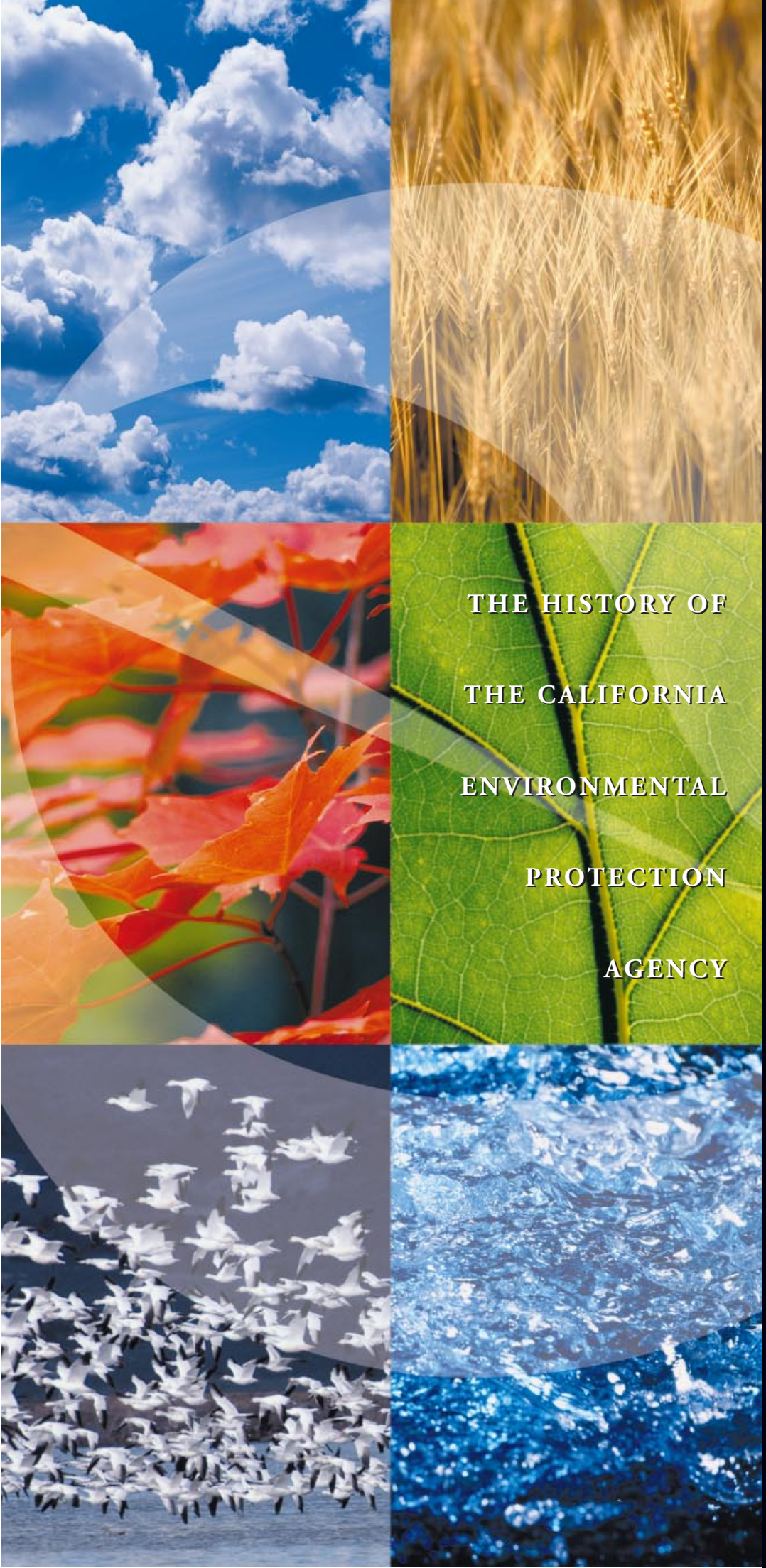


THE HISTORY OF THE CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

The opening of the new Cal/EPA building in Sacramento renews and reaffirms the State of California's commitment to the environment, a commitment almost as old as the state itself.

One of the first environmental challenges the newly formed state government faced in the mid 1800s was debris from hydraulic mining following the gold rush. Water quality concerns, dangers of flooding, impact on agriculture and hazards to navigation were issues every bit as real to nineteenth century Californians as they are at the start of the twenty-first century.

From these beginnings, state government's environmental efforts have expanded over the last century-and-a-half, as Californians have demanded increased protection of our state's resources, natural beauty, and quality of life. Californians have led the nation in recognizing that a healthy economy and a healthy environment must go hand-in-hand.

California has always been a national pioneer in establishing the environmental programs now housed in the boards and departments of Cal/EPA, acting over time to reduce individual environmental risks posed by air and water pollution, solid and hazardous waste management and pesticide application.

As the California Environmental Protection Agency opens its new headquarters building, it celebrates its tenth anniversary. By the standards of other agencies in Sacramento, it is young. However, as the chapters in this book make clear, the components of Cal/EPA have a distinguished and pioneering history. The Department of Pesticide Regulation, for instance, recently celebrated its hundredth anniversary. Cal/EPA's other boards, departments and offices have all pioneered protection of citizens, often breaking ground with nationwide firsts.

The new Cal/EPA building is important in a variety of ways:

- The revitalization of the state's capital city.
- A ground breaking city/state partnership, with the state leasing a city-owned and privately managed building.
- A thoroughly sustainable and energy-efficient workplace that can serve as both a demonstration project and laboratory to make workplaces even better in the future.
- The first common home for the state's EPA and its six constituent parts. For the first time, specialists in air, water and land protection are housed together and can consult and collaborate informally and continuously as cross-discipline environmental protection becomes more important to all of us.

What we know today, including the questions that we know must still be answered, is vastly greater than what we knew only a decade ago. Our knowledge base provides ever-increasing evidence of the sensitivity of the environment and human health to chemical impacts.

We also have enough experience to know that economic prosperity and environmental protection are not only consistent with but dependent upon each other.

This book tells Cal/EPA's story up to today and gives us a look at what will come next.

Gray Davis
Governor, State of California

Winston H. Hickox
Secretary, California Environmental Protection Agency

"Being in the same building is a way to facilitate a greater degree of interaction between boards and departments . . . I know [since we moved to the building] that it is so much easier to engage someone in the quick resolution of a problem or question."

— Winston H. Hickox, Secretary,
California Environmental Protection Agency

The new California Environmental Protection Agency headquarters building gives a physical presence to the reality of a single agency whose task is to guard the great environment we have and to improve it as well.

For the first time ever, the Agency and its six boards, departments and an office share a single home. Previously we were scattered all over Sacramento. Now the people of our various parts can confer and collaborate with an ease never before possible. Cal/EPA Secretary Winston H. Hickox observes, "Being in the same building is a way to facilitate a greater degree of interaction between the boards and departments and make it easier for ideas to be vetted in more than one medium (area of activity) or more than one board or department. I know just in the two months [since we moved to the building] that it is so much easier to engage someone in the quick resolution of a problem or question. I guess that puts the pressure on everyone to be responsive a little more quickly and pressured to be involved in more things. I can't help but believe that that's a good thing."

Our home is not "just another" office building. Designed from the ground up to emphasize the best in sustainable building practices, the Joe Serna Jr. California Environmental Protection Agency Headquarters Building is environmentally sensitive in a variety of ways. It opens just as Californians deal with the electricity challenge and it stands as a benchmark in how we can build and operate with comfort and style while still using resources sensibly.

Energy Efficiency

The Cal/EPA Headquarters Building in Sacramento, California, is among the world's most energy and resource-efficient buildings. Secretary Hickox comments that this approach not only makes environmental sense, it also makes the building a better place to visit and in which to work. "The heating, ventilating and air conditioning is a fresh air based system, which is desirable. It allows flushing on a more frequent basis," he says, "In this building it is not like you're pent-up in a building and you're just re-circulating the same air. The lighting systems have sensors that automatically shut down portions of light bays: less electricity when there is more sunlight shining in, more electric light when it is darker outside. Lights automatically shut off at certain times. Lights in cubicles and individual working lights automatically shut off if a motion detector senses there is no one near by. The same with computer monitors, they will automatically go off. We have the ability to measure the electrical energy load that's being drawn by floor, by lighting versus wall sockets so we can tell how efficient individual floors are. We have solar panels of the roof of the 8th floor as a demonstration of the concept of distributed generation."

Building Architect David C. Martin (FAIA) points out, "The site itself is a green site. It is something that pulls together a whole series of different offices that were spread across Sacramento into one area and it's a site with good transit and is centrally located. So it's a

very positive place to be. Our challenge was to design a building that made some moves from an energy conservation standpoint. One way was to orient the building north and south. And we know that by building with the long axis East-West you save about 6% of total energy over a building that is oriented North-South. The evenings in Sacramento can get pretty cool, so we developed an air-conditioning system where the fans were located in the corners of the building on each floor, so each floor of the building could have access to a tremendous amount of fresh air. So you can flush the building out in the morning and fill it with cool air for free, and get superior indoor air quality and then use that as kind of a volume of cool air to get a start on the air conditioning requirements during the hot day. I've never before been able to put the fans on the outside of the building because most office buildings owners want corner offices. But, here the requirements were different. People were more concerned with energy conservation than corner offices. It's proving to be quite successful. I was talking to the mechanical engineer the other day and the building is amazingly efficient. By having those fans on each floor you can get a huge volume of air through the building."

Combining common-sense and high-tech elements with comfort and style, the building features:

- Ultra Low e Windows—Low-emissivity dual-pane exterior glass keeps heat in during the winter and keeps it out during the summer. Expansive use of glass also reduces energy use by providing natural ambient lighting in more areas.
- Innovative Heating and Cooling Design—Heating and cooling units are sized and located strategically throughout the building to optimize energy savings by using fresh air. State-of-the-art controls make use of cooler night air during early morning hours. The entire system saves 25% more energy than the most stringent building standards now require. Using fresh air to cool workspaces also makes for a more comfortable working environment than in traditional office buildings.
- High Efficiency Lighting and Equipment—Employees use super-high efficiency and low polluting task lights,

"We stepped the design back so that the tallest part of the building is away from the historic City Hall. We didn't want to put the mass of the new building close to that beautiful, old structure. So that set up a rationale, right off the bat for organizing our site. That also created the courtyard and the rationale for why the garden is where it is. The other thing that is important about that is, that because of Cesar Chavez Park (a classic American design), we wanted to make sure we didn't take away from the frame of the corners of the park, it's like a town square. We put the entry portal to Cal/EPA out on the corner to keep the frame of the park going. It was important to have part of the building up against the corner and that portal also related to city hall, in terms of the lines and being to scale with city hall. So that started to give us a play on how we organized the site. It had an historic component and an energy component and a town-planning component."

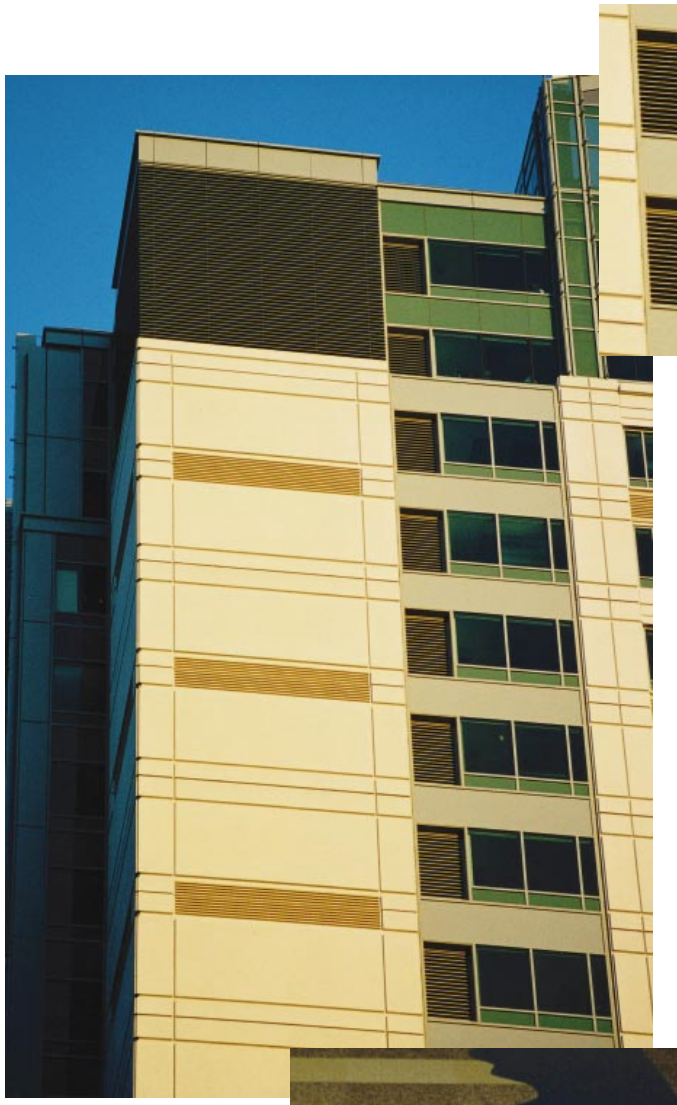
–David C. Martin, FAIA

Low wattage fluorescent lighting throughout the building supplements plentiful daylight. The building's lighting demand is less than one watt per square foot.

Ninety percent of the building's structural steel is recycled.

The warm wood paneling in the lobby and other public areas is eucalyptus—plentiful, fast growing, its harvesting does not damage the environment.

Photo-voltaic panels produce some of the building's electric power.



Large vents on each floor (see inset photo above) make it possible to fill the entire building with cool night air. This innovative design saves energy and improves air quality inside the building.

Carpeting throughout the building is made with 52% recycled material and will be totally recycled when its useful life is over.

overhead lighting, and computers—less than one watt per square foot for lighting! Motion sensors and sophisticated end-use electricity meters ensure that lighting and power are only used when needed.

Sustainability

The Joe Serna Jr. California Environmental Protection Agency Headquarters Building incorporates leading edge but simple conservation and sustainability principles. Some of the earth friendly features are:

- Recycled Materials—Soda bottles, diaper tabs, sunflower seeds, structural steel, and other recycled products have been transformed into construction materials, carpeting, acoustic panels, auditorium seating, cubicle surfaces, modular systems, signage, and dozens of other components and furnishings throughout the building.
- Resource Efficiency and Pollution Prevention—The building team evaluated "life-cycle" pollution associated with the manufacture, transport, construction, use, maintenance, and disposal of materials and workspaces. Carpet tiles were installed without using wet glue. Spackle and paints used in the building eliminated volatile organic compounds—reducing air pollution.

Amenities

Cal/EPA employees and the public they serve enjoy many unique amenities. The Cal/EPA Headquarters building includes:

- 25 electric vehicle charging stations in the adjacent parking structure.
- Solar (photo-voltaic) panels on the ninth floor that produce enough electricity to power ten homes.
- A cafe offering food service along with biodegradable, recycled/recyclable utensils.
- An aggressive building-wide waste collection and recycling/compost program. Working with employees, janitors, vendors, and a solid waste management company, Cal/EPA will generate less waste per person—and then compost and recycle more than 90 percent of that residual!
- An indoor air quality plan that involves janitorial and maintenance practices and uses non-toxic and biodegradable cleaning products, and an integrated pest management plan.

MISSION:

To restore, protect and enhance the environment to ensure public health, environmental quality and economic vitality.

VISION:

A California that enjoys a clean, healthy, sustainable environment that enhances the quality of life for current and future generations, and protects our diverse natural resources.

AIR RESOURCES BOARD

Chairs

Jananne Sharpless
1985 – 1993

Jacqueline E. Schafer
1993 – 1994

John C. Dunlap
1994 – 1999

Alan C. Lloyd, Ph.D.
1999 – Present

OFFICE OF THE SECRETARY

James M. Strock
1991 – 1997

Peter M. Rooney
1997 – 1999

Winston H. Hickox
1999 – Present

"From its inception, Cal/EPA's vision, still expressed by the current secretary, brings together all aspects of environmental science and technology to create a safer, healthier environment for all Californians."

— Peter M. Rooney, Cal/EPA Secretary 1997-1999

DEPARTMENT OF PESTICIDE REGULATION

Directors

James W. Wells
1991 – 1999

Paul E. Helliker
1999 – Present

DEPARTMENT OF TOXIC SUBSTANCES CONTROL

Directors

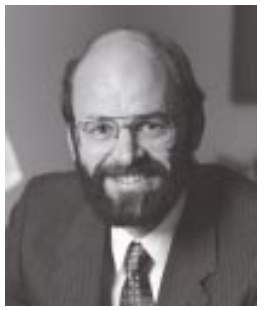
William F. Soo Hoo
1991 – 1995

Jesse R. Huff
1995 – 1999

Edwin F. Lowry
1999 – Present

OFFICE OF ENVIRONMENTAL HEALTH HAZARD ASSESSMENT

Directors



Steven Book, Ph.D.
1991 – 1992

James W. Stratton, M.D.
1994-1996

Joan E. Denton, Ph.D.
1997 – Present

Carol Henry, Ph.D.
1992 – 1994

Richard Becker, Ph.D.
1996-1997

INTEGRATED WASTE MANAGEMENT BOARD

Chairs

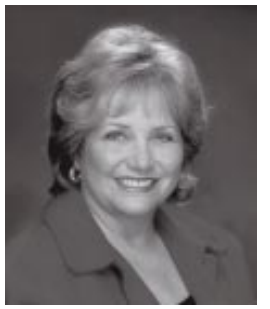
Michael R. Frost
1991 – 1992

Ed Heidig
1992 – 1993

Jesse R. Huff
1993 – 1994

Daniel Pennington
1995 – 1998

Dan Eaton
1999 – 2000



Linda Moulton-Patterson
2000 – Present

STATE WATER RESOURCES CONTROL BOARD

Chairs

W. Don Maughan
1986 – 1992

John Caffrey
1992 – 1998

James Stubchaer
1998 – 2000

Arthur G. Baggett, Jr.
2000 – Present

"[In the 1990s] Californians remained steadfast in advancing their world-leading environmental regulatory efforts, especially in the technology sector linking environmental protection and economic progress."

—James M. Strock, Cal/EPA Secretary 1991-1997

The Long and Winding Road to Cal/EPA

Californians have long been proud of their commitment to protecting the environment. In virtually all program areas, California has led the nation and created environmental quality statutes and programs that often have served as models at the national level.

In the 1950s, California established the nation's first air quality program, passed the first comprehensive clean air act, and in 1988 passed an amended California Clean Air Act that subsequently served as the basis for much of what Congress later enacted in the federal Clean Air Act Amendments of 1990. California pioneered advances in vehicle emission controls, air toxics, and control of stationary sources before federal efforts in these areas. The Porter-Cologne Act—the basis of the state's water quality program—served as the model for the federal Clean Water Act. In other program areas (often referred to as "media" in the profession)—especially recycling under the Integrated Waste Management Act and the public disclosure requirements of Proposition 65—there are no comparable federal structures to this day.

Cal/EPA Secretary Winston Hickox reviewed how key individuals have played pivotal parts in California's environmental progress, but Californians as a whole have charted the course, "These things are much broader than one person or even a group of people. I recently wrote to Senator Byron Sher to offer my congratulations that we are close to meeting the objective that he set (when he was an Assembly Member) for the people of California: that we divert 50% of our waste stream from landfills. We are not quite at 50% but, we are substantially there and it's because of visionary people like Senator Sher that things are different than they might have been.

"The waste issue is just one that we take for granted. There are other issues we Californians have had to deal with. If air pollution had not begun to be addressed as a serious health concern and progress hadn't been made, *Blade Runner*[1] would have been more the reality here in the 21st century than I think many of us would care to believe. I think that the issues that are obvious to the senses, like air pollution and water pollution, demand action and it is way beyond any individual, governor, secretary or any single group of people.

"It is 'us', as a society that express ourselves and draw the lines in terms of our preferences. Our area is so beautiful and so deserving of preservation that it leads us to protect the coast in a variety of ways: water quality, waste disposal, trash and air pollution as well. There were trends driving us into a damaged environment, but I think the people of California never would have let it happen."

Despite the state's environmental programs and laws, the creation of a cabinet-level environmental quality agency in California lagged for more than two decades while virtually every other state in the nation established organizations to mirror the programs and missions of the U.S. Environmental Protection Agency. Throughout this period, considerable support existed for creating an environmental quality agency. Three governors chose to create such a post through administrative means. However, formal establishment of a Cal/EPA continued

to run up against the same basic questions at each attempt:

- Which programs should be included in the agency?
- How should the agency be established—by legislation or by the governor's reorganization authority?
- What form should the agency take on, and what authority should the secretary have over the constituent programs?

The process of creating an "EPA" in California was made more difficult by the basic nature of how the state's individual programs developed. In virtually every other state, the environmental quality programs are housed at the state level in organizations looking very similar to the U.S. Environmental Protection.

California's environmental evolution took a different path. In almost all policy areas, the programs were created first through state statute focused on a single environmental medium. Both legislative and interest group commitments impacted these individual agencies at the expense of environmental programs, creating an institutional interest in maintaining the organizations just as they were first created.

Another layer was added by California's tradition of strong local rule. Unlike most states, California's environmental programs are actually implemented through a large number of local and regional agencies. While some form of reporting or appeal authority exists to the state agencies, these local environmental programs, housed in various offices throughout the state, are responsible for much of the permitting, inspection, and enforcement performed elsewhere by single state agencies.

Taken together, these trends in California combined to spread responsibility for environmental quality throughout both state and local governments. The individual programs have, at various times, resided in bodies as diverse as the departments and commissions of the Resources Agency, Department of Food and Agriculture, Trade & Commerce Agency, Department of Health Services, Energy Commission, Department of Consumer Affairs, Office of Planning & Research, Office of Emergency Services, State Fire Marshal, CalTrans, California Highway Patrol, air districts, county agriculture commissioners, local environmental departments, public works departments, and fire chiefs. The challenge has always been to create a more unified voice for environmental protection through a California Environmental Protection Agency.

Governor Pat Brown

The concept of California's current agency structure itself does not have that long a history. The agency structure stems from 1961 when California undertook its first—and to date, only—comprehensive reform of the state's executive branch since 1929. Previously, the state organization was dominated by an ever-increasing number of departments, boards, and commissions. Under Governor Pat Brown, the special Committee on Organization of State Government recommended creation of the current agency structure to resolve the following concerns:[2]

A. *The governorship in California has been weakened by diffusion of authority.*

B. *Department directors and boards and commissions are unable to communicate to the governor.*

C. *Departments, boards, and commissions do not have adequate communication with each other.*

D. *The governor lacks an effective means for the formulation and execution of unified, coordinated policies.*

E. *There is not enough high-level attention to program planning and evaluation.*

In response to this report, four new agencies—Highway Transportation, Health and Welfare, Youth and Adult Corrections, and Resources—were created through legislation. In a move that would become familiar throughout the development history of Cal/EPA, Governor Pat Brown also created an additional four agencies through administrative order. Although the role of the agencies was subsequently de-emphasized in favor of the departments during the administration of Governor Ronald Reagan, the basic structure remained in place and continues to this day.

Following the executive branch reorganization in 1961, most of the environmental quality programs existing at that time were placed within the Resources Agency along with the traditional natural resources departments and commissions.

California's commitment to the environment continued to be shown in the following years in the addition of new responsibilities to these programs along with the creation of new environmental quality functions in other state and local agencies.

Spurred by a growing national interest in environmental protection following the Santa Barbara Channel oil spill, Congress proceeded to enact a series of new environmental laws, eventually leading to the 10 comprehensive statutes now administered through the U.S. Environmental Protection Agency. The Agency itself was created through President Nixon's Reorganization Plan #3 of 1970, leading to efforts in all states including California to develop comparable organizations.

Governor Jerry Brown

Following some 10 years of earlier efforts at reorganizations involving the Air Resources Board, Water Resources Control Board, Regional Boards and the Solid Waste Management Board,[3] creation of a new California Environmental Quality Agency was among the first proposals of the new Administration of Governor Jerry Brown. This effort was first begun through the administrative creation of a new office of the Special Assistant to the Governor for Environmental Protection. The position added a new responsibility to the existing Chair of the Air Resources Board, and the office was staffed by temporary reassignments from the Air and Water Boards.

Current Cal/EPA Secretary Winston H. Hickox served as Deputy Secretary for Environmental Affairs in those early days and recalls how energy was a major policy concern back then, "That era created a whole new emphasis on conservation and a whole new impetus to conserve. That was the birth of efficiency standards for appliances and buildings. The state led this country into a new era. And it is in great part why today we are, on a per capita basis, the second most energy efficient state in the nation. I think, in 2001, we are going to once again stand tall and show just what we can do when it comes time to conserve because we need to do it."

The actual proposal for the Environmental Quality Agency was submitted to the Little Hoover Commission on March 11, 1975 under the governor's reorganization authority.[4] In this Reorganization Plan No. 1 of 1975, the new Agency was proposed to consist of the following program components:

- The State Water Resources Control Board and Regional Water Quality Control Boards were proposed to be transferred from the Resources Agency to the new Agency intact.
- The State Air Resources Board, then under the Resources Agency, was proposed to be abolished. The responsibilities for establishing the state ambient air quality standards and vehicle emission standards were proposed to be transferred to a new Air Quality Standards Board. The other duties, powers, and responsibilities of the Air Board were proposed to transfer to a new Department of Air

Quality. The only new function added to the Agency was the addition of the vehicle emission inspection program from the Bureau of Automotive Repair, which was proposed to transfer to the new Air Quality Department.

- The Solid Waste Management Board, then also under the Resources Agency, was similarly proposed to be abolished, and split between a new Solid Waste Management Board and Department of Solid Waste Management.

The Legislative debate centered on several issues. Many of these were to be repeated as the agency concept was revisited in subsequent Administrations:

- The use of the reorganization process is always controversial. On one hand, governors tend to prefer this tool as it provides more control over the process and allows for needed reorganizations to take place more quickly. Interest groups on all sides of an issue may also prefer this approach as it makes no changes in the underlying authorities. On the other hand, the role of the Legislature is lessened. They are presented with the simple choice of vetoing or allowing a plan to take effect, with no ability to require or even negotiate changes within the reorganization timeline.
- Another major issue was proposed changes from a board to a department structure for major functions in the air and solid waste programs. Concerns revolved around the potential influence of the secretary and governor over activities of previously independent boards. Counterbalancing these concerns were the intended goals of the plan to ensure more accountability within the programs and coordination with the other environmental decision making process.
- The plan was also attacked as shifting functions without making basic changes to address specific problems. This charge reflected the nature of the reorganization process, namely that functions could only be moved and not changed. However, the proposal was perceived as limited and not including other relevant programs, such as the pesticide program whose transfer was then strongly opposed by the agriculture sector.
- One of the statutory criteria for a reorganization plan is the potential for cost savings to state government. In this respect, the plan was criticized as only "adding a new layer of government." The original concept of California's Cabinet Agency structure was described by the Little Hoover Commission as: *Experience to date indicates that the agencies and the agency administrators are not providing just another level of government but rather a* ***missing*** *level.*[5]
- The proposed Agency would have been the smallest agency within state government. At the time, the Legislative Analyst questioned the rationale for separating so few programs (i.e., the proposed agency would have had a budget of $65 million and 864 PY, as opposed to the total Resources Agency budget in 1974 of $517 million and 11,427 PY).
- Finally, the Legislature expressed concerns on the potential of the secretary to draw on the resources of the Agency's boards and departments. While this theme would continue in subsequent proposals for an environmental agency, the reorganization plan in this case contained specific language giving the secretary authority to expend any money appropriated for the constituent boards and departments of the new agency.

Following a rocky reception in the Legislature, the reorganization plan was defeated. However, the post of secretary was created administratively by Governor Brown through Executive Order B2-75. Then-Chair of the Air Resources Board, Tom Quinn, was appointed as the first Cabinet-level Secretary of Environmental Affairs. Following his departure, Mary Nichols subsequently served in this post for the remainder of the Brown Administration.

While the reorganization plan was defeated, subsequent legislation confirmed the new dual role for the Air Board Chair. In 1981 legislation was passed stating that the Air Board Chair: . . . *shall serve as the principal advisor to the governor on, and shall assist the governor in establishing, major policy and program matters on environmental protection. The chairperson shall also serve as the principal communications link for the effective transmission of policy problems and decisions to the governor relating to the activities of the State Water Resources Control Board and the State Solid Waste Management Board.*[6]

Governor Deukmejian

The Environmental Affairs Agency continued in form and expanded to some extent in function under the Deukmejian Administration. Environmental issues in general were becoming more prominent during this period, particularly in areas of drinking water contamination, toxics, and air quality. A continuing need for a Cabinet-level voice on these issues was recognized. Governor George Deukmejian was committed to reducing the growth in government, and generally did not support proposals formally increasing the number of state agencies.

While several proposals to establish the agency in statute were considered during this Administration, none were submitted to the Legislature.

Nonetheless, the Agency increased its presence within State government during the Deukmejian years. The mandate for the

Environmental Affairs Agency was renewed early through a memo from the Governor's Office reaffirming the role of the Secretary for Environmental Affairs, which in part:

- Continued the role of the Chair of the Air Resources Board as a Cabinet-level Secretary of Environmental Affairs as specified in Executive Order B2-75.
- Gave the secretary budgetary and policy coordination responsibilities for the Air Resources Board, Solid Waste Management Board, State Water Resources Control Board, and the Regional Water Quality Control Boards.
- Included the provision that the constituent boards were to "make available such facilities and personnel" necessary for the secretary to perform his duties.

Gordon Duffy was appointed as the first secretary, and Jananne Sharpless succeeded him in the post.

While Environmental Affairs was not formally created in statute, a number of bills during this period began to cite the Agency as functions were added to the secretary's office. In particular, staffing was provided through a number of sources to conduct several functions providing a more Agency-wide level of activities and that did not fit in neatly with the media-specific boards:

- The secretary also served as the Governor's Outer Continental Shelf (OCS) Policy Advisor, a function first created administratively but subsequently established in statute. Primarily dealing with the state's review of offshore oil and gas proposals, a separate Office of Offshore Development was provided with staff from the Governor's Office of Planning and Research, and served as the bulk of the secretary's staff.
- Technical staff were added for the hazardous waste management database, environmental assessors program, and an arbitration panel for toxic site clean-ups.
- The secretary also administered two offshore oil and gas mitigation programs, providing grants to coastal counties and cities, and to the commercial fishing industry.

While the Secretary of Environmental Affairs remained on par with the other state agencies, the nature of the Agency and the process by which it was established meant that it was not as big and the expectations for its mission were not as clear:

- While designated a Cabinet officer, the secretary also remained as Chair of the Air Resources Board.
- This dual role also continued to place conflicting time demands on the secretary. Combined with limited Agency-specific resources, this situation limited the range of issues the Agency was able to address. As a result, compared to other state agencies, the Secretary of Environmental Affairs was forced to concentrate on the larger issues affecting all three boards and on cross-media issues involving regulatory relationships between the three boards.

While no action occurred to establish the Agency formally in statute during this period, there was considerable activity revamping and improving the scope of the individual environmental programs.

Major state legislation from this period includes: the California Clean Air Act, Integrated Waste Management Act, Beverage Container Recycling and Litter Reduction Act, Oil Spill Prevention and Response Act, Proposition 65, Drinking Water Well Protection Act, Underground Storage Tank Laws of 1983, Toxic Pits Cleanup Act, Hazardous Waste Management Act, and Hazardous Waste Source Reduction and Management Review Act. These and other additions to the environmental programs continued to increase the need for a coordinating environmental agency.

Governor Wilson

In the gubernatorial election of 1990, both candidates committed to creation of a state environmental protection agency. Environmental issues were a key element in the campaign, spurred in part by the presence on the ballot of the "Big Green" initiative—a collection of various measures supported by a coalition of environmental groups, including establishment of a cabinet level agency.

Shortly after taking office, Governor Pete Wilson confirmed the need for a Cabinet environmental quality secretary by issuing Executive Order W-5-91. This action began the process fulfilling a commitment he first made in early 1990 at a speech to Heal the Bay in Santa Monica. The executive order continued coordination of the programs formerly under the Environmental Affairs Agency, but changed the name of the post to Secretary for Environmental Protection and for the first time created the position separate from the Chair of the Air Resources Board. Support for the new office was provided through facilities and personnel from the constituent boards. James Strock was appointed as the first Secretary for Environmental Protection and continued to serve in this post through most of the Wilson Administration. Peter Rooney succeeded him in the post.

The subsequent proposal for Cal/EPA was again through the governor's reorganization authority. Submitted to the Little Hoover Commission on April 16, 1991, Governor's Reorganization Plan Number 1 of 1991 (GRP 1) proposed a Cal/EPA composed of the following programs:

- Office of the Secretary for Environmental Protection, which was reorganized by transferring the program line functions built up under the former Office of Environmental Affairs to the Resources Agency and to the new Toxics Department.
- The Air Resources Board.
- The Integrated Waste Management Board.
- The State Water Resources Control Board and Regional Water Quality Control Boards.

- The Department of Toxic Substances Control, created by transferring the former division from the Department of Health Services.
- The Department of Pesticide Regulation, created by transferring the former Pesticide Regulation program from the Department of Food and Agriculture.
- The Office of Environmental Health Hazard Assessment, created by transferring the environmental components of the Health Hazard Assessment Division of the Department of Health Services and reorganizing the remaining human health risk assessment functions within that Department.

The purposes of the new Agency were spelled out in six primary and four secondary objectives:[7]

- *Our most urgent attention must be turned toward those activities, processes and substances presenting the greatest risk to public health and the environment.*
- *Decisions to set risk-based priorities must be based on rigorous and internally consistent science, at the level widely recognized to be the best available.*
- *We must act to prevent the creation of pollution in the first instance . . .*
- *Environmental protection and economic progress should not be viewed as competing goals, but, to the greatest possible extent, as complementary . . .*
- *Vigorous, predictable enforcement must under gird all of our efforts . . .*
- *The regulatory decision making process must be opened as far as possible to the public as a whole . . .*
- *Create a point of accountability for state environmental programs.*
- *Assure that this is a Cabinet-level voice for environmental protection across the gamut of issues raised for the governor's consideration and decision.*
- *Allow for more rapid deployment of coordinated government action to meet environmental needs.*
- *Lead to the reduction of overlapping and redundant bureaucracies which create more confusion than environmental improvement.*

Legislation was introduced by Senator Art Torres (Senate Bill 51) and then-Assemblyman Byron Sher (Assembly Bill 1122) containing their proposals for Cal/EPA. This interplay between the reorganization and legislative processes become a focal point for debate on the Agency and its proper functions in the subsequent two years.

Many of the same concerns that had hindered earlier reorganization efforts quickly arose as the review process began, particularly those related to the potential costs and benefits of the new Agency and Legislative discomfort with use of the reorganization authority. In addition, this particular plan generated several new issues related to the broader scope of the proposed Agency. Many of these are summarized in the Little Hoover Commission review of the reorganization proposal:[8]

- *The structure for assessing and managing risk.* A debate quickly developed around the new Office of Environmental Health Hazard Assessment. The concentration of risk assessment in the new office was intended to keep the scientific process of risk assessment separate from the economic and technical considerations of risk management, as previously recommended by the National Academy of Sciences in its report, *Risk Assessment in the Federal Government: Managing the Process*. This proposal was criticized on several factors, including: perceptions of whether the scientists would be provided the leeway for independent risk assessments; if the benefits of separation outweighed the loss of management oversight integrating the priorities of risk assessments with the regulatory needs and feedback from risk managers; and the fact that OEHHA did not include the risk assessment functions from the new Pesticides and Toxics departments. Many of these debates continue to this day.
- *Placement of pesticide regulation in the new agency.* Agriculture remained split on this proposal throughout the review process. Some in the industry continued to believe that the program should remain with the Department of Food and Agriculture to ensure that regulatory decisions took adequate account of the economic and social factors related to pesticide and other chemical uses. The concern continued that movement of the program to Cal/EPA would revamp the program focus to one solely devoted to eliminating potential paths of pollution.

While some agricultural groups remained opposed to the proposal, the industry as whole can be best described as "reluctantly accepting" the new Agency due to three factors.

First, the final proposal provided for continued interaction between the new Department and the Department of Food and Agriculture, to ensure continued consideration to timing factors on registration issues that are often driven by growing season, weather changes, and unexpected infestations.

Second, several key players, notably the current Secretary of State Bill Jones, worked diligently to communicate with the industry and help address their concerns in how the Agency would proceed.

Third, many agricultural groups were concerned that the far more draconian pesticide measures of the recently-defeated "Big Green" initiative would be resurrected in a future initiative in the absence of the changes being proposed to the program by Governor Wilson.

- *The potential for "one-stop shopping" for those who are being regulated.* The new Agency was to provide a single point of accountability and more unified administration of the environmental laws. While the reorganization plan contained few specifics, subsequent administrative and legislative actions by both the Wilson and Davis Administrations created more coordination among program elements
- *The inclusion of other programs in Cal/EPA.* In developing the reorganization proposal, a number of other environmental quality and related programs throughout state government were considered for inclusion, but the decision came down to include only the core environmental programs and those that could be transferred largely as intact entities. The issue of which programs belonged in the new Agency continued throughout the review process, however, and the Little Hoover Commission subsequently recommended consideration of several other programs as the Agency evolved. As part of the reorganization plan, the Agency committed to a process of "rolling reorganization," beginning with the core programs but proposing additional reorganizations as they became justified. Subsequent actions on the programs identified by the Little Hoover Commission include the following:
- Department of Conservation's Division of Recycling. Later in the Wilson Administration, legislative proposals were submitted twice to combine this program with the Integrated Waste Management Board programs. Both efforts failed passage in the Legislature.
- Department of Health Service's Radioactive Materials Program. This program remained in Health Services primarily due to the controversy over the Ward Valley low-level radioactive waste disposal site

and the need to maintain continuity in the administrative oversight of that project's development.

- State Fire Marshal's Hazardous Liquid Pipelines Program. This program along with the other State Fire Marshal functions were subsequently reorganized and combined with the Department of Forestry.
- Department of Health Service's Office of Drinking Water. An initial proposal was made in later years through the Budget process, but no action was taken by the Legislature.
- Office of Emergency Service's Hazardous Materials Management Program. This program, along with related hazardous materials programs under the State Fire Marshal and State Water Resources Control Board, were reorganized into the Certified Unified Program Agencies (CUPAs). Administered by the Secretary for Environmental Protection, this program consolidated the hazardous materials programs at the local level.
- Department of Fish and Game's Office of Oil Spill Prevention and Response. With the transfer of Environmental Affairs' former responsibilities for Outer Continental Shelf issues to Resources Agency, this program was considered more appropriate to remain within the Department.
- Bureau of Automotive Repair's Smog Check Certification Program. Some consideration was given to moving this program, but subsequent changes to the Smog Check Program instead removed much of the prior overlap between the Bureau and the Air Resources Board.
- Department of Health Service's Hazardous Materials Lab. This program was later incorporated into the Department of Toxic Substances Control through the Budget process.

Support for the proposal remained mixed. The agriculture industry was split. In the environmental community, some groups, such as Environmental Defense Fund, supported the concept from the beginning; others, such as Planning and Conservation League, became active in support only during the final critical days in the Legislature; and others opposed the process to the end. Other interest groups similarly split along lines of those who preferred the regulatory system they knew, and those who supported more of a "one stop" concept for regulatory decisions.

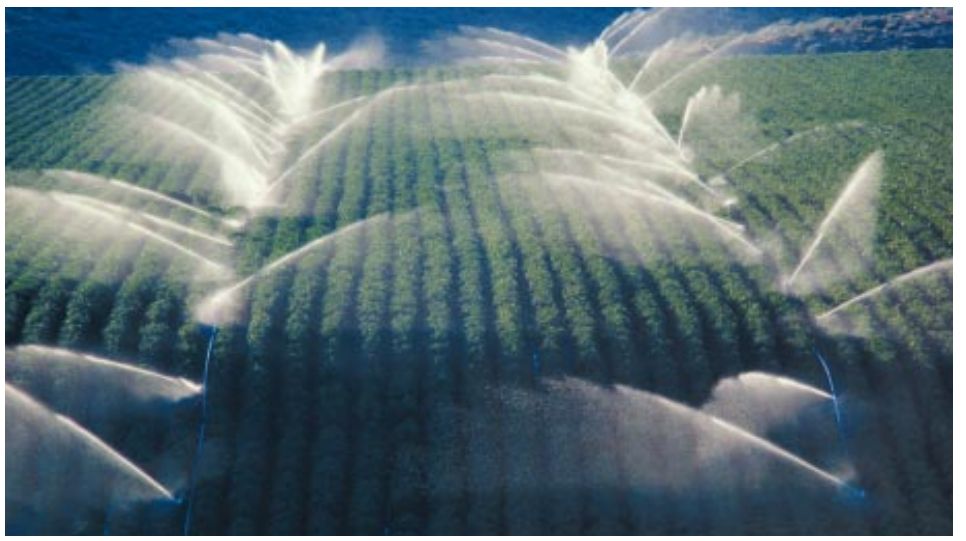
Days before the expiration of the 60-day review period, an incident occurred which demonstrated the value of the Agency. On July 14, 1991, a freight train derailed at Dunsmuir near Redding, and released thousands of gallons of metam sodium into the Sacramento River. The Secretary for Environmental Protection took the lead in responding to this disaster, and marshaled the resources of the environmental agencies needed to deal with the water quality, air quality, toxics, and disposal consequences of the spill. This quick response influenced the public debate through a clear demonstration of the need for a state environmental agency.

The final day for Legislation action on GRP 1 also fell on the last day for action on the 1991-92 Budget. With the debate extending into the evening hours, the Senate eventually adjourned without acting on the plan. In the Assembly, however, the resolution disapproving GRP 1 continued to move forward, but failed on a vote of 43 to 14. As a result, GRP 1 went into effect, and the new California Environmental Protection Agency was born on July 17, 1991.

Governor Davis

With the appointment of Winston Hickox as his Secretary for Environmental Protection, Governor Gray Davis cemented Cal/EPA as an ongoing function within state government.

The Agency's efforts to improve our environment while assisting our neighbors have paid dividends in the form of agreements with the governments of Mexico, Baja California and some of its cities. The March 2001 visit of President Vicente Fox to Governor Gray Davis was marked by the signing of agreements to cooperate on northern Mexico's first smog check program; industrial wastewater monitoring and treatment in three border cities and research and sustainable development in the Sea of Cortez area.



Other examples of reaching across divided jurisdictions include two units within Cal/EPA inaugurating an effort to tackle the 21st-century problem of e-waste (computer monitors and other electronic discards), concentrating efforts on environmental justice, dealing with previous policies on MTBE in gasoline, cleaning up Brownfields and one of Cal/EPA's offices initiating an assessment of the potential hazards of hexavalent chromium in drinking water. That effort is in cooperation with the University of California and the Department of Health Services.

The Davis Administration also provides the opportunity for further growth in developing the necessary coordinating relationships between the individual program elements. With the notable move of the boards and departments into a single building, the opportunity now exists more than at any other time in the development of the Agency to foster the necessary interactions and achieve the goal begun some 30 years ago to ensure an effective and truly coordinated environmental program in California.

---

[1] *Blade Runner*: An '80s movie directed by Ridley Scott, which showed an environmentally wasted Los Angeles in an apocalyptic vision of the earth in the late twenty-teens.

[2] Commission on California State Government Organization and Economy, *Findings and Recommendations Concerning Reorganization of the Executive Branch of California State Government*, December 31, 1962, p. 10.

[3] Now, the Integrated Waste Management Board

[4] Under this authority, a governor may propose to reorganize state agencies in whole or in part. New functions not otherwise authorized by statute cannot be created through this process, but this process can be used to consolidate, transfer, coordinate, or abolish agencies.

A proposed reorganization is first submitted to the Little Hoover Commission at least 30 days prior to submission to the Legislature. The Commission is responsible for reviewing and commenting on the plan for its effectiveness and efficiency, based on specified criteria in law. Once the plan is submitted to the Legislature, the Commission has an additional 30 days to complete its comments.

The Legislature is provided 60 days to review a reorganization plan. Either house may veto the plan, but the plan may not be modified, amended, or approved. If neither house passes a resolution vetoing the plan, the reorganization automatically goes into effect on the 61st day.

As part of the implementation of a reorganization plan, the governor is then required to submit necessary clean-up language within the following year. The Legislature may or may not take action on the proposed statutory language, and enactment is not required to maintain the validity of the reorganization.

Following creation of the reorganization authority in 1967, 14 reorganization plans have been rejected by the Legislature, and 9 have been allowed to take effect.

[5] Commission on California State Government Organization and Economy, *Findings and Recommendations Concerning Reorganization of the Executive Branch of California State Government*, December 31, 1962, p. 13.

[6] Chapter 982, Statutes of 1981 [SB 700, Montoya].

[7] Governor's Reorganization Plan Number One, 1991, Creating the California Environmental Protection Agency, April 16, 1991, pp. 1-2.

[8] Little Hoover Commission, *Cal/EPA: An Umbrella for the Environment*, June 1991.

CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

Winston H. Hickox
Agency Secretary
Office of the Secretary

Alan C. Lloyd, Ph.D.
Chair
Air Resources Board

Joan Denton, Ph.D.
Director
Office of Environmental Health Hazard Assessment

Linda Moulton-Patterson
Chair
Integrated Waste Management Board

Edwin Lowry
Director
Department of Toxic Substances Control

Paul Helliker
Director
Department of Pesticide Regulation

Arthur Baggett, Jr.
Chair
State Water Resources Control Board

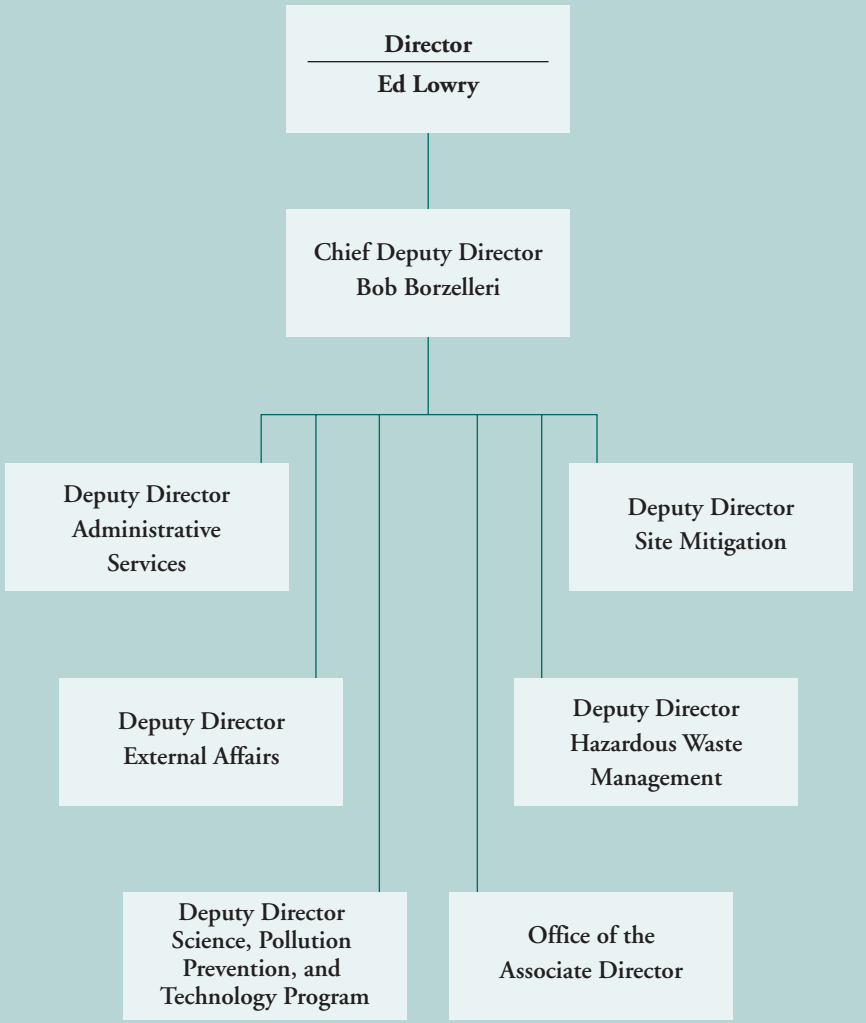
Secretary for Environmental Affairs

Tom Quinn	1975 – 1979
Mary Nichols	1979 – 1983
Gordon Duffy	1983 – 1985
Jananne Sharpless	1985 – 1991

Cal/EPA Secretary

James M. Strock	1991 – 1997
Peter M. Rooney	1997 – 1999
Winston H. Hickox	1999 – Present

DEPARTMENT OF TOXIC SUBSTANCES CONTROL



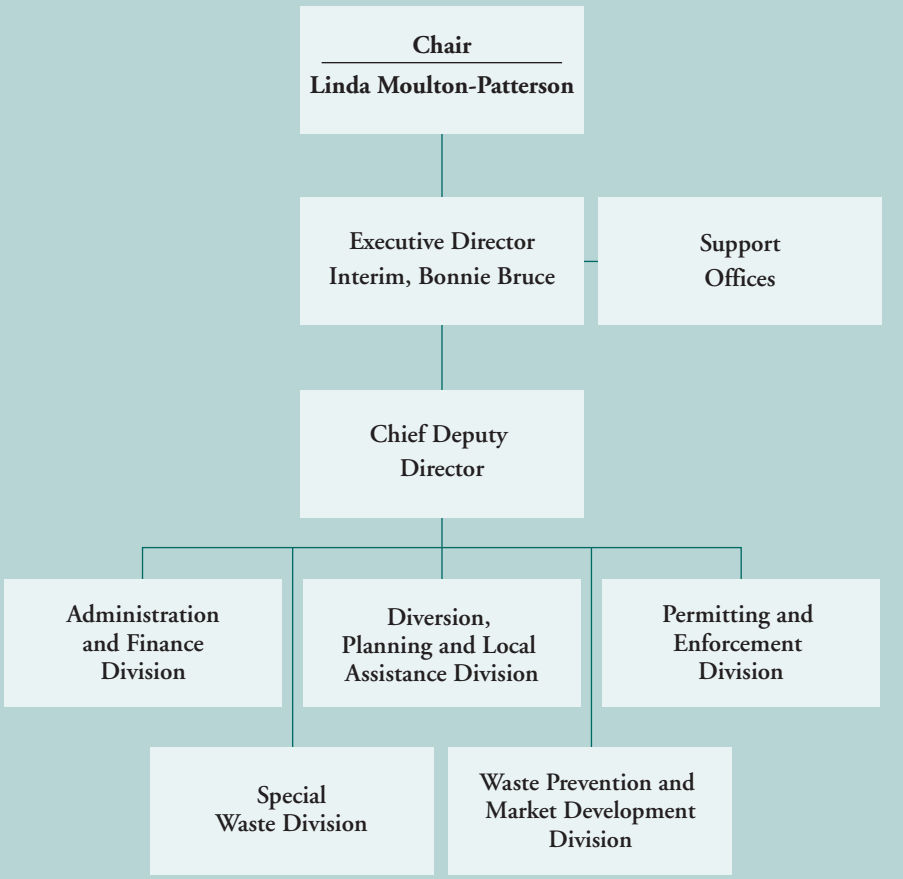
Toxic Substances Control Division, Department of Health Services

Bob Stephens	1981 – 1983
Joel Moskowitz	1983 – 1984
Rich Wilcoxon	1984 – 1986
Alex Cunningham	1986 – 1988
C. David Willis	1988 – 1990
Jack Kearns	1990
William F. Soo Hoo	1990 – 1991

Department of Toxic Substances Control, Cal/EPA Directors

William F. Soo Hoo	1991 – 1995
Jesse R. Huff	1995 – 1999
Edwin F. Lowry	1999 – Present

INTEGRATED WASTE MANAGEMENT BOARD



State Solid Waste Management Board Chairs

David L. Baker	1973 – 1975
Alfred Dias	1975 – 1978
Jerold Prod	1978 – 1979
Terry Trumbull	1979 – 1984
Sherman Roodzant	1985 – 1988
John Gallagher	1989 – 1990

California Integrated Waste Management Board Chairs

Michael Frost	1991 – 1994
Jesse Huff	1994 – 1996
Daniel Pennington	1996 – 1998
Dan Eaton	1999 – 2000
Linda Moulton-Patterson	2000 – Present

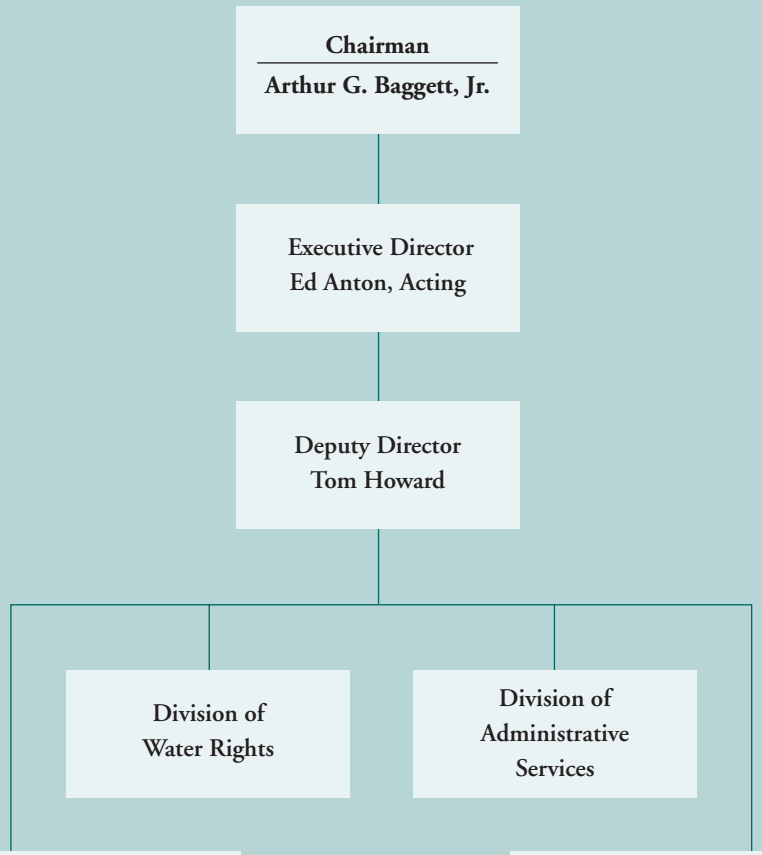
State Solid Waste Management Board Executive Officers

Al Marino	1973 – 1980
John Hagerty	1980 – 1984
Doug Strauch	1984 – 1985
George Eowan	1985 – 1990

California Integrated Waste Management Board Executive Directors

George Larsen	1990 – 1991
Ralph Chandler	1991 – 2000
Karin Fish	2000 – 2001
Bonnie Bruce	2001 – Present

STATE WATER RESOURCES CONTROL BOARD



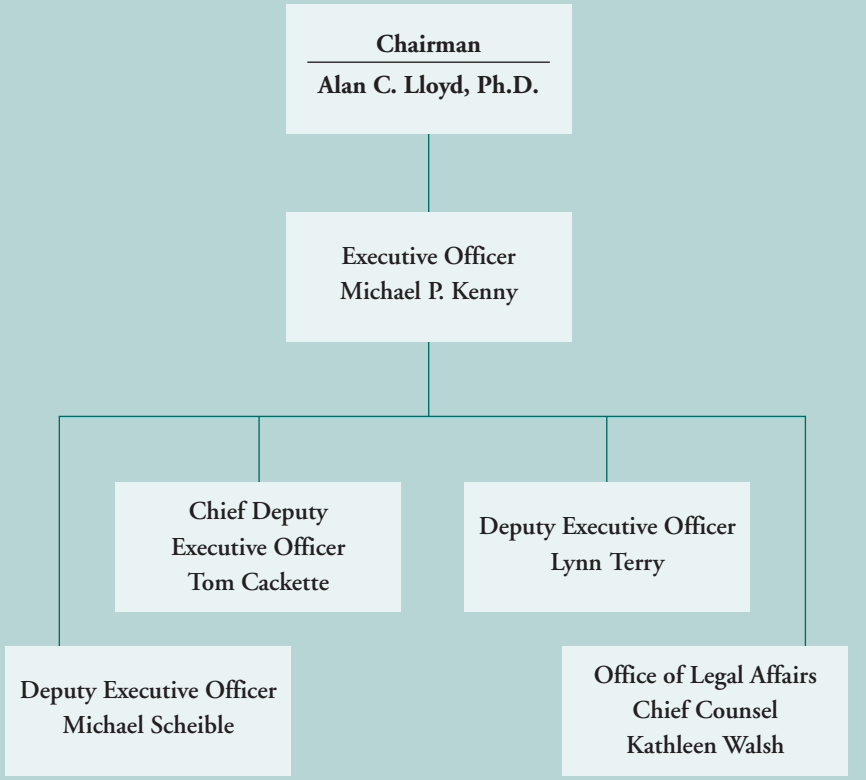
State Water Resources Control Board Chairs

Kerry Mulligan	1966 – 1972
Win Adams	1972 – 1976
John Bryson	1976 – 1979
Carla Bard	1979 – 1982
Carole Onorato	1982 – 1985
Raymond Stone	1985 – 1986
W. Don Maughan	1986 – 1992
John Caffrey	1992 – 1998
James M. Stubchaer	1998 – 2000
Arthur G. Baggett, Jr.	2000 – 2001

Executive Directors

Kerry Mulligan	1967 – 1969
Jerry Gilbert	1969 – 1972
Bill Dendy	1972 – 1977
Larry Walker	1977 – 1980
Clint Whitney	1980 – 1983
Michael Campos	1983 – 1985
Ray Walsh	1985 – 1986
Jim Easton	1986 – 1988
Jim Baetge	1988 – 1991
Walt Pettit	1991 – 2000
Ed Anton	2000 – Present

AIR RESOURCES BOARD



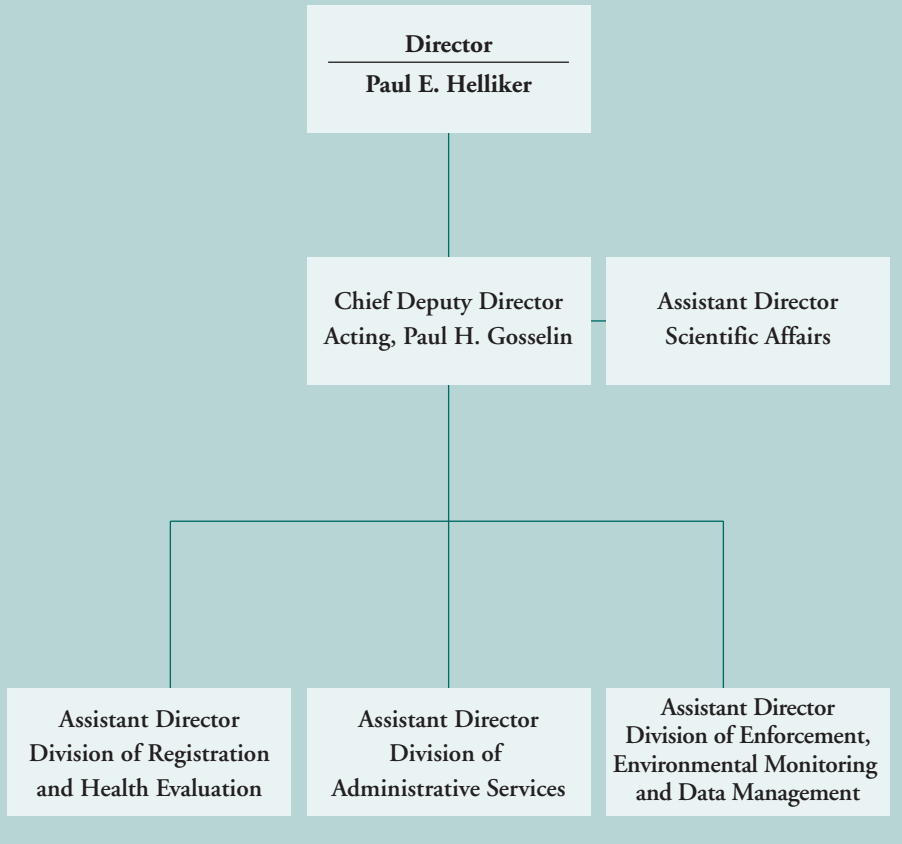
Air Resources Board Chairs

Arie J. Haagen-Smit	1968 – 1974
Charles J. Conrad	1974 – 1975
Thomas Quinn	1975 – 1979
Mary D. Nichols	1979 – 1983
Gordon Duffy	1983 – 1985
Jananne Sharpless	1985 – 1993
Jacqueline E. Schafer	1993 – 1994
John D. Dunlap	1994 – 1999
Alan C. Lloyd	1999 – Present

Executive Officers

John Maga	1968 – 1972
Bill Simons	1973 – 1975
Bill Lewis	1975 – 1978
Tom Austin	1978 – 1981
Jim Boyd	1981 – 1996
Mike Kenny	1996 – Present

DEPARTMENT OF PESTICIDE REGULATION



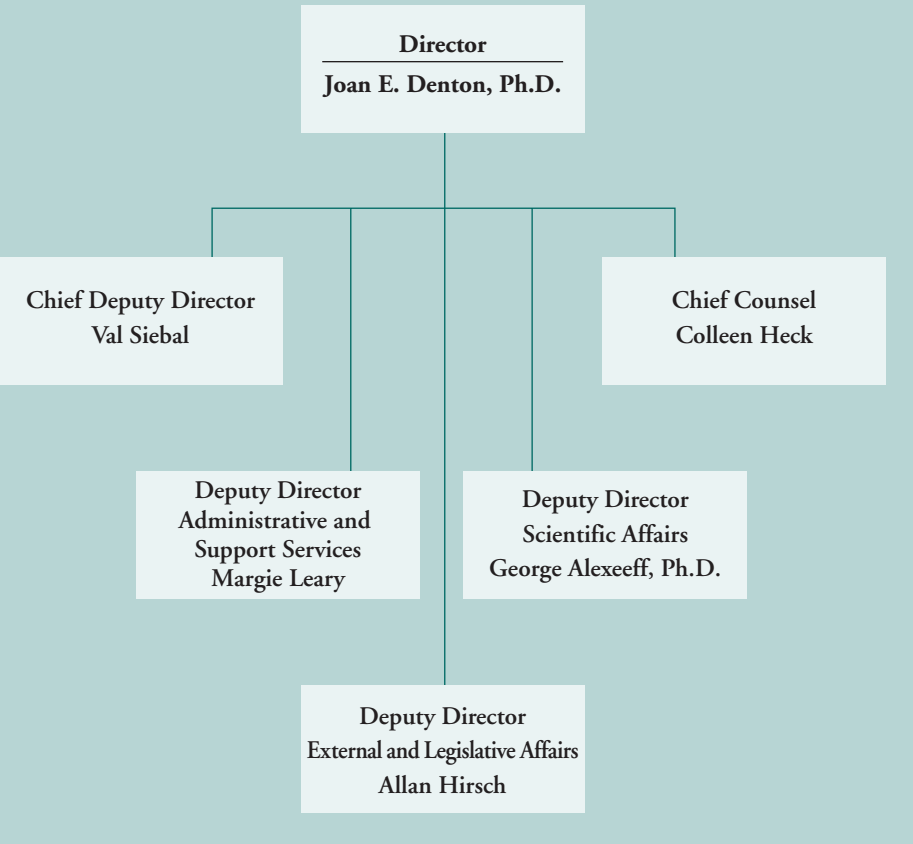
Division of Pest Management, Environmental Protection and Worker Safety, Department of Food and Agriculture Directors

Jake Mackenzie	1978 – 1982
Lori Johnston	1983 – 1988
Rex Magee	1988 – 1991

Department of Pesticide Regulation, Cal/EPA Directors

James W. Wells	1991 – 1999
Paul E. Helliker	1999 – Present

OFFICE OF ENVIRONMENTAL HEALTH HAZARD ASSESSMENT



Office Of Environmental Health Hazard Assessment Directors

Steven Book, Ph.D.	1991 – 1992
Carol Henry, Ph.D.	1992 – 1994
James W. Stratton, M.D.	1994 – 1996
Richard Becker, Ph.D.	1996 – 1997
Joan E. Denton, Ph.D.	1997 – Present

"The best-case scenario is that toxics are never released into the environment . . . the next-best is that they are always dealt with promptly and competently. This department is working towards both those objectives."

— Edwin F. Lowry
Director, Department of
Toxic Substances Control

The Department of Toxic Substances Control (DTSC) enters 2001 not only as part of the Cal/EPA family of environmental protection agencies, but also as part of a family finally brought together to interact and work in a single new building with a common mission.

The Early Years

The DTSC that exists today as a mature and multi-focused agency with 1100 staff located in Sacramento and six field offices throughout California, had a humble beginning in the early '70s. It started with four staff in a Unit of the Vector and Waste Management Branch within the Department of Health Services:

- At that time, national attention to the adverse effects of mismanagement of hazardous waste was just beginning to stir. This was the time of the first Earth Day celebration and the creation of the U.S. Environmental Protection Agency in December of 1970.
- News of Love Canal in New York State would soon break with residents discovering that they had been living in houses built on a former hazardous waste site.

While interest in hazardous waste was developing throughout the nation, California was not sitting still on the hazardous waste management front.

1972 saw the passage of the Hazardous Waste Control Act that established the California Hazardous Waste Control Program within DHS. California's hazardous waste regulatory effort became the model for the federal Resource Conservation and Recovery Act (RCRA). California's program, however, was broader and more comprehensive than the federal system, regulating wastes and activities not covered by the federal program. The drafters of the early RCRA program, intended to provide a "floor" of regulation with the knowledge and expectation that states like California would enact more comprehensive waste management requirements in order to address their own regional or state needs.

California's Hazardous Waste Control Law was followed by emergency regulations in 1973 that clarified and defined the hazardous waste program:

- Included were definitions of what was a waste and what was hazardous as well as what was necessary for appropriate handling, processing and disposal of hazardous and extremely hazardous waste in a manner that would protect the public, livestock, and wildlife from hazards to health and safety.
- The early regulations also established a tracking system for the handling and transportation of hazardous waste from the point of waste generation to the point of ultimate disposition, as well as a system of fees to cover the costs of operating the hazardous waste management program.
- Advancing the newly developing awareness of hazardous waste management issues, the program established a technical reference center, for public and private use, dealing with all aspects of hazardous waste management.

The regulations were adopted as final the following year.

It did not take long for the scope of hazardous waste regulatory responsibility to exceed the staffing resources of a four person Unit.

Budget limitations in the new program quickly became apparent.

One of the early tasks for the program was to survey existing hazardous waste generators in order to determine the need for new or expanded facilities to meet future waste management demands. This was an ambitious undertaking in that there were nearly 10,000 large waste generators in California that produced nearly 5 million tons (or 400,000,000 gallons) of hazardous waste annually. Included in these waste streams were some 22,000 different substances. Dr. Harvey Collins was in charge of the program at that time and recalled in a letter some years later:

> *"Let me state that our first budget was for a staff of four persons that included professional people as well as clerical people… It was not until several years later that we had grown to a section, we had sort of grown geometrically"*

As the public began to rank environmental concerns near the top of all public policy issues, funding gradually became easier to obtain and publicity increased.

Hazardous Waste Site Cleanup

Along with the Hazardous Waste Control Program's responsibility to regulate the generation, treatment, storage and disposal of hazardous waste came the reality that prospective regulation was not enough. Years of mismanagement of facilities had resulted in abandoned waste sites where hazardous waste had simply been left behind. The number, nature and location of abandoned hazardous waste sites was unknown. An adequate search for such sites had never been conducted.

Ironically, because California had regulated discharges from industrial sources and disposal operations since 1949 under early water pollution control laws and later under the State Water Quality Control Act, it was anticipated that there would be relatively fewer problems associated with abandoned sites than existed in other states. The existing regulatory structure, along with the fact that California did not have the eastern "old industry" that had waste handling practices associated from the beginning of the industrial revolution, led some to believe that California's problems would be of a small scale. This would not be the case.

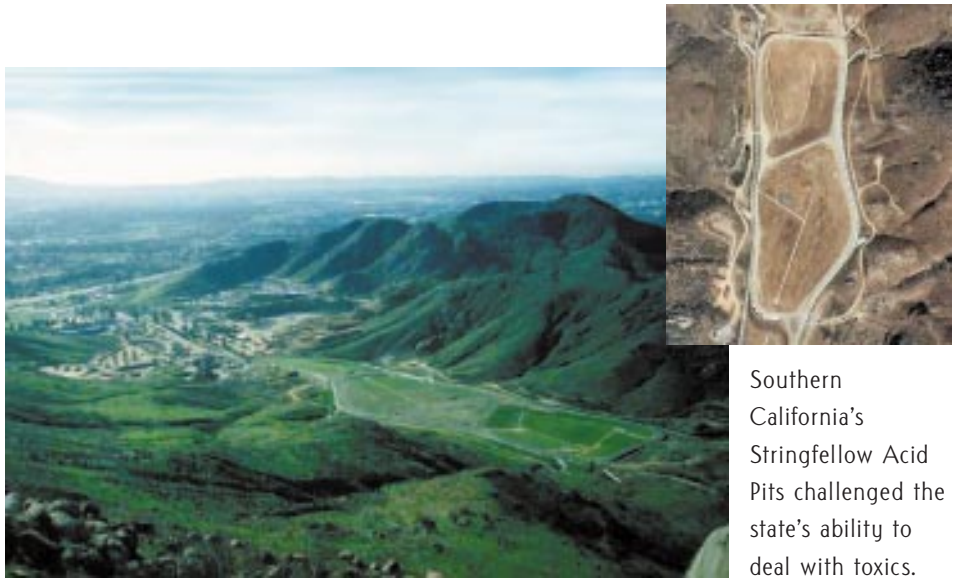
By 1978, the program had grown to 70 staff. The Unit was elevated to Section status within DHS. The increase in resources was timely in that the next major effort was to conduct a three-phase investigation of abandoned chemical waste sites in California. What began as a document review of a few industrialized California counties quickly grew to cover the entire state with technical studies to provide the basis for formal site evaluations and recommendations for corrective or legal action.

Approximately 25,000 potential sites were identified in the 30 most populated, highly industrialized California counties. Approximately 20,000 of these sites were determined to have no contamination. The remaining 5,000 sites were systematically investigated by the Abandoned Site Program (ASP) and have formed the core list of sites toward which the department focuses it's efforts.

The '8Os: A Decade of Program Growth

An explosion of environmental legislation marked the second decade of the Hazardous Waste Control Program. Legislative sessions were now introducing in excess of 400 hazardous waste related bills per session. New authorities and funding resulted in staffing increases as well as elevation of the program within the DHS structure. During 1980, the Hazardous Materials Management Section had been elevated to Branch status and, in 1981, the Branch was reorganized creating the Toxic Substances Control Program (TSCP).

One of the most important bills signed in 1980 was AB 3132 (Egeland) which increased the penalty for unauthorized intentional or negligent hazardous waste disposal from a flat $25,000 per violation to $25,000 per day of violation. This measure recognized the reality that environmental damage often increased with each successive day the violation occurred. AB 3132 also created new types of violations and new civil penalties for illegal activities involving hazardous waste. In addition, the measure carried, for the first time a state prison sentence of up to two years and fines of up to $50,000 for repeat offenses.



Southern California's Stringfellow Acid Pits challenged the state's ability to deal with toxics.

The Carpenter-Presley-Tanner Hazardous Waste Substances Account Act of 1981 created the Hazardous Substance Account and established a fee schedule on the land disposal of hazardous waste to cover the costs of remedial activities (site cleanup) and associated administrative costs, hazardous substance response equipment, health effects studies, and the expenses of the Hazardous Waste Cleanup Arbitration Panel.

In 1982, the Legislature created the TSCP Site Mitigation Program to complement the federal Superfund hazardous waste cleanup program. The goal of the site mitigation program was to identify and cleanup California sites where an uncontrolled release of hazardous substances had occurred.

During the 1984 statewide elections, an initiative was placed on the ballot to provide money to investigate and cleanup abandoned toxic waste sites. Formally known as the Hazardous Substances Cleanup Bond Act of 1984 or the California Superfund Act, it was listed on the ballot as Proposition 27. The initiative was approved by the voters by a 3 to 1 margin, and provided for the issuance and sale of $100,000,000 of general obligation bonds. The funds generated from the sale of the bonds were used over the following several years for site cleanups.

From 1986 to 1988, the Program experienced significant growth, with staff increasing from 272 to 833 statewide, and annual funding increasing from $59.5 million to $103 million. These increases reflected the heightened public awareness of the issues surrounding hazardous substances and the California Legislature's eager response to protect public health and the environment.

One of the more prominent contributing factors to the heightening of public awareness during the 80s was the Stringfellow Acid Pits hazardous waste site. The Stringfellow site consists of 17 acres of canyon in the Jurupa Mountains of Riverside County, about one mile north of the community of Glen Avon. During the site's operation as a hazardous waste disposal facility (1956-1972), it is estimated that 34,000,000 gallons of industrial

waste were disposed. In 1982, interim remedial activities were conducted at the site that included removal of liquid wastes, neutralization, capping, and installation of a subsurface barrier dam and leachate extraction system. Despite these efforts, in 1983 it was determined that the site was leaking. TSCP took the lead for cleanup activities. Although surface liquid wastes had been removed, a large volume of soil contaminated with spent acids, organic wastes and heavy metals remained on site. Ground water was contaminated with solvents and heavy metals.

The Office of Military Facilities

In 1988, a significant environmental challenge would dawn on the horizon for California. During that year, the first of 22 major military base closures were announced by the Federal government. The 1988 announcement was the first of three rounds of base closures, which would continue through 1993.

California had more military facilities slated for closure than any other state in the nation. It was estimated that, when the base closures were completed, California's economy would be reduced by $7 billion annually in addition to a loss of over 200,000 jobs. Faced with this impending economic loss, attention was focused on quickly converting closed bases to reuse that would benefit the local economies.

Standing in the way of immediate transfer was the reality that hazardous waste cleanup would be necessary before these sites could be transferred to local government because many of the sites were listed on the state and the federal government's Superfund lists.

To coordinate the closing base cleanups around the state and to ensure that cleanups were complete before transfer to local entities, DTSC created the Office of Military Facilities (OMF) in 1993. OMF's main task was to oversee the investigation and cleanup of hazardous waste substances at more than 100 operating and closing military bases and former defense sites in California. An Executive Order by the governor provided OMF with the responsibility for coordinating all environmental work by California State agencies at closing military bases.

Hazardous Waste Facility Permitting

TSCP's facility Permitting program was mandated by AB 1593 (Lockyer) in 1977 and took effect in 1978. At that time, it was estimated that there were 1,300 major facilities in the state and as many as 6,000 small operations that would need to be permitted. From its inception, the Permitting program was designed to protect public health and the environment through the issuance of operating permits for facilities which treat, store, or dispose of hazardous wastes. The permit program provided a mechanism for in-depth inspections and a permit review of each hazardous waste facility at least every ten years.

Early '7Os municipal landfill dumping.

Improper disposal of hazardous wastes.

Staff gathers samples from site of illegal railroad dumping.

Surveillance and Enforcement

The Surveillance and Enforcement (S&E) program, established in 1976, by 1981, had grown to twenty-two inspectors from its initial field staff of six. Inspectors monitored facilities that generated, transported, treated, stored or disposed of hazardous wastes.

The purpose of field inspections and enforcement was simple: to ensure that hazardous waste generators, transporters and facility operators were complying with the laws and regulations. In a state as large and economically diverse as California, this proved to be an enormous undertaking. When the program began to take shape, it was estimated that the regulated community included 6,500 major generators, 440 waste transporters, 1,300 major on-site treatment, storage and disposal facilities, and 67 landfills.

S&E field investigations quickly revealed law violations. These included:

- dumping by hazardous waste truckers at unauthorized disposal sites;
- acceptance of hazardous wastes by operators not authorized to receive such wastes:
- unauthorized disposal on land owned by generators of the wastes, and
- careless procedures by generators, truckers and facility operators in the areas of storage, and disposal.

The early years of the program revealed that legal authorities needed to be strengthened and that definitive penalties for failure to comply with hazardous waste management laws and regulations were needed to serve as effective deterrents. AB 1593, (Lockyer) which established the Permitting Program, also gave TSCP clear inspection authority, including the right to enter and inspect hazardous waste facilities, collect and test waste samples, and to audit and review records required to be kept by facility operators. Thus began a period of strengthening hazardous waste management laws and regulations, lasting well into the '80s.

Significant Legislation of the '80s

AB 2408 (Tanner), expanded enforcement of hazardous waste regulations by granting city attorneys as well as district attorneys the right to prosecute violations of regulations. The legislation allowed penalties collected for violations to be used to pay local costs in prosecution and to offset local expenses for administering hazardous waste regulations.

AB 2700 (McCarthy), eliminated loopholes that had allowed industry to escape responsibility for cleaning up discharges. The amendment specified that both TSCP and the Regional Water Quality Control Board (RWQCB) could take immediate action ordering cleanup, with the right to obtain reimbursement later from the party found responsible.

SB 1465 (Garamendi), eliminated loopholes that had encouraged firms to cover up illegal hazardous waste practices by creating civil penalties of up to $25,000 for filing false reports or willfully withholding information from environmental regulators. Penalties of up to $5,000 per day also could be assessed for filing false or failing to file required chemical monitoring reports.

AB 2823 (Berman), requireed reporting to the State Office of Emergency Services all spills of hazardous materials, including those which would not otherwise be subject to regulation by either RWQCB or TSCP. Violations carried possible misdemeanor convictions and up to $20,000 in fines.

The '90s: The California Environmental Protection Agency and the Department of Toxic Substances Control Created

During the '90s major organizational changes took place within California's environmental regulatory programs. With the Governor's Reorganization Plan, the California Environmental Protection Agency (Cal/EPA) (July 17, 1991) was created. Under this order, the Toxic Substances Control Program under DHS became the new Department of Toxic Substance Control (DTSC).

The following decade saw a new focus for DTSC. While the early years established standards, performance expectations and an infrastructure for enforcing against hazardous waste law violators, the new department began to seek ways to be more innovative in accomplishing its mission. While the '70s and '80s were directed toward controlling waste once it had already been created the task for the '90s and beyond was to find new and better ways to reduce the creation of waste.

Pollution prevention and waste reduction began to re-emerge as a primary goal of regulatory agencies. The best available science in technical decision making processes began to take the place of some practices that were based on older scientific literature. Marketing incentives to develop and implement alternative environmental protection approaches became a new way of encouraging technical improvements. The development of graduated standards based on health risk for facility permitting, regulatory requirements and hazardous waste site cleanups all became areas of concentration for DTSC.

While DTSC's Site Mitigation Program continues to clean up sites identified during the Abandoned Site Program, it became apparent that there were many smaller, less contaminated sites that might not ever rise to the priority of larger sites. Historically, that meant that limited staff resources for oversight of cleanups had to go to the higher priority sites. This left many sites that might have easily been cleaned up and returned to beneficial use without needed department oversight and certification. To meet this need, the Voluntary Cleanup Agreement (VCA) Program was created. This program provided additional staff resources on a pay as you go basis. As long as there were responsible parties willing to pay oversight costs, additional staff could be hired to oversee and certify lower risk cleanups.

California's high environmental standards are also fostering the most advanced environmental technology, a technology industry that could partner with DTSC for the benefit of California's environment and economy. Based upon that vision, DTSC established one of the first environmental technology certification programs in the nation to better protect the environment while creating jobs. An environmental technology certification program was later implemented by all Cal/EPA environmental programs. It soon received the Innovations in Government Award from Harvard University for demonstrating that environmental protection and economic growth can co-exist. Bill Soo Hoo, first director of the Department of Toxic Substances Control describes that period:

> *"I believe the innovations and accomplishments during the early to mid 1990's are proof of the outstanding abilities of the men and women of DTSC. They were clearly inspired, not only inspired by their vision for a cleaner, healthier California but by the real opportunity in DTSC to leave the world a better place for our children."*

The 90s defined the transition from a "command and control" form of environmental regulation to include the concept of "compliance assistance". In the Hazardous Waste Management Program, DTSC developed the first Environmental Compliance School as an alternative to fines and penalties, believing it is compliance that protects the environment:

- DTSC also established a Consultative Services and Permit Application Assistance Program, and implemented Tiered Permitting as a model for national permit reform;
- DTSC also developed California's first computer software for one-stop state environmental permit applications at the Los Angeles Permit Assistance Center.

15,000 drums of illegally stored hazardous waste prior to explosion.

Approximately 15,000 illegally stored drums of hazardous waste explode in Southern California in the fall of 1989.

While program improvements marked the late '80s and early '90s, one of the most significant changes in hazardous waste management came as a result of the economic downturn in California during that period. Funding for DTSC's programs had been almost entirely through fees paid by the regulated industries. Since economic growth and production was down, fees were also down. In addition, several bills were introduced into the Legislature to "ease the regulatory burden" on an already depressed industry and economy by reducing fees even further. By the mid '90s, DTSC had, for the first time seen a turn around from its early rapid growth and began to experience significant program reductions.

Beginning in 1995, DTSC turned its attention toward establishing a stable funding base that would not tie environmental protection capability solely to the level and amount of fees that could be generated from fees. Jesse R. Huff, Director from 1995-1999 recalls from that time:

> *I came to the Department of Toxic Substances Control at the request of the Wilson Administration in February 1995, leaving the Integrated Waste Management Board. Possibly due to California's economic struggles, DTSC was seen by the Administration as seriously challenged. My reward was being able to participate in and advance the work of DTSC. It was my first experience as serving as Director of a "line" department and I thoroughly enjoyed my four years at "Toxics." I believe that during that time DTSC grew in maturity and stature. I believe that growth arose from the talents and abilities of the people of DTSC, but I do like to think that I facilitated it and protected it.*

The 21st Century

Today, DTSC continues a tradition of responsible and balanced regulation of California's hazardous waste control laws. Through a combination of fair and firm enforcement and compliance assistance, DTSC is providing the citizens of California a high degree of environmental protection and significant improvements in our environment. There is no question that hazardous waste facilities are cleaner and safer today than they were when this program began:

- Generators and transporters of hazardous waste operate today with better knowledge, practices and responsibility than ever before;
- Abandoned hazardous waste sites are being cleaned up in greater numbers every year and:
- With the implementation of the Administration's Brownfields Cleanup Program, more and more contaminated properties that might otherwise lie fallow will be cleaned up and returned to beneficial and safe use.

While benefits are numerous, there is still much more to do to protect and enhance our environment:

Pollution prevention or reducing waste before it is created is the way of the future:

Environmental Management Systems for industry place a high emphasis on responsible environmental behavior or stewardship for businesses and industry.

Though there is much more to be accomplished, the staff of DTSC has a well-deserved reputation for leadership in its field. That tradition will continue through the new century.

"Both of my predecessors have mentioned the quality and commitment of the DTSC staff that they saw during their tenure. I couldn't agree more. I had the pleasure of working with many DTSC staff prior to accepting Governor Davis' appointment as Director of DTSC and my experience over the last two years has enhanced my appreciation of their talent and professional approach to environmental protection. Much has happened since this organization started out as a four-person unit in the Department of Health Services. Over the years, staff has seen resources grow from meager to plentiful to strained and now we are again seeing steady improvements in meeting our resource needs. We will always recognize the need for strong and fair enforcement where people would choose to ignore their legal obligations. In addition, we will continue to foster compliance through regulatory assistance and training. During the past year, the Legislature has selected DTSC to oversee environmental reviews for all newly proposed school construction sites. This is a responsibility we accept with great appreciation of the need to provide our children a safe and healthy learning environment. We have entered the 21st Century with a commitment to continued excellence and to strive to utilize our resources in the most environmentally beneficial manner possible. I have no doubt that we will succeed."

— Edwin Lowry, Director

The Integrated Waste Management Board facilitated the recycled carpet. They used some of their money to help purchase this carpet, which would have not been standard issue for a building of this kind. It's laid in tiles with non-volitile organic compound based glues (another environmental feature). We have the ability to move these squares and reuse sections and move out of areas of great transit. Sections that are worn can be put in a corner where you can't see them anymore.

It extends the life of the carpet and the agreement in the lease of the carpet includes recycling at the end to the lease provided by the installer of the material."

—Winston H. Hickox, Secretary Cal/EPA

California's first significant regulation of solid waste disposal began with enactment of the Solid Waste Management and Resource Recovery Act of 1972 (Chapter 342, Statutes of 1972). This statute created the Solid Waste Management Board, giving it broad authority related to solid waste handling, disposal and reclamation. Principle responsibilities of the new agency were the creation of state solid waste management and resource recovery policy, development of minimum standards for solid waste handling and disposal, and approval of county solid waste management plans. Each of the state's 58 counties was given the responsibility of developing and submitting to the Board by January 1, 1976 a long-term solid waste management and resource recovery plan, subject to the approval of its incorporated cities.

In 1976, the Legislature created a permitting and enforcement program for solid waste facilities built around the concept of local enforcement agencies (Chapter 1309, Statutes of 1976). This fundamental element of the state's solid waste permitting and enforcement program remains intact today.

Early development of California's curbside recycling infrastructure was encouraged under a Waste Board grant program established by the Litter Control, Recycling and Resource Conservation Act (Chapter 1161, Statutes of 1977). Through grants to local government, nonprofits and private companies, the Board facilitated development of new curbside recycling technology and California became a national leader as these techniques became the standard for communities across the country. Local investigations of resource recovery (waste-to-energy) facilities were also supported through this program. In the early 1980s as many as 42 energy recovery plants were in the planning stages, although nearly all succumbed to environmental pressures. Only three were eventually built—in Long Beach, Commerce and Stanislaus County.

Long-term maintenance of waste disposal sites became a concern in the mid-1980s and in 1987 the Legislature enacted the Solid Waste Disposal and Site Hazard Reduction Act (Chapter 1319, Statutes of 1987). This law set new landfill requirements for financial assurances during operations and for planning and funding post-closure maintenance activities.

The California Integrated Waste Management Board was created and its authority and responsibilities were shaped by two pieces of legislation (AB 939 and SB 1322) signed into law as the Integrated Waste Management Act of 1989.

The Act established a new approach to managing California's waste stream, the centerpiece of which mandated goals of 25 percent diversion of each city's and county's waste from disposal by 1995, and 50 percent diversion in 2000, along with a process to ensure environmentally safe disposal of waste that could not be diverted.

The Board plays a central role promoting achievement of the waste diversion mandates that must be met by the state's local jurisdictions. It also fosters markets for recovered recyclables—a key component of its overall mission. And it enforces the legal provisions designed to protect the environment and the public's health and safety.

Before the passage of AB 939 (Sher, Chapter 1095, Statutes of 1989), Californians typically tossed all of their trash into galvanized cans to be hauled off to the local landfills. Some hardy souls did their own recycling of paper, cans and bottles, but there was no formal requirement in the state to do so.

After the passage of AB 939, recycling bins and special trash containers became familiar sites in California neighborhoods up and down the state. Paper, glass, aluminum, steel and plastic were among the first materials to be picked up routinely. Later, used oil, corrugated cardboard, and other materials were added.

The AB 939 (Sher) Legacy Unfolds

California continues to make progress toward the 50 percent diversion mandate. The statewide diversion rate reached 37 percent in 1999, continuing an upward trend that started with a rate of about 10 percent in 1989. The 1999 numbers also demonstrate how aggressively Californians have charted the shift from disposal to diversion: Between 1989 and 1999—a period of tremendous economic growth—statewide waste generation increased by 3.8 million tons, or 7 percent of total generation. Incredibly, during the same period, *statewide disposal increased by only 100,000 tons.* With searing clarity, this demonstrates that the programs and the infrastructure are working: Of the nearly 4 million additional tons of waste generation, 97 percent was diverted and source reduced.

AB 939, by Assembly Member (now Senator) Byron Sher, also set the stage for a series of reforms affecting waste management at the State and local levels, which resulted in the creation of a statewide collection infrastructure and a cultural shift that has elevated conservation of resources over the convenience of disposal. Sher has continued to be active with legislation to protect the environment, but AB 939 is an example of how a single law can produce a sea change in public behavior.

The Act, along with Title 14 and Chapter 15 of California's environmental regulations, also provided the foundation to put the state on course to comply with federal standards (Subtitle D) for managing solid waste, including the design, construction and operation of landfills. In 1993, California became one of the first states to receive federal approval to assume authority over its solid waste activities, having actually exceeded the federal standards through the adoption of more stringent State regulations. Since then the environmental performance of waste handling facilities in California have steadily improved and today rank the state as a world leader.

In the AB 939 era, the sight of fully packed garbage trucks delivering waste to local landfills (including some landfills made obsolete by new standards) has been supplanted by a network of material recovery, recycling and transfer station facilities, and state-of-the-art landfills. This network is recovering recyclables from hundreds of daily deliveries, and consolidating the residual solid waste into trailers for more efficient and less environmentally problematic transportation to regional landfills that are dozens to hundreds of miles away.

A Consensus for Change

When AB 939 became law, California was diverting only about 10 percent of the more than 40 million tons of waste generated in the state. Per capita waste disposal was more than twice the national rate. And much of this waste was being disposed of in aged, unlined landfills with the potential for leaking into valuable groundwater aquifers.

In one massive stroke, the Act delivered a plan to correct the course. It was forged from consensus, reflecting input from the full range of public and private sector stakeholders. It was passed by a Legislature controlled by one party and signed into law by a governor of another party. It was accepted by competing private sector interests, and embraced as a thoughtful approach to a daunting challenge.

> *…the new board…would be required to encourage planning that reduces, recycles and reuses garbage to the maximum extent possible…the Sher approach (AB 939) makes the most sense because it seeks to bring some regulatory order to the garbage mess.*
>
> —Editorial,
>
> Sacramento Bee, May 11, 1989

Estimated California Solid Waste Tonnages and Diversion Rates

	Estimated Diversion[b]	Reported Disposal[b]	Estimated Generation[b]	Estimated Diversion Rate
1989[a]	5.0	44.0	49.0	10%
1990	8.5	42.4	50.9	17%
1991	9.7	39.5	49.2	20%
1992	10.2	38.4	48.6	21%
1993	11.4	36.7	48.1	24%
1994	12.4	36.3	48.7	25%
1995	13.7	36.0	49.7	28%
1996	15.9	35.0	50.9	31%
1997	17.0	35.5	52.5	32%
1998	18.5	37.4	55.9	33%
1999	22.2	37.5	59.7	37%

[a] *1989 estimates are based on the best available data at that time. All later estimates are derived from base year data, including adjustments approved by the Board since 1996 that reflect jurisdictions' more extensive review of the data. These adjustments have increased the generation estimates, causing a jump in the diversion rate from 1989 to 1990.*

[b] *Data values in millions of tons.*

A decade later, California demonstrates that tremendous progress has been made in response to the Act and many of its achievements are permanent and represent a continuing benefit to the state in future years. Yet questions remain unanswered as to how the State will address the 50 percent requirements beyond 2000 and 2006.

Achievement in Response to the Act

Waste Diversion

Since 1990 Californians have diverted nearly 140 million tons of solid waste from landfills—enough to fill a line of garbage trucks that would circle the earth more than four times. California's rate of waste diversion has more than tripled since the time AB 939 was enacted.

In just 10 years, local governments have quantified and characterized their waste and identified, selected and voted on programs designed to achieve the mandates. In concert with the range of stakeholders and private industry, an infrastructure was and is being designed, specified, funded, built, equipped, blessed by governing bodies, and operated. Today, California has a broad-based infrastructure in place and growing that will accommodate diversion of at least half the state's entire waste stream.

California's progress is sternly tested by a number of factors:

- California's soaring economy, which greatly increases waste generation.
- The fact that many waste reduction programs being implemented by local jurisdictions still have not reached their full potential; others are coming on line and hold great promise.
- While California's marketplace may set the standard for accepting post consumer materials into the mix, segments of the economy remain untapped, and some are subject to fluctuating, and often meager, secondary materials markets.

The latter has presented a particularly difficult challenge for the Board as it devised strategies designed to stimulate markets and promote entrepreneurial activity without intruding into a marketplace that belongs to businesses and consumers.

Legislation has been signed affording local jurisdictions time extensions to meet the mandate. Senate Bill 1066 (Sher), in particular, enables the Board to grant extensions of up to five years beyond 2000 to jurisdictions that are struggling to meet the mandate but have in place a plan to comply with the law within the period of the extension.

With regard to the landfill capacity crisis, California's leadership in recycling is not, and never has been, exclusively a product of landfill capacity. While capacity may not be the clarion call it once was nationally, California remains a place where new landfill proposals are subject to an intense review often several years in length. More important, however, is the fact that the Act responded to the dire need for an integrated approach to waste management. This approach, which is enabling California to more sensibly handle its waste and conserve resources, is embodied in a new infrastructure, which will benefit the state for generations to come.

The Infrastructure

The state's new waste management infrastructure is the crown jewel in California's quiet revolution in waste management. Put into place by private industry and local government over the last decade, it represents an investment of hundreds of millions of dollars. As an infrastructure now ensconced in every region of the state, its benefits to California will be delivered not just over the short term, but well into the future.

Where once only landfills stood, scattered across California today are technologically and environmentally sound facilities adeptly designed to divert waste for reuse. Material recovery facilities, transfer stations, composting operations, and other facilities are an integral part of California's waste handling activities.

Other important elements of the infrastructure include waste reduction and recycling programs created by local jurisdictions, and partnerships of public and private sector interests working to break down barriers and expand material recovery opportunities for local governments and private businesses.

One of the ongoing benefits of these resilient partnerships is the growing acceptance among private enterprise that waste reduction and recycling activities are good for the bottom line as well as the environment. Programs integrated into business operations large and small are reaping millions of dollars in annual savings through reuse and avoided disposal costs.

Public Commitment

Californians, for their part, have embraced this effort that, above most other environmental protection programs, allows everyone the chance to participate—to make a difference by reducing, reusing, recycling, and buying products made with recovered materials. Today, an estimated 28 million Californians have access to curbside recycling, and, since passage of the Act, residential yard waste collection has expanded by an astounding 450 percent.

While recycling and waste reduction have become common household practices, many people are taking action outside the home as well. For instance, eliminating excessive packaging for many items, including compact discs and fast food meals, was the direct result of consumer demand. Interestingly, the intensity of this consumer awareness is partly driven by the recycling message that children bring home from school.

Public Health and Safety

The Board's efforts over the last decade have substantially improved public health and safety as it relates to the siting and operation of waste handling facilities including landfills:

- The Board certified 56 local enforcement agencies that ensure operating standards are adhered to at the local level.
- The Board revised and brought up to date more than 500 permits to reflect new performance standards.
- The number of long-term violators has been reduced from 48 to 18.
- Nearly 90 closed, illegal, or abandoned waste sites have been, or are in the process of being cleaned up. The Board, through the State-funded tire pile cleanup program, has removed more than 10 million tires from 30 sites around the state.

The Board has also been innovative in its efforts to build a solid regulatory framework. In 1994, the Board established a tiered permitting structure to ensure that waste facilities are regulated at a level reflecting the environmental risks associated with their particular operations. This tiered approach—lauded by industry, local government, and environmental interests—is one of several reforms undertaken by the Board to simplify, streamline, and otherwise improve regulatory efficiency.

Toward Full Implementation of the Act

Priority Areas

In 1997 the Board, through collaboration with affected parties, identified four key elements to achieving 50 percent diversion of waste: greater recycling and reuse of *organic materials and construction and demolition waste,* which collectively account for nearly half of the state's waste stream; improving *facility compliance;* and *assistance to local jurisdictions* accountable for meeting the mandate. While considerable progress has been realized in all areas, more work remains to be done, and several obstacles must be overcome before 50 percent is achieved.

Market Development

Expanding markets for recovered recyclables is absolutely essential to making further progress in the state's waste diversion efforts. Central to this is solidifying a "buy recycled" ethic, especially in the commercial sector. To date, the Board has aggressively assumed an advocacy role in support of market development, implementing key initiatives outlined

in its 1993 and 1996 market development plans. As of result of these plans and the market development aspects of SB 1066, the Board sought and received additional funds to bolster its efforts.

The Board's Recycling Market Development Zone program is the first of its kind in the nation. These enterprise zones for recycling-based manufacturing activity today number 40 around the state. Startup and expanding recycling businesses located in the zones are eligible for technical and financial assistance, including low-interest loans and tax credits.

Through this program, more than 4,000 new jobs have been created, and each year more than 7.6 million tons of waste is being diverted.

The Board's statutory enforcement role also fosters the expansion of markets. In the area of plastics, for instance, the Board is responsible for ensuring minimum recycling rates for a wide range of plastic packaging material. Through oversight, technical assistance, and (when necessary) compliance agreements with product manufacturers, the Board spurs expanded recycling and use of recycled plastics in the marketplace.

All these efforts will be pivotal in the commercial sector, which generates more than half of the state's waste. While many businesses have embraced the benefits of waste reduction and recycling, most have yet to capitalize upon historically untapped resources in recovered recyclables. Since businesses are not subject to the mandates of the acts, the state's challenge will continue to be helping private companies identify prudent, productive voluntary programs, while encouraging cooperative efforts between private enterprise and local jurisdictions.

Public Outreach and Environmental Education

As required by law, a public education and outreach component exists for virtually every Board program. The Board's efforts provide an opportunity to improve education and make school operations more resource efficient, through a variety of initiatives, including the Closing the Loop curriculum, which facilitates partnerships among environmental organizations and provides grant funding for school waste reduction programs.

State Agency Responsibility

State agencies are also required by law to establish recycling programs and buy recycled-content products. The Board promotes and monitors progress by each State agency through its Project Recycle program and the State Agency Buy Recycled Campaign

State agencies should be an example for others and a force around California in the area of recycling and resource conservation.

Some progress has been made. Under Project Recycle, the number of State facility recycling programs has increased from 150 in 1991 to more than 1,800 today; the amount of material recycled during this period has expanded from only 2,000 tons a year to more than 63,000 tons a year. Nevertheless, the overall level of performance trails far behind the percentages of local jurisdictions striving to meet the requirements of the Act.

To address this need, 1999 legislation established State agency diversion mandates of 25 percent in 2002 and 50 percent in 2004, requiring each agency to also adopt an integrated plan to achieve the mandates. The Board is now assisting agencies in developing their plans

The Board is also the driving force behind the State's Green Building Task Force whose goal is to institutionalize sustainable building practices as part of State construction projects in an efficient, practical and cost-effective manner.

Tires

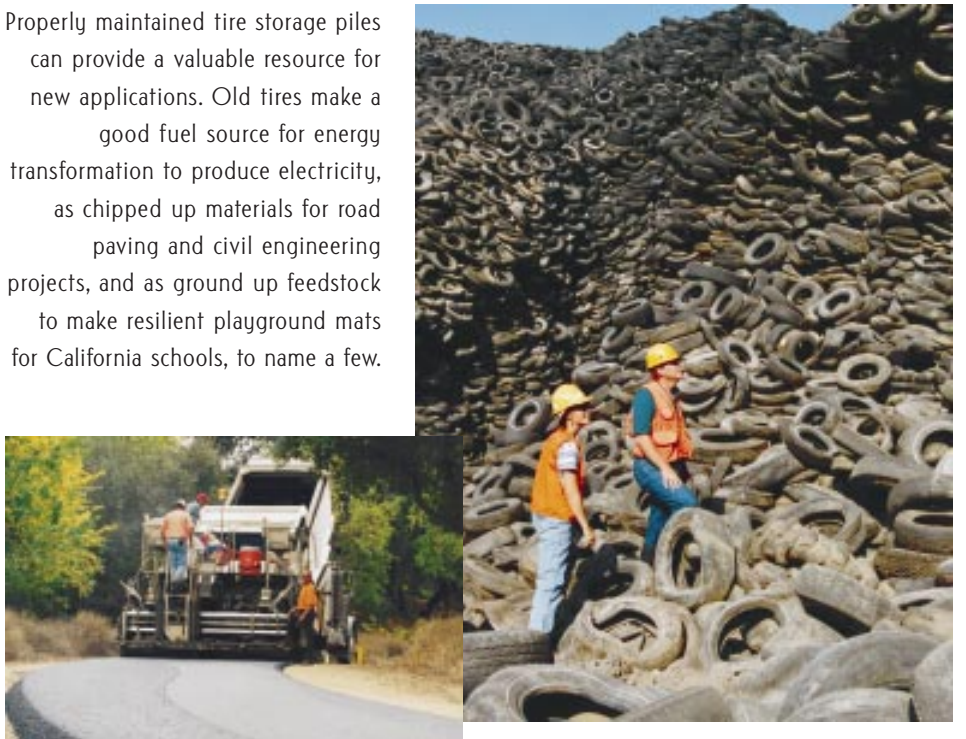
California generates approximately 30 million tires every year. It is generally accepted that using products made from used tires is the ultimate solution to the waste tire problem.

Since 1990–91, market development expenditures related to used tires has totaled $13.95 million. Areas of special emphasis include use of rubberized asphalt concrete and playground mats. To promote greater acceptance and use of rubberized asphalt concrete by local governments, the Board has allocated more than $1.5 million to establish two technology centers located in Los Angeles and Sacramento.

The Board has also facilitated secondary uses for waste tires through its waste tire stabilization and abatement program. Of the 10 million tires removed from illegal and abandoned sites around the state since 1995, 84 percent went to productive end uses, including use as alternate daily cover, in waste-to-energy facilities, and in civil engineering applications. The remainder went to legal disposal.

Set to expire on January 1, 2001, the Board's tire program was reauthorized and strengthened by new legislation signed into law in September 2000.

Properly maintained tire storage piles can provide a valuable resource for new applications. Old tires make a good fuel source for energy transformation to produce electricity, as chipped up materials for road paving and civil engineering projects, and as ground up feedstock to make resilient playground mats for California schools, to name a few.



Old tires are recycled into chipped up materials for road paving and civil engineering projects.

Used Oil

The Board's used oil and household hazardous waste program develops and promotes alternatives to the illegal disposal of household hazardous waste. Created to promote proper handling, safe disposal and recycling, the programs are providing added benefit to the state's efforts to reduce storm water pollution as a consequence of public awareness messages that warn about dumping in storm drains.

Progress and Promise

While a number of issues and action items demanded by the drive toward 50 percent diversion remain, California's response to the Integrated Waste Management Act has been a success and underscores considerably more than numerical progress. It reflects a sea change in attitude and action. With an imposing infrastructure in place, programs coming on line and maturing, and millions of Californians committed to making a difference at home and as consumers, California's campaign to more sensibly handle its waste is well positioned to achieve greater success.

"The State Water Board has never had the luxury of advocating protection of just one water need, such as the environment or agriculture or that of large cities."

—Don Maughan, Water Board Chair 1986-1992

Balancing Demands, Protecting Uses

Water is California's lifeblood, vital to every aspect of our lives. Water has played a major, and often contentious, part in the shaping of our state since California entered the union in the mid-1800s.

Through a ballot initiative in the early 20th Century, voters passed a Constitutional amendment declaring that users of our water resources "shall put water to the highest beneficial use possible and shall not waste water or use it unreasonably."

More than 30 years ago, the California Legislature recognized that we would not have enough clean water for agricultural, municipal, industrial, environmental and other uses unless water quality and water quantity decision-making were coordinated. So it was that the State Water Resources Control Board was created and given the broad authority and immense responsibility to not only protect water quality, but to balance competing demands on our water resources and attempt to resolve decades-long water disputes.

This new regulatory board merged the functions of two previous Boards: the State Water Quality Control Board and the State Water Rights Board. The former had its roots in the late 1940s, when legislators created a more streamlined regulatory body to address the rising water quality problems associated with the state's explosive industrial and population growth. A water rights commission, which preceded the water rights board, was created in the early 1900s to arbitrate and resolve the state's water battles, which began during the 1849 Gold Rush. Back then, prospectors from throughout the world raced to the Sierras to stake their claims, using the cold mountain streams as an invaluable pathway and tool to unearth this precious metal.

Today the five-member State Water Board allocates water rights, adjudicates water right disputes, develops statewide water protection plans, establishes water quality standards, and guides the nine Regional Water Quality Control Boards located in the major watersheds of the state. The Regional Boards, each comprised of nine members, serve as the frontline for state and federal water pollution control efforts. A Basin Plan tailored to its unique watershed and providing scientific and regulatory basis for each Regional Board's water protection efforts guides each Board

To better understand complexity of the State Water Board's charter, it is important to grasp the evolution of water rights and water protection as it evolved from gold mining days, through the 20th century and the birth of the environmental movement in the late 1960s, to the new millennium with its increasingly complex, interrelated water issues.

The Early Years

Surface Water

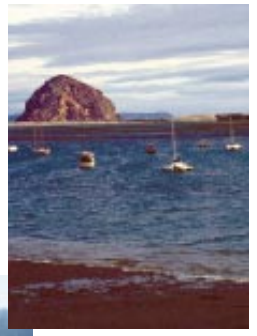
Water rights law in California is markedly different from the laws governing water use in the eastern United States. Seasonal, geographic, and quantitative differences in precipitation caused California's system to

develop into a unique blend of two very different kinds of rights: riparian and appropriative. Other types of rights exist in California as well, among them reserved rights (water set aside by the federal government when it reserves land for the public domain) and pueblo rights (a municipal right based on Spanish and Mexican law).

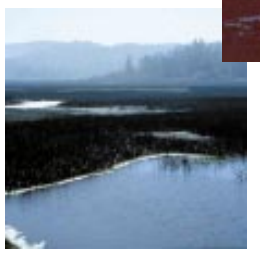
Riparian rights entitle the landowner to use a share of the water flowing past his or her property. While riparian rights require no permits or licenses, they apply only to the water that would naturally flow in the stream and they do not allow the user to divert water for storage or use it on land outside its watershed. Riparian rights remain with the property when it changes hands.

Water right law was set on a different course with the Gold Rush. Water development proceeded on a scale never before witnessed in the United States as the '49ers built extensive networks of flumes and waterways to work their claims. The water carried in these systems often had to be transported far from the original river or stream. The self-governing, maverick miners applied the same

Through its water rights process, the State Water Board protected tributaries that fed into the majestic Mono Lake, shown above.



Morro Bay



The Russian River

"finders-keepers" rule to water that they did to their mining claims—it belonged to the first miner claiming ownership.

To stake their water claims, the miners developed a system of "posting notice" which signaled the birth of today's *appropriative* right system. It allowed others to divert available water from the same river or stream, but their rights existed within a hierarchy of priorities. This "first in time, first in right" principle became an important feature of modern water right law.

When California entered the Union in 1850, one of the first actions taken by its lawmakers was to adopt the common law of riparian rights. One year later, the Legislature also recognized the appropriative right system as having the force of law. The appropriative system continued to increase in use as agriculture and population centers blossomed and ownership of land was transferred into private hands. This is the basis of a series of disputes which have continued through today.

The conflicting nature of California's dual water right system has prompted numerous legal disputes. Unlike appropriative users, riparian right holders were not required to put water to reasonable and beneficial use. This clash of rights eventually resulted in a constitutional amendment requiring all water

Northern California coast

use to be "reasonable and beneficial." These "beneficial uses" include municipal and industrial uses, irrigation, hydroelectric generation, livestock watering, recreational uses, fish and wildlife protection, and aesthetic enjoyment.

Up to the early 1900s appropriators—most of them miners and nonriparian farmers—had simply taken control of and used what water they wanted. Sometimes notice was filed with the county recorder, but no formal permission was required from any administrative or judicial body.

The Water Commission Act of 1913 established today's permit process and created the agency that later evolved into the State Water Board. That agency was given the authority to administer permits and licenses for California's surface water.

Riparian rights still have a higher priority than appropriative rights. The priorities of riparian right holders generally carry equal weight and during a drought all share in the shortage.

In times of drought and limited supply the most recent ("junior") right holder must be the first to discontinue use; each right's priority dates to the time the permit application was filed with the State Water Board. Although pre- and post-1914 appropriative rights are similar, post-1914 rights are subject to a much greater degree of scrutiny and regulation by the Board.

The State Water Rights Board, created in 1956 as part of the same legislation that created the Department of Water Resources, recognized that the Department would both hold water rights and operate water project facilities. The Legislature created an independent board to administer the water right functions of state government thus avoiding a potential conflict of interest by the Department.

Groundwater

California has no permit process for regulating groundwater use. Prior to 1903, the English system of unregulated groundwater pumping had dominated, but proved to be inappropriate to California's semi-arid climate. In most areas

of the state, landowners whose property overlies groundwater may pump it for beneficial use without approval from the State Water Board or a court. In several Southern California basins, however, groundwater use is regulated in accordance with court decrees. In the 1903 case *Katz v. Walkinshaw*, the California Supreme Court decided that the "reasonable use" provision governing other types of water rights also applies to groundwater.

The Early Years Of Water Pollution Control

In the mid-1940s, outbreaks of water-borne diseases, degradation of fishing and recreational waters, coupled with rapid war-time industrial development and population growth prompted a new appraisal of water pollution control in California.

- While there were numerous governmental agencies with varying degrees of jurisdiction over waste disposal, public health, or water, attempts to address and solve new pollution concerns in a planned, orderly, and reasonable manner were largely unsuccessful.
- Cities were faced with a need to build large capital improvement programs for pollution control. Industries, confronting unanticipated demands, found many differing interpretations of numerous laws and overlapping authority among the various local, state, and federal regulatory agencies.
- New industrial developments were hampered because regulators were unable to provide definite assurances about what conditions must be met or what pollution control works would be required.
- All affected interests—urban, industrial, agricultural and recreational water users—sought both more effective and more equitable water pollution control.

In 1949, the California Assembly Committee on Water Pollution realized that existing laws and procedures were cumbersome and often unreasonable. Numerous jurisdictions tried to implement the laws amidst much hostility from the hundreds of agricultural, industrial, and recreational interests involved. The committee concluded that the state had reached the point where continued population and industrial growth would soon exhaust water supplies. California's limited water resources could only be protected and conserved if regulators found a way to maximize water quality objectives and economic use and reuse.

Sweeping changes in California's approach to water pollution control and water quality were recommended. Specifically, the committee stated:

> *"Water pollution is largely a local or regional problem…but it also involves conflicting interests of the State and the Nation. Channeling all interests through a single focal point at the local level will provide the missing link necessary to abate, control, and prevent water pollution effectively and equitably."*

Heeding the committee's recommendations, the California Legislature enacted the Dickey Water Pollution Act that took effect October 1, 1949.

Dickey Water Pollution Act: Creation of State Water Pollution Control Board

The Dickey Act created a "State Water Pollution Control Board" consisting of nine gubernatorial appointees representing specific interests and four ex officio state officials. Its duties included (1) setting statewide policy for pollution control and (2) coordinating the actions of those state agencies and political subdivisions of the state in controlling water pollution.

The Legislature realized that California's water pollution problems were primarily regional and depended on precipitation, topography, and population, as well as recreational, agricultural, and industrial development, all of which vary greatly from region to region. The committee's report noted that the snow-capped mountains of the Sierra Nevada differ from the Mojave Desert as significantly as Vermont differs from Arizona; and the industrialized Los Angeles basin and San Francisco Bay area are as different from the San Joaquin Valley or the North Coast as New York Harbor is from central Texas or Washington state.

The Dickey Act established nine regional water pollution control boards located in each of the major California watersheds. The Boards have primary responsibility for overseeing and enforcing the state's pollution abatement program. Five gubernatorial appointees, representing water supply, irrigated agriculture, industry, and municipal and county government in that region, served on each Regional Water Board. (That number has since grown to nine members.)

Continuing Evolution Of Water Policy

While water pollution control remained the principal purview of the state board and nine regional boards, new appreciation for the impact of water quality on the lives of Californians evolved in the 1950s and 1960s.

Several measures were proposed to strengthen the then existing Water Pollution Control Board. It was renamed the "State Water Quality Control Board" and was charged with the broader field of water quality (rather than the limited field of sewage and industrial waste control).

The continuing question of how best to administer water quality programs occasioned further work by the Assembly Water Committee. Paul R. Bonderson was then chair of the Water Quality Control Board and recalled,

> *"I thought [what] should be done was to combine the Water Rights Board and the Water Quality Board, so we would have an overall water regulatory agency that would concern itself with both quality and quantity. There is a direct inter-relationship."*

There was a proposal at the time for the functions to be absorbed by the Department of Water Resources. Bonderson saw DWR as a "study/planning unit and water purveyor" and believed his idea would acieve "an appropriate separation of powers, and you would eliminate the conflict."

Recognizing that so many water issues in California involve both quantity and quality, the Assembly's 1966 and 1967 reports proposed a coordinated water regulatory program. These reports included statutory changes that were subsequently enacted and

in 1967 the "State Water Quality Control Board" and "State Water Rights Board" were merged and the "State Water Resources Control Board" came into being.

Porter-Cologne: California's cornerstone of water protection law

The State Assembly then asked a panel of industrial, agricultural, and state and local government members to report on needed revisions to existing water quality laws. In 1969, the State Legislature enacted the Porter-Cologne Water Quality Control Act, the cornerstone of today's water protection efforts in California.

Porter-Cologne, named for the late Los Angeles Assemblyman Carly V. Porter and then-Senator Gordon Cologne, was soon recognized as one of the nation's strongest pieces of anti-pollution legislation. Through it, the State Water Board and the nine Regional Boards have been entrusted with broad duties and powers to preserve and enhance all beneficial uses of the state's immensely complex waterscape. The new state law was so influential that Congressional authors used sections of Porter-Cologne as the basis of the Federal Water Pollution Control Act Amendments of 1972 (commonly known as the Clean Water Act). In 1970 Ronald B. Robie, then a member of the SWRCB wrote,

> *"The law provides a modern framework within which growth of the state's economy can be managed in a manner which enhances rather than desecrates the environment and water resources."*

The Clean Water Act required the states or the U.S. Environmental Protection Agency to set standards for surface water quality, mandate sewage treatment and regulate wastewater discharges into the nation's surface waters. It established a multi-billion dollar Clean Water Grant Program that, together with Clean Water Bond funding, approved by California's voters, assisted communities in building municipal wastewater treatment facilities.

During and following heavy rains, polluted materials discharged into a storm drain are carried directly to surface and ocean water. The Clean Water Act requires cities, industries and construction projects to obtain permits to discharge storm water.

The Clean Water Act, along with voter-approved bond programs, helped provide several billion dollars to construct or improve municipal wastewater treatment facilities, such as the one here.

The Southern California Coast

Rather than operate separate state and federal water pollution control programs in California, the State assumed responsibility for implementing the Clean Water Act. This involved melding state and federal processes together for activities such as setting water quality standards, issuing discharge permits and operating the grants program.

A Mandate To Balance All Water Uses

Since its creation in 1967, the State Water Board has always followed its original mandate to balance, to the extent possible, all uses of California's water resources be they domestic, agricultural, or environmental. The onerous task—balancing competing water needs in a state where water supply can be located hundreds of miles from its heaviest demand—is often difficult.

Today's challenge is exacerbated by California's rapid population growth, and the continuing struggle over precious water flows. The State Water Board also faces tough new demands:

- to fix ailing sewer systems;
- to build new wastewater treatment plants;
- to tackle the cleanup of underground water sources impacted by the very technology and industry that has catapulted our state into global prominence.

Additionally, the State Water Board will continue to throw its regulatory energy at a most vexing problem—nonpoint source pollution, or polluted runoff—which, unlike industrial pollution of the latter half of the Twentieth Century, cannot be easily categorized, isolated or resolved.

The late State Water Board Chairman, Don Maughan, best expressed the work of the State Water Resources Control Board when he stated:

> *"The State Water Board has never had the luxury of advocating protection of just one water need, such as the environment or agriculture or that of large cities. Our charge is to balance all water needs of the state. Some call it a superhuman task, but through the years this Board, aided by its excellent staff, has done what I call a superhuman job of accomplishing that mandate despite the intensive historical, political, and economic pressures that always accompany California water issues."*

"The ARB considers the development of zero emission technology vital to meeting our mission of clean air, while maintaining economic growth. California's unique geographic and economic features demand new technologies."

—Dr. Alan Lloyd, Chair,
California Air Resources Board

From its magnificent mountains to its sandy beaches there are many outstanding natural features that give California its identity. Unfortunately, having the most cars and correspondingly some of the nation's worst air pollution is also one of these trademarks.

In 1967, California's Legislature passed the Mulford-Carrell Act, which combined two Department of Health bureaus—the Bureau of Air Sanitation and the Motor Vehicle Pollution Control Board—to establish the Air Resources Board (ARB). On February 8, 1968, the first meeting of the ARB was held in Sacramento. Since its formation, the ARB has worked with the public, the business sector and local governments to find solutions to California's air pollution problem. The resulting state air quality standards set by the ARB continue to outpace the rest of the nation and have prompted the development of new anti-smog technology for industrial facilities and motor vehicles.

ARB's mission is to promote and protect public health, welfare and ecological resources through the effective and efficient reduction of air pollutants, while recognizing and considering the effects on the state's economy.

An 11-member board appointed by the governor governs the ARB. Six of the members are experts in fields such as medicine, chemistry, physics, meteorology, engineering, business and law. Five others are elected officials who represent regional air pollution control agencies—one each from the Los Angeles region, the San Francisco Bay area, San Diego, the San Joaquin Valley and another to represent other, more rural areas of the state.

The ARB also oversees the activities of 35 local and regional air pollution control districts. These districts regulate industrial pollution sources. They also issue permits, develop local plans to attain healthy air quality and ensure that the industries in their area adhere to air quality mandates.

The "Father" of Air Pollution Control

Dr. Arie Haagen-Smit, known by many as the "father" of air pollution control, was a Dutch-born graduate of the University of Utrecht and a professor of biochemistry at the California Institute of Technology, Pasadena for 16 years before beginning his air pollution research in 1948.

An avid gardener in the Los Angeles region, Dr. Haagen-Smit first became concerned about damage to his plants, such as discolored leaves and undersized flowers. His curiosity led to a series of experiments that uncovered the chemical interactions to form smog. He found that most of California's smog is a result of photochemistry: when exhaust from motor vehicles and industrial facilities react with sunlight to create ozone. This break-through is the foundation upon which today's nationwide air pollution standards are based.

After serving as an original board member of the Motor Vehicle Pollution Control Board, formed in 1960, Dr. Haagen-Smit became the ARB's first chairman in 1968. Haagen-Smit died of lung cancer two months after the ARB laboratory in El Monte was dedicated in his name in March 1977.

Cutting Edge Research

The basis for all ARB programs is research into the causes of air pollution and their

Balloons are released to measure pollution in upper atmosphere.

Rooftop testing station measures emissions in the air.

effects on public health and the environment. From its first chairman, Dr. Haagen-Smit, to the present chair, Dr. Alan Lloyd, the ARB has led the country developing air quality standards based on its research efforts.

Some examples:

- The ongoing Children's Health Study, designed to assess the health effects of long-term air pollution exposure on Southern California children. The study includes over 3,000 children in 12 communities who undergo annual health examinations for up to 10 years. Although not yet complete, the study has already yielded important information, including a link between slow lung function growth and long-term exposure to outdoor air pollution
- A Fresno area study on the impact of air pollution on childhood asthma. The overall goal is to determine the effects of particulate matter, in combination with other pollutants, on asthmatic children. Still another ARB study is designed to determine how short and long term exposure to particulate matter affects the development and progression of cardio-vascular disease in the elderly. The study group of 4,000 men and women has been followed since 1990.

Community Health Program

In 2000, the Air Resources Board announced the Community Health Program, which studies the influences of air toxics and other air pollutants within individual neighborhoods. For the first time, the ARB is addressing the cumulative effects of exposure from multiple air toxics along with strategies to reduce these health issues.

The ARB has begun to review ambient air quality standards to ensure that they adequately protect children. ARB is looking at six communities to examine the effects of air pollution on children's health. As part of this effort, the ARB has begun monitoring selected schools, daycare centers and playgrounds in order to determine air quality.

Indoor Air

Californians spend, on average, about 87 percent of their day indoors. During that time they are often exposed to air pollution levels higher than those outdoors. ARB's Indoor Air Quality and Personal Exposure Assessment Program includes sponsored research, exposure assessment, the development of indoor air quality guidelines and public education and outreach to identify and reduce Californians' exposure to indoor air pollution.

Motor Vehicles

Californians set the pace nationwide in their love affairs with cars. The state's 34 million residents collectively own about 25 million cars, almost one for each man, woman and child, and drive more than most other Americans. Unfortunately, there is a consequence. Motor vehicles are California's number one cause of air pollution. Therefore, controlling pollution from cars and trucks is essential to reduce smog.

Through ARB regulations, today's new cars pollute 99 percent less than their predecessors did thirty years ago. Still, over half of the state's current smog-forming emissions come from gasoline and diesel-powered vehicles.

The ARB's efforts include:

- The nation's first motor vehicle emission standards in 1966. These standards produced bolt-on pollution controls, such

as air pumps that improve combustion efficiency. In 1970, the ARB required auto manufacturers to meet the first standards to control smog-forming hydrocarbon and nitrogen oxide emissions.

- The phase-out of lead because of concerns about its health impacts. Another benefit of this action was that manufacturers were then able to use catalytic converters to more effectively control tailpipe emissions.
- Efforts continue to reduce emissions of motor vehicles and fuels. Today's California gasoline contains less pollution-forming sulfur, benzene, aromatic hydrocarbons and olefins than most gasoline sold elsewhere in the nation. Use of cleaner-burning gasoline has removed the emissions equivalent of 3.5 million vehicles from California's roads. In 1999, the ARB also approved a rule that bans the additive MTBE in gasoline.
- California diesel fuel regulations require limits on sulfur and aromatic hydrocarbons lower emissions of particulate matter and nitrogen oxides. Diesel-powered vehicles account for about 30 percent of the nitrogen oxides and 60 percent of particulate matter (PM) emitted from California vehicles. In 1993, the first steps were taken to clean up diesel fuel.

In 1998 the ARB identified diesel particulate matter as a toxic air contaminant, which means the compound is a known human carcinogen. As part of that process, Cal/EPA's Office of Environmental Health Hazard Assessment completed a thorough health risk assessment. The findings revealed that diesel PM can cause life-shortening health problems ranging from respiratory illness to heart problems, asthma; and cancer.

Rules on diesel fuel and engine performance adopted between 1990 and 1998 have cut diesel PM by 90 percent. Today, the ARB is striving to further reduce diesel emissions. New data show that diesel particulate is the most common airborne toxic that Californians breathe. As a result, the ARB has developed a 14-point program, the Diesel Risk Reduction Plan, to slash diesel emissions in the next decade.

This plan will retrofit new and existing engines with PM filters. This would reduce PM emissions by nearly 90 percent from today's levels. A major component of the plan calls for extensive use of low sulfur diesel fuel. Like removing lead from gasoline 20 years ago, this requirement is leading the way to new technological advances in automotive engineering.

To help cut emissions from the state's more than 1.25 million diesel engines, California has invested in a number of incentive programs to help the owners of diesel engines upgrade or replace them with cleaner-burning alternatives, such as compressed natural gas or electric-powered technology. Today, more than $170 million annually is available to help make those conversions and protect California's public health from the threat of diesel exhaust.

To further control motor vehicle emissions and maintain pollution reductions to date, the ARB is making efforts to place more zero emission vehicles (ZEVs) on the road. In 1990 the ARB approved a rule to require that ten percent of all 2003 model year cars offered for sale in California be ZEVs. In February 2000, a similar ruling was adopted for transit buses, requiring transit agencies to demonstrate zero-emissions buses (ZEBs) in 2008 and to purchase 15 percent ZEBs for their fleets thereafter.

Stationary Sources

While it is important to reduce air pollution from vehicles, it is not enough. Large industrial sources, such as refineries, factories and power plants must also meet state and federal air quality standards. These and other stationary sources, including gasoline service stations, dry cleaners, and bakeries, for example, are regulated by local air quality officials.

Industrial sources must use the best available control technology (BACT) to achieve the greatest feasible emission reductions. In addition to using advanced control technology in new factories, many older facilities have reduced their emissions by using retrofit equipment and switching to cleaner burning fuels.

Consumer Products

Smaller, more personal air pollution sources, known as consumer products, also affect our air quality. Products such as deodorants, hair spray and cleaning products contain ozone-forming chemicals knows as volatile organic compounds (VOCs).

In 1990, consumer products emitted about 264 tons of smog-forming pollutants each day. This is more than all the refineries and gas stations in the state combined.

California's clean air plan commits to an 85 percent reduction in ozone-forming pollution from consumer products. To accomplish this,

the ARB works with industry to make sure the regulations are technologically and commercially viable.

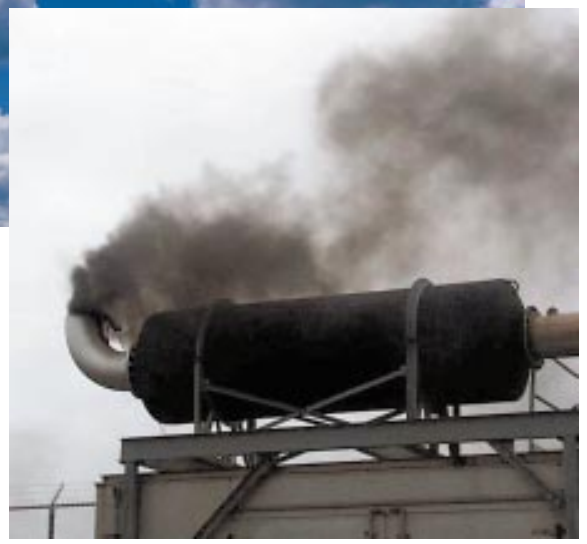
Toxic Air Contaminants

In 1977 the ARB appointed an independent panel of seven experts to review what was known about carcinogenic air pollutants in California. The panel recommended that follow-up research be done to explore further the relationship of cancer to air pollution and to determine the extent of the problem in California.

California's air toxics program began in 1983 with the adoption of the Toxic Air Contaminant Identification and Control Act (AB 1807, Tanner). The act set up a process to identify a substance as a toxic air contaminant and, if necessary, develop one or more control measures to reduce emissions of that substance.

California's program was enhanced in 1987 through the adoption of the Air Toxics "Hot Spots" Information and Assessment Act. For the first time, stationary sources were required to report the type and quantity of toxic substances their facilities routinely released into the air and to notify neighbors if health risks were posed. This law prompted several industries to voluntarily reduce their emissions below harmful levels.

In 1992 the Toxic Air Contaminant Identification and Control Act was further amended to integrate rules from the federal Clean Air Act.



The difference between clean and dirty air is not always this obvious.

Conclusion

As a result of the ARB's and local air district's work to limit air pollution, Californians today breathe the cleanest air since measurements have been recorded. The number of first stage alerts in the Los Angeles area has been cut from over 200 per year in the 1970s to less than 10 per year today. Other regions of the state also have improved air quality despite massive increases in population, the number of motor vehicles and the distances they are driven.

Cal/EPA's Air Resources Board continues to lead the world in the development of innovative air pollution control strategies to help protect California's public health from damage caused by air pollution.

"As we enter the next decade, we want to change the traditional way of thinking about pest management by reducing reliance on the most risky pesticides and promoting safer alternatives."

—Dr. Paul Helliker, Director, Department of Pesticide Regulation

California has regulated pesticides for more than 100 years. Its citizens—through their Legislature—have established a comprehensive body of law to control every aspect of pesticide sales and use and to assure that the state's pesticide regulators also have the tools to assess the impacts of that use.

The first pesticide-related law was passed in this state in 1901, and since the 1960s, a whole body of modern, increasingly science-based pesticide law and regulation has come into being.

The California Department of Pesticide Regulation (DPR) protects human health and the environment by regulating pesticide sales and use and by fostering reduced-risk pest management. DPR's strict oversight begins with product evaluation and registration, and continues through statewide licensing of commercial applicators, dealers and consultants, residue testing of fresh produce, and local permitting and use enforcement by agricultural commissioners in each of the State's 58 counties.

Early Pesticide Regulation: Focus on Consumer Fraud

Before World War II, pesticide regulation was a low priority at both the state and federal levels. Few pesticides were used in agriculture, primarily insecticides and fungicides. There was little concern about their long-term effects on health or the environment.

The focus of pesticide regulation in the early 20th century was on protecting pesticide users from fraud by ensuring product quality. Pesticides, like many products of the time (including foods and drugs), were often adulterated or mislabeled. It was not unusual for manufacturers to make extravagant claims for products that were useless at best, and sometimes destructive to the plants on which they were used.

California's first pesticide law, passed in 1901, charged the Director of the Agricultural Experimental Station with ensuring the quality of a single product, an arsenic-based chemical known as "Paris Green."

In 1910, Congress passed the Federal Insecticide Act, essentially a labeling law concerned with protecting consumers from ineffective products or deceptive labeling. It contained neither a federal registration requirement nor any significant safety standards.

California's parallel legislation, the State Insecticide and Fungicide Act of 1911, was also primarily concerned with mislabeling and adulteration, but went beyond federal law in that it required pesticides be registered (with the University of California) before they could be sold.

In 1921, the Economic Poison Act, transferred responsibility for pesticide registration to the California Department of Agriculture (CDA), created two years before from the State Commission on Horticulture. ("Economic poison" was a synonym used for "pesticide." Legislation in the 1990s substituted statutory references to "economic poison" with the more commonly understood "pesticide.") The 1921 law expanded CDA's authority beyond insecticides and fungicides.

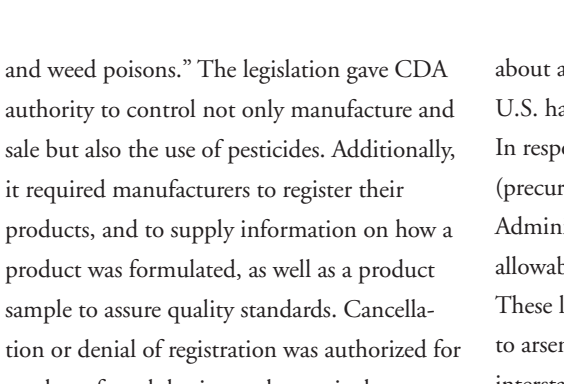
A 1921 Department report described the law as "a novelty in legislation of this type, there being no other law, state or national, regulating the manufacture and sale of rodent poisons

and weed poisons." The legislation gave CDA authority to control not only manufacture and sale but also the use of pesticides. Additionally, it required manufacturers to register their products, and to supply information on how a product was formulated, as well as a product sample to assure quality standards. Cancellation or denial of registration was authorized for products found detrimental to agriculture or public health.

To put teeth into this provision, the act was amended in 1929 to give CDA authority to require "practical demonstration as may be necessary" to determine that products were effective and that they were not "generally detrimental or seriously injurious to vegetation." This first limited ability to call in data was necessary to provide legal grounds to deny or cancel registration.

The 1920's: Residues on Food Become a Concern

In 1926, the state's pesticide regulators began analyzing small quantities of fresh produce for residues. A public outcry in Great Britain about arsenic-treated fruit coming in from the U.S. had led to the threat of a British embargo. In response, the U.S. Bureau of Chemistry (precursor to the U.S. Food and Drug Administration) set the first federal limits on allowable pesticide residues on harvested fruit. These limits—called tolerances—applied only to arsenic residues on apples and pears in interstate commerce and for export. In 1927, the California Legislature passed the Spray Residue Act to control residues of arsenic-based sprays on fruits and vegetables. California's new residue testing program was designed as much to promote marketing of the state's fruit as to safeguard consumers against harmful arsenic residues. (Only about 30 pesticide active ingredients were in use at the time, many of them toxic arsenic- and copper-based compounds.) The goal was to ensure that no shipments of California fruit were confiscated at their destination because of excess residues. Through the 1930s, the residue-monitoring program was expanded to include sampling for lead, fluorine, and copper. With the introduction of many new synthetic organic pesticides in the late 1940s, residue sampling expanded again to test for DDT and other organic compounds.



The Post-War Years and the "Green Revolution"

After World War II, many new synthetic organic pesticides found their way into agriculture, including agents that controlled nematodes and weeds, that defoliated plants and preserved wood, and that stimulated or retarded plant growth. These chemicals, along with new, high-yield plant varieties, chemical fertilizers, irrigation technology, and mechanization, helped prompt the so-called "Green Revolution." For several years following the war, pesticides were viewed as miracle chemicals. They substituted for higher-priced, labor-intensive weed and insect control methods and pest reducing practices. This chemical trend immediately reduced labor needs, provided more effective control, and increased yields.

In the late 1940s there was a dramatic increase in pesticide use. Growers experimented with the new products, applying them in a variety of ways on a variety of crops, sometimes with insufficient knowledge of their effects or toxicity. Benefits were immediately apparent—healthy plants and increased yields. However, there were problems as well. Drift caused damage to non-target crops and killed livestock and honeybees. Improper applications caused injury and death to workers and others.

New Chemicals Prompt New Controls

Legislation in 1949 led to the State's first regulations governing pesticide handling and imposing restrictions on certain pesticides with the potential to cause injury to people, crops, or the environment. Permits were required to possess or use these pesticides.

California's regulations continued to be fine-tuned throughout the 1950s as an increasing number of newly developed but highly toxic chemicals were introduced to the market. Detailed regulations were adopted including buffer zones to protect adjacent crops and residences, and restrictions on nozzle sizes, wind velocities, and other factors to limit drift.

Silent Spring: New Concerns About Long-Term Effects

The 1960s forever changed the way society viewed pesticides. Although problems had been apparent for some time—most notably, concerns about possible acute health effects and the increasing resistance of some pests to

the new products—the signal event was the publication in 1962 of *Silent Spring*. Author Rachel Carson presented compelling arguments that pesticides and other chemicals were being used with little regard for their impact on either human health or the environment. *Silent Spring* is widely considered to have sparked the modern environmental movement.

Many changes in federal and state law have come about since *Silent Spring*. In 1969, Congress passed the National Environmental Policy Act (NEPA), which required federal agencies to consider environmental matters before undertaking new actions.

In 1969 and 1970, landmark legislation in California required a "thorough evaluation" of pesticides before registration and gave the CDA clear authority to establish criteria for studies to be submitted by pesticide manufacturers. This legislation also gave the Department authority to restrict how pesticides may be used. The Director was also required to begin a program of continuous evaluation of pesticides and eliminate from use those posing a danger to the agricultural or nonagricultural environment.

Two years later, the Department hired its first "in-house" evaluation scientists to review data submitted to support registration requests

In 1972, CDFA began licensing agricultural pest control advisers, later requiring training and continuing education. Adviser licensing was directed at setting standards for professional conduct for those who advise growers on pest control methods by requiring that

pest control recommendations be in writing, making advisers legally accountable. In 1999, new regulations were adopted requiring that after 2002, prospective advisers must take more college courses related to integrated pest management and sustainable agriculture.

The 1970s saw an expansion of CDFA's pesticide enforcement focus. Federal grant money allowed the Department to upgrade its field offices with additional staff. This made possible more training and better supervision of the county agricultural commissioners, who have primary responsibility for field enforcement of the state's pesticide regulations. Field inspection procedures were standardized, their scope widened to include all aspects of pesticide use (with a particular emphasis on worker safety), record-keeping, storage, and disposal.

California's Environmental Quality Act and Its Impact on Pesticide Regulation

In 1970, California passed its own version of NEPA: the California Environmental Quality Act (CEQA), the state's principal law requiring environmental impact review of development projects in California and applies generally to all state and local agencies and to private activities that the agencies finance or regulate.

In 1976, the State Attorney General issued an opinion that the state's pesticide regulatory program had to comply with CEQA when registering a pesticide or granting a license, permit or certificate. In the same vein, county agricultural commissioners were required to prepare an EIR before approving several thousand permits issued annually to users of certain, high-hazard ("restricted") pesticides.

After a specially convened Environmental Assessment Team determined this was not feasible, legislation was passed in 1978 allowing for an abbreviated environmental review procedure, based on the Department's pre-registration evaluation of pesticides and requirements for site-specific permits for use of the more hazardous materials.

The 1980's: A Decade of Legislative Mandates

In 1983, Governor Deukmejian designated the pesticide regulatory program within CDFA as the lead in pesticide matters.

DPR's Director during most of the nineties James W. Wells remembers,

> *"I believe that Cal/EPA's most significant accomplishment in the early days was to foster better communication among departments and boards that had*

different environmental responsibilities. We all got to know each other better and our regular discussions on how air, water, toxics, waste and pesticide problems related to each other helped us find better solutions to those problems.

"The cleanup of the metam sodium spill in the Sacramento River, which faced the new Agency on the day of its birth, is a case in point. Although the spill was an ecological nightmare, the innovative response coordinated by Cal/EPA prevented an even greater disaster in Lake Shasta."

Increasing concern about air pollution resulted in the passage of the 1983 Toxic Air Contaminant Act giving the State broader authority over airborne toxins. While most of the control measures reside with the Air Resources Board, industry concerns about practical pesticide regulation led to special provisions for pesticides.

In 1984, the Legislature passed the Birth Defect Prevention Act requiring that all registered pesticides have complete and adequate chronic health effects studies. This increased the scope and responsibilities of CDFA's registration functions and led to the creation in 1985 of a separate Medical Toxicology Branch to evaluate toxicological data and prepare health evaluations and risk assessments, the only such program in the nation.

The Pesticide Contamination Prevention Act of 1984 focused on reducing the effects of pesticides in groundwater. The law required the Department to establish a database of wells sampled for pesticides, to collect data on the physical properties of pesticides that might lead to groundwater contamination, and to control the use of and monitor for these pesticides.

In the 1980s, the U.S. EPA began developing a national worker protection standard, initially modeling it on California's pioneering work in this area. Most elements of California's worker safety program exceeded the federal standard and, where it did not, regulatory changes were made to bring those portions into compliance.

During the 1980s, the decades-old residue-monitoring program was expanded and enhanced. The most significant addition was the Priority Pesticide Program, designed to provide data useful for accurate assessments of dietary risk. With it, the Department began targeted sampling of commodities known to have been treated with pesticides of health concern.

Pesticide Regulation Given Departmental Status

In 1991, California's environmental authority was unified in a single Cabinet-level agency—the California Environmental Protection Agency (Cal/EPA). As part of this reorganization, the pesticide regulation program was removed from CDFA and given departmental status as the Department of Pesticide Regulation within Cal/EPA.

Because DPR is responsible for regulating pesticide use in water, air, soil and biological organisms, the department has long had a cross-media program, working with staff of California's water, air and wildlife protection agencies through agreements to ensure a coordinated and effective approach to pesticide regulation regardless of the media involved.

The most notable accomplishments of the 1990s included fulfilling legislative mandates by completing collection of required health effects data on a priority list of 200 pesticides of highest health concern, and at the same time completing collection of environmental fate data on potential groundwater-polluting pesticides.

As part of its commitment to encouraging voluntary, community-based, pollution prevention programs, DPR is one of the few government agencies in the nation awarding grants to help develop innovative pest management practices that reduce the risks associated with pesticide use. A grants program established in 1996 was expanded in 1998 with a complementary program of public-private alliances targeted at reducing pesticide risks to workers, consumers, and the environment. The grants program embodies DPR's approach of funding small, localized projects that help groups take research results and move them into the field via applied research and demonstration projects that if successful, can be funded for broad geographic implementation.

Accomplishments and Future Directions

DPR's primary mission is ensuring the safe use of pesticides. Since its creation in 1991, the Department has made significant strides in enhancing worker and environmental protections, strengthening uniformity of enforcement in the field, streamlining the regulatory process to encourage registration of safer materials, encouraging the development and use of reduced-risk pest management practices, and using existing and new statutory requirements to ensure the completion of an up-to-date toxicological data base for all pesticide active ingredients.

"OEHHA has the experience and the wealth of knowledge to break new ground in the environmental health field and provide the scientific information to meet California's ambitious environmental goals. I want to make sure that happens."

—Dr. Joan Denton, Director, Office Of Environmental Health Hazard Assessment

California is known for trailblazing programs to reduce pollution and exposure to hazardous substances. These actions begin with scientists who identified the most significant pollutants, assessed the impact they can have on human health and the environment, and determined levels of these pollutants that pose a significant threat. These important responsibilities belong to the scientists who work in the Office of Environmental Health Hazard Assessment (OEHHA), the risk assessment arm of the California Environmental Protection Agency (Cal/EPA).

- The smallest of the six Cal/EPA statutory programs, OEHHA is not a regulatory agency in the traditional sense. It is the only office in Cal/EPA that has no enforcement authority, and its regulatory powers are limited. OEHHA is commonly known as the scientific arm of Cal/EPA.
- From its beginnings as an air epidemiology unit within the Department of Public Health (DPH) in the 1950s, OEHHA has grown into a well-respected concentration of toxicologists, epidemiologists, physicians, and other research scientists. Through risk assessment practices, the office's work helps establish the scientific basis for other regulatory programs, both within and outside of Cal/EPA, including those dealing with criteria air pollutants and air toxics, pesticides, drinking water safety, and hazardous waste.
- OEHHA is also the lead agency for Proposition 65, the landmark 1986 initiative approved by California voters to identify chemicals that cause cancer and reproductive harm. This Act also insures that harmful levels of these chemicals are not discharged into drinking water and that reasonable warning is given when people may be exposed to them.
- Finally, OEHHA operates the state's Registered Environmental Assessor program, which registers and maintains a list of qualified professionals to help businesses perform environmental work.

OEHHA officially came into its own on July 17, 1991 with the formation of Cal/EPA, but its roots extend back several decades to the early years of California's environmental awareness and desire to protect the health of its citizens.

The '50s ushered in a period of continued growth fueled by an expanding industrial economy.

Environmental consequences began to develop as well.

- Over 4.5 million cars populated California's highways, escalating air pollution, especially in the Los Angeles area, and California's citizens began to demand action.
- Federal recognition of the air pollution problem came in the form of the Federal Air Pollution Control Act of 1955 and;
- Four years later, California enacted legislation to establish air quality standards and necessary controls for motor vehicle emissions.

As part of this effort, the air epidemiology unit, headed by John Goldsmith, was to determine how air pollution affected human

health. The unit evolved over the years into OEHHA's Air Toxicology and Epidemiology Section (ATES), which continues to study the health effects of air pollution today.

The '60s continued a trend toward increased environmental awareness. In 1962, the toxicity of pesticides came to the forefront with the publication of Rachel Carson's "Silent Spring". The book fueled concerns about the adverse environmental impacts of excessive pesticide use and the safety of growers, farm workers, and the general public. Don Mengle was recruited to develop a pesticide program for monitoring and evaluating agricultural worker pesticide safety. This program was the forerunner of OEHHA's Pesticide and Environmental Toxicology Section (PETS).

The air epidemiology unit, along with most of DPH, was based in Berkeley and located, by design, across from the UC Berkeley School of Public Health. In 1966, following Ronald Reagan's election as California's governor, DPH was absorbed into a new health super-agency and its programs ultimately incorporated into the Department of Health Services (DHS). The department headquarters was relocated to Sacramento, with only the public health laboratories remaining in Berkeley.

On April 22, 1970, the first Earth Day set the stage for a plethora of environmental legislation on both federal and state levels.

- The U.S. Environmental Protection Agency (U.S. EPA) was formed and
- California took the first step toward standards for environmental assessment and accountability with implementation of the California Environmental Quality Act (CEQA).

In 1972, Congress approved both the Federal Water Pollution Control Act to control urban and industrial water pollution and the Federal Environmental Pesticide Control Act to provide federal and state control over pesticide use on national forest lands.

The focus on hazardous wastes intensified in the early '80s, following revelations surrounding the contamination of New York's Love Canal. The magnitude of the devastation on the health of people living in communities surrounding the Love Canal site was a sobering reminder that threats to human health and the environment could come from invisible chemical pollutants with no odor or taste. More than ever, there was a need to catalog these pollutants and assess their ability to cause cancer, birth defects, and other serious health ailments.

To deal with hazardous waste issues at the state level, Governor Jerry Brown created the Environmental Toxics Epidemiology Unit within DHS, the predecessor to OEHHA's Hazardous Waste Toxicology Section (HWTS). Proceeds from a $100 million state bond measure for hazardous waste site cleanup allowed HWTS to work with the Toxic Substance Control Division of DHS (now the Department of Toxic Substances Control under Cal/EPA) to evaluate health risks from sites and facilities that stored and disposed of hazardous waste. Some of the hazardous waste sites requiring the unit's expertise included the Stringfellow Acid Pits, the McColl waste site in Fullerton, and the Montrose Chemical Plant discharge of DDT into the Pacific Ocean.

In 1981, the Hazard Evaluation System and Information Services and Epidemiological Studies Section (ESS) concentrated on questions regarding the toxicity of pesticides. Because of interest in the field and progress made, the following year saw the ESS doubled in size and the Community Toxicology Unit was created.

In 1986, opinion polls indicated that fears surrounding the dangers of toxic waste were the number one concern of Californians. Proposition 65, drafted by a coalition of environmentalists to directly address this concern, struck a chord with voters, who approved the proposition by a significant margin. The first and only law of its kind in the nation, Proposition 65 has resulted in the familiar warning labels on gasoline pumps and alcoholic beverages, as well as the frequent newspaper advertisements placed by facilities using toxic chemicals.

Passage of Proposition 65 proved to be a milestone in OEHHA's evolution. In 1987, Governor George Deukmejian designated the Health and Welfare Agency (HWA) as the lead agency for implementing Proposition 65. HWA then assigned the Health Hazard Assessment Division of DHS to provide scientific support in carrying out the proposition's mandates. The DHS toxicologists added this requirement to their list of responsibilities and began to compile and evaluate information on the health effects of chemicals under consideration for placement on the Proposition 65 list. These scientists formed the nucleus for what is now OEHHA's Reproductive and Cancer Hazard Assessment Section (RCHAS).

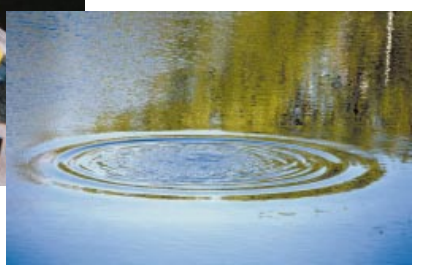
Also in 1987, toxic substances in the air were highlighted once again when news reports focused on "unplanned" releases of toxic emissions. A federal report concluded that 75 percent of the U.S. population lives close to at least one facility that manufactures chemicals and that nearly every chemical plant studied routinely emitted into the surrounding air significant levels of substances considered hazardous or potentially hazardous to public health. In response to these concerns, the California Legislature passed AB 2588, the "Air Toxics Hot Spots" Information and Assessment Act, requiring facilities to report their toxic air

emissions, determine the health impacts associated with those releases, and notify the public of any significant risks. Once again, DHS toxicologists were responsible for determining the health effects of exposure to air toxins, a responsibility later assumed by OEHHA as part of its Air Toxicology and Epidemiology Section (ATES).

In 1989, a widespread insect infestation occurred in Los Angeles and surrounding counties, forcing California's Department of Food and Agriculture to implement the largest and most sustained urban agricultural pest eradication program in California history. Over 30 scientists were tasked by the Legislature and governor to prepare a comprehensive risk assessment for the use of Malathion for agricultural pest eradication in urban areas. OEHHA's predecessor unit within DHS convened an expert panel of scientists and physicians, as well as members of the public, to advise in the preparation of the risk assessment. The result, in 1991, was the most detailed, science-based, comprehensive risk assessment document for the use of Malathion ever produced in the U.S. This document has been used in other states, such as New York and Florida, as well as by the U.S. Department of Agriculture to set policy for the use of pesticides in urban areas.

The election of Governor Pete Wilson in November 1990 represented another major step in the history of OEHHA. During his gubernatorial campaign, Wilson proposed to establish Cal/EPA as a way to improve coordination of the state's environmental protection programs. In the spring of 1991, the Wilson Administration initiated the reorganization plan that would make Cal/EPA (and an independent OEHHA) a reality.

As envisioned by the Wilson Administration and the Legislature, Cal/EPA's primary risk assessment functions would be kept separate from its risk management activities. The other five entities within the proposed agency would be traditional regulatory bodies that would engage in *risk management*, developing control strategies and enacting regulations aimed at reducing the harm posed to life, health, property, and/or the environment by pollution. To this end, OEHHA was formally established, along with Cal/EPA, on July 17, 1991.



OEHHA scientist Dr. Margy Gassel examines a fish as part of OEHHA's work in assessing health risks to humans from eating fish that may be contaminated with mercury and other toxic substances.

Just days before the formation of OEHHA and Cal/EPA, a tragic incident served to emphasize the need for a coordinated, comprehensive approach to dealing with the impacts of toxic substances on public health and the environment. On July 14, 1991, a train carrying the herbicide/pesticide metam sodium derailed, spilling approximately 20,000 gallons of the chemical into the upper Sacramento River near Dunsmuir, north of Redding. An environmental disaster of this magnitude required the cooperation of many state agencies. OEHHA scientists worked with other experts to assess both the immediate and long-term risks associated with the release of this quantity of toxic chemical into the environment.

As part of the establishment of Cal/EPA, Governor Wilson also signed an Executive Order designating OEHHA as the lead agency for implementation of Proposition 65. Since its initial enactment in 1987, the Proposition 65 list of chemicals known to cause cancer or reproductive harm has grown from 27 to more than 700 chemicals today. Listed chemicals range from asbestos, benzene, and various industrial solvents to such familiar substances as alcoholic beverages (stemming from potential harm to the fetus if consumed by pregnant women) and exhaust from diesel and gasoline engines.

In 1992, as the leading state department on issues of risk assessment, OEHHA was directed by Cal/EPA to head the California Comparative Risk Project (partially funded by the U.S. EPA). The project examined the existing programs and procedures for addressing environmental risks to public health, the environment, and quality of life. The resulting report, issued in 1994, was far-reaching in scope and the first of its kind in the nation to incorporate views on environmental justice, pollution prevention, and sustainability. The methods used in the California project also set a precedent for subsequent reports in other cities and states.

Many of the recommendations made in the 1994 report are being utilized today in a variety of California state environmental programs and have been emphasized in other OEHHA projects, such as the Risk Assessment Advisory Committee report, the Emerging Environmental Challenges program, and the current Environmental Indicators project.

In 1995, OEHHA assumed responsibility for operating the state's Registered Environmental Assessor (REA) program. The REA program registers and maintains a list of qualified private-sector professionals who can assist small- to mid-size businesses in performing such tasks as reducing their waste streams, auditing their compliance with environmental regulations, and conducting site assessments. Those certified to the REA list are deemed qualified to evaluate hazardous waste management practices for small to mid-size businesses. There are now more than 4,000 REAs in California, including more than 150 REA II registrants who oversee the assessment and cleanup of contaminated sites.

As early as the 1980s, OEHHA took an increasingly visible position in the regulation of drinking water. While still part of DHS, the Pesticide and Environmental Toxicology Section (PETS) began developing recommended public health levels for drinking water that identified those levels of specific chemical contaminants that would not be expected to pose a significant health risk. In 1996, SB1307 (Calderon) established the California Safe Drinking Water Act, which required OEHHA to develop public health goals for all contaminants for which a

drinking water standard exists. SB1307 requires DHS to set the state's official drinking water standard for a given contaminant as close to the public health goal as is economically and technically feasible. In 1999, OEHHA published a public health goal for the gasoline additive methyl-tertiary butyl ether (MTBE). Use of MTBE, primarily as a fuel additive, increased sharply during the 90s, both in California and in other states. OEHHA's public health goal was published prior to the development of federal primary drinking-water standards or standards from other states and was, therefore, one of the first efforts in the nation to identify a safe drinking-water level for this substance. As of Autumn 2000, OEHHA had published 52 public health goals, including goals for such contaminants as chromium, fluoride, lead, inorganic mercury, toluene, vinyl chloride, the solvent trichloroethylene, and the banned soil fumigant, DBCP.

PETS also evaluates health risks from hazardous chemicals that may be present in sport fish that anglers catch at lakes, reservoirs and coastal areas. Its advisories are included in the fishing regulations published by the Department of Fish and Game, and specify the amounts of fish that can be safely eaten.

OEHHA remains active in the area of pesticide safety for farm workers. Prior to OEHHA's formation, state law required DHS and the Department of Food and Agriculture, which had regulated pesticides, to have a shared responsibility for developing pesticide worker safety regulations. The establishment of Cal/EPA created both OEHHA and the Department of Pesticide Regulation, and both entities continue this shared responsibility.

The reorganization plan that created OEHHA requires the director to have a broad-based scientific expertise as evidenced by a doctorate degree and work experience in a biological or medical science. A succession of directors has guided OEHHA's development during its first decade. Dr. Steven Book served as acting director of the newly formed OEHHA from 1991 to 1992, followed by Dr. Carol Henry, who served as OEHHA director for two years. Dr. James Stratton served as interim director from 1994 to 1996 and was followed by Dr. Richard Becker, who served as director prior to Dr. Joan Denton's appointment in 1997; Governor Gray Davis reappointed Dr. Denton in 2000.

The last two years have been an exciting time of growth and development at OEHHA, which has received the support of the Davis Administration and the Legislature in addressing new questions relating to potential health risks posed by environmental contaminants. In 1999, SB25 (Escutia) (known as the Children's Environmental Health Protection Act) directed OEHHA and the California Air Resources Board to evaluate the state's ambient air quality standards and air toxics regulations to determine whether they adequately protect children and infants. This important work is now underway and will lead to the revision of any air quality standards and toxics measures deemed inadequate to protect children.

Similarly, as part of a new Cal/EPA initiative, OEHHA will be developing new risk assessment guidelines for schools, as well as new cancer risk assessment guidelines for children. HWTS is providing assistance to regional water boards on assessing local health risks and is working to develop and provide an education, training, and scientific assistance program in toxicology and health risk assessment for local agencies in California and Mexican counterpart agencies.

In 2000, Cal/EPA Secretary Winston Hickox designated OEHHA as the lead entity in a multi-agency effort to develop new kinds of measurements, or "indicators," that will better enable scientists and regulators to determine the true health of California's environment and assess the effectiveness of the state's environmental programs. The first set of indicators is scheduled for completion in 2001 and will then be evaluated and updated annually.

Finally, OEHHA's mandate to provide State and local government agencies with the scientific tools and information to make effective risk management decisions lends itself to the office's lead status for the Emerging Environmental Challenges Program. The goal of this endeavor is to anticipate future environmental challenges that may surface in the next five to ten years, and then to provide policymakers at Cal/EPA with the information to take a proactive role in addressing events or situations that may impact the ability to protect the public and California's environment.

Incorporating lessons from the past and with an eye toward the future, OEHHA will continue to grow and remain on the cutting edge of environmental science in its responsibilities to protect public health.

Cal/EPA Logo

- The upper and lower crescents represent the sky and the waters.
- The leaf represents the land.
- The lance-like object has a dual purpose: serving to remind of the vulnerability of nature to human intervention, and representing the sword of enforcement.
- The color, green, represents nature.

The multiple visions incorporated into the design are also intended to remind of the need for humility in that people can look at the same object and discern different meanings and different symbols.

The mark was developed in 1991 by Keith Bright and Associates, a Los Angeles based design firm that specialized in corporate identity. Bright volunteered its services to the Office of the Secretary on learning that the newly formed Agency was soliciting logo design concepts in a competition among California college campus art departments and art/design schools. The logo was adopted by Cal/EPA's first secretary, James M. Strock, and remains a visual reminder of the cross-media coordination needed to preserve a clean environment for all Californians.

Photo Credits:

Formal Portrait of Building, Page 2, © David Wakely

Digital Photos of Building, Page 3, 4, 5 (top) and 6 (lower), Courtesy of City of Sacramento

Printed By:
American Lithography

Design:
NeoDesign, Sacramento, California