

**Potential GIS Data Sources  
to Address Environmental Justice Issues  
in the CALFED Solution Area**

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# Contents

Introduction .....	1
Overview .....	1
Datasets .....	2
Census Data .....	2
Environmental Data .....	2
Water Quality .....	2
Toxics .....	5
Land Use/Land Cover/Land Ownership .....	7
Health Conditions and Data .....	8
Air Quality .....	9
Other Applicable Datasets .....	10
Other Environmental Justice Information Sources .....	11
Recommendations .....	11
Appendix A. Beneficial Uses	
Appendix B. Sources of Contamination	
Appendix C. EPA Envirofacts Databases	
Appendix D. DWR Land Use Datasets	
Appendix E. GIS Data Sources	

# Potential GIS Data Sources to Address Environmental Justice Issues in the CALFED Solution Area

## Introduction

CALFED's solution area encompasses the preponderance of California; CALFED works with many resource and regulatory agencies in an array of watershed projects to ensure that ecological health is maintained, while it also works with communities to manage water resources and water quality. In the course of these undertakings, CALFED needs to address environmental justice (EJ) issues, or results that may adversely affect specific segments of the community, such as low-income and minority populations. CALFED recognizes that geographic information system (GIS) technology can be used to address many issues that relate to demographics and infrastructure. Accordingly, an investigation of available sources is a requisite for developing an effective program involving GIS analysis. This document and the attached appendices briefly describe potential sources for addressing a variety of environmental justice issues such as water and air quality, health conditions, and pesticide use.

## Overview

This document lists potential GIS data sources that can be used to evaluate environmental justice issues that CALFED mentions in its 2001 Preliminary Environmental Justice Annual Plan. A brief description of each dataset and its potential use is provided. Several appendices contain additional information about the various datasets.

The two most important GIS datasets for evaluating ENVIRONMENTAL JUSTICE issues for CALFED projects are:

- boundaries and locations of all CALFED projects, and
- census data.

These two datasets will help the ENVIRONMENTAL JUSTICE subcommittee focus the questions and ENVIRONMENTAL JUSTICE issues for further GIS analysis.

## Datasets

### Census Data

The California Office of Emergency Services (OES) has produced a GIS dataset of census data originally compiled by the Census Bureau. The data selected for the OES dataset follow the Department of Finance template for Summary File 3. The OES data are available in GIS format, while the attribute data are stored in an Access database. The data are useable but require very specific queries. The OES data are easier to work with than the raw data from the Census Bureau, but nevertheless require a substantial level of effort to extract the desired variables.

### Environmental Data

#### Water Quality

##### Drinking Water Source Assessment and Protection

The Department of Health Services (DHS) Division of Drinking Water and Environmental Management maintains the California Drinking Water Source database of more than 15,000 drinking water sources. This database requires spatial locations from the Drinking Water Source Assessment and Protection (DWSAP) program, as well as some manipulation and conversion of data to be useable in a GIS program.

##### Water Quality Standards Inventory Database

The U.C. Davis Information Center for the Environment (ICE) publishes water quality maps of some California counties' watersheds. They include textual and numerical data, and are useful in determining which watersheds/basins do not meet CalEPA standards and the relative conditions of watersheds/basins.

##### National Hydrography Dataset (NHD)

The NHD is a comprehensive set of digital spatial data that contains information about surface water features such as lakes, ponds, streams, rivers, springs, and wells. The NHD combines surface water features to form *reaches*; these reaches provide the framework to enable the analysis and display of the water-related data in upstream and downstream order.

## **Enviromapper for Water**

Enviromapper, a U.S. Environmental Protection Agency (EPA) database, is a dataset with spatial data quantifying water quality characteristics ranging from pollutants to algal growth in rivers, reservoir, lakes, and streams. It contains data for years 1990 through the present.

## **STORET**

EPA maintains this dataset of water quality, physical, and biological information about the waters of the United States. STORET contains data collected beginning in 1999, as well as older data that have been properly documented and migrated from the Legacy Data Center. Both systems contain raw biological, chemical, and physical data on surface and groundwater.

## **San Francisco Bay Continuous Monitoring Program**

The U.S. Geological Survey (USGS) monitors water quality in the San Francisco Bay every 15 minutes. The dataset compiles records of temperature, salinity, contaminants, water level, and suspended solids concentrations.

## **Department of Water Resources (DWR) Municipal Water Quality Investigations Dataset**

DWR uploads water quality data for multiple stations in the Sacramento–San Joaquin Delta. The stations measure alkalinity (water hardness), dissolved ions, fecal coliform, total dissolved solids, pH, turbidity, and temperature.

## **Water Quality Mapping for California**

USGS maps and maintains data depicting water quality in several watersheds.

## **Interagency Ecological Program (IEP)**

The IEP has compiled hydrodynamics and water quality data for the California Bay-Delta tributaries; these data have been collected by different agencies at more than 120 (mostly fixed-position) stations. The IEP uses the database developed by the Hydrologic Engineering Center (HEC) of the U.S. Army Corps of Engineers (USACE); this database is suitable for time-series data.

Hydrodynamics measurements include barometric pressure, flow, gate position, precipitation, stage, and velocity. Water quality measurements include air temperature, chlorophyll, dissolved oxygen, electrical conductance, pH,

rhodamine (dye studies), solar radiation, total dissolved solids, and water temperature.

## **National Water-Use Program**

USGS maintains a repository of water-use data collected by various local, state, and federal agencies (1985–1990). These data can be linked to county GIS datasets by using the county codes; they also contain water resource area codes in cases where a water resource area GIS layer exists.

## **National Water Quality Assessment Program (NAWQA)**

This program monitors surface and groundwater in an effort to make available consistent and reliable information on the nation's waters. Data may be obtained by basin; the Sacramento and San Joaquin river basins are both available. Pesticides, nutrients, dissolved organic compounds, volatile organic compounds (VOCs), and trace metal concentrations are documented.

## **Habitat and Stream Condition/Beneficial Uses and Impairment**

The Geospatial Waterbody System of the State Water Resources Control Board (SWRCB) is used to catalog the beneficial uses and causes of impairment of California's water bodies. The data are in ArcView3.2 format and are connected to a database. The definition of beneficial uses varies from state to state and between watersheds because of the wide variety of existing conditions between watersheds as well as varying political and economic considerations between regions and jurisdictions. EPA provides a listing of common beneficial uses; a partial list appears below. Appendix A provides a more complete listing.

- healthy communities of fish, plants, and other aquatic life;
- fishing and shell fishing;
- swimming;
- recreation;
- secondary contact;
- drinking water;
- clean groundwater (for drinking water); and
- protection and rehabilitation of wetlands, which turn provide wildlife habitat, reduce floods, and improve water quality.

## **Aquatic Bioassessment**

The California Department of Fish and Game's (DFG's) Aquatic Bioassessment is a potential source of data; however, the website is currently not available.

## **Toxics**

Appendix B provides an extensive list of contamination sources of surface and groundwater.

## **Envirofacts Databases**

EPA maintains several databases of environmental hazards. The list of datasets regularly updated by EPA is in Appendix C.

The Envirofacts contains GIS layers of information on superfund sites, toxic releases, water discharge, hazardous waste, and air emissions. EPA was contacted through the website on June 18, 2003. A reply to our query about data availability and file format is pending. Federal agencies may require that CALFED make a formal request for data sharing to obtain the GIS files.

## **California Digital Conservation Atlas**

### **Solid Waste Sites**

The Solid Waste Information System (SWIS) database contains information on solid waste facilities, operations, and disposal sites throughout California. The dataset includes types of facilities such as composting sites, transformation facilities, waste tire sites, and closed disposal sites.

### **Coastal Fish Contamination Program – Fish Consumption Warnings**

These data were collected as part of a program to identify coastal fishing areas where fish species have the potential for accumulating chemicals that pose significant health risks to human consumers of sportfish and shellfish.

### **Locations of California Oil and Gas Wells**

The Department of Conservation, Division of Oil, Gas and Geothermal Resources has developed a database to map all locations of oil and gas drilling stations.

## **Bay Protection and Toxic Cleanup Program (BPTCP)**

The BPTCP is a comprehensive, long-term effort to regulate toxic pollutants in California's enclosed bays and estuaries. Short-term activities include the identification and prioritization of toxic hot spots; development and implementation of regional monitoring programs designed to identify toxic hot



spots; development of narrative sediment quality objectives; development and implementation of cleanup plans; revision of waste discharge requirements as needed to alleviate impacts of toxic pollutants; and development of a comprehensive database containing information pertinent to describing and managing toxic hot spots. Long-term activities include development of numeric sediment quality objectives; development and implementation of strategies to prevent the formation of new toxic hot spots and to reduce the severity of effects from existing toxic hot spots; revision of water quality control plans, cleanup plans, and monitoring programs; and maintenance of the comprehensive database.

### **Pilot South Bay VOC Plume Electronic Reporting Project**

The South Bay Regional Water Quality Control Board (RWQCB) has developed a database and map that identify the locations of all 69 VOC plumes in the South Bay region.

### **State Mussel Watch Program (SMWP)**

The California Department of Fish and Game (DFG) administers the SMWP for SWRCB for sampling stations within the six coastal Regional Water Quality Control Boards. Attributes of this dataset include Metals, Organics, PAHs, and PCBs.

### **Toxic Substances Monitoring Program (TSMP)**

SWRCB initiated the TSMP in 1976. The TSMP was organized to provide a uniform statewide approach to the detection and evaluation of the occurrence of toxic substances in fresh, estuarine, and marine waters of the State through the analysis of fish and other aquatic life. The TSMP primarily targets water bodies with known or suspected impaired water quality; it is not intended to give an overall water quality assessment. DFG implements the statewide TSMP for SWRCB by collecting and analyzing samples. SWRCB provides funding for the program under an ongoing interagency agreement with DFG. The nine Regional Water Quality Control Boards are the primary authorities in selection of sampling stations.

### **California Pesticide Information Portal (CalPIP)**

The California Department of Pesticide Use Regulation (DPR) maintains a GIS dataset of pesticide use by Township/Range/Section (TRS). This dataset is available free of charge. The most recent dataset is most likely 2001; some data for previous years are available.

## **Pesticide Use Data – County Level**

Pesticide use data at the field scale are often available from county agricultural commissioners. These data may not be available for every county.

## **Pesticide Use and Water Quality Monitoring**

The Pesticide Action Network of North America (PANNA) organizes pesticide use data collected by the DPR and organizes it by TRS and evaluates them on the basis of water quality and water access issues. Access to this dataset requires communication with PANNA.

## **Toxic Relief Inventory**

This dataset from CIPHER/SCOPE contains information on toxic substances (primarily air quality) in the context of ethnicity and income. CALFED can access this dataset if necessary; however, these data can also be obtained from other sources. CIPHER/SCOPE has integrated toxic relief data into Census Bureau data.

## **Leaky Underground Storage Tanks Data**

SWRCB maintains a database of Leaky Underground Storage Tanks. These data are available through an interactive mapping system. An inquiry was sent to the SWRCB requesting additional information about the GIS data supporting the mapping system on June 18, 2003.

## **CalTOX**

CalTOX is a spreadsheet model that relates the concentration of particular chemicals in soil to the risks of adverse health effects for persons living or working on or near the contaminated site. It also characterizes human health risks in association with soil concentrations at specific sites.

## **Land Use/Land Cover/Land Ownership**

### **Department of Water Resources Land Use Survey Data**

DWR maintains land use data at the county level. County datasets are updated periodically; many of the counties within the region of interest have land use data. Appendix D lists the availability of land use data for counties in the CALFED solution area.

## **Farmland Mapping and Monitoring Program**

The Division of Land Resource Protection maintains maps and GIS data concerning current and projected farmland use by county. However, some counties within the CALFED solution area do not have farmland data.

## **USGS National Land Cover Dataset**

This dataset, derived from Landsat TM imagery, was most recently updated in the early 1990s. Because the scale is coarse, these data should not be combined with census data.

## **Land Ownership**

A GIS layer depicting ownership of federal, state, public, and private lands throughout the state is available through the California Resources Agency. This dataset is maintained by Vestra, Inc.

## **Federal Emergency Management Agency (FEMA)**

FEMA maintains GIS data layers of 100- and 500-year flood activities; these datasets can be requested from FEMA.

## **Health Conditions and Data**

### **National Cancer Institute**

The National Cancer Institute maintains data on various cancers nationwide and can be downloaded by county. Attributes include death rates, number of deaths, confidence intervals, and expected number of deaths for white and black males and females for 20 types of cancer.

### **Water-Borne Disease**

No specific sites on water-borne disease were found on the Internet. Contacting individual regional water districts would be the next step for collecting information for specific areas within the CALFED solution area. The annual water quality reports published by individual water districts may present some data on detections of or violations for *Cryptosporidium*, coliform bacteria, *Cyclospora*, *E. coli* O157, *Legionella*, *Helicobacter pylori*, *Toxoplasma*, *Mycobacterium*, and hepatitis viruses.

## **Health Data Related to Census**

The National Center for Health Statistics (NCHS) collects data on vital statistics such as births, deaths, fetal deaths, marriages, divorces, and growth. The NCHS also works closely with the National Cancer Institute and Census Bureau.

## **Air Quality**

### **AIRData/AIRS**

This database contains information on a number of airborne pollutants, including lead, carbon monoxide, sulfur dioxide, nitrogen dioxide, ozone, reactive VOCs, and particulate matter. This dataset can be accessed through EPA and requires a user fee. The database covers the period 1955–1988.

### **Interagency Monitoring of Protected Visual Environments (IMPROVE)**

IMPROVE consists of air quality data from Class I (*Clean Air*) areas that include national parks and wilderness areas with special prevention of significant deterioration (PSD) status. Dates range from 1979 to the present.

### **California Air Resources Board (CARB)**

The CARB database contains air quality (e.g., criteria pollutants, particulate concentrations, and toxics); meteorological; and emissions data for the entire state.

### **Center for Air Pollution Impact and Trend Analysis (CAPITA) Database**

Two databases contain information on fine particulate matter (<2.5 microns). These databases were created by integrating 18 historical and active monitoring networks throughout North America.

### **UV-B Radiation Monitoring Program**

The U.S. Department of Agriculture's UV-B Radiation Monitoring Program provides information on the geographical distribution and temporal trends of UV-B (ultraviolet-B) radiation in the United States. The network consists of about 30 monitoring sites throughout the U.S. and southern Canada, located primarily in rural agricultural regions.

## **National Park Service Gaseous Pollutant Monitoring Network**

Variables measured include ozone; sulfur dioxide; and meteorological parameters including wind speed, wind direction, temperature, dew point, solar radiation, and precipitation. These data are submitted to the EPA's AIRS database (see above).

## **Other Applicable Datasets**

The following agencies maintain a wide variety of data available for public use; these agencies may have additional datasets appropriate for environmental justice issues that are not described in this document.

### **Natural Resource Project Inventory**

The Natural Resource Project Inventory (NPRI) is the product of a collaborative effort between the California Biodiversity Council and the University of California at Davis Information Center for the Environment (ICE). The signatories of the California Biodiversity Council joined forces to gather information on thousands of conservation, mitigation, and restoration projects being developed and implemented throughout California. The result, the NPRI, has become a comprehensive electronic database searchable on the Internet. The NPRI is an expansion of previous inventories, including:

- the Watershed Projects Inventory (WPI),
- the California Ecological Restoration Projects Inventory (CERPI), and
- the California Noxious Weed Control Projects Inventory.

### **U.S. Geological Survey**

USGS has gathered and produced hundreds of maps and datasets encompassing geology, biology, water quality, and standards.

### **Environmental Protection Agency**

The EPA website contains datasets addressing water, toxics, pesticides, and human health. Some of these are the Environmental Response, Compensation, and Liability Information System (CERCLIS), the Toxic Release Inventory (TRI), and the Resource Conservation and Recovery Act Information (RCRAInfo) database.

## Information Center for the Environment

ICE is a site sponsored by the University of California, Davis, that has gathered data from several projects and made them available at a single site. Datasets include water quality, vegetation covers, stormwater runoff, and biological inventories. These data can be queried by impairment, quality standards, region, or beneficial uses.

## California Spatial Information Library (CASIL)

This site is maintained by the State of California and contains a wide variety of spatial data pertaining to several environmental issues, especially water and air quality.

## ESRI Clearinghouse

This is a GIS database search wizard that contains links to several environmentally based datasets such as agriculture and farming, human health and disease, inland water resources, geologic and geophysical data, and atmospheric and climatic data.

## Other Environmental Justice Information Sources

The following are additional internet links to organizations conducting environmental justice studies and/or programs.

- California Environmental Protection Agency  
<http://www.calepa.ca.gov/EnvJustice/>
- California Air Resources Board  
<http://www.arb.ca.gov/ch/programs/ej/ej.htm>
- Department of Toxic Substance Control  
[http://www.dtsc.ca.gov/PolicyAndProcedures/env\\_justice/env\\_justice\\_policies.html](http://www.dtsc.ca.gov/PolicyAndProcedures/env_justice/env_justice_policies.html)
- Environmental Protection Agency  
<http://www.epa.gov/compliance/environmentaljustice/index.html>

## Recommendations

After reviewing the CALFED Bay-Delta Program's *Preliminary 2001 Environmental Justice Annual Plan* and the list of datasets available to conduct GIS analyses (Appendix E), Jones & Stokes recommends that additional review of environmental justice issues and CALFED priorities be performed so that analyses can be conducted in a timely and cost-effective manner. The foregoing

list of datasets suggests that a number of analyses can be conducted on both the programmatic and local/regional scale. Jones & Stokes makes the following recommendations.

1. CALFED should determine whether any given environmental justice issue actually occurs within current CALFED project areas and, if so, whether datasets are available to conduct GIS analysis of that issue.
2. A GIS layer depicting the spatial extent of relevant CALFED projects should be obtained or created.
3. A pilot study should be conducted regarding particular issues in a particular CALFED project area or areas; however, it is premature to conduct GIS analysis for the entire solution area.

Appendix A  
**Beneficial Uses**



**Table A-1. Beneficial Uses**

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<b>General Beneficial Uses</b>	
Overall Use Support	Aquatic Life Support
Fish Consumption	Shellfishing
Swimming	Secondary Contact Recreation
Drinking Water Supply	Agriculture
Cultural/Ceremonial	

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<b>Specific Beneficial Uses</b>	
Agricultural Supply	Areas of Special Biological Significance
Commercial and Sport Fishing (CA)	Cold Freshwater Habitat
Freshwater Replenishment	Groundwater Recharge
Industrial Service Supply	Marine Habitat
Fish Migration	Municipal and Domestic
Navigation	Hydroelectric Power Generation
Industrial Process Supply	Water Contact Recreation
Non-Contact Recreation	Rare and Endangered Species
Saline Water Habitat	Shellfish Harvesting
Fish Spawning	Warm Freshwater Habitat
Wildlife Habitat	

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In California, *beneficial use* is defined by section 13050 (f) of the Porter-Cologne Water Quality Control Act. This legislation states that:

“Beneficial uses” of the waters of the state that may be protected against water quality degradation include, but are not necessarily limited to, domestic, municipal, agricultural, and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves.

Appendix B

## **Sources of Contamination**

**Table B-1. Sources of Surface Water Contamination**

Causes and Stressors	
Cause/stressor unknown	Unknown toxicity
Pesticides	Priority organics
Non-priority organics	Metals
Ammonia	Cyanide
Sulfates	Chlorine
Other inorganics	Nutrients
pH	Siltation
Organic enrichment/low DO	Salinity/TDS/chlorides
Thermal modifications	Flow alterations
Other habitat alterations	Pathogen Indicators
Radiation	Oil and grease
Taste and odor	Suspended solids
Noxious aquatic plants (macrophytes)	Total toxics
Turbidity	Exotic species
Excessive algal growth	Inappropriate littoral vegetation
Sources	
Industrial point sources	Municipal point sources
Combined sewer overflows	Agriculture
Silviculture	Construction
Urban runoff/Storm sewers	Resource extraction
Land disposal	Hydromodification
Habitat modification (non-hydromod)	Marinas
Erosion from derelict land	Atmospheric deposition
Waste storage/Storage tank leaks	Leaking underground storage tanks
Highway maintenance and runoff	Spills (accidental)
Contaminated Sediments	Debris and Bottom Deposits
Internal nutrient cycling (primarily lakes)	Sediment resuspension
Natural resources	Recreational activities
Salt storage sites	Groundwater Loadings
Groundwater withdrawal	Other
Unknown source	Sources outside state jurisdiction/borders

**Table B-2.** Sources of Groundwater Contamination

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<b>Agricultural Activities</b>	
Agricultural chemical facilities	Animal feedlots
Drainage wells	Fertilizer applications
Irrigation practices	Pesticide applications
On-farm agricultural mixing and loading procedures	Land application of manure (unregulated)

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<b>Storage and Treatment Activities</b>	
Land application (regulated or permitted)	Material stockpiles
Storage tanks (aboveground)	Storage tanks (underground)
Surface impoundments	Waste piles
Waste tailings	

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<b>Disposal Activities</b>	
Deep injection wells	Landfills
Septic systems	Shallow injection wells

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<b>Other</b>	
Hazardous waste generators	Hazardous waste sites
Large industrial facilities	Material transfer operations
Mining and mine drainage	Pipelines and sewer lines
Salt storage and road salting	Saltwater intrusion
Spills	Transportation of materials
Urban runoff	Small-scale manufacturing and repair shops
Other sources	

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Appendix C  
**EPA Envirofacts Databases**

Table C-1. U.S. Environmental Protection Agency Envirofacts Databases

System	Retrieved	Posted	Update Frequency
Envirofacts AIRS Facility Subsystem (EF AIRS/AFS)	05/21/2003	05/29/2003	Updated monthly
Biennial Reporting System (BRS)		05/05/2000	Updated every 2 years
Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS)	06/09/2003	06/18/2003	Updated monthly
Facility Registry System (FRS)	Nightly	Nightly	Updated nightly
Grants Information and Control System (GICS)	06/10/2003	06/17/2003	Updated bi-weekly
Information Collection Rule (ICR)		05/17/2000	Final data update complete
Locational Reference Tables (LRT)	06/02/2003	06/18/2003	Updated monthly
Permit Compliance System (PCS)	05/20/2003	05/29/2003	Updated monthly
Resource Conservation and Recovery Act Information (RCRAInfo)	12/09/2002	12/13/2002	Updated monthly
Safe Drinking Water Information System (SDWIS)	04/16/2003	04/22/2003	Updated quarterly
Toxics Release Inventory (TRI)	03/07/2003	03/14/2003	TRI 2000 data is now available

Appendix D  
**DWR Land Use Datasets**

Table D-1. Availability of DWR Land Use Datasets for Counties in the CALFED Solution Area

County	DWR Land Use	Updated
Alameda		
Alpine	2001	
Amador	1997	
Butte	1994	
Calaveras		
Colusa	1993	1998
Contra Costa	1995	
El Dorado		
Fresno	1986	1994
Glenn	1993	1998
Imperial	1997	
Kern	1990	1998
Kings	1996	
Lake	1995	
Lassen	1997	
Los Angeles		
Madera	1995	
Marin	1999	
Mariposa	1998	
Merced	1995	
Modoc	1997	
Napa		
Nevada		
Orange		
Placer	1994	
Plumas	1997	
Riverside		
Sacramento	1993	2000
San Benito	1997	
San Bernardino		
San Diego	1998	
San Francisco		
San Joaquin	1988	1996
San Luis Obispo		



County	DWR Land Use	Updated
San Mateo		
Santa Barbara		
Santa Clara		
Shasta	1995	
Sierra		
Siskiyou		
Solano	1994	
Sonoma		
Stanislaus	1996	
Sutter	1998	
Tehama	1994	
Tulare	1993	1999
Tuolumne	1997	
Ventura	2000	
Yolo	1989	1997
Yuba	1995	

Appendix E  
**GIS Data Sources**

Subject	Dataset Name	Description	Intended Use	Data Quality Assessment	Source	Contact	GIS dataset	DBF, Mdb, xls,	Other	Status	Geographic Extent
Demographics	Census Data	The California Office of Emergency Services (OES) has produced a GIS dataset of census data originally compiled by the Census Bureau. The data selected for the OES dataset follow the Department of Finance template for Summary File 3. The OES data are available in GIS format, while the attribute data are stored in an Access database. The data are useable but require very specific queries. The OES data are easier to work with than the raw data from the Census Bureau, but nevertheless require a substantial level of effort to extract the desired variables.	Population data analysis		US Census Bureau - GIS	Alan Kilgore dataset from CA Office of Emergency Services	X			OES is sending a CD of the data to Jones & Stokes.	Statewide
Water Quality	Drinking Water Source Assessment and Protection	The Department of Health Services (DHS) Division of Drinking Water and Environmental Management maintains the California Drinking Water Source database of more than 15,000 drinking water sources. This database requires spatial locations from the Drinking Water Source Assessment and Protection (DWSAP) program, as well as some manipulation and conversion of data to be useable in a GIS program.	Evaluation of drinking water sources	GPS locations	DHS	Leah Walker	X			A formal agreement with DHS will be required to obtain the data. Leah Walker was on vacation and will return in July	Statewide
	Water Quality Standards Inventory Database	The U.C. Davis Information Center for the Environment (ICE) publishes water quality maps of some California counties' watersheds. They include textual and numerical data, and are useful in determining which watersheds/basins do not meet CalEPA standards and the relative conditions of watersheds/basins.	Qualitative assessment of watersheds/basins	Not spatial, but probably easily transformed	Caltrans					Downloadable from <a href="http://www.ice.ucdavis.edu/wqid/countylist.asp">http://www.ice.ucdavis.edu/wqid/countylist.asp</a>	Counties of California
	National Hydrography Dataset	The NHD is a comprehensive set of digital spatial data that contains information about surface water features such as lakes, ponds, streams, rivers, springs, and wells. The NHD combines surface water features to form reaches; these reaches provide the framework to enable the analysis and display of the water-related data in upstream and downstream order.	NHD Watershed is an ArcView (3.x) extension that enables users to delineate a watershed from any point on any NHD reach in a fast, accurate, and reliable manner. The application works in 8-digit subbasins (formerly known as cataloging units) where appropriate supporting data layers have been collected and preprocessed.		USGS		X			Downloadable from <a href="http://nhd.usgs.gov/data.html">http://nhd.usgs.gov/data.html</a>	Nationwide
	Enviromapper For Water	Enviromapper, a U.S. Environmental Protection Agency (EPA) database, is a dataset with spatial data quantifying water quality characteristics ranging from pollutants to algal growth in rivers, reservoir, lakes, and streams. It contains data for years 1990 through the present.	Mapping of specific water characteristics	Contains spatial coordinates	USEPA		x			Downloadable from <a href="http://map8.epa.gov/enviromapper/">http://map8.epa.gov/enviromapper/</a>	Nationwide, statewide, zip code, EPA regions, etc.
	STORET	EPA maintains this dataset of water quality, physical, and biological information about the waters of the United States. STORET contains data collected beginning in 1999, as well as older data that have been properly documented and migrated from the Legacy Data Center. Both systems contain raw biological, chemical, and physical data on surface and groundwater.		Data available from 1950 to 1999	USEPA		X	X		Downloadable from <a href="http://oaspub.epa.gov/storpubl/warehosemenu">http://oaspub.epa.gov/storpubl/warehosemenu</a>	California/nationwide
	San Francisco Bay Continuous Monitoring Program	USGS monitors water quality in the San Francisco Bay every 15 minutes. The dataset compiles records of temperature, salinity, contaminants, water level, and suspended solids concentrations.	Used to monitor changes as well as overall quality of Bay water	Data in text format, but map of monitoring sites could be spatially integrated to create GIS	USGS					downloadable from <a href="http://sfbay.wr.usgs.gov/cgi-bin/Fixed_sta/SSP-main.cgi">http://sfbay.wr.usgs.gov/cgi-bin/Fixed_sta/SSP-main.cgi</a>	San Francisco Bay
	Department of Water Resources Municipal Water Quality Investigations data Set	DWR uploads water quality data for multiple stations in the Sacramento-San Joaquin Delta. The stations measure alkalinity (water hardness), dissolved ions, fecal coliform, total dissolved solids, pH, turbidity, and temperature.	Used to monitor water quality in Delta	Good. Provides spatial location of each station, but data are in text form. (Easily convertible?)	DWR			Can be viewed in Excel format	Spatial data	Downloadable from <a href="http://www.wq.water.ca.gov/mwq/data/datastat.htm">http://www.wq.water.ca.gov/mwq/data/datastat.htm</a>	North Delta
	Water Quality Mapping for California	USGS maps and maintains data depicting water quality in several watersheds.	Used to characterize water quality of all monitored water bodies	Contains ASCII data	USGS			ASCII		Downloadable from <a href="http://waterdata.usgs.gov/ca/nwis/qw">http://waterdata.usgs.gov/ca/nwis/qw</a>	California
	Interagency Ecological Program (IEP)	The IEP has compiled hydrodynamics and water quality data for the California Bay-Delta tributaries; these data have been collected by different agencies at more than 120 (mostly fixed-position) stations. The IEP uses the database developed by the Hydrologic Engineering Center (HEC) of the U.S. Army Corps of Engineers (USACE); this database is suitable for time-series data. Hydrodynamics measurements include barometric pressure, flow, gate position, precipitation, stage, and velocity. Water quality measurements include air temperature, chlorophyl, dissolved oxygen, electrical conductance, pH, rhodamine (dye studies), solar radiation, total dissolved solids, and water temperature.	Measurement of water parameters	Good	DWR		X			Downloadable from <a href="http://www.iep.ca.gov/data.html">http://www.iep.ca.gov/data.html</a>	California

Subject	Dataset Name	Description	Intended Use	Data Quality Assessment	Source	Contact	GIS dataset	DBF, Mdb, xls,	Other	Status	Geographic Extent
	National Water-Use Program	USGS maintains a repository of water-use data collected by various local, state, and federal agencies (1985–1990). These data can be linked to county GIS datasets by using the county codes; they also contain water resource area codes in cases where a water resource area GIS layer exists.	Identify water use in certain locations to determine possible contamination risks	Data are available for 1985 and 1990 in plain ASCII, compressed MSDOS, and compressed UNIX formats.	USGS					Downloadable from <a href="http://water.usgs.gov/watuse/wudownload.html">http://water.usgs.gov/watuse/wudownload.html</a>	Nationwide, statewide, zip code, EPA regions, etc.
	National Water Quality Assessment Program (NAWQA)	This program monitors surface and groundwater in an effort to make available consistent and reliable information on the nation's waters. Data may be obtained by basin; the Sacramento and San Joaquin river basins are both available. Pesticides, nutrients, dissolved organic compounds, volatile organic compounds (VOCs), and trace metal concentrations are documented.	Identify locations of contamination	Well locations are not in spatial data, but could be based on other GIS maps	USGS					Downloadable from <a href="http://ca.water.usgs.gov/sac_nawqa/gwsac.html">http://ca.water.usgs.gov/sac_nawqa/gwsac.html</a>	National, California, water basin
Toxics	Envirofacts	EPA maintains several databases of environmental hazards. The list of datasets regularly updated by EPA is in Appendix C. The Envirofacts contains GIS layers of information on superfund sites, toxic releases, water discharge, hazardous waste, and air emissions. EPA was contacted through the website on June 18, 2003. A reply to our query about data availability and file format is pending. Federal agencies may require that CALFED make a formal request for data sharing to obtain the GIS files.			US EPA	Requested additional information from the website - currently waiting for a reply	Potential				Statewide
	Coastal Fish Contamination Program Station Information and Trace Metal Data	These data were collected as part of a program to identify coastal fishing areas where fish species have the potential for accumulating chemicals that pose significant health risks to human consumers of sportfish and shellfish.	Intended for professionals performing ecological risk assessments (ERAs), environmental impact assessments, and other types of environmental assessments. Users are advised to review the metadata to learn about the methods used to collect and analyze the data and other details that may affect the interpretation of the information.	good		<a href="http://atlas.resources.ca.gov/cadca/ca_dca.htm">http://atlas.resources.ca.gov/cadca/ca_dca.htm</a>	X				
	Locations of California Oil and Gas Wells	The Department of Conservation, Division of Oil, Gas and Geothermal Resources has developed a database to map all locations of oil and gas drilling stations.	Used to determine where there is high probability of ground and surface water oil and gas contamination	Contains spatial coordinates	California Department of Conservation			DBF			
	Bay Protection and Toxic Clean-Up Program	The BPTCP is a comprehensive, long-term effort to regulate toxic pollutants in California's enclosed bays and estuaries. Short-term activities include the identification and prioritization of toxic hot spots; development and implementation of regional monitoring programs designed to identify toxic hot spots; development of narrative sediment quality objectives; development and implementation of cleanup plans; revision of waste discharge requirements as needed to alleviate impacts of toxic pollutants; and development of a comprehensive database containing information pertinent to describing and managing toxic hot spots. Long-term activities include development of numeric sediment quality objectives; development and implementation of strategies to prevent the formation of new toxic hot spots and to reduce the severity of effects from existing toxic hot spots; revision of water quality control plans, cleanup plans, and monitoring programs; and maintenance of the comprehensive database.	Intended for professionals performing ecological risk assessments (ERAs), environmental impact assessments, and other types of environmental assessments. Users are advised to review the metadata to learn about the methods used to collect and analyze the data and other details that may affect the interpretation of the information.	Good		<a href="http://atlas.resources.ca.gov/cadca/ca_dca.htm">http://atlas.resources.ca.gov/cadca/ca_dca.htm</a>	X				
	Pilot South Bay VOC Plume Electronic Reporting Project	The South Bay RWQCB has developed a database and map that identify the locations of all 69 VOC plumes in the South Bay region.	Used to map groundwater contamination and possible surface water contamination	ArcView Shapefile	SFBRWQCB		X	Shapefile	Excel	Downloadable at website under "composite plume coverages"	Regional
	Cancer Mortality in the United States	The National Cancer Institute maintains data on various cancers nationwide and can be downloaded by county. Attributes include death rates, number of deaths, confidence intervals, and expected number of deaths for white and black males and females for 20 types of cancer.	Can be overlaid to see if water quality issues and cancers occur in the same areas	Good; shape files as well as dbf files	National Cancer Institute's Division of Cancer Epidemiology and Genetics.		X	dbf		Downloadable from <a href="http://nationalatlas.gov/cancerm.html">http://nationalatlas.gov/cancerm.html</a>	Nationwide, broken down by county
	State Mussel Watch Program	DFG administers the SMWP for SWRCB for sampling stations within the six coastal Regional Water Quality Control Boards. Attributes of this dataset include Metals, Organics, PAHs, and PCBs.				<a href="http://atlas.resources.ca.gov/cadca/ca_dca.htm">http://atlas.resources.ca.gov/cadca/ca_dca.htm</a>	X				

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	Toxic Substances Monitoring Program	SWRCB initiated the TSMP in 1976. The TSMP was organized to provide a uniform statewide approach to the detection and evaluation of the occurrence of toxic substances in fresh, estuarine, and marine waters of the State through the analysis of fish and other aquatic life. The TSMP primarily targets water bodies with known or suspected impaired water quality; it is not intended to give an overall water quality assessment. DFG implements the statewide TSMP for SWRCB by collecting and analyzing samples. SWRCB provides funding for the program under an ongoing interagency agreement with DFG. The nine Regional Water Quality Control Boards are the primary authorities in selection of sampling stations.	Intended for professionals performing ecological risk assessments (ERAs), environmental impact assessments, and other types of environmental assessments. Users are advised to review the metadata to learn about the methods used to collect and analyze the data and other details that may affect the interpretation of the information.	Good	SWRCB	<a href="http://atlas.resources.ca.gov/cadca/cadca.htm">http://atlas.resources.ca.gov/cadca/cadca.htm</a>	X				
	California Pesticide Information Portal (CalPIP)	The California Department of Pesticide Use Regulation (DPR) maintains a GIS dataset of pesticide use by Township/Range/Section (TRS). This dataset is available free of charge. The most recent dataset is most likely 2001; some data for previous years are available.	Evaluation of pesticide use at the Township/Range/Section scale		California Department of Pesticide Regulation	Bev Martin - <a href="mailto:bmartin@cdpr.ca.gov">bmartin@cdpr.ca.gov</a> ov 916-445-4046	X			Discussed data with Rosemary Neal who referred us to Bev Martin	Statewide
	Pesticide Use Data - County Level	Pesticide use data at the field scale are often available from county agricultural commissioners. These data may not be available for every county.			County Ag Commissioners					Each county ag commissioner needs to be contacted to determine availability of GIS data. Data not available for all counties of interest to CALFED	Various counties
	Pesticide Use and Water Quality Monitoring	The Pesticide Action Network of North America (PANNA) organizes pesticide use data collected by the DPR and organizes it by TRS and evaluates them on the basis of water quality and water access issues. Access to this dataset requires communication with PANNA.	Township/Range/Section, possibly watershed	good	Pesticide Action Network of North America (PANNA)	Steve Orme - <a href="mailto:stephanorme@panna.org">stephanorme@panna.org</a>	X	X		Available; would like to know what other kinds of work CALFED is doing to avoid duplication	Statewide
	Toxic Relief Inventory	This dataset from CIPHER/SCOPE contains information on toxic substances (primarily air quality) in the context of ethnicity and income. CALFED can access this dataset if necessary; however, these data can also be obtained from other sources. CIPHER/SCOPE has integrated toxic relief data into Census Bureau data.	Regional/statewide scale	Good	CIPHER/SCOPE	Jennifer Ito - <a href="mailto:jito@scopela.org">jito@scopela.org</a> ; 323.789.7920	X	X		Contacted Jennifer Ito for use; will need permission from company, but should not be a problem	Regional/statewide
Environmental Stressors	Leaking Underground Storage Tanks	SWRCB maintains a database of Leaky Underground Storage Tanks. These data are available through an interactive mapping system. An inquiry was sent to the SWRCB requesting additional information about the GIS data supporting the mapping system on June 18, 2003.	Intended for professionals performing ecological risk assessments (ERAs), environmental impact assessments, and other types of environmental assessments. Users are advised to review the metadata to learn about the methods used to collect and analyze the data and other details that may affect the interpretation of the information.	Good	SWRCB	Website	Potential			An email was sent to SWRCB requesting additional information about the GIS availability and file format. (6/18/03) <a href="http://geotracker.swrcb.ca.gov/">http://geotracker.swrcb.ca.gov/</a> . If we do not get a response, we will contact Nhan Bao at (213) 576-6703.	
	Solid Waste Information System (SWIS) Database	The Solid Waste Information System (SWIS) database contains information on solid waste facilities, operations, and disposal sites throughout California. The dataset includes types of facilities such as composting sites, transformation facilities, waste tire sites, and closed disposal sites.	Intended for professionals performing ecological risk assessments (ERAs), environmental impact assessments, and other types of environmental assessments. Users are advised to review the metadata to learn about the methods used to collect and analyze the data and other details that may affect the interpretation of the information.			<a href="http://atlas.resources.ca.gov/cadca/cadca.htm">http://atlas.resources.ca.gov/cadca/cadca.htm</a>					
Water Quality / Stream Condition	GeoWBS - 303D listings	The Geospatial Waterbody System of the State Water Resources Control Board (SWRCB) is used to catalog the beneficial uses and causes of impairment of California's water bodies. The data are in ArcView3.2 format and are connected to a database. The definition of beneficial uses varies from state to state and between watersheds because of the wide variety of existing conditions between watersheds as well as varying political and economic considerations between regions and jurisdictions.	Spatial locations of 303D listed streams	Stream line work is from the EPA River Reach File. Evaluation of Condition is from RWQCBs	SWRCB	Nancy Richard	X			Multiple years of 303D listed streams are available. 2003 will be available in July	Statewide
Bioassessment		DFG's Aquatic Bioassessment is a potential source of data; however, the website is currently not available.								Unknown	
Land Use	DWR Land Use Data	DWR maintains land use data at the county level. County datasets are updated periodically; many of the counties within the region of interest have land use data. Appendix D lists the availability of land use data for counties in the CALFED solution area.	Evaluation of Land Use in California	Each county is updated in different years; this may result in limited use across counties.	DWR	Website	X			Not all counties of interest are available.	County level
	Farmland Mapping and Monitoring Program	The Division of Land Resource Protection maintains maps and GIS data concerning current and projected farmland use by county. However, some counties within the CALFED solution area do not have farmland data.	Estimates of population growth direction and where pesticide/herbicide use occurs	Several years available and in GIS form	California Department of Conservation; Division of Land Resource Protection		X				Entire state downloadable by year and county

Subject	Dataset Name	Description	Intended Use	Data Quality Assessment	Source	Contact	GIS dataset	DBF, Mdb, xls,	Other	Status	Geographic Extent
	USGS National Land Cover Dataset	This dataset, derived from Landsat TM imagery, was most recently updated in the early 1990s. Because the scale is coarse, these data should not be combined with census data.	Intended for statewide analysis		USGS	Website	X			Available from the website	Statewide
	Land Ownership	A GIS layer depicting ownership of federal, state, public, and private lands throughout the state is available through the California Resources Agency. This dataset is maintained by Vestra, Inc.	Statewide analysis	good	BOR??		X			J&S has a copy in-house	Statewide
	FEMA 100 year Flood Data	FEMA maintains GIS data layers of 100- and 500-year flood activities; these datasets can be requested from FEMA.			FEMA	<a href="http://atlas.resources.ca.gov/cadca/cadca.htm">http://atlas.resources.ca.gov/cadca/cadca.htm</a>	X			Available from the website	Statewide
Air Quality	AIRData/ AIRS	This database contains information on a number of airborne pollutants, including lead, carbon monoxide, sulfur dioxide, nitrogen dioxide, ozone, reactive VOCs, and particulate matter. This dataset can be accessed through EPA and requires a user fee. The database covers the period 1955–1988.	Statewide analysis		EPA				11/11/1955-13/12/1988	To retrieve information directly from AIRS, an account on the EPA mainframe computer system is required. User fees apply. Information is available from the Technical Support Center (help desk) at the EPA National Computer Center, telephone 800/334-2405 (toll free) or 919/541-7862.	Southern Lat: 25.0N, Western Long: 172.0W, Northern Lat: 72.0N, Eastern Long: 65.0W
	Interagency Monitoring of Protected Visual Environments (IMPROVE)	IMPROVE consists of air quality data from Class I (Clean Air) areas that include national parks and wilderness areas with special prevention of significant deterioration (PSD) status. Dates range from 1979 to the present.	Statewide analysis		Data Center URL: <a href="http://media.cnl.ucdavis.edu/Crocker/Website/default.php">http://media.cnl.ucdavis.edu/Crocker/Website/default.php</a> , Name: THOMAS CAHILL, Phone: 916-752-4674	Data Center URL: <a href="http://media.cnl.ucdavis.edu/Crocker/Website/default.php">http://media.cnl.ucdavis.edu/Crocker/Website/default.php</a> , Name: THOMAS CAHILL, Phone: 916-752-4674			01/01/1979 to present	Contact the data center.	South: 25.0N, West: 50.0W, North: 125.0N, East 67.0W
	The California Air Resource Board (CARB)	The CARB database contains air quality (e.g., criteria pollutants, particulate concentrations, and toxics); meteorological; and emissions data for the entire state.	statewide analysis		Air Resources Board				1980 to present	Online and CD Rom	Statewide
	Center for Air Pollution Impact and Trend Analysis (CAPITA) Database	Two databases contain information on fine particulate matter (<2.5 microns). These databases were created by integrating 18 historical and active monitoring networks throughout North America.	statewide analysis		Center for Air Pollution Impact and Trend Analysis (CAPITA)			Mdb	11/1983 to 12/1997	North American Integrated PM2.5 Data Set, located at: <a href="http://capita.wustl.edu/datawarehouse/Datasets/CAPITA/NAMPM_25/Data/NAMPM25.html">http://capita.wustl.edu/datawarehouse/Datasets/CAPITA/NAMPM_25/Data/NAMPM25.html</a> . This data set contains only PM2.5 mass and data quality flags from all monitoring networks.	U.S. and Canada
	California Air Quality Database		Statewide analysis			Air Quality Data Branch at (916) 322-6076			1980-present (varies)	Free CDs available (Request CD Number: PTSD-02-017-CD), partial dataset available at <a href="http://www.arb.ca.gov/aqd/aqcd/aqcd.htm">http://www.arb.ca.gov/aqd/aqcd/aqcd.htm</a>	Statewide
	UV-B Radiation Monitoring Program	The U.S. Department of Agriculture's UV-B Radiation Monitoring Program provides information on the geographical distribution and temporal trends of UV-B (ultraviolet-B) radiation in the United States. The network consists of about 30 monitoring sites throughout the U.S. and southern Canada, located primarily in rural agricultural regions.	Statewide analysis		Dataset ID: USDA UV-B (U.S. Department of Agriculture)	Data center URL: <a href="http://nadp.nrel.colostate.edu/UVB/">http://nadp.nrel.colostate.edu/UVB/</a> Name: DAVID S. BIGELOW, Phone: (970) 491-3616, Email: <a href="mailto:daveb@nrel.colostate.edu">daveb@nrel.colostate.edu</a>			1/1/1992 to present	Data center URL: <a href="http://nadp.nrel.colostate.edu/UVB/">http://nadp.nrel.colostate.edu/UVB/</a> Name: DAVID S. BIGELOW, Phone: (970) 491-3616, Email: <a href="mailto:daveb@nrel.colostate.edu">daveb@nrel.colostate.edu</a>	South: 30.0N, West: 125.0W, North: N, East
	National Park Service Gaseous Pollutant Monitoring Network	Variables measured include ozone; sulfur dioxide; and meteorological parameters including wind speed, wind direction, temperature, dew point, solar radiation, and precipitation. These data are submitted to the EPA's AIRS database (see above).	Statewide analysis	GIS files		Miguel I. Flores, Chief/ Monitoring and Data Analysis Branch/ National Park Service - AIR/ P.O. Box 25287/ Denver, CO 80225/ Phone: (303) 969-2072	X		1985 to present	Miguel I. Flores, Chief/ Monitoring and Data Analysis Branch/ National Park Service - AIR/ P.O. Box 25287/ Denver, CO 80225/ Phone: (303) 969-2072	US in selected Class I and Class II National Park units

Subject	Dataset Name	Description	Intended Use	Data Quality Assessment	Source	Contact	GIS dataset	DBF, Mdb, xls,	Other	Status	Geographic Extent
Other Environmental Justice Data Sources		California Environmental Protection Agency <a href="http://www.calepa.ca.gov/EnvJustice/">http://www.calepa.ca.gov/EnvJustice/</a> California Air Resources Board <a href="http://www.arb.ca.gov/ch/programs/ej/ej.htm">http://www.arb.ca.gov/ch/programs/ej/ej.htm</a> Department of Toxic Substance Control <a href="http://www.dtsc.ca.gov/PolicyAndProcedures/env_justice/env_justice_policies.html">http://www.dtsc.ca.gov/PolicyAndProcedures/env_justice/env_justice_policies.html</a> Environmental Protection Agency <a href="http://www.epa.gov/compliance/environmentaljustice/index.html">http://www.epa.gov/compliance/environmentaljustice/index.html</a>									
	GreenInfoNetwork	Brian Cohen was contacted. Doesn't seem to have available data. They have been looking into EJ issues as well.									
	Center of Justice and Tolerance	Manuel Pastor UC Santa Cruz (831) 459-5919									
Websites containing multiple datasets and statewide base layers	USGS	USGS has gathered and produced hundreds of maps and datasets encompassing geology, biology, water quality, and standards.	Map characteristics of the water and environment	Good			X			<a href="http://mapping.usgs.gov/products.html#digital_data">http://mapping.usgs.gov/products.html#digital_data</a>	Nationwide
	EPA	The EPA website contains datasets for water, toxics, pesticides, and human health. It contains sets for CERCLA, Toxic Release Inventory, and RCRA.	Data useful for multiple layers of information	Good			X	X		Downloadable from <a href="http://www.epa.gov">http://www.epa.gov</a>	Nationwide
	ICE	ICE is a site sponsored by the University of California, Davis, that has gathered data from several projects and made them available at a single site. Datasets include water quality, vegetation covers, stormwater runoff, and biological inventories. These data can be queried by impairment, quality standards, region, or beneficial uses.	Identify characteristics of various waterbodies	Good	ICE		X			Downloadable from <a href="http://ice.ucdavis.edu/">http://ice.ucdavis.edu/</a>	California counties
	CASIL	This site is maintained by the State of California and contains a wide variety of spatial data pertaining to several environmental issues, especially water and air quality.	Use to determine the quality of water and air (And other environmental factors) in specific areas	Good			X				California
	ESRI Clearinghouse	This is a GIS database search wizard that contains links to several environmentally based datasets such as agriculture and farming, human health and disease, inland water resources, geologic and geophysical data, and atmospheric and climatic data.	Query datasets regarding environmental issues	Good, once you find the right set	ESRI		X			Links at <a href="http://clearinghouse.esri.com/clearinghouse/FGDCWizard">http://clearinghouse.esri.com/clearinghouse/FGDCWizard</a>	