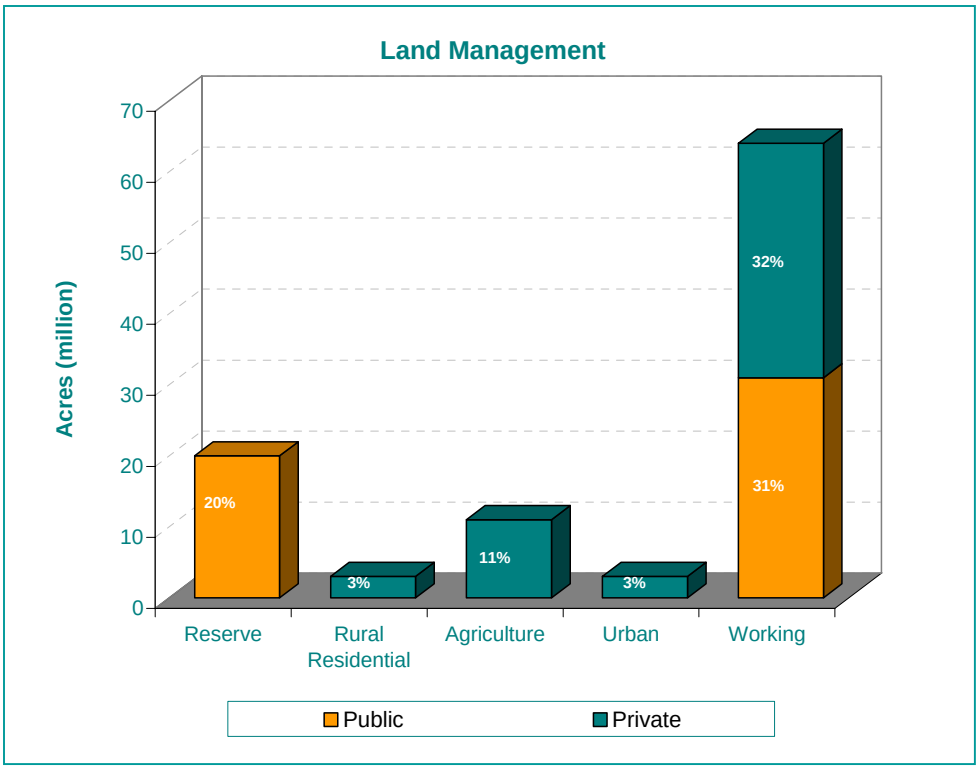
A full discussion of ecosystem health indicators can be found at:
http://www.oehha.ca.gov/multimedia/epic/2002reptpdf/Chapter3-8of8Ecohealth.pdf

LAND MANAGEMENT IN CALIFORNIA

Changes in land management can have significant impacts on the integrity of the ecosystem. The two key characteristics of land management are ownership (private vs. public) and use. Land management defines the land owner's primary objective, a key factor in determining compatibility with, and flexibility for maintaining ecological integrity. Changes in land management and use can have significant impacts on the integrity of the ecosystem.



The Management Landscape map contains information from sources of varying dates. While most data used in the map is circa 1990–1999, some information is from the 1970s.
Source: FRAP, 2002b



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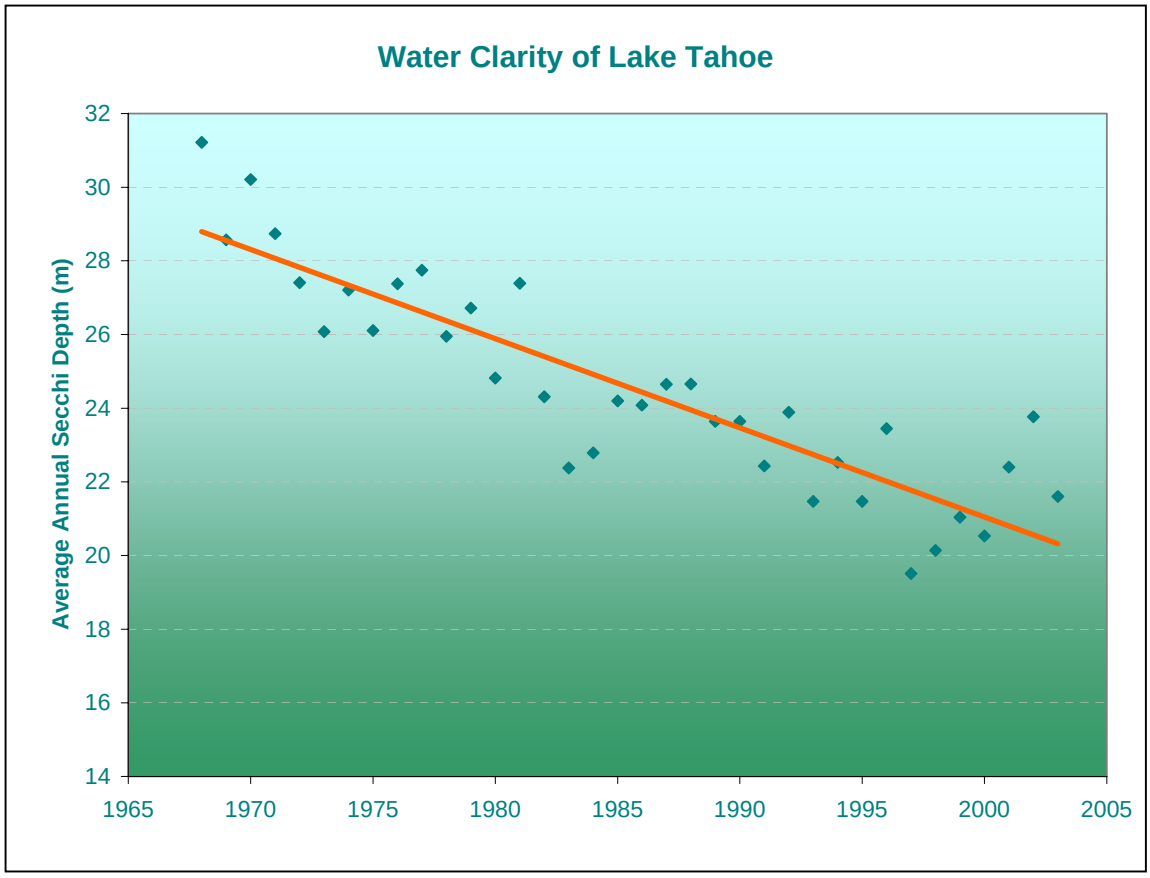
More information on land management is posted at:
http://www.frap.cdf.ca.gov/assessment2003/Assessment_Summary/intro_300.pdf
The map above and other maps can be downloaded from:
http://frap.cdf.ca.gov/data/frapgismaps/select.asp

A full discussion of ecosystem health indicators can be found at:
http://www.oehha.ca.gov/multimedia/epic/2002reptpdf/Chapter3-8of8Ecohealth.pdf

CLARITY OF LAKE TAHOE

Water clarity is an indicator of the health of a lake. It is measured by the depth that a round disk (called a Secchi Disk) can be seen when lowered into the lake. Lake Tahoe clarity has decreased (about an average of one foot per year) since the late-1960's. Data from 2001 and 2002 show a slight increase in clarity, likely due to decreased water inflows that lessened sediment and nutrient loads. Annual average clarity decreased again in 2003, but the change was within the inter-annual variation in Secchi depth.



For more information, contact:
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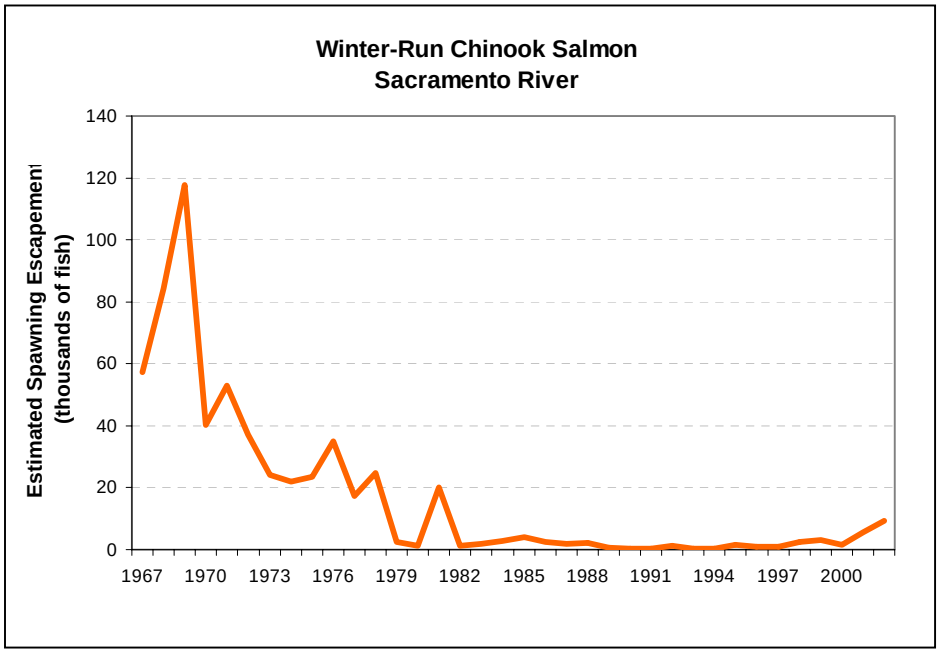
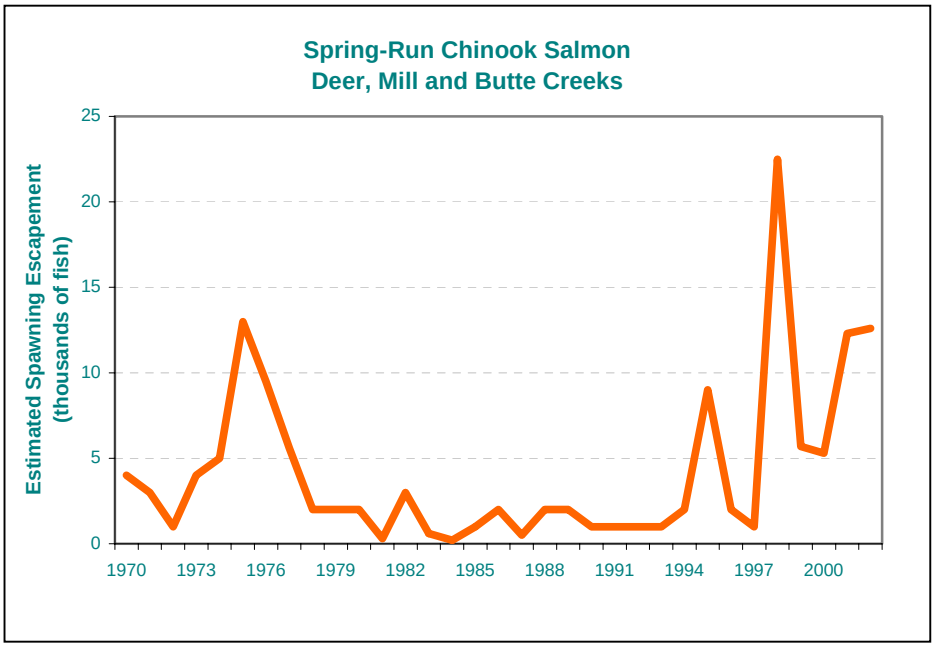
More information on Lake Tahoe clarity is posted at:
http://trg.ucdavis.edu

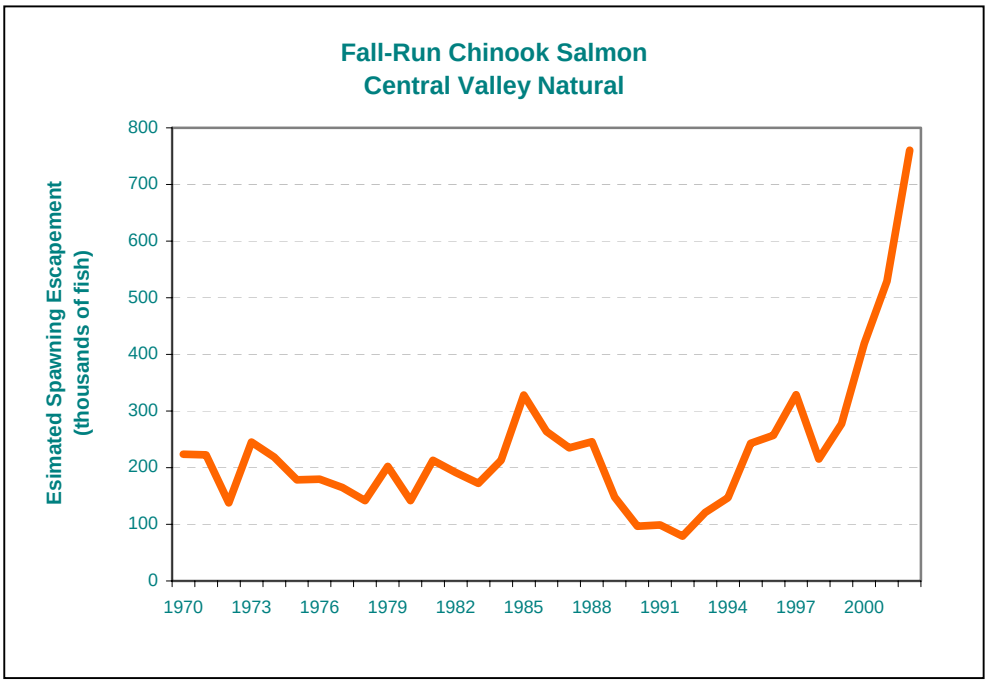
A full discussion of ecosystem health indicators can be found at:
http://www.oehha.ca.gov/multimedia/epic/2002reptpdf/Chapter3-8of8Ecohealth.pdf

STATUS OF CENTRAL VALLEY CHINOOK SALMON POPULATIONS

In the past few years, spawning returns of all runs of Central Valley Chinook salmon have improved, in part due to favorable ocean conditions. The Sacramento River winter-run Chinook salmon population has increased in recent years relative to extremely low levels in the early 1990's. However, the population remains well below the proposed level defined for recovery of this endangered run. Populations of the threatened spring-run Chinook salmon have shown some recovery in recent years; this recovery has been associated with numerous factors, including favorable ocean conditions, removal of diversion dams, installation of fish screens, instream habitat and flow improvements, and improved watershed management. Fall-run Chinook salmon populations have increased since the late 1990's; however, populations of this run are significantly influenced by hatchery production and therefore may be relatively poor indicators of ecosystem health.







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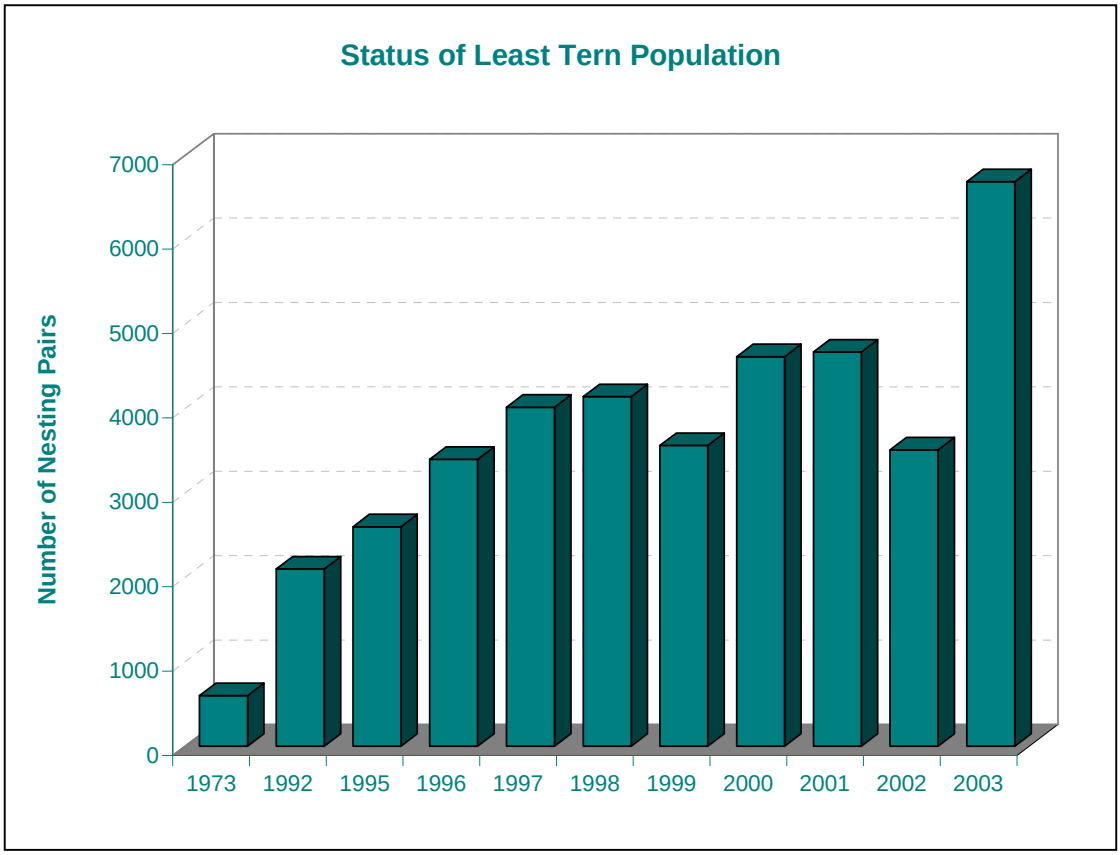
More information on salmon and other native anadromous fish is posted at:
http://www.dfg.ca.gov/nafwb/index.html

A full discussion of ecosystem indicators can be found at:
http://www.oehha.ca.gov/multimedia/epic/2002reptpdf/Chapter3-8of8Ecohealth.pdf

CALIFORNIA LEAST TERN POPULATIONS

The population of the least tern, which is on the federal and State lists of endangered species, has increased since 1970, although production of young has been relatively poor since the late 1990s. The record-high total of 6,688 pairs reported in 2003 was more than twice the average annual breeding population size during the mid 1990s. Since much of tern nesting habitat is disturbed by humans, these birds need to be monitored closely in the future.



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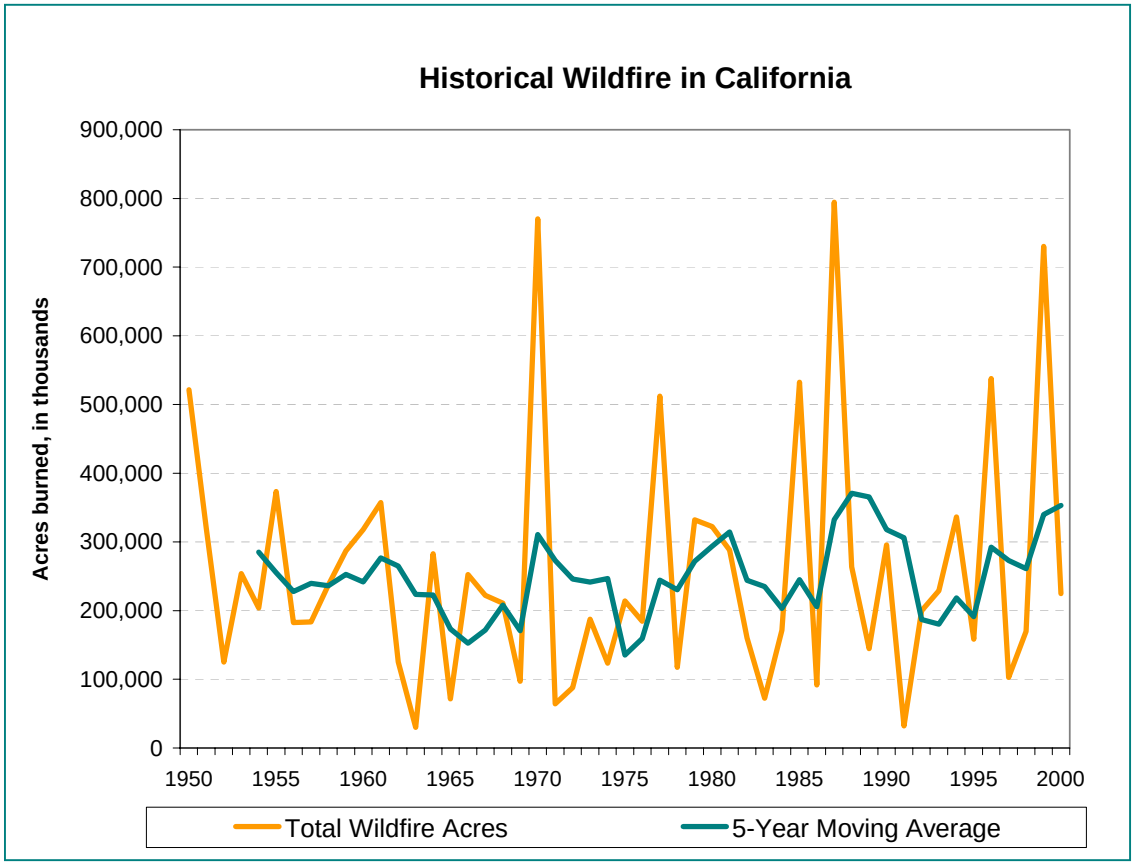
More information on threatened and endangered species is posted at:
http://www.dfg.ca.gov/hcpb/species/species.shtml

A full discussion of water quality indicators can be found at:
http://www.oehha.ca.gov/multimedia/epic/2002reptpdf/Chapter3-8of8Ecohealth.pdf

WILDFIRES IN FORESTS AND GRASSLANDS

Fire plays an integral role in regulating the spatial pattern, composition, and structure of California's natural resources. Many California ecosystems depend on a particular fire regime for long-term health. Disruption of these natural cycles often has significant ecological ramifications for ecosystem structures, functions, and capabilities to provide for human needs. In general, the annual acreage burned over the last fifty years has been highly variable. This high variation would appear to be largely related to climate, where periods of significant drought are associated with large area burned years. Over the past five decades, wildfires in brushlands and grasslands have been more common than wildfires in forested areas, while lands in public ownership began burning more frequently than private lands around 1970 (see graphs in the EPIC report, link provided below).



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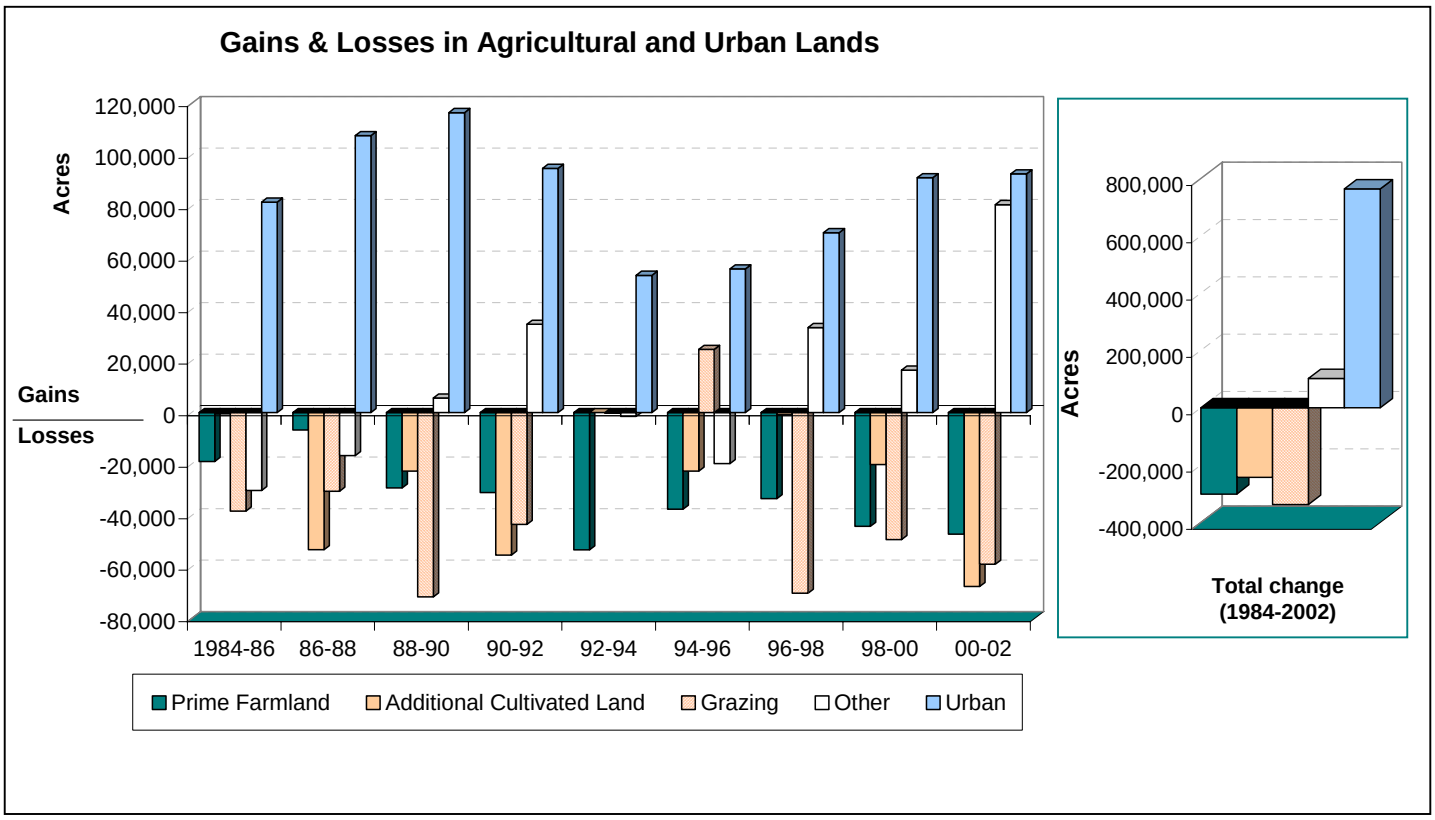
More information on forest fires is posted at:
http://www.fire.ca.gov/php/fire_er_histstats.php

More information on forests and rangelands is posted at:
http://frap.cdf.ca.gov/index.htm

A full discussion of ecosystem indicators can be found at:
http://www.oehha.ca.gov/multimedia/epic/2002reptpdf/Chapter3-8of8Ecohealth.pdf

CONVERSION OF FARMLAND TO URBAN AND OTHER USES

Farmland has been lost to urban development, removed from active use, or used for environmental restoration purposes. Prime farmland and grazing land have been the source of the majority of farmland conversions. "Additional cultivated land' includes non-prime agricultural land. "Other" refers to low density rural residential, mined lands, and related uses. Between 2000 and 2002, prime farmland accounted for 21% of the 92,750 new urban acres, and other irrigated farmland categories comprised an additional 8% of new urban land.



For more information, contact:
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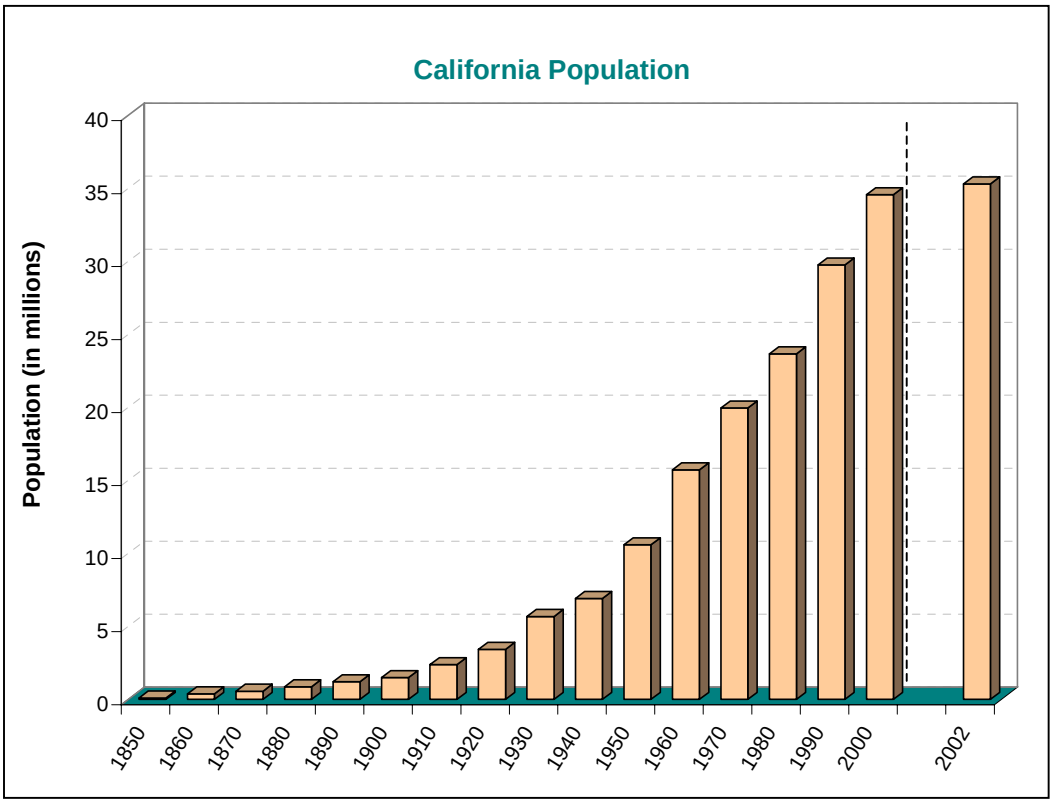
mpenberg@consrv.ca.gov

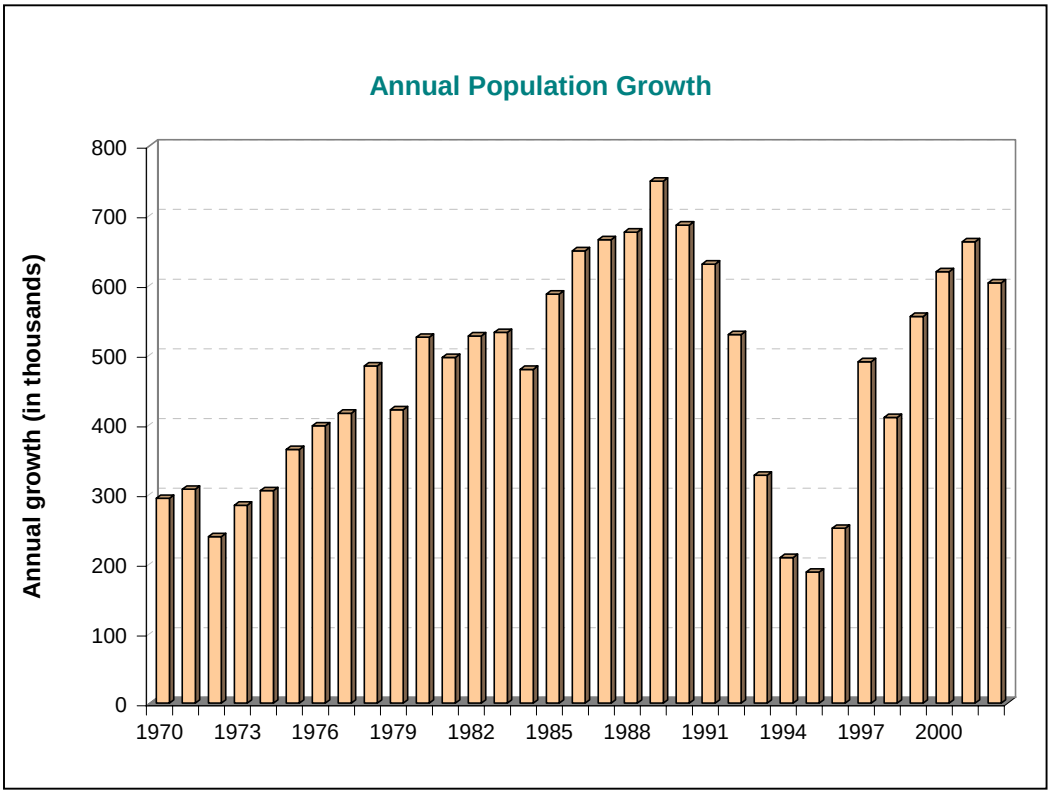
More information on farmland conversion is posted at:
http://www.consrv.ca.gov/dlrp/fmmp/

A full discussion of ecosystem health indicators can be found at:
http://www.oehha.ca.gov/multimedia/epic/2002reptpdf/Chapter3-8of8Ecohealth.pdf

POPULATION DEMOGRAPHICS

As of 2003, California was home to an estimated 36 million people. Since 1999, the State has been adding over half a million people to its population annually.



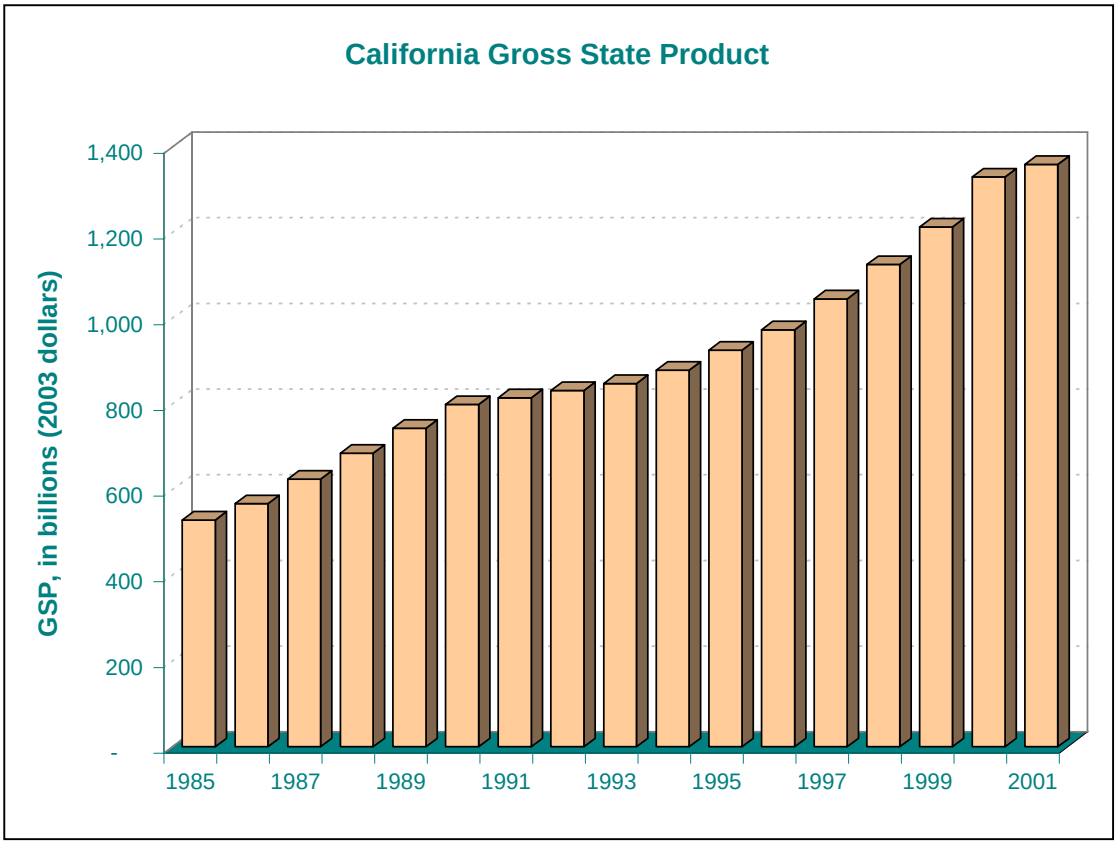


Reference:
California Statistical Abstract
Table B-1 — Population, Total & Civilian, California and the United States
Department of Finance
Sacramento, California
December 2003
Posted at: http://www.dof.ca.gov/HTML/FS_DATA/STAT-ABS/Sa_home.htm

A full discussion of background indicators can be found at:
http://www.oehha.ca.gov/multimedia/epic/2002reptpdf/Chapter3-2of8Air.pdf

ECONOMY

In 2001, California's gross state product (GSP) was estimated to be over $1.3 trillion, accounting for 13 percent of the nation's output. The State's economy trails only the United States (as a whole), Japan, Germany, and the United Kingdom. Our nation's next largest state economy—New York—is about 60 percent the size of California's.



References:

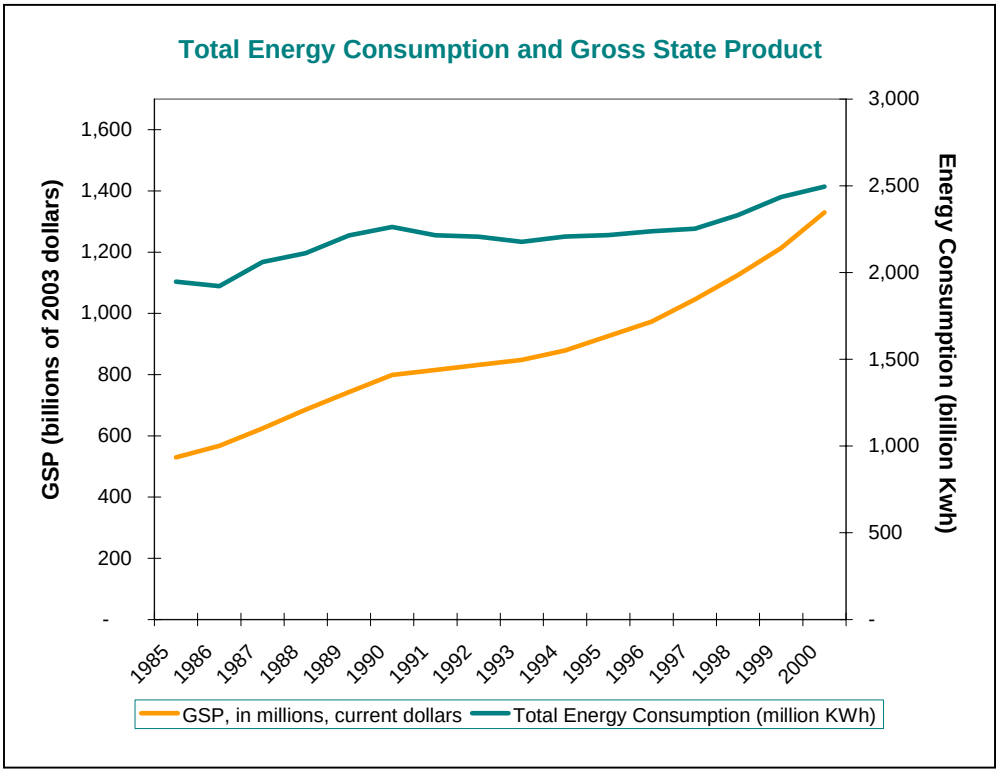
Department of Commerce, Bureau of Economic Analysis
As presented in *Miscellaneous Economic Data: California Gross State Product, 1963-2001*
Department of Finance
Sacramento, California
Updated May 22, 2003
Posted at:
http://www.dof.ca.gov/HTML/FS_DATA/LatestEconData/Data/Miscellaneous/Bbgsp.xls

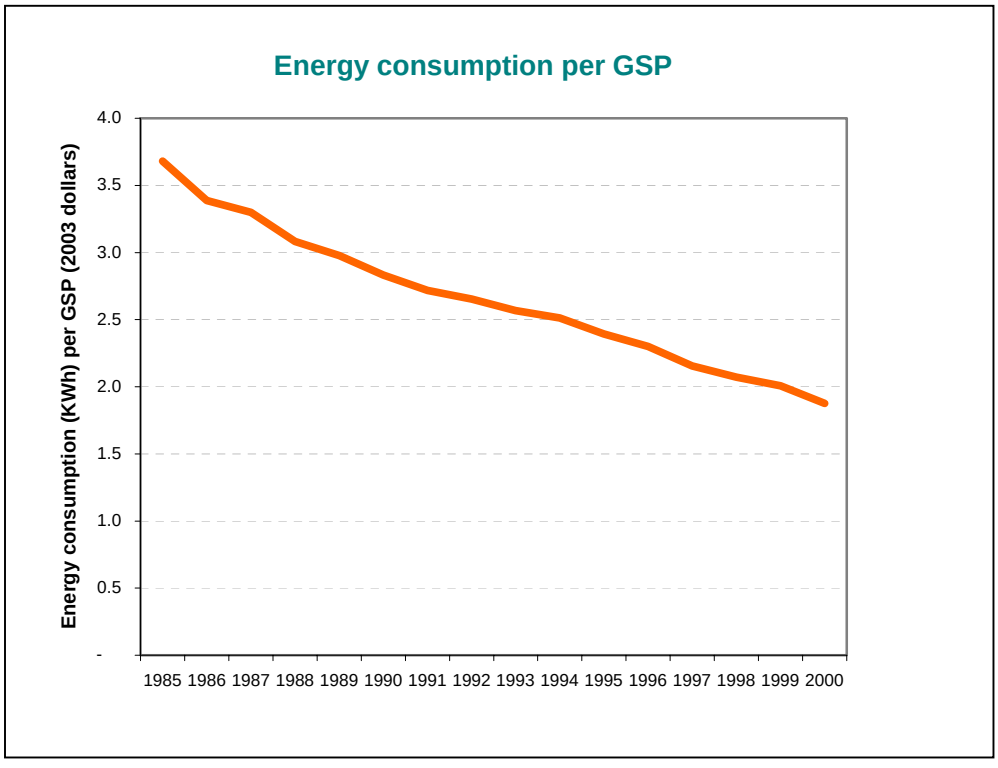
Cal Facts: California's Economy and Budget in Perspective
Legislative Analyst's Office
Sacramento, California
December 2002
Posted at: http://www.lao.ca.gov/2002/cal_facts/cal_facts_2002.pdf

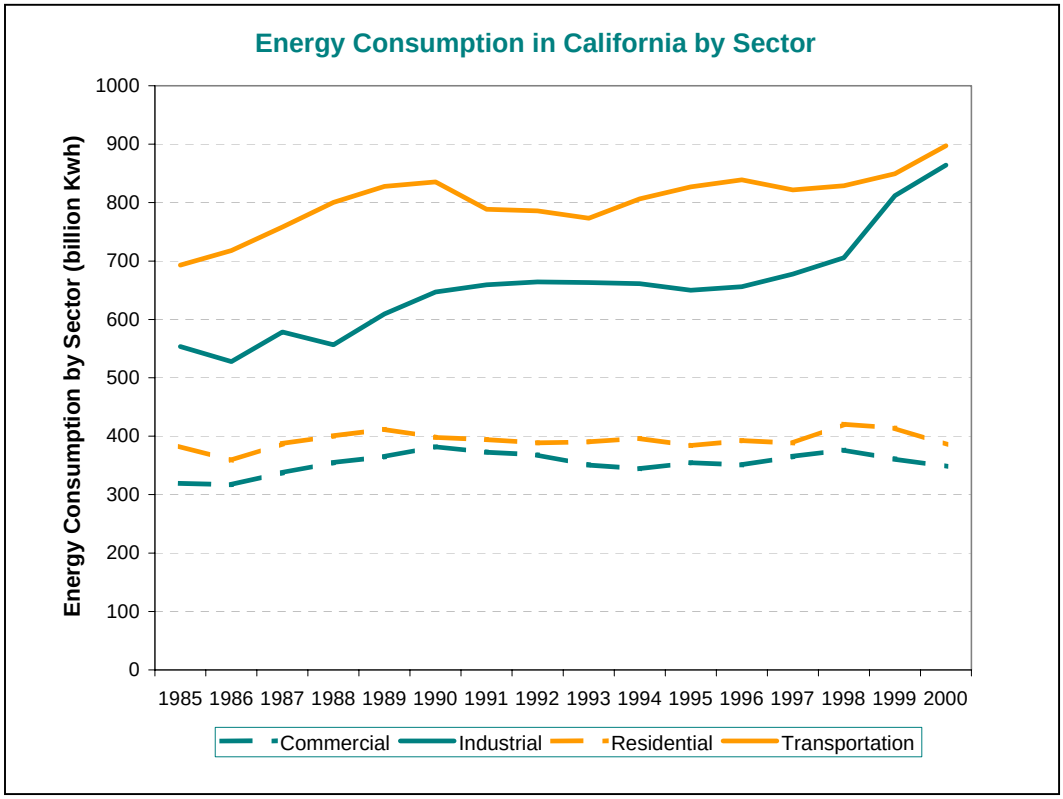
A full discussion of background indicators can be found at:
http://www.oehha.ca.gov/multimedia/epic/2002reptpdf/Chapter3background.pdf

ENERGY CONSUMPTION

From 1985 to 2000, total energy consumption in California increased by about 28 percent, while the economy, as measured by the gross state product (GSP), increased by more than 150 percent; the second graph illustrates a continuing downward trend in the amount of energy consumed per unit of GSP. The transportation sector continues to be the largest consumer of energy in California, followed by the industrial sector







References:

Department of Commerce, Bureau of Economic Analysis
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Department of Finance
Sacramento, California
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http://www.dof.ca.gov/HTML/FS_DATA/LatestEconData/Data/Miscellaneous/Bbgsp.xls

Energy Information Administration, Department of Energy
Table 7. Energy Consumption Estimates by Source, Selected Years, 1960-2000, California
Posted at: http://www.eia.doe.gov/emeu/states/sep_use/total/use_tot_ca.html

Table 8. Residential Energy Consumption Estimates by Source, 1960-2000, California
Posted at: http://www.eia.doe.gov/emeu/states/sep_use/res/use_res_ca.html

Table 9. Commercial Energy Consumption Estimates by Source, 1960-2000, California
Posted at: http://www.eia.doe.gov/emeu/states/sep_use/com/use_com_ca.html

Table 10. Industrial Energy Consumption Estimates by Source, 1960-2000, California
Posted at: http://www.eia.doe.gov/emeu/states/sep_use/ind/use_ind_ca.html

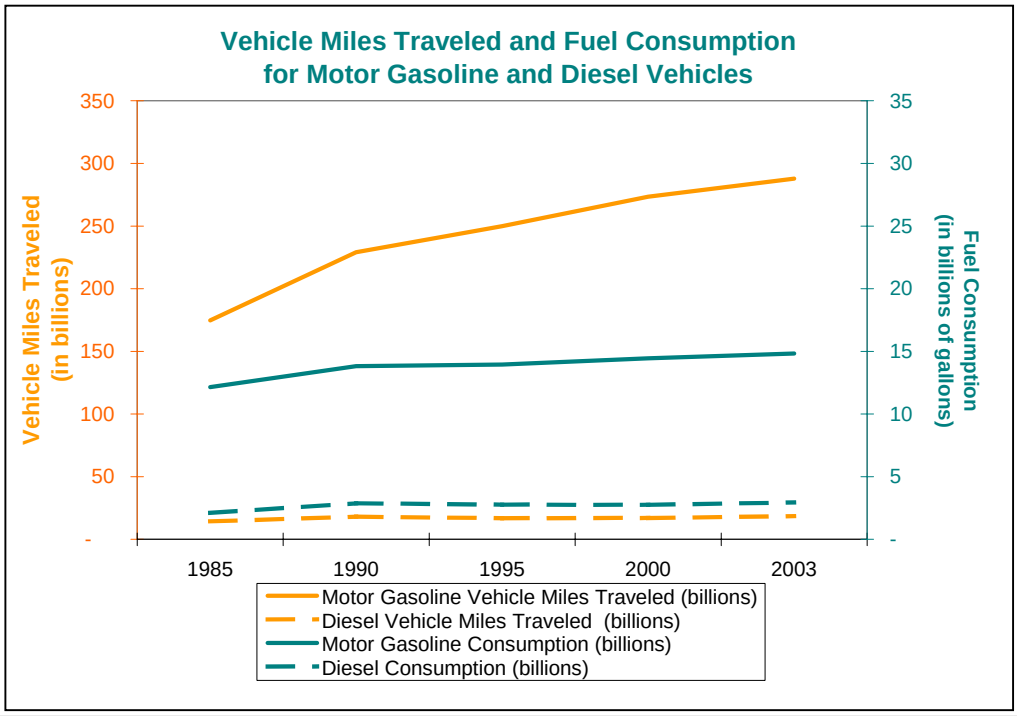
Table 11. Transportation Energy Consumption Estimates by Source, 1960-2000, California
Posted at: http://www.eia.doe.gov/emeu/states/sep_use/tra/use_tra_ca.html

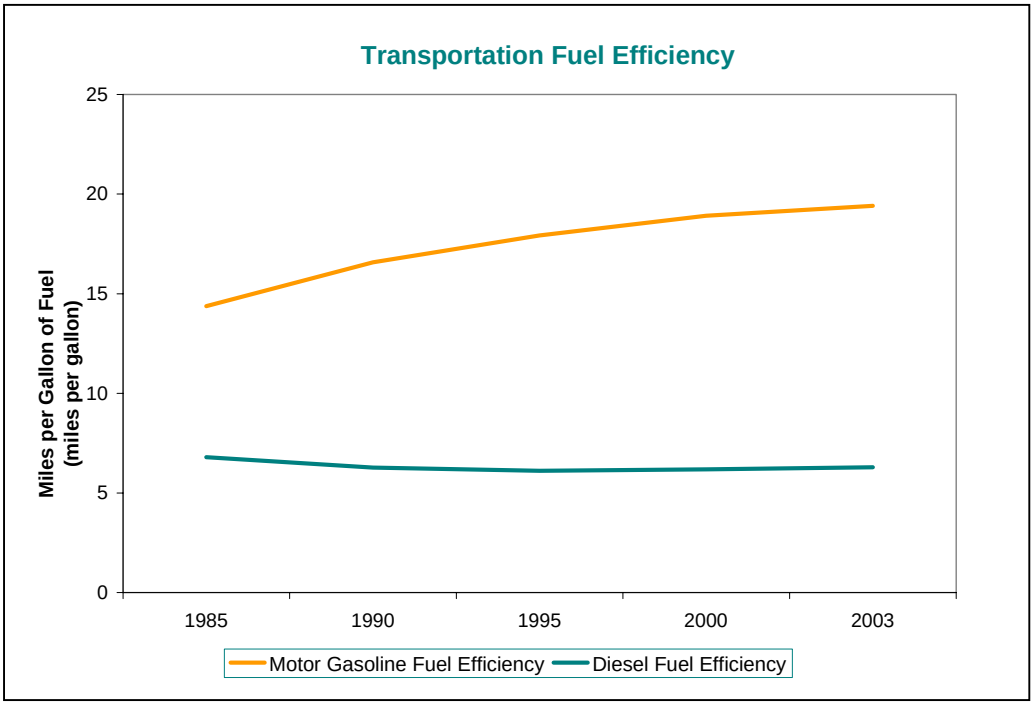
A full discussion of background indicators can be found at:
http://www.oehha.ca.gov/multimedia/epic/2002reptpdf/Chapter3background.pdf

TRANSPORTATION

The number of vehicle miles traveled and the volume of fuel consumed by motor gasoline vehicles continue to increase, the latter at a relatively slower rate (particularly after 1990). For diesel-fueled vehicles, the trends have remained relatively unchanged over the past 13 years.

The average transportation fuel efficiency for motor gasoline vehicles has improved to 19.4 miles per gallon in 2003, while remaining relatively unchanged for diesel vehicles.





NOTE: The values reflected in the preceding graphs are not identical to the those which appear in the 2002 EPIC report (page 19), as they were derived using a new model.

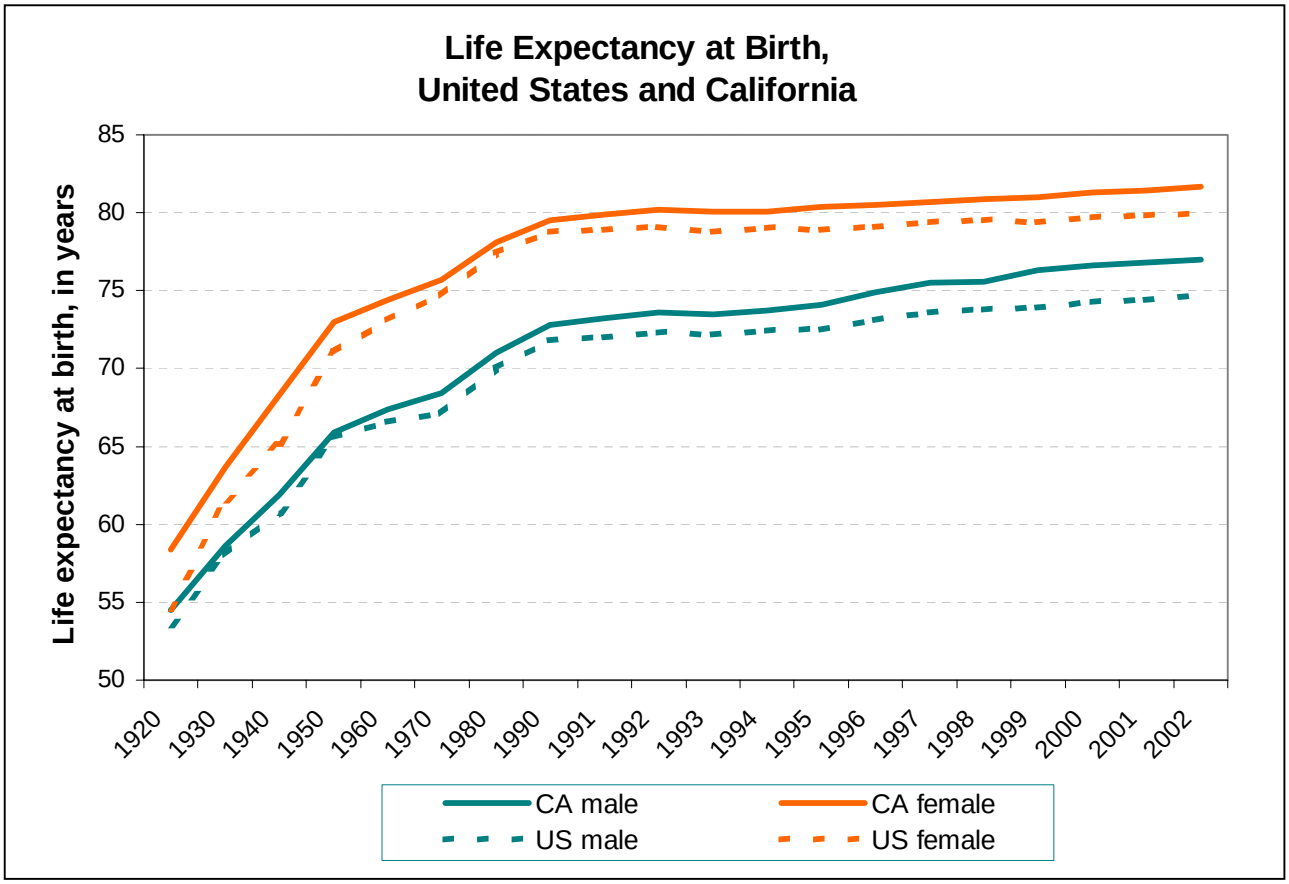
References:

Air Resources Board. On-Road Motor Vehicle Inventory, EMFAC 2002 v 2.2 (April 2003). Inventory includes all on-road vehicles, from light-duty passenger cars to heavy-duty trucks. Posted at: http://www.arb.ca.gov/msei/on-road/on-road.htm

A full discussion of background indicators can be found at:
http://www.oehha.ca.gov/multimedia/epic/2002reptpdf/Chapter3background.pdf

LIFE EXPECTANCY AT BIRTH

In 2002, life expectancy at birth was 77 years for California males and 81.7 years for California females; nationally, life expectancy was 74.7 and 79.9 for males and females, respectively. Over the years, life expectancy for Californians has consistently been higher than for the United States.

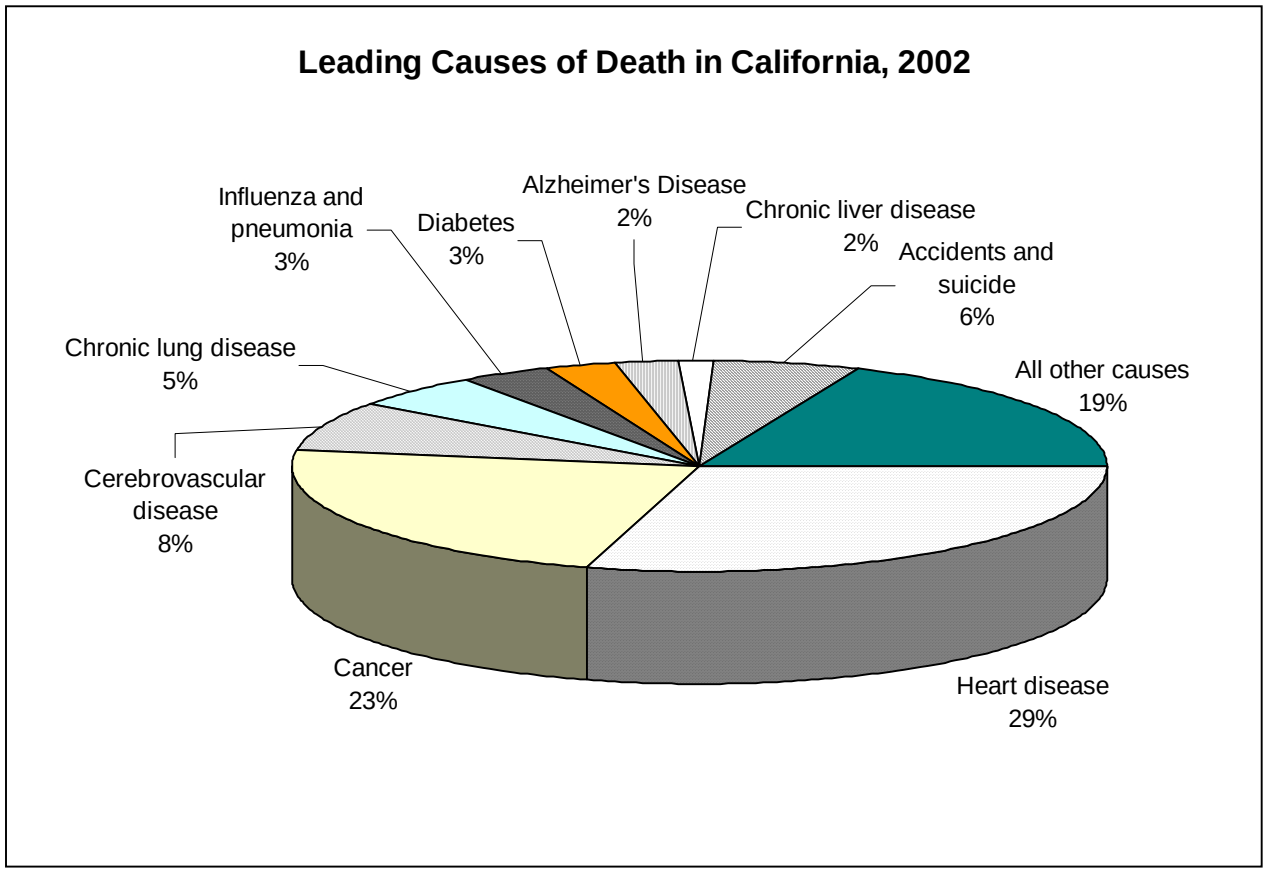


Reference:
Department of Health Services, Center for Health Statistics
Abridged Life Tables, 2002
Table 1. Life Expectancy at birth and average years of life remaining at age 65 by selected years and sex, California, 1919-1941a, 1950, 1959-61, 1969-71,1979-81, 1990-2002; and,
Table 2. Life Expectancy at birth and average years of life remaining at age 65 by selected years and sex, United States, 1949-51, 1959-61, 1969-71, 1979-81, 1990-2002
Posted at: http://www.dhs.ca.gov/hisp/chs/OHIR/vssdata/2002data/02Ch1Ex/1-08-2002.xls

A full discussion of background indicators can be found at:
http://www.oehha.ca.gov/multimedia/epic/2002reptpdf/Chapter3background.pdf

LEADING CAUSES OF DEATH

Heart disease, cancer and cerebrovascular disease remain the top three causes of death in California in 2002, as they are nationally. These three causes account for 60 percent of all deaths in the State, and approximately 58 percent in the United States.

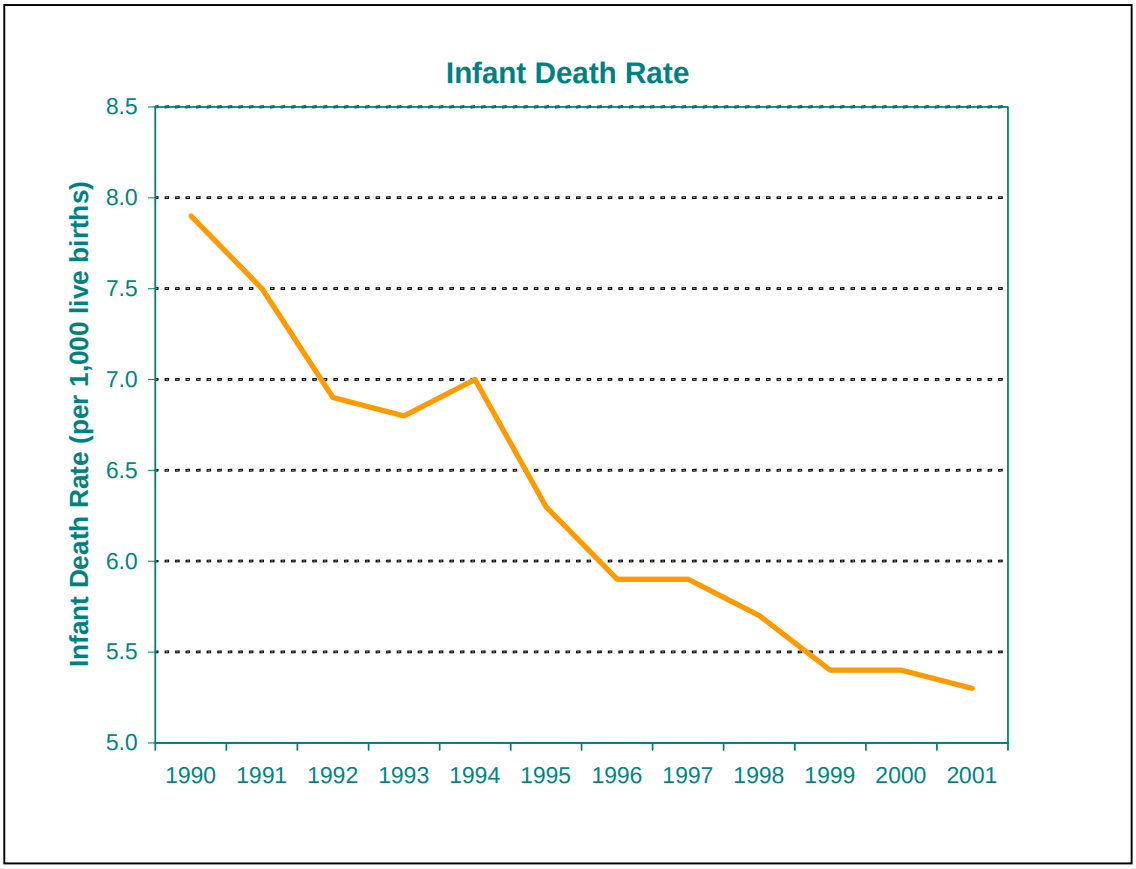


Reference:
Department of Health Services, Center for Health Statistics
2002 Vital Statistics Data Tables
Table 1-8. Deaths, Percent of Deaths, Death Rates, and Age-Adjusted Death Rates for Leading Causes of Death, California and United States, 2002 (By Place of Residence)
Posted at: http://www.dhs.ca.gov/hisp/chs/OHIR/vssdata/2002data/02Ch1Ex/1-08-2002.xls

A full discussion of background indicators can be found at:
http://www.oehha.ca.gov/multimedia/epic/2002reptpdf/Chapter3background.pdf

INFANT DEATH RATE

The infant death rate (the number of deaths among infants under one year old per 1,000 births) in California continues to decrease. In 2001, there were 2,815 infant deaths and 527,371 live births, for an infant death rate of 5.3 per 1,000 live births. Nationally, the infant death rate in 2001 was 6.8.



References:

Department of Health Services, Center for Health Statistics
Vital Statistics Query System
Query: "Infant death rate"
Posted at: http://www.applications.dhs.ca.gov/vsq/default.asp

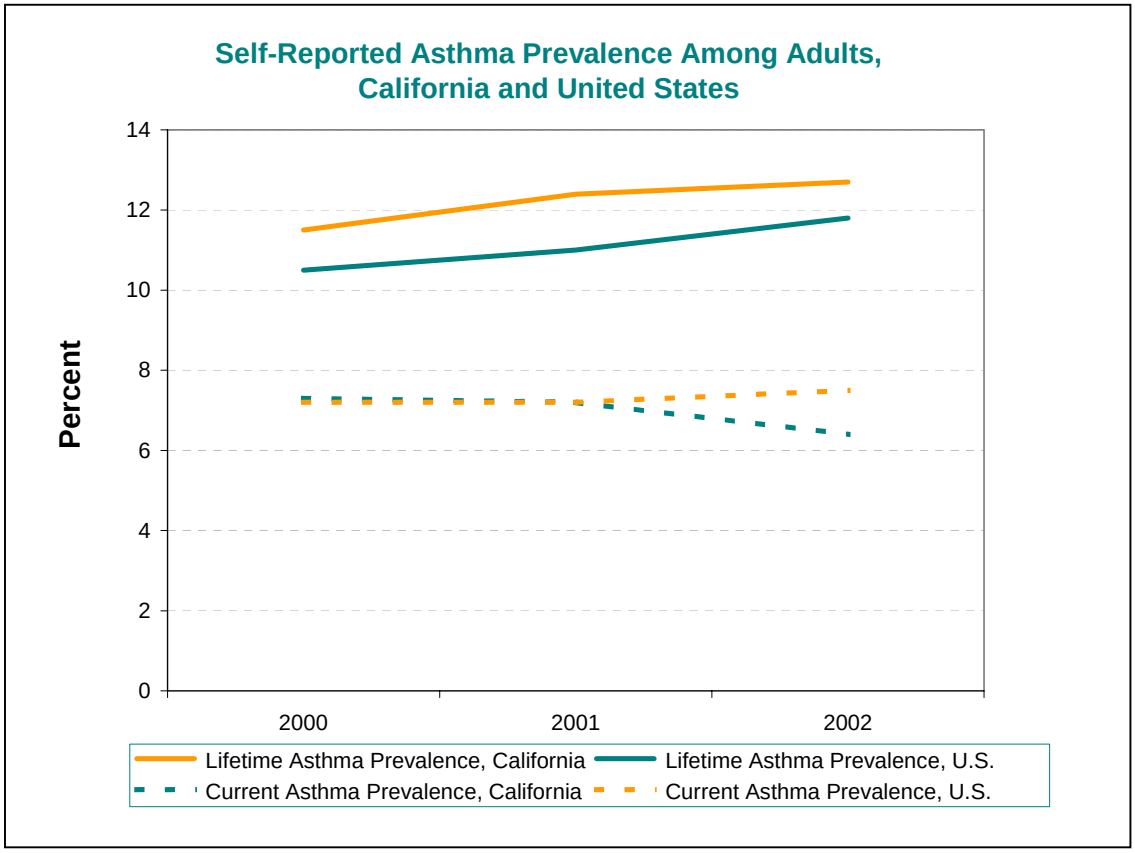
National Vital Statistics Reports, Volume 52, No.3, September 18, 2003
Table 31. Infant, neonatal, and postneonatal mortality rates by race and sex: United States, 1940, 1950, 1960, 1970, and 1975-2001
National Center for Health Statistics
Centers for Disease Control and Prevention
Posted at: http://www.cdc.gov/nchs/fastats/pdf/mortality/nvsr52_03t31.pdf

A full discussion of background indicators can be found at:
http://www.oehha.ca.gov/multimedia/epic/2002reptpdf/Chapter3background.pdf

ASTHMA PREVALENCE AMONG ADULTS

A state-based survey of individuals aged 18 and over reported that, from 2000 to 2002, lifetime asthma prevalence increased from 11.5 to 12.7 percent, and from 10.5 to 11.8 percent in California and in the United States, respectively. During the same period of time, current asthma prevalence decreased from 7.3 to 6.4 percent in California, and increased from 7.2 to 7.5 percent nationally. In 1980, the annual prevalence of self-reported asthma in the U.S. population was estimated to be 31.4 per 1,000 (or 3 percent).

"Lifetime prevalence" is determined by "yes" responses to the question, "Have you ever been told by a doctor that you have asthma?" "Current prevalence" is determined by a "yes" answer to the same questions, as well as to the question, "Do you still have asthma?"



References:

Behavioral Risk Factor Surveillance System: Asthma
National Center for Environmental Health
Posted at: http://www.cdc.gov/asthma/brfss/default.htm

Surveillance for Asthma – United States, 1980-1999
Table 2. Estimated annual prevalence of self-reported asthma (1980-1996) or an episode of asthma or asthma attach (1997-1999) during the preceding 12 months, by race, sex and age group, National Health Interview Survey – United States, 1980-1999
Morbidity and Mortality Weekly Report Surveillance Summaries, Volume 51, No. SS01;1

Posted at: http://www.cdc.gov/mmwr/preview/mmwrhtml/ss5101a1.htm

A full discussion of background indicators can be found at:
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