Whose Water? Mtrls

Whose Water? Mtrls

Sequence

1. We are heirs of many public traditions. Eases our job, gives a lot to work with
2. ft 1, p. 1
3. ~~ft 3, p. 2~~ ft 6, p. 3
   a tax on a wtr. license can be based on how much you may take. You can reduce yr. prop. by ~~tak~~ reducing yr. claim. Thus, a "fixed" charge is variable!

   Sales std. all go thru public sector.
4. ft 13, p. 13
5. Legal grounds, p. 18
6. Ivanhoe Decision, p. 22

Ec. Effects

1. ft 2

State lawmakers rap free market water plan

By Laura Myers
The Associated Press

SAN JOSE

Farmers will abandon crops to sell water to the highest bidder — most likely thirsty, crowded cities — under a proposed free market water transfer system, members of an Assembly panel warned yesterday.

And drought-stricken California's now-bountiful farming industry will continue to shrink, with green crops making way for more blacktop highways and housing and business developments.

"If that happens, I don't think California has much of an agricultural future or an environmental future," said Assemblyman Rusty Areias, D-Los Banos. "It will result in land coming out of production. . . . As I see it, it's going to further accelerate the urbanization that you deplore."

But Assemblyman Dr. Bill Filante, R-San Rafael, said he co-sponsored a bill to allow unfettered water transfers as a way to quench the state's growing thirst and give farmers more freedom in using their water rights.

"We want water. We don't want wars," Filante said during a all-day hearing before the Assembly Committee on Water, Parks and Wildlife.

The water transfer idea, meant to move water to desperately dry areas of the state, grew from the success of the state's Emergency Water Bank, put into effect this year by Gov. Wilson.

Under the system, farmers, water districts or any entity that had legal water rights could sell the precious resource to the bank, which then resold the commodity to farmers, cities and others that needed urgent supplies.

The bank transferred more than 800,000 acre-feet of water, according to the latest figures, with about half that causing fields to go fallow. An acre-foot, 325,000 gallons, is enough to supply a family of five for a year.

The bank will likely continue if the drought goes on, according to state water officials. But several bills have been introduced in the Legislature to set up a permanent water transfer system — some with limitations and some under a free market like any other commodity.

"Treating water more like a commodity . . . is not only desirable, but it's inevitable," said Timothy Quinn, director of the State Water Project conservation division.



Under any name it was still Hezbollah

By Carol Rosenberg
Knight-Ridder Newspapers

JERUSALEM

In shadowy communiques and videotapes, they have called themselves the Islamic Jihad, the Revolutionary Justice Organization, and Organization for the Oppressed on Earth.

But most analysts and diplomats believe that, either directly or indirectly, the Western hostages in Lebanon were held by the Hezbollah — the Muslim fundamentalist political party whose name is Arabic for Party of God.

The group, one of the most extreme in the fractious Levant, grew out of a loyalty to the Ayatollah Ruhollah Khomeini, the Shiite cleric who swept to power in Iran on the wave of the 1979 Islamic Revolution.

Experts say Hezbollah was trained and armed for a time by Iranian Revolutionary Guards, troops dispatched to Beirut soon after Israel invaded Lebanon in 1982 to rid its northern neighbor of Palestinian fighters.

In its communiques, Hezbollah has outlined it principles as primarily twofold:

● To expand the Islamic revolution, a goal which has had some success inside Lebanon, particularly the Hezbollah-controlled Bekaa Valley, where formerly secular Muslim men now wear trademark long beards and faithfully pray five times a day. Loyal women don head scarves and other modest clothing.

● To rid the Middle East of what it sees are infidel outsiders — notably Israeli and Western forces. To reach those goals, Hezbollah militiamen have for years staged repeated commando raids and suicide attacks on Israeli targets in southern Lebanon, and tried to attack Israel's northern border.

Analysts also believe the group inspired the October 1983 suicide bomber who drove a truck laden with explosives into the U.S. Marine barracks at Beirut airport. Some 241 American servicemen were killed.

Hezbollah is largely made up of Lebanese clans.



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LOOKING AHEAD/NANCY YOUNG MOORE

There Are Ways to Lessen Water Crisis

According to a recent survey by the California Urban Water Agencies, many of the state's large employers are so concerned about future water supplies that they are reevaluating expansion plans and examining relocation possibilities.

It's true that California faces the likelihood of more frequent and more severe shortages if its businesses and residents don't better utilize existing water supplies and act boldly to secure new ones. But the state has numerous promising options on both those fronts.

First, businesses will look to their own operations, the better to conserve, recycle and reclaim as much water as is practically and economically feasible. According to the survey, 34% of the respondents had not implemented any conservation measures during the past five years. Once they've inaugurated efforts, they will need to periodically revisit their programs to see if advances in technology can further reduce their consumption.

Second, firms will lobby their local water purveyors to design better short-term and long-term conservation plans on a systemwide basis. Most California water agencies base contingency cutbacks on past water use, a policy that encourages waste during years of normal rainfall. They must be pressed to adopt programs that reward permanent, long-term conservation in wet, normal and dry years alike.

Third, businesses that want to assure stable or expanded supplies for their own use will urge the water agencies to accept *quid pro quos*. In return for these assurances, firms could offer to fund conservation improvements—for example, low-volume toilets or reclamation programs—for others within their water service area.

Lastly, businesses will work with local and state water agencies to support both traditional and innovative ways to expand or better utilize existing water supplies. A number of such efforts are already under way.

New facilities: The drought has renewed interest in transfer facilities for the Sacramento Delta, in additional reservoirs and in desalination plants. Statewide consensus, including energetic business support, will be needed if these projects are to move from talk to action.

Water transfers: Businesses understand markets and could make important practical contributions to the introduction of rational water markets throughout the state. Paying farmers to use less water makes more available for the growth of urban industry, service firms and housing. The state's Emergency Water Bank has already purchased over 700,000 acre-feet of water this year. However, we need new ideas for minimizing the impacts of such transfers on the rural economy and environment or they will not become a major part of California's water supply strategy.

Better management: California has a vast, under-utilized ground water reservoir in the Sacramento Valley area that could be used to provide additional water supplies during droughts. Businesses can urge local and state agencies to find ways to more fully utilize the basin while protecting or compensating local users.

Incentives to conserve: Many new pricing and conservation programs have sprouted during the drought. But businesses can insist that their water agencies develop better projections of the reasonable savings that can be obtained by conservation and pricing and, if savings do not meet projected shortfalls, work for projects to close that gap.

Reuse and reclamation: The recycling of "gray" and "black" water promises enormous resource savings. Here business has an aggressive role to play in developing and promoting safe, economical systems as well as installing them for its own use.

Nancy Young Moore is a water engineer and a researcher at RAND Corp. in Santa Monica.

SACRAMENTO BEE
Thursday, December 30, 1982

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Rand in the News
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The Challenge Of Water Conservation: Sharing The Burden Equally

Charles Phelps, Nancy Moore and Timothy Quinn are employees of the Rand Corp. in Santa Monica.

By Charles E. Phelps, Nancy Y. Moore, and Timothy Quinn
Special to The Bee

THE OVERWHELMING defeat of Proposition 13, the "Water Resources Initiative," does not mean that Californians disapprove of water conservation, water use efficiency, groundwater management or prudent development. But while Proposition 13's goals of "economically feasible" water conservation and groundwater management must provide the backbone of California's water future, the implementation prescribed by the initiative included potentially serious problems that ultimately would have been counterproductive to its stated goals.

For those framing Proposition 13, water conservation, very broadly defined, appeared to mean making better use of existing water resources. But to improve the use of already developed supplies, a conservation program must account for California's existing patterns of water use. Proposition 13 did not.

In parts of California, water is extremely cheap, costing users as little as $2 or less per acre foot (about 326,000 gallons) in such water-rich areas as the Sacramento Valley. In contrast, surface water imports from the State Water Project cost more than $50 per acre foot in parts of the southern San Joaquin Valley, and some farmers pay nearly $100 per acre foot to pump groundwater. In Southern California, water costs are even higher. These price differentials are reflected in water uses across the state. Where water is inexpensive, more water is used and its value for incremental uses is less. For example, in the Sacramento Valley, water intensive crops such as rice and alfalfa account for more than half of the agricultural acreage. By contrast, these crops account for less than one-sixth of the acreage in the southern San Joaquin Valley.

THE MAIN challenge of a conservation program should be to reduce water demands in those areas where its value is relatively low, so that water can be released for more valuable uses. The estimates often cited by Proposition 13 supporters that conservation could release 3 million to 5 million acre feet of water reflect the *statewide* potential of conservation, arising primarily in agriculture, which accounts for 85 percent of the state's water use. But Proposition 13 emphatically did not require conservation programs throughout the state.

It would have required only importing areas to adopt state-approved conservation programs. Water-rich areas, where conservation's impact would be greatest and its costs far less, would not have been affected. These changes in water-use patterns are the opposite of a conservation program that would maximize the well-being of the state's citizenry overall.

> 'Hopefully we have learned from Proposition 13 that you cannot make statewide water policies that impose large losses on selected groups.'

PROPOSITION 13 also would have required that critically overdrafted basins adopt groundwater management. But groundwater management, in past experience, has operated by making the cost of using groundwater higher or the cost of using surface water lower (or both) to provide disincentives for groundwater pumping; no existing management system in California reduces incentives for total water use. Indeed, several systems, including some specifically cited in Proposition 13 as prototypes for future management efforts, generate strong incentives for increasing total water use. Proposition 13's insistence that local groundwater management follow state-approved plans at least threatened that some basins would be forced into management plans that could be counterproductive.

This is not to suggest that groundwater management is without substantial statewide benefits. It is, in fact, essential to the state's efforts (as a major water supplier) to use natural underground aquifers, instead of expensive surface facilities, for water storage. But only 11 groundwater basins were required in Proposition 13 to have management programs, and these were among the least attractive for this purpose, because of their high pumping lifts, which would have increased the costs of storage programs. At the same time, Proposition 13 would have retarded the movement in each of these basins toward local groundwater management efforts: Its other provisions would have threatened the imported surface supplies which can lower the costs and ease the transition to comprehensive management program.

HOPEFULLY WE have learned from Proposition 13 that we cannot solve statewide problems by imposing large losses on selected groups. To solve California's water problems, we need, first, to get back into an arena where compromise among interest groups prevails — the Legislature. Second, water policy needs to move in directions that make the state's vast water system more flexible and adaptable to the state's changing environment.

One promising approach is a statewide water market. The basic idea is to transform California's "socialized" water rights into private property rights held by individual water users or private water companies — a move that has already occurred in Utah and Colorado. Individual farmers and other water users could then decide for themselves whether to use their water rights or sell them to others who have more valuable uses for the water. The state's vast water transportation network, the most extensive "plumbing" system in the world, would enable such transfers throughout California.

A voluntary water market would generate strong incentives for conservation, realizing a savings in water use far beyond the reach of Proposition 13. It would greatly facilitate efforts to better manage

(see next page)

SACRAMENTO BEE Thursday, December 30, 1982

"...e Challenge. . ." (continued)

Rand in the News
POSTED: 2/28/8

groundwater resources in overdrafted basins and would not in any way undermine legislative protections of the environment. Those in water-exporting areas would benefit because, unlike under past policies, they would be fully compensated for any interbasin water transfers. Those in water-importing areas would get the supplemental water they want at a lower cost than under any existing proposals. And environmentalists would benefit because that water would come mostly from conservation rather than from new projects.

The recently signed Katz bill, AB 3491, is a first step in the right direction. It legalizes voluntary water transfers, like those in Utah and Colorado. But much hard work and study remains to be done on such difficult issues as existing legal constraints that destroy the *incentives* of water users for conservation, appropriate environmental safeguards, technical questions about return flows, and other implementation and administrative challenges. It won't be easy, but we believe the benefits to all Californians far outweigh the costs.

LOS ANGELES TIMES - SEPTEMBER 17, 1984

If 'Water-Rich' Californians Could Sell, We'd All Profit

By NANCY Y. MOORE and TIMOTHY H. QUINN

Each year, municipalities and some individuals in a number of Southern California ground-water basins buy and sell the rights to use more than 14 billion gallons of water. Similar systems of water markets for both surface and ground water exist in other Western states, such as Colorado and Utah. Yet the idea of a statewide water market seems like nothing less than heresy to many Californians, including most of those who make or try to influence statewide water policy.

Nevertheless, by the early 21st Century some form of a statewide water market will likely exist in California for the same compelling reasons that brought them into being elsewhere. Economically, strong pressures exist to find low-cost ways to allocate California's scarce water. Politically, our system requires consensus to solve policy problems. Of the available options, only a water market can do both.

A water market involves *voluntary* transactions in which water users decide individually whether to use their water or sell it to others who value it more highly. In California, the cost of using water varies enormously, from as little as $2 an acre-foot for many farmers in "water rich" areas to $200 or more per acre-foot in the "water poor" areas of Southern California. These large disparities create an enormous potential for moving water to where its economic benefits are greater.

Further, the voluntary exchange of a market generates strong pressures for stretching available water supplies. Those with access to cheap water will find ways to conserve it and sell their rights to those with greater water requirements. For instance, farmers might switch from water-intensive crops.

Despite the potential desirability of water markets, questions and misconceptions abound:

• Won't a water market stop necessary construction of water projects? No. Markets affect the conservation/construction balance, but they are not intended to supplant all new water development. For example, a delta transfer facility, like the Peripheral Canal, may still be necessary. But we would expect *fewer* projects to be built as water-poor areas discover that statewide conservation is much cheaper than construction of new dams.

• Wouldn't markets impose large losses on some groups? Not necessarily. Depending upon how it is designed, a market can stem financial losses and assure that all Californians share in the wealth created by a better water policy. More than any other policy option, a market has the potential to achieve consensus of farmers, urban dwellers and environmentalists, in both water-poor and water-rich areas.

By moving water, doesn't a market threaten significant environmental damage to some areas? No. Many environmentalists favor markets because they rely more on conservation and not just on construction. However, under *any* future water policy, water will move among basins. Transfers under a market should be monitored by a public agency to ensure environmental safeguards.

• Because a market increases the cost of using water, won't it drive farmers out of business? No. In areas, such as the southern San Joaquin Valley, a market will increase supplies of affordable water. In others, farmers will find profit in selling both water and crops. Some support industries built around specific crops could suffer (while others gain), but mechanisms to mitigate large losses could and should be developed.

• Wouldn't a water market be difficult to implement? Yes. But so will any solutions to our complex water problems. In the case of water markets, much of the groundwork already exists. Some legal barriers to water sales have already been overcome. To achieve the benefits of a market, we must convert, wherever feasible, ill-defined water rights into *explicit* ownership rights that would be transferable through either permanent sales or temporary leases, subject to environmental and other safeguards.

None of this will happen, of course, unless the Legislature takes a new policy direction. To allay current fears and demonstrate the practicality of water markets, the Legislature should promote studies that quantify a market's benefits, drawbacks and costs, and educate Californians about water-policy choices. Finally, we should develop management systems to protect ground-water users in export areas and improve existing management in import areas.

Change in California's water policy is inevitable. Today, we still have an opportunity to shape our water destiny. The alternative is planning by crisis, which almost always leads to dire environmental, social and economic disruption. Traditional approaches that emphasize construction, such as the governor's recent water plan, continue to fail. To secure an economically and politically sensible future, we had better get used to "newfangled" ideas such as a water market.

Nancy Y. Moore and Timothy H. Quinn are researchers at the Rand Corp.

FACSIMILE COVER SHEET

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DATE: July 24, 1991

TO: Persons selected from the UC Directory to Expertise and Facilities Related to Wildlands

SUBJECT: **Awards for Research Excellence in Wildlands**

Deadline: August 31, 1991

The Wildland Resources Center is pleased to announce the **1991 Pacific Gas and Electric Company Gifts** in support of research excellence in wildlands. This program will make a series of awards for ongoing research in identified problem areas. If you have ongoing studies in any of the areas listed below, you may be considered for an award by sending a one-page outline of your research to:

Don C. Erman, Director
Wildland Resources Center
145 Mulford Hall
University of California
Berkeley, CA 94720

A committee made up from the University of California and Pacific Gas and Electric Company will review the outlines and announce gifts by early fall. Gifts will range from $3,000 to $10,000 per investigator.

The following list of research areas can emphasize biophysical or social aspects of the problem.

- Sediment transport with respect to flushing flows
- Erosion control and streambank restoration methods and monitoring results
- Wetlands: enhancement methods and use for groundwater storage
- Fisheries: trout habitat requirements emphasizing limiting factors, temperature, habitat suitability, and competition
- Watershed modeling related to cumulative effects or multi-resource planning
- Alternatives to herbicides in management of vegetation
- Habitat design and management strategies for species preservation, especially for sensitive and threatened species

Keywords searched: weeds and weed control; resource economics; cold water fisheries; watersheds; wetlands; cumulative effects; environment-organism interactions; soil erosion; erosion; groundwater; sediment generation, movement, and accumulation; slope stability and stabilization; instream flow requirements; landscape design and management; vegetation management; resource planning; sensitive animal species; sensitive insect species; sensitive plant species

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Pooling Resources

11-10-85

These are not normal times. Not when the Environmental Defense Fund teams up with the Westlands Water District to jointly explore ways of purifying contaminated irrigation runoff water and possibly reselling it to cities. Not when Westlands, often held up as the archetype of federal irrigation subsidy rip-offs, hires longtime reclamation foe David Weiman as a Washington lobbyist.

But neither are times entirely normal when selenium runoff from Westlands farms causes death and deformity among ducks in a wildlife preserve and prompts the Interior Department to threaten to cut off irrigation water to 40,000 acres. Indeed, the general problem of contaminated irrigation runoff is a serious threat to the future of agriculture in the entire San Joaquin Valley.

EDF, Westlands and Weiman. Strange bedfellows indeed. The Berkeley-based office of EDF under lawyer Tom Graff has been a major irritant over the years to the old-line water Establishment, filing lawsuits hither and yon to protect the Sacramento-San Joaquin Delta and other waterways. For years in Washington, Weiman has been a single-minded foe of what he sees as a reclamation boondoggle under every congressman's desk. And Westlands . . . well, Westlands is viewed by the Weimans of the world as the supreme example of the 1902 Reclamation Act used to con the taxpayer in every conceivable way.

Matching this odd trio is like putting Napoleon in charge of the British army or making Barry Goldwater the Democratic national chairman. But so far it's working. Congress has passed, and the President has signed, legislation to give Westlands and EDF a $3.7-million loan to study experimental methods for removing chemical salts from Westlands runoff and finding legal ways of selling the reclaimed water to others.

Other environmental groups may be raising eyebrows over EDF's slipping under the covers with a longtime foe. But EDF will receive up to $250,000, to be repaid by Westlands, for monitoring the program and paying EDF's administrative and technical costs. Both EDF and Westlands reserve the right to disagree publicly on differences of opinion during the study process, and on other matters. Indeed, they are expected soon to be foes in a court contest of another aspect of Westlands water operations. But their formal proposal statement notes, "They nevertheless agree that close communication and consultation is a better means of attempting to resolve their differing perspectives than the more traditional confrontationist approach which has characterized their relationship in the past."

This is a significant new approach for an environmental group—and for Westlands, too. Some valley farmers must have wondered about the mental health of Westlands General Manager Jerry Butchert. But, if it works, everyone benefits. If it doesn't, you can be sure that Tom Graff will be around with subpoena in hand during the next environmental crisis.

The Press-Enterprise

Sen. John Seymour explains his proposal with Lake Mathews as a backdrop. 18 Jan. 92

Plan offers Southern California more water

By Ron Morris
The Press-Enterprise

RIVERSIDE

U.S. Sen. John Seymour, R-Calif., yesterday unveiled a legislative proposal to encourage the diversion of Central Valley farm water to Southern California's urban areas.

Seymour discussed details of his legislation, S2016, during a visit to the Riverside area.

Standing at a podium in a parking lot overlooking Lake Mathews, Seymour said, "With the passage of S2016, we will be filling this reservoir with water from the Central Valley Project for the first time in history."

The senator spoke to about 30 people interested in water affairs at a news conference called to announce the legislative proposal.

If enacted into law, Seymour's bill would authorize the diversion of some of the Central Valley agricultural water to Southern California urban users.

"It's not a perfect bill; it's a beginning," Seymour said. "We are trying to achieve what's best for three interests — urban, agricultural and environmental."

Seymour said his bill had the support of farm and urban interests.

"Gov. Wilson has embraced at least 90 percent of what's in S2016," he said.

The federal Central Valley Project, which was started in the 1930s, comprises a series of dams and waterways in Northern California that supply water to Central Valley farmers. None of that water now goes to Southern California, which gets other Northern California water via the California Water Project.

Lake Mathews is the terminal storage facility for water imported by Metropolitan Water District of Southern California from the Colorado River via the Colorado River Aqueduct.

Timothy Skrove, an MWD spokesman, said MWD's board of directors had voted to support the bill "in principle."

MWD currently is taking all the water it is allowed from the Colorado River, but when Arizona is able to use its full entitlement, California's share will be cut by up to 55 percent, he said. "We would have grave difficulty filling this reservoir," he said. "It's only a matter of time."

"We are looking for opportunities to enter into agreements with the (Central Valley) farmers to compensate them for not using their water," Skrove said. The bill would make possible such arrangements.

3 May 91 A-3

Bill Altering Use of U.S. Water in State Stirs Sparks

■ **Drought:** Farmers blast, environmentalists praise Sen. Bradley's plan, which is designed to increase supply to wildlife areas and cities.

By VIRGINIA ELLIS
TIMES STAFF WRITER

SACRAMENTO—U.S. Sen. Bill Bradley's proposal for a radical redistribution of federal water—more for California cities and wildlife and less for agriculture—drew a range of responses Thursday as the measure faced its third public airing.

Agricultural interests attacked it. Environmentalists embraced it. Urban areas represented by the Metropolitan Water District, which has been trying to get along with both sides, took a neutral stand.

In the political arena, it was praised by Democrats and assailed by Republicans. It won a hearty endorsement from California's Democratic senator, Alan Cranston, who is a co-sponsor, while Republican Sen. John Seymour recounted his strong opposition. Seymour has offered an alternative measure for dealing with the state's water problems.

Meanwhile, Bradley, a New Jersey Democrat who has thrust himself into the midst of an enduring and explosive issue, took the criticism and the compliments mostly without comment. At the end of a four-hour hearing, Bradley announced that he was willing to consider some changes in his plan but would not back off the legislation.

As he had throughout the hearing, Bradley continued to warn that if California does not take steps, either through his legislation or other means, to repair the environmental damage caused by the Central Valley Project, it runs the risk of a "judicial takeover" of the giant water system.

With the operation of the project continuing to contribute to the decline of various fish and wildlife, Bradley said it was only a matter of time before federal jurists use the powers of the Endangered Species Act to step in and take control of the allocation of federal water in California.

"There are problems with doing nothing," Bradley said, adding, "Would you rather have a federal judge in charge, directing the operation. . . ."

But the specter of a federal judge assuming the role of California water czar did little to slow criticism from agricultural interests who predicted that Bradley's proposal would have a disastrous impact on the state's multibillion-dollar farming enterprises.

Under the measure, farmers, who in the past have negotiated 40-year contracts for water from the Central Valley Project, would be restricted to one-year contracts unless they agreed to give up some of their water for distribution to fish and wildlife. Farmers could get longer contracts—up to 20 years—if they agreed to cut their water consumption by 10% to 20%.



PAUL GONZALES / Los Angeles Times

Associated Press

New Jersey Sen. Bill Bradley, left, and California Sen. John Seymour at hearing on water bill.

To encourage transfers of water to needy urban areas, the bill would allow farmers to sell water outside their service areas but would impose a 25% tax on the sellers. Under current regulations, farmers who receive Central Valley Project water are not allowed to sell it for distribution beyond the boundaries of their water district.

The proposal would create a $30-million "restoration fund" to repair damage to wildlife habitat by imposing a surcharge on Central Valley Project water and power sales.

"This bill imposes Draconian terms and conditions on water sales contracts never seen before," said state Sen. Ken Maddy (R-Fresno), who represents the farming areas that receive most of the project's water. "California is not in a position to take on any more regulation from anywhere, be it Sacramento or Washington, D.C."

Barry Brown, irrigation engineer for the Western Farm Credit Bank, predicted that the taxes and surcharges imposed by Bradley's legislation would saddle farmers with "debt levels" they could not pay. In addition, without a reliable water supply, he said it

Please see WATER, A27

WATER: Farmers Blast Bradley Bill

Continued from A3

would be more difficult for them to obtain loans to grow and harvest crops.

"It would be ironic and tragic to see the Central Valley Project converted from a device for establishing and sustaining a strong agricultural economy in the Central Valley to a device for disrupting and damaging that same economy," he said.

Environmentalists argued, however, that the measure would revise operational procedures at the Central Valley Project that were devised when the state had abundant supplies of water and 6 million instead of nearly 30 million people. Calling it the "most important bill on federal water policy in California to be introduced in years," Karen Garrison, a senior project scientist for the National Resources Defense Council, said Bradley's plan would give farmers "financial incentives" to use water more efficiently and free it up for "environmental restoration, urban use and drought security."

Taking a middle road, Carl Boronkay, general manager of the Metropolitan Water District of Southern California, said he had decided to take no stand on the measure because there were some elements he supported but others he strongly opposed.

Specifically, he applauded the provision that would make it easier to transfer federal farm water to urban areas, but he said he found environmental sections of the bill "troublesome."

"We're for the environment; we have a different approach than [Bradley]," Boronkay said. "He seems to be buying the environmentalist position that all we need is more water . . . there are a lot more other things we need too."

28 Dec. 88 I-3

U.S. Issues New Policy on Marketing Water to Spur Conservation

By MYRON LEVIN, *Times Staff Writer*

The U.S. Interior Department has issued a water marketing policy that backers say could spur conservation and help meet urban water needs without costly new water projects.

Responding to pleas from the Western Governors Assn. and some environmental groups, the federal agency said it will seek to expedite voluntary water transfers from those with excess water from federal dams and aqueducts to those who are water short.

In a key concession, the new guidelines allow water traders, such as financially strapped growers or irrigation districts, to keep at least part of the profit from their sale of the subsidized water.

The policy was hailed by the Environmental Defense Fund, a group interested in federal water policy, as "a real spur to efficient water use and to conservation," said Tom Graff, a senior attorney for the group.

"By giving an entity or a person which has control over water a profit incentive, that person . . . will be more inclined to husband" his water supply, Graff said.

Graff said the new policy could encourage more water transfers, such as the historic deal announced earlier this month between the Metropolitan Water District of Southern California and the Imperial Irrigation District. Their agreement will enable the MWD to buy at least 100,000 acre-feet per year of Imperial's Colorado River water—enough to supply roughly half

Please see WATER, Page 14

WATER

Continued from Page 3

a million people within the six Southern California counties the giant district serves.

In return, the MWD will line canals and install other conservation improvements to keep Imperial's water from going to waste.

Myron Holburt, the MWD's assistant general manager, said the federal policy reflects concerns that big water projects are environmentally damaging and have become too expensive for the government to build or beneficiaries to pay for.

Existing Projects

He called it an effort by the Interior Department and its Bureau of Reclamation "to better maximize their management of existing water projects as opposed to building new ones. . . . They want to show that they're serious about water management, and that they're serious about expediting water transfers to meet water needs."

While pledging to continue helping state and local agencies build water projects, the federal agency said water transfers will be "an increasingly important means of meeting Western water needs" and of "improving the efficiency" of existing projects.

Under the new policy, released earlier this month, the federal agency said it would not suggest specific transfers except in limited circumstances, such as to resolve a dispute over Indian water rights.

Although the government before had not explicitly opposed water transfers, the lack of a policy proved "an overall deterrent," Graff said.

New Policy

The new policy may draw criticism for letting water traders profit from federally subsidized water. And some may see it as undermining support for proposed water projects.

Graff said that "if the congressional people who have been resisting this policy don't shoot it down," more deals like the one involving the MWD are likely in the next several years.

But a spokesman for a huge San Joaquin Valley irrigation district said he doubts that the floodgates have been opened for more big water deals.

Rob Leake, assistant public information officer for the Westlands Water District, said the district, which covers about 900 square miles of irrigable land in Fresno and Kings counties, is water short. Although some growers in the district have more water than they need, they are required to provide their surplus to those who do not have enough.

Inadequate Supply

"No district is going to let their farmers export water when there are farmers within that district who don't have an adequate supply," Leake said.

Leake also cited the "general reluctance" of growers to sell water, thereby creating "the perception that there are surpluses that can be utilized by urban water users."

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RISING TENSION OVER HIGH-TENSION LINES

Utilities battle a wave of fear over health hazards

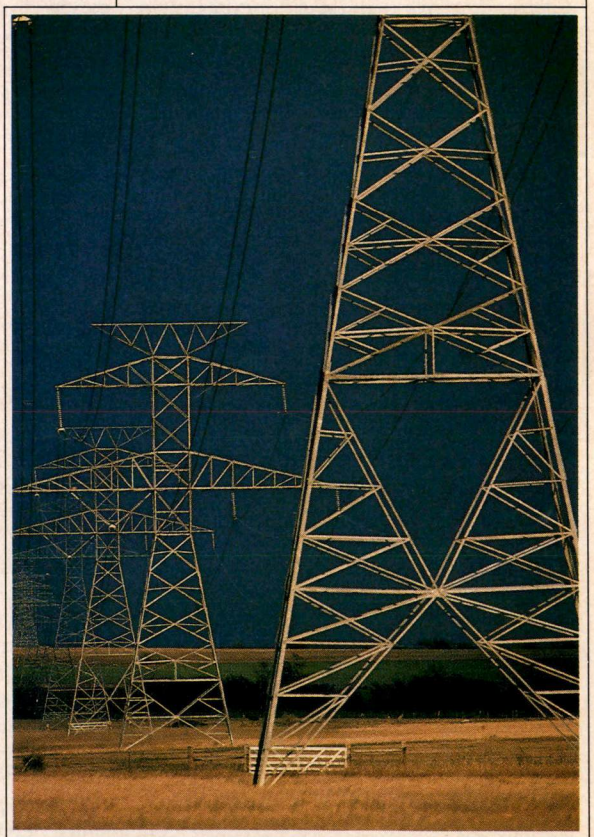
In Boca Raton, Fla., last June, a judge declared off-limits part of a schoolyard near a high-voltage electrical power line. His reason: possible health effects. In Wisconsin, farmers are up in arms over the alleged effects of stray electromagnetic fields on milk production. And in Orange County, N. Y., 140 landowners sued the New York Power Authority for more than $117 million, claiming that an extension of the authority's 207-mile Marcy South power line from Canada created a "cancer-phobia corridor" that devalued their property.

Utilities all across the country are feeling the heat. Since 1985, power companies have been involved in more than 100 suits involving possible health hazards from transmission lines, especially those near schools. The patchwork of lawsuits, public hearings, and local government rulings is having a direct impact. While electric generating capacity grew by 10% from 1983 to 1987, transmission and distribution capacity grew by only 4%, says industry analyst Sanford Cohen at Morgan Stanley & Co. "Transmission capacity is not going to get built because of this controversy," he says.

STRESS FACTOR. Fueling the brouhaha is mounting evidence that the seemingly innocuous electromagnetic radiation from power lines—and other electronic gear—may be a health hazard. Recent studies show that this low-level, or so-called nonionizing, radiation does indeed interact with tissue at the cellular level. Exactly how it does so and how harmful that is are still in question.

Even so, in June, the congressional Office of Technology Assessment (OTA) released a report acknowledging that electromagnetic fields from power lines and other sources "may pose public health problems." The OTA recommended a policy of "prudent avoidance" and called on utilities to widen rights-of-way for transmission lines and develop new designs for distribution lines.

The medical evidence includes three epidemiology studies showing a higher rate of leukemia in children who lived in homes near high-voltage power lines. Other studies on cats, rats, and chick brain cells have shown that low-frequency electromagnetic radiation interacts with brain activity and could cause a host of negative symptoms from heightened stress and depression, slowed reaction time, and learning disabilities to miscarriages, fetal deformities, and cancer.



UNDER FIRE: WILL TRANSMISSION CAPACITY SUFFER?

SOBEL/KLONSKY/IMAGE BANK

Dr. Ross Adey, who investigates the biological effects of electromagnetic fields (EMFs) at Jerry L. Pettes Memorial Veterans Hospital in Loma Linda, Calif., says the laboratory evidence suggests that such radiation can weaken the im-

Developments to Watch

EDITED BY EMILY T. SMITH

THESE 'BIRDS' CAN SPY ON DRUG SMUGGLERS



Robot airplanes have already proven themselves good soldiers in war as decoys for surface-to-air missiles, saving the lives of pilots, and as reconnaissance aircraft. But remotely piloted vehicles (RPVs) may play an even greater role in peacetime. Israel's Electronics & Aviation Systems Ltd. (EAS) has developed an RPV that can do everything from tracking drug runners and hunting wildlife poachers to mapping remote regions and detecting radiation leaks at nuclear plants.

Designed by a retired Israeli army officer, the EAS Vanguard 50 C pilotless plane has an 18-foot wingspan, weighs just under 200 pounds, and takes three people less than an hour to assemble. Powered by two 190cc two-stroke engines, this RPV has a 110-mile flight radius at a maximum speed exceeding 100 mph. It can carry more than 150 pounds of equipment, such as an infrared camera that fits in the nose, and can spot a camouflaged smuggler in the jungle at night. Both the command station, which receives the data and displays them on a video screen, and an RPV are compact enough to fit in the back of a pickup truck. Four "birds" and a command station cost $1.1 million. The Worldwide Fund for Nature is considering using the plane to patrol African game parks.

TAKE AS MANY ZZZZs AS YOU NEED

These days, sleep has a bad name. Self-help gurus inform us that we can stop wasting time snoozing in bed—if we have the willpower. Some scientists have even suggested that too much sleep is bad for us.

But now there is comforting news for those of us who actually enjoy our long hours of slumber. In a study at the Henry Ford Hospital in Detroit, researchers discovered that getting an extra hour or two of sleep each night improves a person's performance on the job and behind the wheel.

The Henry Ford scientists first tested the physical and mental skills of a group of healthy men who normally slept from six to eight hours a night. The men then were asked to stay in bed for 10 hours each night for a week. When they were tested again, the men were both more alert and more adept than before. The researchers' conclusion? "People benefit from getting as much sleep as they can," says psychologist Timothy Roehrs.

SUTURES THAT CURE TWO ILLS WITH ONE STITCH

The surgery may be a success, but some patients suffer far more afterward when a wound becomes infected. Typically, physicians rely on antibiotics to stem the infection. But Cornell University polymer chemist Chih-Chang Chu has a different idea: sutures made of silver impregnated in nylon that use a tiny direct electric current to prevent infection. The use of silver for its antimicrobial properties has a long history, Chu notes, and using electricity to promote healing in bone tissue is well established.

In Chu's design, a microprocessor-controlled battery-operated generator is connected to the stitches. The current—a few millionths of an amp—can be adjusted to boost or reduce the antimicrobial effect, depending on the degree of contamination of the wound. Chu expects to do several years of preliminary studies before beginning human clinical trials.

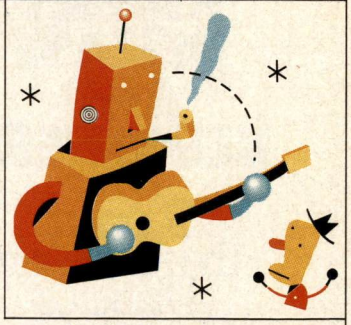
IS THERE ANYTHING A LASER CAN'T DO?

A couple of years ago, scientists were surprised to find that laser beams could be used as "optical tweezers" to pick up and move molecules. Now, a research team in Cambridge, Mass., has discovered that laser beams can also be "photon glue" to hold tiny objects together. The scientists speculate that the process may be used to create materials with new properties for optical communications devices and even drugs.

In the course of a routine experiment, Harvard University physicist Jene Golovchenko and researchers Michael Burns and Jean-Marc Fournier of the Rowland Institute exposed tiny plastic beads to an intense laser beam. To their surprise, they saw that the light energy caused the spheres to suddenly reorganize and stick together in a layer a scant 1.5 microns thick. "I don't think anyone suspected that you could organize random matter into material structures using only light," says Golovchenko.

The strength of the bonds between the atoms is controlled by the intensity and wavelength of the laser light. Even though the assembled material falls apart once the light is turned off, the scientists speculate that the technique might be developed to align molecules in novel ways, then apply chemistry to bind the molecules permanently.

ROBOTS WITH HANDS AS SOFT AS A SHORTSTOP'S



Robots are all thumbs. They can perform simple chores such as screwing doors onto cars. But since they can't sense the shape or texture of what they're handling, they're useless when it comes to performing delicate tasks.

But if researchers at Harvard University are successful, robotic arms may one day possess human-like senses of touch and feel. Professors James J. Clark and Roger W. Brockett are building a robotic hand that can open a car door with a key and distinguish between a screwdriver, say, and a baseball. "Squishy fingers" made of a thin rubber "skin" and filled with supple liquid silicon are the keys. Inside the hand is a computer chip that contains 4,000 magnetic sensors. These sensors can detect the type of pressure applied to different points on the rubber skin, so the hand can recognize the shape and texture of objects.

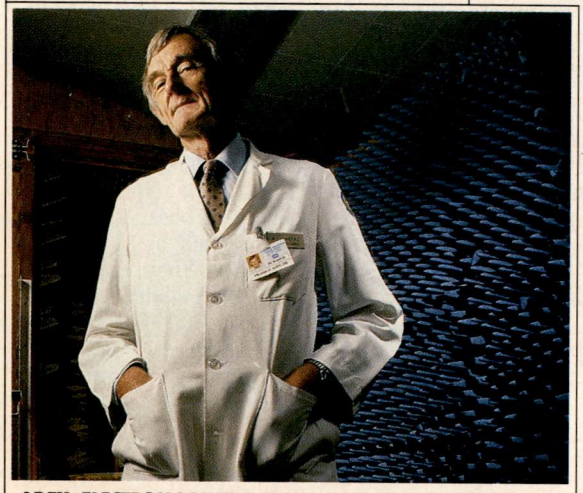
Clark and Brockett say they expect to have a commercial prototype ready by next spring. Martin Marietta Corp. is interested in placing the technology in its factories. And scientists at IBM are developing links to powerful computers that would help the hands identify what they're squeezing.

J. OTTO SIEBOLD

mune system and interfere with normal cell growth. "There is no question in my mind that such radiation is a potential hazard," says Adey. "Man has come along in the last 50 years and totally changed the nature of the electromagnetic environment."

CONFLICT OF INTEREST? Some of the case against power lines, however, still rests on studies involving more intense radiation. About 15 surveys from around the world have cited an increased incidence of certain forms of cancer, especially brain tumors and leukemia, among electrical workers, telephone-line repairers, and others who are frequently exposed to powerful EMFs.

That data, some researchers say, doesn't necessarily prove that low-level EMFs are harmful. And many researchers are not convinced that the changes produced by low-level radiation indicate health hazards. "Ninety percent of the scientists agree that there are effects," says Richard D. Phillips, former director of the Environmental Protection Agency's biological sciences division. "But there's a lot of disagreement over whether it's a health hazard or not."



ADEY: ELECTROMAGNETIC FIELDS MAY POSE DANGERS

AMY ETRA

The utilities are responding to the health controversy by saying that evidence is inconclusive and more research is needed. Through the Electric Power Research Institute (EPRI), a research-and-development organization sponsored by utilities, the industry is backing 25 studies in three major areas—epidemiology, exposure assessment, and animal, cell, and tissue studies—at a cost of $6 million a year. That effort is the largest EMF research program in the world, according to EPRI Director Leonard Sagan.

Critics object to the fact that utilities have become the major source of research and information in the field. A program run by the EPA was eliminated under Ronald Reagan, and the only government agency doing research, with a budget of $2 million, is the Energy Dept.

"It's really a problem that our society has allowed the utilities to control almost all the research in this area," says David O. Carpenter, dean of the School of Public Health at the State University of New York at Albany, who ran a childhood-leukemia study. This fall, however, the National Cancer Institute is launching its own childhood-leukemia study.

In the meantime, utilities are trying to placate anxious consumers. Colorado's Public Service Co. has spent 33 hours in public hearings to try to win permission to build a new power line in downtown Denver. It mailed brochures to 24,000 residents explaining different routes for the cable and worked with the community to settle on the best possible one. Seattle City Light, which already scuttled one planned power line in the face of public opposition, is launching an extensive project to map radiation in neighborhoods. Some utilities are even measuring EMF levels in consumers' homes.

SETTING LIMITS. With or without solid evidence, some states are trying to set standards limiting exposure to EMFs from power lines. So far, Florida—where the fast-growing population is spurring demand for new transmission lines—is the only state to do so. In California, the Education Dept. recently set standards for how close schools can be to power lines of various voltages.

Even more troubling to utilities is the explosion in litigation. Already, power companies have lost cases to landowners on the grounds that fear of potential health hazards has devalued property near or on which transmission lines have been built. Last November, a jury awarded more than $2 million to a California landowner whose property was bisected by a San Diego Gas & Electric Co. power line. SDG&E had offered $110,000 for the land. The court ruled that the issue was "not whether electromagnetic radiation is detrimental but whether fear of such radiation would affect the market value of property."

In a recent class action in Palm Beach County, Fla., residents sued the local school board for building Sandpiper Shores Elementary School too close to transmission lines. A judge let the school open because most classrooms are in a so-called safe point, 400 feet from the line. That was not good enough for some residents. Sharon Rausch, president of the community group Fund for Safe Schools, is among several parents teaching her children at home while fighting to transfer them to other schools.

"When we first heard about this, we snickered," says Rausch. "But when we

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dug into the information, we felt the risk was too great to keep our children in that school." Rausch says she takes the possible ill effects more seriously than most. She had a young son who died in 1978 from a brain tumor, and she suspects power lines near her son's school may have contributed to his cancer.

Even the cases the utilities win are costing them dearly. In late September, the New York Power Authority won the Orange County case. But it spent more than $2 million on legal fees and expert witnesses.

'MASSIVE HEADACHE.' Critics such as writer Paul Brodeur, whose series on EMF health effects aroused considerable public concern when it ran in *The New Yorker* last summer, say the utilities aren't going far enough to protect the public. Brodeur argues that utilities should be rerouting lines across the country. In addition, ordinary high-voltage distribution lines, which crisscross every town in the country, also emit EMFs. "When that message gets through," says Louis Slesin, editor of *Microwave News*, a New York newsletter that covers the EMF health controversy, "the utilities will have a lot more massive headache than they do today."

But according to William E. Feero, president of Electric Research & Management Inc., an electrical engineering company, the cost of burying lines is about 10 times that of stringing them overhead, and buried lines are harder to repair. The easy solution, says Feero, is to design new lines that would emit less radiation. Retrofitting existing lines would be a much more expensive proposition, he adds.

> 'When we dug into the information, we felt the risk was too great to keep our children in that school'

Some experts feel the vagueness of the scientific evidence does not yet justify taking such extensive measures. "Given that there's no clear guidance from science, it's hard to know where to spend dollars, or where this falls in terms of risk factors," says Ron Spinka, a spokesman for the Florida Electric Power Coordinating Group, which represents most of the utilities in Florida.

Further, power companies argue that if health links are proved, the issue will extend far beyond the industry. "People want to put utilities up as the symbol of this problem," says Spinka, "but it truly goes beyond that. It goes everywhere."

Indeed, computers, photocopiers, cellular phones, and radio and TV broadcast antennas all emit possibly dangerous amounts of electromagnetic radiation. Even household appliances give off EMFs. Both electric blankets and video-display terminals have been linked to miscarriages, and VDTs may also cause eye problems.

Public fears over the possible hazards of EMFs are rising, yet those worries clash with another trend. As the economy expands, demand for electric power is increasing along with the use of computers and other electronic gear. Still, public opposition to high-voltage lines is likely to flourish. If this environmental health issue is different from others, says Brodeur, it may be because it is not a faraway problem such as the ozone hole over Antarctica. "When the health and well-being of the middle class are threatened, things tend to happen."

By Pam Black in New York

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Notes on Patricia Louise Ballard, 1980,

"And Conflict Shall Prevail: Reclamation Law, Water Districts, and Politics in the Kings River Service Area of California."

MA Thesis, UCLA, Arch & Urban Planning.
Committee: Edward Soja, Chair; Benj. Wisner, John Friedmann

Land concn by cty, 1964 Census of Ag, vol 1, part 48, Calif.
1954 Census of Ag, vol 1, Part 33, Calif.

p.19, concn of land w/in cties, very high in Fresno, Tulare and Kings Cty. Highest in Kings, signif. bcs. Kings is small and uniform.

p.28 and T VII, wages/salaries acct for a lower share of income in the three Kings R cties than in state as whole. In Tulare Cty., wages/salaries are 50% of income, 1974.
- Cal Stat Abstract, q.v.

p.30. 1940-50, 3 cties pop grew 32%. 1950-76, net outmigration, plus rural-urban move. [Thus, Pine Flat and CVP drove people out - cf. TVA land, as per Jane Jacobs.]

Suggests cheap water did not promote labor-using crops. Is silent on how Census treats migratory work force, though.

Census, County and City Data Book, source.

U.S.S., Comm on Pub Lands, Hearing .. Subcomm...on S.912, 89th Cong 1st sess (1947), p.333.

U.S.S., Select Comm on Small Bus, and Comm on Insular Affairs, "Will the Family Farm Survive in Am?" Jt. Hearings, Part I: Fed Recl Pol, 1976, 94th, 1st, 1976, p.77.

Clarke Chambers, Cal Farm Orgs, 1952. UCP, p.60.

P. 75. Water Storage districts: only landowners can vote. Corps can vote.

Some Water Measures, Conversion Factors, and Rules of Thumb

I. Stock measures

1 c.f. = 7.48 gallons ≈ 7.5 gals
1 gal = 231 cu in = .134 cf
1 acre-foot (a.f.) = 43,560 c.f. = 326k gals
1m gals ≈ 3 af

II. Flow measures

1 sf ("second-foot") = 1 cfs
1 mi = 1 miner's inch
1 mi (in southern California) = .02 sf = 1.2 cf/min
1 mi (in northern California) = .025 sf = 1.5 cf/min

The origin of the miners' inch is the flow through a round orifice of 1" diameter with a 4" head. Some ingenious pioneer improvised this to do the job with crude tools. Different heads were used in different places. 1 m.i. = .025 sf in northern California, (and may have other meanings elsewhere, varying with local custom). .025 sf is what you get with a 6" head. It equals 1.5 cf per minute, which is how Merriam-Webster Unabridged defines a miner's inch.[1] It is also called a "statutory m.i.," because the Calif. legislature, after some waffling, settled on this definition. It is widely ignored, however.

The use of this archaic, rough, and variably defined unit might seem to suggest water is not very carefully measured. Note, however, that one m.i. is just 1/50 of a s.f., so the use of the m.i. actually indicates that those using it are concerned about much finer measurements than other diverters who use s.f.

(A miner's inch should not be confused with a "water-inch," which you find in the dictionary, which is 14 pints/minute, or .193 southern m.i.s. I am not aware that water-inches are used anywhere in California irrigation.)

III. Conversion factors, stocks and flows

1 sfd (second-foot day) = 1.983 af (acre-feet) ≈ 2 af
1 mid (southern) = 1728 cf = .0397 af ≈ .04 af = 12,927 gals ≈ 13k gals
1 mid (northern) = 2160 cf = .0496 af ≈ .05 af = 16,159 gals ≈ 16.2k gals
25 mid (southern) ≈ 1 af; 20 mid (northern) ≈ 1 af

IV. Some prices

$2/mid = $50/af (Gage Canal price for water above stock entitlement)

The Gage Canal supplies me at zero variable cost with 9 mi for 2 days/mo, to care for 2 acres. That is 18 mid/mo, or 18/25 af/mo., or .72 af/mo. The flat charge for this is now at $148/acre. If the season is 10 mos., that is 7.2 af/yr, or 3.6 af/a/yr. For years I could also take an equal additional amount at a variable cost so low that I did not keep track of it. Thus, I basically got 7.2 af/a for about $300, or $42/af. This is the cheapest water in southern California.

Imported state water, heavily subsidized, is sold nearby for over $300/af, and its true social cost probably runs up to $3,000/af at the margins of the system. Many of the subsidies are concealed in cooked books, hence hard to estimate, but the fact that DWR officials conceal them tells us they are very high.

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[1] It is interesting that a 50% increase in head causes a 25% increase in flow. (I hope that is good physics -- if not, I've been misinformed.)

Funk

Slash burning pollutes wtr.
Interstate & interntl. aquifers.
"Sole source aquifer".

James Huffman

Bricks-in-toilet
EPA, 1920, Feds. got into licensing pwr. plants
Flood control — Boulder Dam!
Planning, ca. 19?? ('35?)
'70 poll. control
Eng. common law adopted in all the jurisdictions of U.S. (save La)
~~Tidal~~ wtr. subject to comm. (Inland wtr. subject to riprn.
U.S. came in under commerce clause
1925, U.S.S.C. adopted navigable wtrs. rule
'71, Daniel Ball case, must be navigable in fact. (Act states own land under the wtr.)
'40 USSC extended to "can be made navigable in fact"
But FERC goes further, licenses power gen. on small streams.
Clean Wtr Act applies to "all wtrs".
Wetland Act extends power to them, too.

TVA was justified under war power.
Limitations on power are political, not constl.

Navign "servitude" or easement, Fed. govt. has to protect navign — (& any derived power)

Govt. needn't pay landowner — servitude extends to high wtr. mark.

Fed. can preempt state reg., under supremacy clause. But doesn't.

✓ State constns say they own the wtr.

Johnson said this too — showed a slide w. direct quote. Then reneged.

Endangered species act, Fed. can take wtr. for it.

(M.G. Can approp. rt. was orig. a possessory rt — ended when gold ran out)

Fed. has rts to wtr needed to use reserved lands: Indian, military.

States cannot prohibit export of wtr.

Chas. Roe

You can lose wtr rts. (reverted O+C grant lands)

a. Abandonment — rare.
   Forfeiture, by statute. (need broaden this to include "nonuse")
b. Adverse possession.

c. Unregistered claims
   '69 - '74, Wn. had to register claims.

Roe, (cont.) Refers to wtr. rts. as taxable; & real

d. Wasteful practises.
New approach being applied piecemeal in Wn.

e. Sleepers
Gen'l. adjudication.

f. Public Trust -- can take existing rts, Mono L.

No. of glasses of wtr. in one a.f.

Pt. = 2 cups

Qt. = 2 pts.

Gal = 4 qts = 8 pts = 16 cups

Cu ft. = 7 gals = 112 cups

a.f. = 43,560 cf = 112 x 43,560 cf ≅ 4.4 M cups

'45 Wn. ground wtr act, applied permit system to wells.

'71 Wn. new wtr. rts. act, a) Future wtr to be allocd. on basis of max. net benefits.
b) Save instream uses.

'84 Wn. SC. terminated rip. rts. if not used by 1932. !

Morisset

Winters doctrine says Indian wtr. rts. are appurtenant to land

Treaty doctrine says " " " " not land-based. They are fishing rts.

(M.G. Is known how hoarding gas, &c. commods. causes a scarcity, self-fulfilling crisis. But in mkt. for land, & wtr. rts., this a normal condition.)

$900 million water plan clears panel

5-22-85 p.1

By JOHN HOWARD

SACRAMENTO (AP) — A $900 million ballot plan to break California's decades-long water impasse was approved yesterday by a key Senate committee.

The proposal, by Sen. Ruben Ayala, would provide state bond money to purchase water from the water-rich federal Central Valleys Project to maintain water quality in the Sacramento-San Joaquin Delta. Once that protection is assured, under Ayala's proposal, northern water exports could be increased through the state aqueduct to the San Joaquin Valley and Southern California.

"It (the North-South impasse) must be resolved or our water development will be put on hold," Ayala said. "This is the only logical avenue remaining. . . . It's a voter-approved insurance policy we may never be asked to utilize."

His measure goes hand-in-hand with a state-federal agreement, which has yet to be ratified by Congress, that could provide 400,000 acre feet of water annually by 1988. An acre-foot is about the amount of water used by a family of four in one year. Like Ayala's bill, the state-federal pact also provides protections for the Delta, which are critical in times of drought.

Ayala, D-Chino, the author of the $1.5 billion Peripheral Canal rejected by voters in 1982, said his latest measure "contains no new construction," and promised

(See WATER, Page A-8)

Water . . .

(From Page A-1)

members of the Senate Agriculture and Water Committee that he was not attempting to build new water transfer facilities. Ayala is chairman of the committee.

The bill, SB210, was approved in a 6-1 vote and sent to its next legislative hurdle — a Senate fiscal committee, where it may be whittled down.

Ayala's bill, SB210, requires two-thirds votes in each house of the Legislature to appear on the November 1986 statewide ballot — an election that currently includes the confirmations of five state Supreme Court justices, and races for governor, the U.S. Senate, 45 congressional seats and 100 state legislative seats.

Gov. Deukmejian's office said he has not taken a position on Ayala's measure, but noted that the governor will again, as in 1984, consider limiting the total amount of bond funding on the ballot. "The governor will look at all the bond issues as a whole," said Deukmejian press aide Kevin Brett. He also said that "many of the aspects in the Ayala bill are contained" in the state-federal accord.

Ayala's newest effort marks the latest in a series of plans to obtain more Northern California water for Southern California. Many of the proposals have been defeated by the combination of Northern California residents, who oppose shipping the water south, and those in Southern California who hold such water projects are too expensive.

The lone dissent to Ayala's proposal in the Senate panel, Sen. John Doolittle, R-Citrus Heights, said SB201 "paves the way to ship more water south." Doolittle's sprawling 1st Senate District, which covers much of Northern California, overwhelmingly opposed the Peripheral Canal.

Last year, Deukmejian's own water plan, which would have widened channels in the Delta, was defeated in the Legislature. Ayala attempted to guide Deukmejian's proposal through the Legislature.

Under another water proposal, in some ways similar to Ayala's and unveiled earlier yesterday, areas that need water could buy it from water-rich districts and avoid paying for expensive new water projects.

"Water trading works, it's economically beneficial to buyers and sellers, it's environmentally safe and can be done without building expensive projects that cost billions of dollars and take years," Assemblyman Richard Katz, D-Sepulveda, said at a news conference.

Katz said that water users who have extra water could sell it to districts that need water, move the water through existing canals, retain the water rights and get the water back in case of a drought.

"Legal Framework and Government Structure - Water Laws of Washington and Western States"

Presentation At

"WHOSE WATER? PAST, PRESENT, FUTURE"

University of Washington, Institute For Environmental Studies

by

Charles B. Roe, Jr
Senior Assistant Attorney General
State of Washington

September 29, 1989

I. Water Rights Law Development Within Federal System - State Law Primacy In Establishment of Water Rights.

A. Broad Powers Over Water Vested in Both State and Federal Government. See generally Trelease, Federal-State Relations In Water Law (1971).

1. Federal government - "Commerce Clause" and other clauses of Federal Constitution. Trelease, supra, ch. III.
2. States - U.S. Const., Amendment X; "The Police Power." Trelease, supra, ch. II.
3. Assertions of power by United States (U.S.) and states based, from time to time, on "ownership" of water - the wrong inquiry. See Sporhase v. Nebraska, 458 U.S. 941 (1982).

B. Historic Federal Water Rights Policy.

1. Federal deference to states for creation of rights (even as to water use by U.S. on federal lands including "reservations.") Policy Basis: Need for unitary water rights system - See:

a. California v. United States, 438 U.S. 645 (1978);

b. United States v. New Mexico, 438 U.S. 696 (1978);
c. United States v. Anderson, F. 2d (9th Cir. 1984).
d. California-Oregon Power Co. v. Beaver Portland Cement Co., 295 U.S. 142 (1935).

2. Exception to historic federal deference policy - the federal law-based impliedly "reserved rights" (or "Winters") doctrine.

a. Cappaert v. United States, 426 U.S. 128 (1976);
b. United States v. Winters, 207 U.S. 564 (1908)
c. United States v. New Mexico, supra.

C. State Primacy In Creation of Water Rights - (Responding to Federal Deference Policy). Two State Water Rights (Allocation) Doctrines.

1. Riparian. See Tyler v. Wilklinson, 4 Mason 397, 24 Fed. Case. 472 (C.C.D.R.I. 1827).
2. Prior appropriation. See Coffin v. Left Hand Ditch Co., 6 Colo. 443 (1882).
3. "Dual" System - Pacific Coast States. See Lux v. Hagen, 69 Cal. 255, 4 Pac 919 (1884).

II. Riparian Doctrine - An Eastern U.S. Product. See generally Trelease, supra, 12.

A. Essential Feature - geographic based.

B. Establishment of Right - "Not created by use or lost by non-use."

C. Fundamental Notions

1. Reasonable use among riparians.
2. Equality of priority in times of shortage.

III. Prior Appropriation - A Western U.S. Product. See generally Trelease, supra, 21.

A. Essential Feature - "First in time is first in right"

B. Establishment of Right - Three elements:

1. Intent to put water to a beneficial use.
2. Exercise intent with due diligence
3. Priority

C. Fundamental Notion, see III A, supra.

IV. Loss of Water Rights - Old Ways and New

A. Old Ways

1. Abandonment. See Miller v. Wheeler, 54 Wash. 429, 435, 103 Pac. 641 (1909).
2. Forfeiture. See, e.g. Sheep Mountain Cattle Co. v. Department of Ecology, 45 Wash. App. 427, 726 P. 2d 55 (1986).
3. Prescription. See Downie v. Renton, 167 Wash. 374, 9 P. 2d 372 (1932).
4. Modification of Common Law (riparian doctrine). See In re Deadman Creek, 103 Wn.2d 686, 694 P. 2d 1074 (1985). See generally Roe and Brooks, Loss of Water Rights - Old Ways and New, 35 Rocky Mt. Min. L. Institute, ch 23 (1989).

B. New Ways

1. "Water right claims registration" acts. See Department of Ecology v. Adsit, 100 Wn.2d 651, 657, 674 P. 2d 160 (1983).
2. Modification or enforcement of "beneficial use" concepts.
3. General adjudications - "sleeping at the switch."
4. Public Trust doctrine - "public has the right to go where the navigable waters go and that right cannot be impaired without the State's permission." See National Audubon Society v. Superior Court, 33 Cal. 3d 419, 658 P. 2d 709 (1983).

V. "Changeability" of Water Rights

A. Possibility of Change of Purpose or Place of Use, or Point of Diversion. RCW 90.03.380.

B. Obstacles.

1. Interference with existing rights, junior or senior. RCW 90.03.380.

2. Consistent with "public interest" policies. See RCW 90.54.030 and RCW 90.03.290.

VI. Washington's Water Rights Laws

A. Early History - Recognized both prior appropriations and riparian doctrines (the so-called California or "dual" system). Benton v. Johncox, 17 Wash. 277, 39 Pac. 495 (1897).

B. 1900 to 1960 - Water Law Developments

1. 1917 - Enactment of Surface Water Code

a. Established centralized, comprehensive state water management and regulation system. Chapter 90.03 RCW
b. Exclusive means for creating new water rights - the "permit system". RCW 90.03.250 et. seq.

2. 1945 - Enactment of Groundwater Code

a. Supplementary to surface water code. Chapter 90.44 RCW
b. Contains an exclusive "permit system" - with application to all but de minimus (i.e., 5,000 gallons per day or less) water use. RCW 90.44.050-.060.

C. Recent Important Water Law Developments

1. Legislative

a. 1967 - Forfeiture Act enacted. RCW 90.14.130 et seq.
b. 1969 - "Water right claims registration act" enacted. RCW 90.14.031 et. seq.
c. 1971 - a watershed year with the enactment of the "Water Resources Act of 1971," Chapter 90.54 RCW, which modified significantly Washington's Water rights law in both its planning and allocation respects.
1) Ten "fundamentals" of water policy including as highlights:
(a) "Maximum net benefits" - The cornerstone of future

allocation decisions. RCW 90.54.020( ).

(b) Base (i.e. minimum) flow retention, i.e. no further drying up of streams. RCW 90.54.020(3)(a).

2) New planning process emphasizing regional planning and the obtaining of local and national views. RCW 90.54.040 and .060.

3) Emphasis on increased knowledge of facts about water. RCW 90.54.030.

4) New water allocation decisions process designed to provide for fully informed, well reasoned decisions taking into account on coordinated basis:

(a) Amplified public interest considerations (i.e. "fundamentals"). See D.1.C.(1).

(b) Planning. See D.1.C.(2).

(c) Full factual knowledge. See D.1.C.(3).

2. Judicial

a. Vested riparian rights - amplification on exerciseability of long dormant, never exercised riparian rights. In re Deadman Creek, supra.

b. Water "duty" and conveyancing - Application of "reasonable efficiency" test to the exercise of historic water conveyance and use practices. See In re Marshall Lake and Creek, Pend Oreille County No. 83-2-00030-7.

c. State Water Rights Law Application Within Indian Reservations

1) General Rule - "State, not tribe, has the authority to regulate the use of excess waters located by non-Indians on non-tribal lands within an Indian reservation. United States v. Anderson, 736 F. 2d 1358 (9th Cir. 1984). Exception, state law has no applicability where stream is (1) reservation-restricted (rises and terminates entirely

within reservation) and (2) "within a drainage in which the state's interests are minimal or non-existent." Crowder v. Riniker, D.C.E.D. Wash. No. C-85-650-RJM (Decided Juy 6, 1989.) citing Colville Confederated Tribes v. Walton, 647 F. 2d 42 (9th Cir 1981); cert. denied, 454 U.S. 1092 (1981).

2) State has authority to regulate "reserved rights," exercised as to lands located on non-tribal lands within an Indian reservation, owned by non-tribal landowners. Crowder v. Riniker, supra.

3) Tribe has no power to adopt "comprehensive water code" applicable to excess waters on non-Indian lands within an Indian reservation. Holly v. Totus, 655 F. Supp. 557 (D.C.E.D. Wash., 1986), affirmed Holly v Totus, Memorandum Decision (9th Cir. Oct. 22, 1984).

4) "Excess waters", as used above, are defined as "waters of a water body, located within an Indian reservation . . . that are not being used to satisfy the exercise of federal reserved rights held by tribal members or the Tribe." Crowder, supra, 8.

EDF COLUMN

In place of the usual EDF Column, we are pleased to be able to bring to the attention of *EDF LETTER* readers the following editorial, which recently appeared in ***The New York Times.***

How to Find Western Water: Sell It

The desert cities of the American Southwest face a dry future. Developing new water resources costs more every year, yet the Federal Government is increasingly unwilling to foot the bill. Happily, the Environmental Defense Fund has devised a way out of the dilemma: give irrigation authorities a chance to profit from conservation of surplus water. At least one big irrigation authority wants to try. What's needed now is Federal encouragement.

•

Arid southern California is running out of water. Things will get even worse at the end of the decade when the Central Arizona Project is finished, permitting Arizona to divert enough water from the Colorado River to support the entire city of San Diego.

How to get more water? If California's Metropolitan Water District could overcome environmental and political objections, it could build dams and pump water from remaining untapped sources. But that would cost about three times as much as water from existing sources, and require a multibillion-dollar investment that Washington is unlikely to underwrite. The alternative is conservation.

The most tempting conservation target is agriculture. California now devotes 80 percent of its federally created water supplies to farmers, and they waste a lot in inefficient irrigation and by cultivating marginal land. Yet neither farmers nor the irrigation authorities have any incentive to reduce waste. They pay almost nothing for water and very little even for the endless electricity needed to pump it. Nor are they about to give up their windfall.

That's where the Environmental Defense Fund's ingenious plan fits in. The fund wants the irrigation districts, the local government agencies that distribute water, to invest in conservation and then profit from the investment by selling the surplus. For example, an authority might line canals with concrete to reduce seepage and then auction the water saved to a distant city. In just the Imperial Irrigation District near San Diego, enough water could be recovered to support about two million people, and at about a tenth the cost of new dams. The district is now negotiating with an engineering firm to manage the conservation effort and then sell the water to cities in the south.

Obstacles lie ahead, most notably in the Interior Department. The Secretary of Interior has voiced cautious approval of profitable transfers of Federal water, but has not officially endorsed the Imperial plan or any other. The department's bureaucracy seems reluctant to support profitable water transfers because it does not want to undermine the case for building Federal dams.

In any event, such transfers are sure to be challenged in court by the California Metropolitan Water District, which wants access to the water at cost. The resulting legal uncertainty has made it more difficult to sell conservation plans to the irrigation authorities or private companies that could create a market for water.

No action by Congress is needed. But it certainly would help if Interior Secretary Hodel were to make clear that the Federal Government will not support parochial opposition to water transfers in court. Without efficient use of water, the development of the West will slow to a crawl. Why should an Administration so identified with growth and the free market stand in the way of these no-lose, market-oriented reforms?

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Economic Analysis Is Published

"Economic Development and Environmental Quality in California's Water System," a monograph by EDF senior economist Dr. W. R. Zach Willey, has been published by the Institute of Governmental Studies of the University of California at Berkeley. Willey analyzes the procedures used by state and Federal agencies to develop new water projects and to allocate water rights, and shows that widespread environmental damage and economic waste result. He builds a case for the removal of barriers to the functioning of water markets, and for the inclusion of environmental costs into rigorous economic analysis of future public water resource investments.

A limited number of copies of the monograph is available, for $5 prepaid, from the Berkeley, California, EDF office. •

State Regulation of Hazardous Waste

An article based on a comprehensive EDF survey of state hazardous waste regulations, by staff scientist Linda E. Greer and attorney David J. Lennett, appeared in the most recent issue of the *Ecology Law Quarterly*. Entitled "State Regulation of Hazardous Waste," the article focuses on examples of state regulations that are *stronger* than the minimum required by Federal standards. Persons interested in improving state hazardous waste programs can obtain reprints of the article from EDF's Washington, D.C., office at cost ($3.00 plus a $1.00 fee to cover mailing and handling.) •

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EDF LETTER®

A REPORT TO MEMBERS OF THE ENVIRONMENTAL DEFENSE FUND

SEPTEMBER 1985

Corps Told to Reassess Effect of Project on Louisiana Wetland Forests

EDF's challenge to a Corps of Engineers flood control project in Louisiana was upheld recently by the U.S. Court of Appeals for the Fifth Circuit. The Court agreed with EDF that the Corps improperly failed to consider the project's effects on 17,300 acres of bottomland hardwood wetland forests—82% of the total wetlands that would be cleared because of the project.

The Corps ignored these effects in a 1981 environmental impact statement (EIS) on the project, on the grounds that private owners would clear the wetlands anyway and so their loss was not due to the project. EDF argued, and the Court agreed, that a landmark 1983 decision won by EDF in the Fifth Circuit makes that assumption untenable.

The Court held in 1983 that wetlands cannot be cleared for agriculture without permits from the Corps under the Clean Water Act. Thus the Corps itself controls the extent of wetland clearing. This was a major ruling, since 80% of past wetland loss in the U.S. has been caused by conversion to agriculture.

The Court ordered the Corps to reassess the project's impacts on the wetlands in dispute. Its order strongly implied that the clearing of 17,300 acres—many times the area considered by the Corps—could not help but have "significant effects." Such a finding would require the Corps to revise the 1981 EIS.

The Court rejected EDF's further claim that the Corps improperly issued permits to clear and convert to farming another 5,200 wetland acres, some within the project area. EDF has asked the Court to reconsider this opinion, however, since it ignores EDF's main claim: that the Corps violated Federal requirements to analyze all cumulative and individual impacts of the clearing *and* determine that no "practicable alternatives" exist. Staff attorneys Ann Daniels and James T. B. Tripp and scientist David W. Hoskins are working on this case.

As part of its long effort to prevent further wetland loss in the U.S., EDF has begun a statistical analysis of the impact of Federal flood control projects on wetland loss. ●



Typical bottomland hardwood forest of the lower Mississippi Valley. *U.S. Fish and Wildlife Service photo.*

EDF Seeks Cleanup of Closing Toxic Dumps

EDF has launched a major campaign to insure proper cleanup of toxic contamination at hazardous waste facilities that are closing. Tough new hazardous waste legislation passed by Congress in 1984 requires stricter permit standards and cleanup of prior contamination and leaks. EDF expects that more than half of the nation's 1,400 operating land disposal facilities will close rather than comply with the new safety requirements. If proper safeguards are not required at the time of closure, these facilities are likely to become the next generation of Superfund dumpsites.

Continued on page 4.

Acid Rain Control Gains in New York Power Plants Ruling

EDF's efforts to reduce acid rain in the Hudson River Valley gained in a recent decision from the New York State Department of Environmental Conservation (DEC) involving two power plants in Newburgh, on the Hudson. The ruling will result in a net reduction of 10,000 tons of sulfur dioxide (SO_2) a year from the two plants, and will also reduce long range transport of acid pollutants from tall smokestacks.

DEC ruled on an application by Central Hudson Gas & Electric Company to convert its oil-burning Danskammer plant to coal. The change would cause some increased SO_2 emissions and a somewhat larger increase in emissions of other acid rain precursors, nitrogen oxides (NO_x). The second plant, Roseton, next to Danskammer and partly owned by Central Hudson, is the largest SO_2 emitter in the Lower Hudson Valley and has exceeded state SO_2 emission limits. The utility initially proposed to address this problem by raising stack heights, a perennial utility solution to local pollution problems, but a strategy that increases long range transport of acid pollutants.

EDF intervened in the hearings, represented by attorneys James T. B. Tripp and Ann Daniels and joined by Scenic Hudson, Inc. EDF argued that, under the Clean Air Act, Central Hudson cannot increase stack heights to meet local air standards if it has a reasonable alternative, such as burning lower sulfur fuel. Offering supporting testimony by atmospheric scientist Dr. Michael Oppenheimer and others, EDF urged that the sulfur content of Roseton's oil be halved—from 2% to 1%—to meet air quality goals and also to offset the increased NO_x from Danskammer, in view of the already serious acid rain problem.

The DEC Commissioner agreed in part with EDF, rejecting the plan to build taller stacks and reducing the sulfur content of Roseton's oil to 1.5%. EDF may appeal the ruling, however, because the SO_2 reduction does not properly take into account the acid rain problem caused by the two facilities or the increased NO_x from the Danskammer plant. ●

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5 June 91 A-4

Santa Monica wins rent control battle

By Bob Egelko
The Associated Press

SAN FRANCISCO

Santa Monica's rent control law was upheld by a federal appeals court yesterday, prompting the city's lawyer to proclaim that landlords' hopes of destroying rent regulation in conservative courts were doomed.

A landlord group that sponsored the suit was "hoping to mount a successful constitutional challenge to rent control in light of a change in the composition of the federal courts brought about by President Reagan's appointments," said Deputy City Attorney Barry Rosenbaum.

Noting that two Reagan appointees were on the three-judge panel that ruled yesterday, Rosenbaum said the conservative shift in the courts was "not going to result in a re-examination of the constitutionality of the Santa Monica rent control law or rent control laws in general."

Robert Jagiello, lawyer for the Santa Monica apartment owner who filed the suit, did not return telephone calls.

In the 3-0 ruling, the 9th U.S. Circuit Court of Appeals said the landlord's arguments — that rent control was economically damaging, did not help the poor, and was unjustified by any demonstrated evidence of housing shortages or rising rents in Santa Monica — were misplaced.

"Controlling rents to a reasonable level and limiting evictions substantially alleviate hardships to Santa Monica tenants," said the opinion by Judge William Canby.

"That rent control may unduly disadvantage others, or that it may exert adverse long-term effects on the housing market, are matters for political argument and resolution; they do not affect the constitutionality of the rent control law."

Canby also said questions of whether housing availability and rent levels justify regulation are generally left up to lawmakers.

Panel OKs Bill Easing Limits on Water Sales

5 June 91 A-3

■ **Supplies:** Farmers would be allowed to send surplus to drought-stricken cities. Legislation faces several hurdles before passage.

By VIRGINIA ELLIS
TIMES STAFF WRITER

SACRAMENTO—Despite charges that urban interests are trying to transform California's farm belt into "another Owens Valley," an Assembly committee narrowly passed legislation Tuesday that would make it easier for farmers to sell water to drought-stricken cities.

Considered by many water interests to be one of the most important and controversial water measures before the Legislature this year, the bill by Assemblyman Richard Katz (D-Sylmar) overcame strong opposition from rural legislators to win on a 7-5 vote of the Assembly Water, Parks and Wildlife Committee.

The bill is a long way from passage, however. It has to go through one more committee before it reaches the floor of the Assembly, and then two committees in the Senate before it reaches the Senate floor.

Katz said the legislation is designed to create a free marketplace allowing those with water to sell it. In most cases, he said, that would mean enabling farmers who have abundant supplies of cheap water to sell to urban areas hard hit by drought.

By removing bureaucratic and legal obstacles to such transfers of water, he said, more could be made available to those in critical need. He said the easier transfers would also lessen the need for building expensive and environmentally damaging water projects.

"What I want to do is break up the old bureaucracies in the water agencies and the water power structure that serve corporate farming at the expense of people in the cities and force a new way of looking at water," Katz said.

The legislation would erase all prohibitions against water sales outside the service areas of local irrigation districts—a problem that surfaced earlier this year when some districts tried to block farmers from selling to a state water bank.

The measure would guarantee that by selling water either on a short- or long-term basis, farmers would not be giving up their basic water rights. It also would restrict sales where it can be shown that the transfer of water out of an area would harm it economically or environmentally.

The protections offered to farmers in the legislation were not enough to allay the fears of rural legislators, who saw the measure as a way for urban interests to grab more water from agricultural areas. In California, agriculture uses 80% of developed water.

Please see WATER, A19

WATER: Bill Would Ease Sales

Continued from A3

Characterizing it as another attempt to "fill the unfillable bucket of the urban areas" and to serve the "blacktop of Southern California," Assemblyman Bill Jones (R-Fresno) said the measure would destroy local water districts that have been the backbone of rural agricultural economies.

"You're going to have people driving up driveways of every farm that has . . . water rights with a briefcase and a lease, just like they do for oil leases today," Jones said. "I would argue strongly that it makes no sense . . . to try and turn the San Joaquin Valley into another Owens Valley."

Jones' remark was only the first in a string of references to Owens Valley, a once-productive agricultural area in the eastern Sierra. Around the turn of the century, the city of Los Angeles secretly bought up land there so it could take the water and pump it south to the growing city on the coast. Draining water from the valley turned much of the area into barren land.

"The concept of an entirely unfettered free market for the sale of water is not in the best long-term interest of our state," said Assemblyman Jim Costa (D-Fresno). "I really do think the potential of an Owens Valley being re-created in the valleys is increased if we completely create that sort of free market."

Katz acknowledged that the Owens Valley has become a long-term embarrassment to Los Angeles and for that reason, he said, he had taken care to provide protections in his bill against that happening again.

"We in Los Angeles are going to pay for a long time not just by reputation but in dollars for the mistakes we made in Owens Valley," he said. "And we should, because what we did there was outrageous and it should not be done again."

Katz's bill drew support from groups such as the Environmental Defense Fund and the Planning and Conservation League, the Metropolitan Water District's management and the California Farm Bureau. It was opposed by the Kern County Water Agency and the Assn. of California Water Agencies representing local water districts.

Connie Barker, legislative representative for the Assn. of California Water Agencies, warned that there could be constitutional problems with provisions of the bill that took control away from water districts. She said districts that had used public money to obtain rights to water should not have them taken away by legislation.

Katz said farmers should have the right to do what they want with the water they receive. Now, he said, when farmers do not use their full allocations, the unused water is returned to the district.

You can charge people for pumping wtr!! SC is doing it! They're way ahead.

Confidential Study Section Minutes

COMMONWEALTH CLUB OF CALIFORNIA

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WATER PROBLEMS
Study Section Minutes
February 5, 1959

BERT L. SMITH, Chairman
Wallace R. Finney, Vice Chairman
Richard C. Nelson, Secretary

PRESENT:

Bert L. Smith
Richard C. Nelson
T. P. Stivers
Frank Clendenen
Roy P. Walters
Hale E. Cummins
J. P. van Loben Sels
C. W. Schedler
Paul C. Newell
Manley W. Sahlberg
J. Rupert Mason
C. D. Allen
J. Van Overbeek
Warren H. Pillsbury
William L. Hudson
Alexander Imlay
R. A. Terry
Don M. Davis
A. C. Riedel
D. C. Gaylord
G. F. Schroeder
Frank Adams
Paul A. Ewing
E. Ronald Foster
R. A. Johnson
Lloyd L. Allen
Richard M. Bartle
J. D. Strauss

Subject: "A Working Solution to Ground Water Management"

Speaker: Howard Crooke, Manager, Orange County Water District, Santa Ana.

The gist of the speaker's remarks follows:

The Metropolitan Water District of Southern California was created early in the 1920's when the cities in Los Angeles County and Orange County recognized the fact that an additional supply of supplemental water was necessary to sustain the economic growth of the area. Three of the original thirteen cities in the MWD are in Orange County. The Colorado River Aqueduct built by the MWD to bring Colorado River water to the area is the result of activities which started 35 years or more ago.

not the City

The Orange County Water District encompasses an area of approximately 180,000 acres with a current assessed valuation of $618,000,000. The area is composed of land which overlies or receives its water from the underlying coastal ground water basin. On November 1, 1956 the average elevation of ground water in the basin was 21 feet below sea level, with wells in some areas producing water from 80 feet below sea level. The average annual overdraft on the natural supply to the District Basin for the past ten years has been determined to be 70,000 acre feet.

One of the principal purposes of the replenishment program is to provide the necessary funds to purchase enough water for ground water recharge to replace the annual overdrafts and within ten to twenty years to bring water levels in wells high enough to stop further intrusion of sea water.

Funds of the District are derived from two main sources -- a general assessment which cannot exceed 8¢ per $100 of assessed valuation on all assessable property within the District, and a replenishment assessment or charge on the production of ground water. The current rate of 8¢ provides approximately $480,000 per year.

(over)

The current replenishment assessment rates is $3.90 per acre foot of ground water production. Approximately $680,000 in replenishment assessment moneys were collected on water produced during the last fiscal year.

The validity of the legislative enactment under which the replenishment assessment was levied together with other appropriate questions have been pursued through the courts to a conclusion favorable to the district. The District has successfully prosecuted a suit against the four cities in the upper reaches of the Santa Ana watershed and has thereby protected the rights to the underground waters in the river. By court order the cities will have to reduce their pumping to approximately two thirds of what it had been.

In excess of $2,400,000 in replenishment assessments has been collected. To date a total of 725,000 acre feet of Colorado River water has been imported into the area of the District of which 465,000 acre feet have been used for ground water replenishment.

The District owns nearly 800 acres of spreading facilities in the Santa Ana River which are being improved in an endeavor to conserve the highest possible amount of local and upstream runoff.

The installed capacity of the Colorado River Aqueduct is 1800 cubic feet per second; rights of the MWD to the waters of the Colorado equal 1655 cfs. continuous flow. The aqueduct capacity is therefore less than 10% in excess of continuous flow rights. The demands for water in Southern California areas are, generally speaking, three times higher in the warm summer months than they are in the cold and or rainy winter months.

Based on the experience to date, the Board of Directors of the Orange County Water District is proceeding in the belief that a well-balanced adequate supply of ground water for all land owners and inhabitants of the District can be financed by the present dual assessment system, and that the replenishment assessment or charge on the production of ground water is fair, equitable, and practical for the areas of the Orange County Water District.

QUESTIONS:

Mr. Ewing: How about the quality of Colorado River water? A: The water is the best we can get and won't ruin the district.

Mr. Bartle: How many wells covered by the replenishment assessment? A: 3400 pumpers have their water measured and they pay accordingly. They read their own meters and compute their own tax on a district form. The district checks the power used and the meters occasionally.

Mr. Mason: Is meter charge really necessary? A: The only system we have used includes meters.

Mr. Clendenen: Is there a subsidy to irrigators? A: The Colorado River water costs $12 per acre foot. Some areas within the District belong to MWD and they pay their own tax direct to MWD. Some supply of water beyond that from MWD

(over)

is available to the District.

Mr. Stivers: How is the use of sewage water working out? A: It is believed that the land will eventually suffer but the present program keeps the area solvent now. The land will eventually be used for industrial purposes.

Respectfully submitted,

Richard C. Nelson
Secretary

Doors Open to Trades

Metropolitan Water District is quick to point out that the tentative memorandum of understanding does not involve "water marketing" per se, yet the negotiations between MWD and IID have served to turn public attention to the concept while legislation and investigations in the late 1970s and early 1980s opened the door to water "trades."

In 1978, a Governor's Commission to Review California Water Rights Law endorsed the idea of "modifying impediments in present law to make water more easily traded." A 1980 Rand Corporation report recommended changing the current pricing structure and revising the law "to allow individuals and public agencies to have clear title to waters they use."

In 1982, Assemblyman Richard Katz (D., Los Angeles) introduced AB 3491 to give greater security to holders of water rights should they sell, lease or exchange water. The statute also states that water districts may act as "brokers" for individual holders of rights and requires the Department of Water Resources, State Water Resources Control Board and other agencies to encourage voluntary transfers and provide technical assistance. The law specifically prohibits depletion of an area's supply.

Most recently, an Assembly Office of Research report looked at a hypothetical water sale between Stanislaus and Kern counties. The report, released in February of this year, concluded that more than 150,000 acre-feet of water could be traded at a price benefiting both buyer and seller, that existing conveyance facilities would be adequate for transporting the water and that the fictitious trade would be legal under both federal and state statutes, with no loss of water rights.

The idea of IID sharing conserved water with the rest of Southern California had been championed by the Environmental Defense Fund "for a number of years," says the activist environmental organization's senior counsel, Tom Graff.

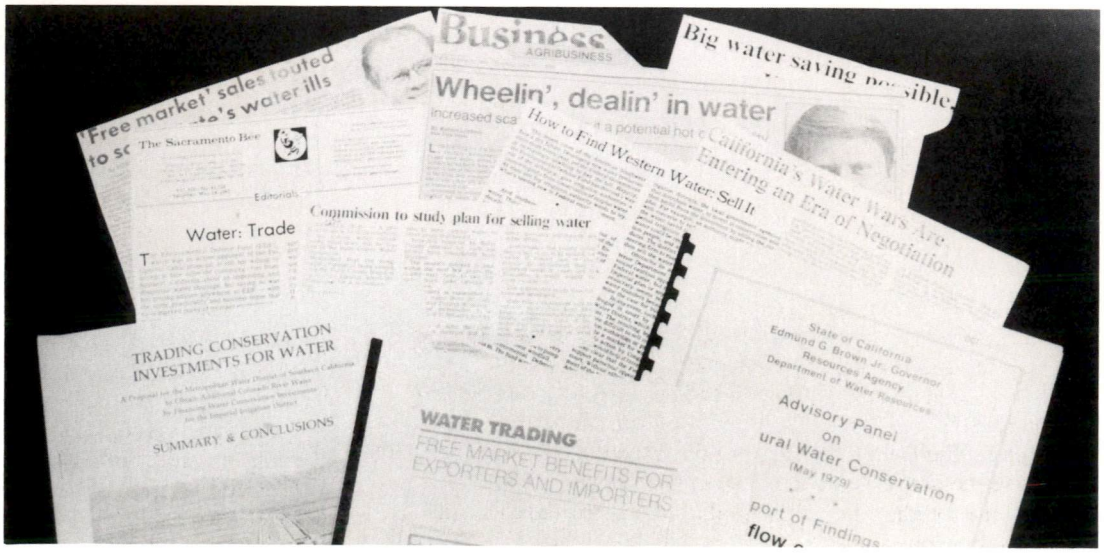
Initially, he says, the idea was met with "tremendous resistance" from MWD (a charge denied by MWD officials).

"It's impossible to say exactly when or how an idea that makes this much sense went from being anathema to Met (Metropolitan Water District of Southern California) in 1981 to conventional wisdom in 1985," according to Graff, who sees the defeat of Proposition 9 — the Peripheral Canal referendum — in 1982 as being the turning point for MWD. "Once that door was closed, Met had to start looking at other options."

Myron Holburt, MWD assistant general manager and a key negotiator for MWD, disagrees that Prop. 9 had anything to do with it. "For years, IID had taken the position any water recovered through conservation would be used only within the district and was unwilling to talk to MWD about this situation," Holburt rejoins. "Then, in January of 1984, IID changed its position and said they'd be willing to talk to other contractors," thus smoothing the way for negotiations between the two districts.

"The fact that water could be conserved in Imperial Irrigation District has been known for decades," according to Holburt. "It was pointed up in the 1950s, in the testimony in *Arizona v. California*. Later, when the (U.S.) Bureau of Reclamation identified irrigated areas throughout the U.S. in which significant amounts of water could be conserved, IID was near the top of the list. The Bureau was the first to write a report putting it all in context," he concludes. "The Environmental Defense Fund wasn't a factor in the process leading to any water conservation agreement between Metropolitan and IID."

Although the Environmental Defense Fund has been credited by some with bringing the "water swap" into the public eye through means such as studies, letters to the editor and newspaper editorials, other principal "players" helped push it along. Among them were John Elmore, the Imperial Valley farmer who first leveled water waste charges against Imperial Irrigation District, and the IID Board of Directors. The California Department of Water Resources, which reported in 1982 that IID was wasting water, also played a role, as did entrepreneur Thomas Havens (see "Privatization"), who is credited by EDF's Graff as the man "who saw the business opportunity and sold it to Parsons," the engineering consulting firm chosen by IID to investigate the possibilities of conserving water.



Reports and news clippings brought the concept of water trading to public attention leading to state legislation.

er for Coastal Cities?

The Story So Far

The Colorado River lies at the heart of many a water controversy. Dividing its turbid waters involved legislation, compacts, court decrees and international treaties as each of the seven basin states (Colorado, New Mexico, Utah and Wyoming in the upper basin, Arizona, California and Nevada in the lower) sought to protect its interests.

It took more than a decade of litigation and a U. S. Supreme Court decision to settle differences among the lower basin states. The decision in 1963 in the historic *Arizona v. California* lawsuit, among other things, apportioned the Colorado's waters among Arizona, California and Nevada, and also paved the way for the Central Arizona Project, a massive water project designed to bring Colorado River water into Arizona's interior and ultimately allow that state to use its full entitlement.

When the Central Arizona Project comes on line late this fall, California faces a radical change in its Colorado River water supplies. Hardest hit will be coastal Southern California, which will lose firm delivery rights to 662,000 acre-feet within the next couple of years, its annual apportionment cut from the current 1,212,000 acre-feet per year to 550,000 acre-feet per year.

Other Water Sources

This impending shortage has Southern California water officials worried. According to Metropolitan Water District of Southern California the population of its service area is expanding at the rate of 180,000 people a year. In a few years present supplies will not be sufficient to meet growing needs, even in "normal" water years, fears MWD.

In recent years, the district has relied on Colorado River water to satisfy about 50 percent of its 13 million residents' needs. The rest is made up by water which flows from Northern California via the California Aqueduct of the State Water Project. Up until 1982, Southern California had counted on this project — which included a "peripheral canal" to carry more water around the Sacramento-San Joaquin Delta — to make up the difference once the CAP starts taking water. But the canal's resounding electoral defeat in June of that year, followed by the shelving of Governor Deukmejian's through-Delta water plan two years later, cast doubts on how Southern California's growing thirst would be met.

Water waste charges leveled against Imperial Irrigation District, Metropolitan's agricultural neighbor to the southeast, set the wheels of thought in motion. Imperial, which stands to keep its entitlement intact, diverts some 2.8 million acre-feet of Colorado River water a year to irrigate one-half million acres of lush farmland. If some of this water could be saved, why couldn't that conserved water be transferred — or sold — to the cities on the coast?

Metropolitan Water District

Metropolitan Water District of Southern California — MWD, or "Met," as it's sometimes referred to — was created by public vote in 1928 following passage of legislation authorizing supplemental water for California's southern coastal plain. Today, MWD serves an area of 5,200 square miles covering six counties: Los Angeles, Orange, Riverside, San Bernardino, San Diego and Ventura. The agency now embraces 27 member agencies, including San Diego County Water Authority, 12 municipal water districts and 14 cities.

In the 1920s, the city of Los Angeles recognized that local water supplies couldn't meet the needs of the growing area, leading to the formation of MWD. In 1931, a $220 million Colorado River Aqueduct was approved by voters. Initial facilities were completed in 1941; the aqueduct was expanded between 1952 and 1961, bringing it to its design capacity of more than 1.2 million acre-feet a year, or one billion gallons a day. The conduit snakes its way through 242 miles of desert and mountains between its intake at Lake Havasu on the Colorado and Lake Matthews, its terminal reservoir near Riverside.

MWD is also the largest of 30 contractors for water from the State Water Project, carried south from the Sacramento-San Joaquin Delta in the 444-mile-long California Aqueduct. Receiving its first deliveries in 1972, MWD has contracted with the state for ultimate delivery of more than 2 million acre-feet a year (1.8 billion gallons a day).

The Imperial Valley isn't the only area MWD is looking toward for supplemental water. The district has entered into "water banking" agreements with Coachella Valley Water District and the Desert Water Agency, districts which have contracts for State Project water but no facilities to deliver it. "MWD is trading Colorado River water for the state water and spreading it in the Upper Coachella Groundwater Basin" against short years, explains MWD's Myron Holburt. "Because of current high flows in the Colorado River, we are planning to place 600,000 acre-feet — 10 years' worth of advance deliveries to the two desert water agencies — into storage."



F: Whose Water?

"CALIFORNIA WATERSHEDS AT THE URBAN INTERFACE"

Sponsored By

Watershed Management Council

The Watershed Management Council is dedicated to the advancement of the art and science of watershed management, promotion of watershed policy discussion, and encouragement of proper land use practices.

Water Resources Center

The Water Resources Center, in cooperation with local, state and federal agencies, identifies and sponsors research aimed at solving California's most urgent water problems.

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WATERSHED MANAGEMENT COUNCIL
3RD BIENNIAL CONFERENCE

"CALIFORNIA WATERSHEDS AT THE URBAN INTERFACE"

OCT. 29-31, 1990

ONTARIO AIRPORT HILTON
ONTARIO, CALIFORNIA



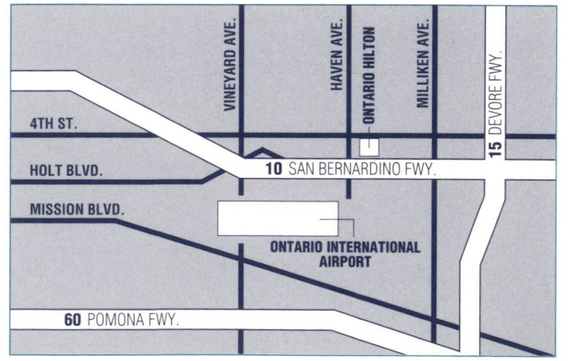
INTRODUCTION

Each year, California's growing cities push further into the hills and canyons. This growth stimulates the state's vibrant economy, but it also places an increasing burden on wildlife and vegetation, threatens water and air quality and raises the risk of flooding and wildfire.

The Watershed Management Council's 3rd Biennial Conference (October 30 – 31) will bring together scientific researchers, resource managers, environmentalists, recreation specialists, urban planners, developers and policy makers to explore these and other important watershed management issues.

A one-day field trip into the foothills of the San Gabriel Mountains will precede the conference (October 29). Field trip participants will see firsthand Southern California watersheds and the multiple demands that are being placed on them. The field trip is limited to 140 participants, so early registration is strongly recommended.

Conference lodging is available for $58 per night, at the Ontario Airport Hilton, 700 N. Haven Avenue, Ontario. Accommodations must be arranged separately from conference registration and by October 12 to guarantee the $58 rate. The hotel's phone number is (714) 980-0400. Shuttle service is available between the airport and hotel.



"CALIFORNIA WATERSHEDS AT THE URBAN INTERFACE"

MONDAY, OCTOBER 29, 1990

THE FIELD TRIP

9:00 ■ Depart Ontario Hilton for tour of San Gabriel Mountain foothills. Stops include San Dimas Experimental Forest where discussions will center on fire control, water quality and sedimentation.

10:45 ■ San Gabriel Canyon to explore recreational impacts on watersheds.

12:00 ■ Buffet lunch, Los Angeles County Fire Station.

1:30 ■ Stone Canyon to study the implications of controlled burns in watershed areas.

2:45 ■ Lopez Canyon Landfill and Hansen Reservoir. Issues will include waste disposal adjacent to wildland areas and conflicting land uses.

4:30 ■ Social hour and BBQ dinner, Los Angeles County Fire Station.

7:30 ■ Return to Ontario Hilton.

TUESDAY, OCTOBER 30, 1990

THE CONFERENCE

7:30 ■ Watershed Management Council business meeting/Continental Breakfast

Andrew Leven, President
Watershed Management Council

8:00 ■ Registration

9:00 ■ Welcome and opening remarks

Andrew Leven, USDA Forest Service
Pacific Southwest Region

9:10 ■ *Urbanizing Watersheds: The Dimensions of Land Use Conversions*

Kenneth R. Farrell, Vice President
Agriculture and Natural Resources
University of California

SESSION I

URBANIZATION OF WATERSHEDS - AN OVERVIEW

■ **SESSION CHAIR:** Kenneth R. Farrell

9:30 ■ *The Economic/Social/Demographic Projections for California, 1990 - 2010*

Lance Barnett, Director, Office of Economic Research
California Department of Commerce

10:00 ■ *Hydrology and Physical Effects of Urbanized Watersheds*

Luna B. Leopold, Professor Emeritus
University of California, Berkeley

10:30 ■ *Ecological Stresses of Urbanized Watersheds*

Duncan Patten, Professor
Center for Environmental Studies
Arizona State University

11:00 ■ *Management of Urbanized Watersheds*

G. Mathias Kondolf, Professor
Department of Environmental Planning/Landscape Architecture
University of California, Berkeley

11:45 ■ Luncheon

New Directions in Managing California Watersheds at the Urban Interface

Harold Walt, Director
California Department of Forestry and Fire Protection

SESSION II A

PROBLEMS AFFECTING WATERSHEDS AT THE URBAN INTERFACE

■ **SESSION CHAIR:** Wade G. Wells, USDA Forest Service
Pacific Southwest Research Station

1:30 ■ *Ecological Impacts of Atmospheric Deposition in Sierra Watersheds*

John M. Melack, Professor
Department of Biological Sciences
University of California, Santa Barbara

2:00 *Urban Air Pollution Impacts on Southern California Watersheds: Implications for Water Quality*

Mark Poth, USDA Forest Service
Pacific Southwest Research Station

2:30 ■ *Hazards Associated with Earthquake Aftermath*

Edwin L. Harp, U.S. Geological Survey
Menlo Park

3:00 ■ *Wet Weather Landslides*

Douglas M. Morton, U.S. Geological Survey
Riverside

3:30 ■ Break

4:00 ■ *Fire and Vegetation Management in Urbanized Chaparral Watersheds*

Richard A. Minnich, Professor
Department of Earth Sciences
University of California, Riverside

4:30 ■ *Mitigation of Sedimentation Problems in Watersheds at the Urban Interface*

Douglas Hamilton, Vice President
Rivertech, Inc.

POSTER SESSION

5:00 ■ **SESSION CHAIR:** Peter M. Wohlgemuth
USDA Forest Service,
Pacific Southwest Research Station

HOSTED WINE AND CHEESE RECEPTION
Best, Best & Krieger, Attorneys at Law

WEDNESDAY, OCTOBER 31, 1990

SESSION II B

PROBLEMS AFFECTING WATERSHEDS AT THE URBAN INTERFACE

■ **SESSION CHAIR:** Art Magill, USDA Forest Service
Pacific Southwest Research Station

8:00 ■ *Hydrology of Fragmented Watersheds*

Wade G. Wells, USDA Forest Service
Pacific Southwest Research Station

8:30 ■ *Water Quality/Non-point Source Pollution*

Stanley M. Martinson, Non-point Source Program Manager
California Water Resources Control Board

9:00 ■ *Conflicting Recreational Uses in the Urban/Wildland Interface*

Alan Ewert, USDA Forest Service
Pacific Southwest Research Station

9:30 ■ *Communicating with Urban Recreational Users*

Ronald Hodgson, Professor
California State University, Chico

10:00 ■ Break

10:30 ■ *The Indirect Effects of Urbanization on Area of Origin Watersheds*

Gregory L. James, Water Director
County of Inyo Water Department

11:00 ■ *Urbanization of Watersheds: Legal and Regulatory Implications*

Anne T. Thomas, Attorney
Best, Best & Krieger

11:30 ■ *How the Forest Service Responds to Growing Urban Demands at Mammoth Lakes*

Dennis Martin, Forest Supervisor
USDA Forest Service, Inyo National Forest

12:00 ■ Luncheon

Sustainable Development: What it Means to the United States

Donald Lesh, Global Tomorrow Coalition
Washington, D.C.

SESSION III

URBANIZATION OF WATERSHEDS: TRENDS AND IMPLICATIONS

1:30 ■ **PANEL DISCUSSION**

■ **MODERATOR:** Don C. Erman, Director
University of California Wildland Resources Center

■ Gerald H. Meral, Executive Director
Planning and Conservation League

■ Mark Pisano, Executive Director
Southern California Association of Governments

■ Ira C. Norris, President
INCO Homes

■ Edward Haste, California State Director
USDI Bureau of Land Management

■ Ted K. Bradshaw, Professor of Sociology
University of California, Berkeley

■ Alvin D. Sokolow, Professor of Political Science
University of California, Davis

3:30 ■ Adjourn

REGISTRATION

		FILL IN AMOUNT
■ Field Trip Meals and refreshments included (tour limited to 140)	$35.00	$ _____
■ Conference Includes lunches, reception, breaks and copy of proceedings.		
■ WMC Members	$65.00	$ _____
■ Regular	$75.00	$ _____
■ Student	$40.00	$ _____
■ **Late Registration (AFTER 10/12/90)**	**$90.00**	**$** _____
TOTAL ENCLOSED		$ _____

Name: _____
PLEASE PRINT

Title: _____

Organization: _____

Address: _____

City: _____

State: _____ Zip: _____

Phone No.: _____

Please make check payable to:
Water Resources Center

Detach registration form and return with check to:

Water Resources Center
Rubidoux Hall
University of California
Riverside, CA 92521
(714) 787-4327

NO REFUNDS AFTER OCTOBER 22, 1990

$\frac{595.50}{31} = 19.24$

19.60

~~Gary~~

~~1. What can I buy her?~~

~~2. Garden~~

916-322-2884; 455-2533 home

David Abelson (ARB, ex. Plng. + Cons. League)

Cem. R. Flood Control Dis. v. Bd. of Sup. Santa Clara Cty 130 Cal Ap 3d 707 1982

Appeals Ct. held that benef. assmts. are not limited by P-13. - attks ad val.

New Initiative is vs. "prop. taxes", not benef. assmts.

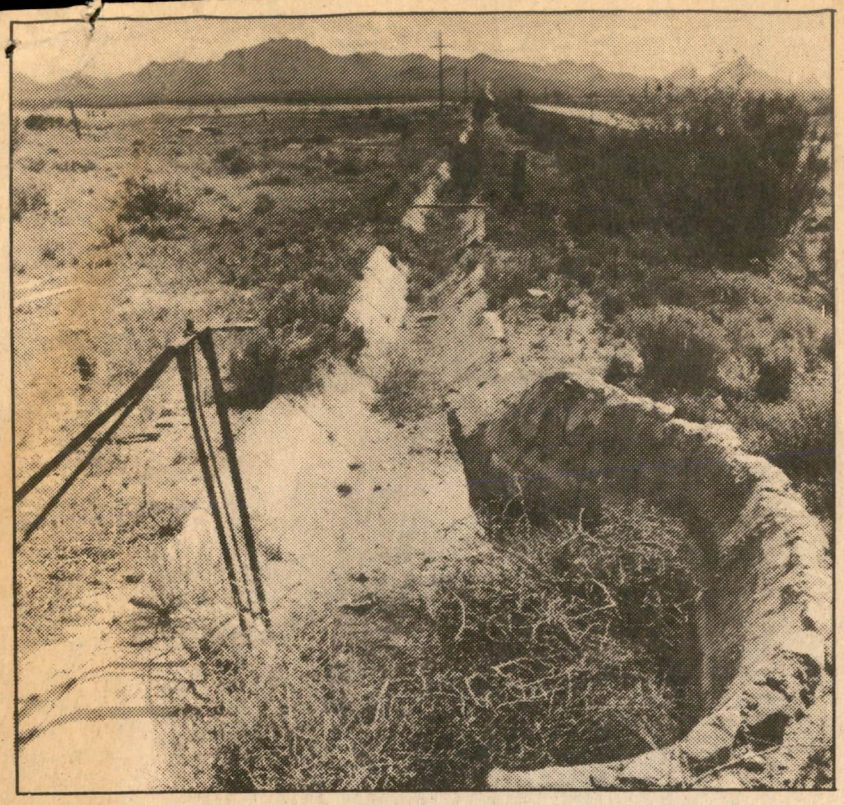
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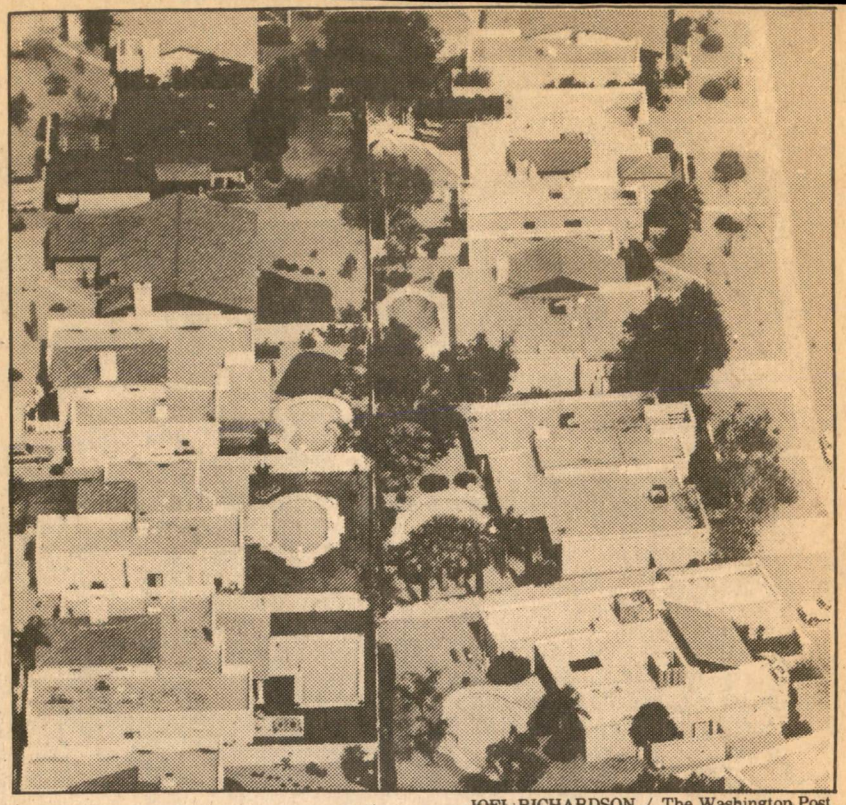
Wiest, ski loader $12/hr

res. in advance

4 hr. min.



A dried-up irrigation ditch in the Avra Valley near Tucson, Ariz., is part of former farmland that is being turned back into desert.



JOEL RICHARDSON / The Washington Post

The giant Arizona water project will serve mainly urban areas, supplying water for such things as swimming pools in Phoenix.

$4-Billion Aqueduct Increasingly Serves Urban Areas

Farms Come Up Dry in Arizona Water Project

9 June 86 IV-2

By CASS PETERSON, *The Washington Post*

PHOENIX—It was 1947, and the deserts were already blooming in California when Arizona went to Washington seeking the Central Arizona Project.

It was to be the centerpiece of the state's future, an aqueduct that would bring trillions of gallons of Colorado River water across the desert to bolster a booming agricultural economy.

Four decades later, Arizona's dream has become a 190-mile-long concrete reality. The curious twist is that the $4-billion project may put most of the state's farmers out of business.

At a time when Midwestern and Southern states are fighting to keep their agricultural economies afloat, Arizona has decided to use its hard-won water project to support its cities, not its farms.

For now, Colorado River water flows through a concrete ditch to the cotton, wheat, barley, corn and alfalfa fields that stretch along the state's central spine. But when demand outstrips supply—as everyone expects it will—the spigots will be turned off first at the farm.

"The water is too costly for agriculture," said former Deputy Agriculture Secretary John R. Norton, who left the Reagan Administration this year to return to his farm operations in Arizona and California. "Urban and domestic users can pay more for it. Most farmers accept that, and they accept that in not too many years there will be no agriculture in central Arizona."

It is not, perhaps, what Congress expected in 1968 when it authorized federal funds for the CAP, the nation's most expensive Western water project, under a 1902 law aimed at settling farmers in the West.

But to some economists, Arizona's decision to jettison its farms is a reflection of reality and a harbinger of the future in the arid West. Funds for new projects are drying up, and the existing water will flow, as it always has, toward money.

The statistics are devastatingly simple: Agriculture uses 90% of the water and yields about 2.4% of the state's gross revenue. The cash cows in Arizona now are the high-tech manufacturing industries that settled in the Sun Belt in the 1960s and '70s, the sun-seeking retirees who flocked in at the same time and the service economy that sprang up to provide for both groups.

The triumvirate of cotton, cattle and citrus that gave the state its original wealth has given way to computers, condos and Cadillacs.

The population of Maricopa County, which contains the cities of Phoenix, Mesa and Tempe as well as the state's largest concentration of farmland, is expected to hit 1.6 million by 2000, a 900% increase in six decades. Tucson, a town of 40,000 in 1940 and 500,000 in 1980, is expected to top 1.5 million by 2025.

Golf and tennis resorts, manicured subdivisions and landscaped industrial parks are springing up in Arizona like desert wildflowers after a summer rain, competing for land and water in the broad valleys favored by agriculture and able to pay far higher prices for both.

Given those circumstances, economists here say most Arizona farms would have been lost eventually even without the Central Arizona Project, as farmers sold out to developers. But in one of the unintended ironies that government projects frequently produce, the CAP is expected to hurry things along and raise water prices for both farmer and city dweller in the the process.

"When they first started talking about the Central Arizona Project, they were talking about rescuing agriculture," said William Martin, an agricultural economist at the University of Arizona in Tucson. "But in this case, it's not going to rescue agriculture, and it's not going to expand agriculture. It will push agriculture out even faster."

The reason for that is economics, but, like most water decisions in the West, it has its roots in politics.

Please see WATER, Page 6

WATER: Farms Come Up Dry in an Arizona Project

Continued from Page 2

As the price for winning funds for its massive water project in the Carter Administration, Arizona had to agree to bring the depletion of its underground water reserves under control.

For years, farms and cities here have drawn water from deep wells plunged into a vast aquifer that underlies the state. The result was a precipitous drop in the water table and escalating energy costs for the pumps. In some areas, the soil cracked and sank, damaging foundations and roads.

The Carter Administration wanted to avoid a repeat of its experience in California's Central Valley, where agricultural interests pleaded for water to replace their dwindling aquifers, then used the federal water to put new land into production and keep right on depleting the ground water.

Arizona's response was a law designed to halt overpumping of ground water within 40 years. State officials also agreed to new conditions on the use of the federally subsidized CAP water, forbidding agricultural expansion and requiring current farmers to give up ground water pumping in an amount equal to whatever CAP water they get.

Urban dwellers, meanwhile, are legally required to conserve water, a goal that may prove difficult in a state that prides itself on its image as a desert oasis. Per-capita water use in Phoenix is among the highest in the nation, and nearly half of it goes to water lawns, fill swimming pools and wash cars.

Cut Ground Water Use

Because virtually all of Arizona's available surface water is already being captured in reservoirs, the state's decision to reduce its use of ground water means that urban growth—and all the water-dependent amenities that go with it—will become increasingly dependent on the CAP.

For city dwellers, that means water will get more expensive. Initially, cities were expected to pay upward of $100 an acre-foot for CAP water (an acre-foot is about 325,000 gallons, enough to flood an acre to a depth of a foot, or supply a family of five for a year).

When the cities balked at the cost, federal officials agreed to a price closer to the $52 an acre-foot that farmers must pay, at least in the project's early years.

Even at that more generous rate, the federal water is more expensive than well water, but the real crunch is expected to come later.

By the end of the century, according to government and private hydrologists, there will not be enough water in the Central Arizona Project to supply everyone.

In the mid-1960s, the Bureau of Reclamation was estimating that more than 17 million acre-feet of water annually rushed to the sea down the Colorado River. That was the figure that the courts and Congress used in divvying up the Colorado for distribution in the West and for authorizing more diversion projects that have yet to be built in the Colorado's upper reaches.

Now the bureau is estimating that the Colorado supplies only about 15 million acre-feet a year, and some private hydrologists say that even that figure is a couple of million acre-feet too high.

The upshot is that Arizona, which may get as much as 2 million acre-feet of Colorado River water through the CAP in its early years, roughly equivalent to the amount of ground water that it is overdrafting, will be lucky to get half that in the future.

In drought years, the aqueduct may carry practically no water, and what it does carry will go to the cities.

"In the long term, maybe in the short term, the farmers will be the ones to go," said Tucson Water Department official Frank Brooks.

Tucson Buying Farmland

It is, in fact, already happening in Tucson. In the last 15 years, the city has bought more than 20,000 acres of land in nearby Avra Valley, 60% of the valley's farmland, and turned it back into desert. Wells and pipes are being installed to carry the underground water to Tucson.

"We propose to retire all agriculture in that basin," Brooks said. "We're not the only ones. Phoenix and Mesa are buying farmland for its water as well."

In another state, in another region, that kind of massive buyout of agricultural land might prompt some concern. But it is probably not much of an exaggeration to say that if a Farm Aid concert were held in Arizona, nobody would come.

When a group of Arizona farmers gathered in a Phoenix park recently to sell $4 box lunches for 75 cents to dramatize the farmer's small share of food prices, the gathering drew placard-toting protesters who wanted to draw attention to crop subsidies instead.

"They told me that without farmers, my family wouldn't eat," local activist Carolina Butler said. "I said that in 30 years of cooking for my family, I have never once served cotton."

Arizona's main crop is unquestionably cotton. More than 47% of the state's 1.1 million acres of farmland is planted with it. Much of the rest is in wheat and feed grains, crops for which there are federal price-support programs.

As a result, Arizona leads the nation in per-farmer federal subsidies—more than $27,000 apiece in 1982, compared to second-place California's $15,700 and a national average of $3,300.

Butler argues that the figures are misleadingly low because water subsidies are not included and because fewer than 2,000 of Arizona's 8,300 farmers produce 97% of the crops.

Last year, Arizona collected nearly $100 in federal subsidies for every acre that it had under cultivation, and the lion's share of the money went to growers of cotton and grain.

The figures infuriate the foes of the Central Arizona Project, who contend that the twin federal policies of cheap Western water and agricultural supports have saddled them with a massive water project that the state did not need and for which they, not the farmers, will have to pay.

"You could have bought and retired all the agricultural land in Arizona at one-third the cost of the CAP," said Phoenix civil engineer Frank Welsh, who has battled the project for years under the banner of a taxpayers' group called Citizens Concerned About the Project. "Then, all of a sudden, the project became an urban-industrial project."

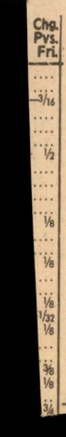
Farmers Moving Out

Welsh likes to cite engineering studies to prove his point. Among his favorites is one done for the state Department of Water Resources. The report found that Arizona, minus agriculture, has enough water without the CAP to support more than 10 million people, nearly five times its current population.

The farmers, meanwhile, are already moving out. John Norton has lost the land that he farmed near Phoenix to urbanization. He said he intends to give up this year the 4,000 acres of leased land on which he grew cotton south of Phoenix in Pinal County.

The immediate impetus for his move is depressed farm prices rather than water shortages, but Norton said he expected more Arizona farmers to follow suit.

"They feel they'll be compensated," he said. "A lot of them are profiteering on the land boom and couldn't care less. . . . Nobody's making money in farming. What do you care if they put you out of business if they hand you a sack of gold to do it?"



Nation & State

Millions of Californians awash in unmetered water

▶ Lawmakers have been trying for years to slap water meters on homes and businesses in more than two dozen cities and counties. Sacramento, the state's largest city without meters, may soon lose the battle.

From news services

SACRAMENTO

Imagine a desert oasis where lawns are wide and lush, where streets are lined with sturdy trees, where shrubbery is a vibrant bouquet of color and variety.

Imagine the natives of this oasis paying a flat monthly fee for the water they use, no matter how much they use.

Picture all this, and you'll get a feel for why state legislators for three consecutive years have pushed legislation to slap water meters on the homes and businesses of nearly 2.4 million Californians in more than two dozen cities and counties, including Sacramento, the state's largest city without residential meters.

For Sacramento, that may all soon come to an end.

A bill that would require water meters on all newly constructed Sacramento area homes is likely to pass the Legislature this year and become law, two area lawmakers conceded Thursday.

The local officials said they also face difficult odds in fighting an even bolder push to require expensive meter retrofitting on all existing homes.

"I will oppose meters with whatever muscle I can muster, but I fear we are going to be defeated by the drought," said state Sen. Leroy Greene, D-Carmichael.

Local legislators have for years played key roles in defeating attempts to force water meters on Sacramento and other communities that don't have the devices. The lawmakers have successfully argued that the meters wouldn't save nearly enough water to justify the cost of installation and maintenance.

But the political atmosphere is very different this year, according to Greene and Assemblyman Lloyd Connelly, D-

Please see **METER, A-12**

In Riverside County

In the eastern Riverside County community of Bermuda Dunes, the approximately 5,000 customers of the Myoma Dunes Mutual Water Company are charged a flat rate of $26 a month for houses and $20 for duplexes — no matter how much they use.

In Anza, only a few of the nearly 100 customers of the Ramona Water Co. in Anza have water meters. Most customers pay a flat $31.46 a month. The system serves Burnt Valley, south of Highway 371 on the east side of Anza.

METER: Sacramento faces fight

Continued from **A-3**

Sacramento. They said that the emotions and politics of the continuing drought, combined with Gov. Wilson's recent statements in support of meters, are overrunning all their arguments.

The Senate has traditionally been more sympathetic to pleas against forced meters. But Greene said flatly that he doesn't believe he can stop Senate passage of a pending bill to require meters on all new homes and commercial buildings in California constructed after Jan. 1, 1992.

The bill, Senate Bill 229 by Sen. Daniel Boatwright, D-Concord, has been scheduled for a hearing before the Senate Agriculture and Water Resources Committee on Tuesday.

Boatwright, Wilson and other officials also have supported the retrofitting of meters on existing homes, at an estimated cost of as much as $500 per residence. Greene said he would face a tough time killing that idea if it were formally amended into Boatwright's bill.

Boatwright said he would support meter installation on existing homes only if a financing system could be developed that would allow homeowners to pay just a small amount each month to cover installation costs, such as $1 to $2.

Sacramento's fight to secure those unmetered rights dates back to a nearly century-old battle for clean water.

"Metering is pseudo-religion here today," said Jim Sequeira, manager of the city's water division. "It's a gut reaction, from politicians to citizens: 'No meters!' We've just never had them and someone else is trying to force it down our throats."

Two previous legislative efforts, in 1989 and 1990, failed miserably, as agribusiness interests joined state Senate and Assembly members from unmetered communities to drown the proposals.

State Assemblyman Phil Isenberg, D-Sacramento, argues that it's agricultural interests dependent on unmetered groundwater, and not city water users, who are the real political muscle opposed to meters. Agribusiness figures that, if cities get slapped with meters, their wells are next.

Then there's the city's 71-year-old charter, which prohibits meters on residences. When it was written, the locals called their muddy water supply "Sacramento Straight" because it looked and smelled more like a shot of whiskey than a drink of water.

Since 1899, city officials had been fighting for a clean water supply, when a citizens' committee recommended construction of a filtration plant. It would be another 20 years before the city promoted a $1.8 million bond issue for a filtration and pumping plant.

City officials, however, were facing voters who had twice rejected similar bond packages.

In addition, a business group — the Retail Merchants Association — opposed the filtration plan. They said the city planned to install meters and gauge water use to pay off the $1.8 million project.

Even if city officials had only the remotest thoughts of installing meters, they knew the only way to get the bond issue passed was to promise there wouldn't be any. So they did. On June 26, 1919, the city approved the water project on a 7,065-to-3,122 vote.

The following year, when voters approved a revised city charter, Article II, Section 11 stated: "No water meters shall ever be attached to residential water service pipes."

Today, there's little disagreement that the installation of meters would cut water use. Even Sacramento's Sequeira, who opposes meters in Sacramento because of the high installation and maintenance costs, estimated that metering would cut water use in his city by 16 percent to 20 percent.

Yet the issue is so incendiary that it forces water conservation officials in non-metered communities to think twice before speaking their minds on the subject.

Judi Ray, Modesto's water conservation director, gets tongue-tied when the issue is raised. Should residential meters be installed, Ray was asked?

"Well, let's see. How do I say this without alienating half of Modesto?" she responded with a nervous chuckle. "Meters are an equitable way of distributing the cost of water."

Water meters

Lacking residential water meters, people in these cities pay only a flat rate, no matter how much they use.

The chart does not include Sacramento County and other unincorporated areas that do not require residential meters.

City	Population
Bakersfield	174,820
Brawley	18,923
Coalinga	8,212
Davis	46,209
Folsom	29,802
Fresno	354,202
Hanford	30,897
Lodi	51,874
Madera	29,281
Merced	56,216
Modesto	164,730
Mount Shasta	3,460
Pt. Hueneme	20,319
Portola	2,193
Red Bluff	12,363
Rio Vista	3,316
Rohnert Park	36,326
Roseville	44,685
Sacramento	369,365
Selma	14,757
Tulare	33,249
Visalia	75,636
Woodland	39,802
Yuba City	27,437

Source: City of Sacramento, state Sen. Dan Boatwright and U.S. Census

The Press-Enterprise

INSTITUTIONAL RELATIONS



Debra Montanino
Director

The Office of Institutional Relations has the dual objectives of maintaining the lines of communication with organizations and individuals in the corporate and foundation sectors who are interested in natural resource and environmental issues, and broadening RFF's base of financial support from these sectors.

In 1989, Institutional Relations communicated the results of RFF research in written form to more than 2,500 individuals. In addition, it arranged informal meetings between RFF researchers and business and foundation leaders. Under a program established in 1988 in which RFF staff members conduct policy briefings around the country to discuss their work, briefings were held in 1989 in Houston on energy policy and in Chicago on the greenhouse effect.

In 1989 RFF received increased support from the corporate sector for the third consecutive year. This growing support illustrates an appreciation by the private sector for the role RFF plays in natural resource and environmental policymaking.

Foundation grants provided roughly 25 percent of RFF's operating budget in 1989. RFF is particularly gratified to have received major new foundation grants in 1989 from the Alfred P. Sloan Foundation, for a critical appraisal of the use of cost/benefit analysis in a new environmental era; from the Northwest Area Foundation, for analysis of the 1990 farm bill legislation; from the George Gund Foundation, for work on greenhouse warming and its implications for the energy sector; and from the G. Unger Vetleson Foundation, for the Climate Resources Program.

RFF is grateful for the support provided by the following corporations, industry associations, and foundations:

CORPORATIONS AND INDUSTRY ASSOCIATIONS

American Petroleum Institute
Amoco Foundation, Inc.
Archer-Daniels-Midland Company
ARCO Chemical Company
ARCO Foundation
Baltimore Gas and Electric Company
BankAmerica Foundation
BP America Inc.
The Brooklyn Union Gas Company
Burlington Northern Foundation
Carolina Power & Light Company
CBS Foundation, Inc.
Central Soya Company, Inc.
Champion International Corporation
Chevron U.S.A., Inc.
Consolidated Edison Company of New York, Inc.

Consolidated Natural Gas Company
Consumers Power Company
Cummins Engine Foundation
The Dow Chemical Company
Duke Power Company Foundation
E. I. du Pont de Nemours & Company
Edison Electric Institute
EG&G, Inc.
Elders Agribusiness
Electric Power Research Institute
Enron Corporation
Exxon Corporation
Federal Paper Board Company, Inc.
FMC Foundation
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General Electric Foundation
General Public Utilities Service Corporation
Georgia-Pacific Corporation
Georgia Power Company
The M. W. Kellogg Company
Kellogg Company of Great Britain Ltd.
Koppers Company Foundation
Kraft General Foods Foundation
The Mead Corporation
The Merck Company Foundation
Mitchell Energy & Development Corp.
Mitsubishi Corporation
Mobil Foundation
Mobil Oil Corporation
Monsanto Company
Motor Vehicle Manufacturers Association of the United States, Inc.
The New York Times Company Foundation, Inc.
Ocean Spray Cranberries, Inc.
Pacific Gas & Electric Company
Pennsylvania Power & Light Company
Pioneer Hi-Bred International, Inc.
Potlatch Foundation II
Potomac Electric Power Company
The Procter & Gamble Company
The Prudential Foundation
Public Service Electric and Gas Company
Southern California Gas Company
Stone & Webster Engineering Corporation
Stout & Teague Company
Sun Company, Inc.
Syntex Corporation
Texaco Philanthropic Foundation, Inc.
TRW Foundation
Unilever PLC
Unilever United States, Inc.
Union Camp Corporation
Union Carbide Corporation
Union Pacific Foundation
Unocal Foundation
USX Corporation
Virginia Power
Waste Management, Inc.
Westvaco Corporation
Weyerhaeuser Company Foundation

FOUNDATIONS

General Service Foundation
The George Gund Foundation
The German Marshall Fund of the United States
The William and Flora Hewlett Foundation
W.K. Kellogg Foundation
The Esther A. & Joseph Klingenstein Fund, Inc.
The Andrew W. Mellon Foundation
Montgomery Street Foundation
Northwest Area Foundation
The Florence and John Schumann Foundation
Alfred P. Sloan Foundation
The G. Unger Vetlesen Foundation

STAFF CHANGES

Sue Higby joined the staff as Institutional Relations associate, replacing Lisa Wilson, who resigned. Ann Checkley resigned, and Rowena Ritchotte joined the staff as program assistant.

19 Aug. 91 Ed. Page

No Time for Politics as Usual

WATER WATCH: Showdown in Sacramento on Katz's free-market reform

A showdown on state water policy in Sacramento Tuesday will have a profound effect on California's future.

For one thing it will test the ability of elected officials to break into the the tight circle of hired water managers, who have dictated water policy for decades with only minimal concern for the wider public.

The centerpiece of the policy is a modified version of a bill by Assemblyman Richard Katz (D-Sylmar) that would allow farmers to sell water to thirsty urban areas or to other farmers, whether their local water agency approved or not. There are strings attached that were not in the original bill, but the heart of the matter—making water available to growing urban areas in times of drought—is unchanged. The bill also would require water buyers to leave behind 10% of purchases to protect the environment.

Although Katz pushed his bill through the Assembly, what happens to it in the Senate probably will depend more on Gov. Pete Wilson than on the author. If Wilson wants the bill, it might well sail out of the Senate Agriculture and Water Committee with a good chance of passage. If not, it could founder. And it is hard to know when—or even whether—a coalition strong enough to make such basic change in water law could be put back together.

The Katz bill would apply at first only to about 2 million acre-feet a year that is pumped from the Sacramento River Delta and delivered by the State Water Project. A bill working its way through committee in Congress, sponsored by Sen. Bill Bradley (D-N.J.), would expand the policy to 8 million additional acre-feet of water that flows through the federal Central Valley Project.

The bill would remove the strongest barrier to creating a relatively open market for buying and selling water as a commodity, with prices set much the way supply and demand set them for other commodities like gasoline or wine.

Wilson pioneered the market approach in California last winter by creating a state "water bank" to facilitate sales of scarce water to areas hardest hit by the drought.

The showdown comes with state reservoirs less than half full. A nearly normal rainy season this winter—not at all certain—would mean only that reservoirs would be no emptier after next year's deliveries.

There are times when an issue truly transcends politics as usual. This is one of them.

"The approp. rt. is appurtenant to the land on or in connection w. which the wtr. is used; it is real prop.; & it passes w. the deed to the prop. w/o specific mention of such appurtenance.[74] It is separable & alienable from the land to which it became initially appurt;[75] and the landowner may convey the land w. a reservn. of the wtr. rt. from the conveyance."

74 Withcroft v. Brehm, 47 Cal. App. 286, 295, 240 Pac. 529 (1925)

75 Wright v. Best, 19 Cal (2d) 368, 382 121 Pac. (2d) 702 (1942)

– W. Hutchins, Wtr. Rt. Laws in the 19 Western States

Vol. III p. 191. Misc. Pub. 1206, NRED, ERS, 1971.

Completed by Harold Ellis & Peter DeBraal.

W. H. worked for U. S. D. A. until died, 9/70, age 82.

82
−65
17 yrs. after mandatory retirt.. + 7 more yrs. work by Ellis + DeBraal. Expensively printed.

~~Lib. Work~~

CL Kaupke, '57.

40 years on the Kings R Fresno: KRWA

p. 49 "... why this uncanny drive to integrate KR into the CVP?"

p. 51 KRWA makes 15 demands. 1946.
1. all KR wtr remain w/in the presently irrig. area.
2. KR interests have the entire use of PF storage
4. ... separate entity -- from CVP.

p. 68 Helen G. Douglas supported Bureau. (Then. Nixon knocked off 2 Bureau supporters, Voorhis & Doug)

Robt. Leake, Jr., & Stanley Burns '59 The Pine Flat Proj. on Kings R., Cal. Std. Recl. Law Apply².
Fresno: KRWtrs. Users Comm.

1954 Pine Flat Proj. completed.
p. 4 '61, USDI solicitor ruled payout does not repeal acre. lim. p. 5, B.R. wins in court.
19-20 Distance themselves from WWD
1979, still fighting acr. lim.!

198_

PROPOSITION 13: AN EFFICIENT RESOLUTION TO WATER CONFLICTS

by

Kenneth J. Arrow and Richard B. Norgaard*

Our current approach to water development and managment is an economic nightmare. We pay outrageous sums to develop small, additional amounts of water while much of our existing supply is used as if it had little value. Public subsidies, average cost pricing, and an emphasis on large scale surface water development had their place in history. It is now time to acknowledge that these policies are passe and move on. By shifting the emphasis of policy to economic efficiency and appropriate water management, water costs can be reduced and divisive conflicts between development and environmental conservation can be avoided.

The provision of additional water to the California water system now costs up to $400 an acre foot - not including the environmental costs. Water users in many instances are paying less than $4 an acre foot and wasting it accordingly. Fifty years ago, the overdrafting of groundwater in the San Joaquin Valley was used to justify the development and delivery of surface water from outside the region. Groundwater is still not managed. It is still being overdrafted as each landowner pumps "his" water before it is pumped by another landowner. The resultant overdraft is still being used as justification for further large scale, publicly subsidized, water projects. Meanwhile, those who value California water while it is "instream" -

fishermen, boaters, and others who benefit from river environments - have not had rights similar to those who benefit from development and diversion. The quality of our rivers has suffered accordingly.

Ballot propositions are initiated and carried to the people by concerned citizens. They are written by lawyers. Economists with their working knowledge of what might be in the public interest rarely play a significant role. Such is the case with Proposition 13, the Water Resources Conservation and Efficiency Act. Except for one important difference. The environmentalists, fishermen, hydrologists, resource lawyers and water planners who inititated Proposition 13 perceived California's water problem as being an economic problem. That it was so perceived led to an important legislative initiative in the public interest.

Proposition 13 probably addresses more issues of economic efficiency than any other resource management act, state or federal, ever drafted. It will substantially improve the economic efficiency of water use in California by establishing local groundwater management agencies, by preventing the importation of new water into districts if water conservation within the district is less costly, and by protecting instream benefits by a system of instream water rights. The Act does not dictate that water districts must impose specific conservation techniques. It does establish general guidelines and incentives that allow districts to tailor techniques to their area and people. The Act

mandates the use of economic criteria in water development and management decisions and encourages efficiency through more realistic water pricing schedules, by discouraging water cost subsidies, and by facilitating transfers of water between districts. By efficiently using the water we have already developed, further costly development and divisive environmental conflicts can be postponed. Under the Act, some of the most costly water developments under consideration might be postponed indefinitely.

Proposition 13 is not an economist's dream, but the Act will eventually end the current economic nightmare. The Act makes such substantial strides that 'Economists for Proposition 13' attracted some of the most respected academics in the fields of public finance and resource economics in the State to serve on its steering committee**. Economists from a wide variety of fields are endorsing the measure.

Given the initiative's emphasis on economic efficiency, it is ironic that those who oppose Proposition 13 are trying to frame their arguments in economic terms. Somehow the opponents argue that using our limited water resources efficiently will result in increased costs. Though the costs paid by some water users will increase, overall costs (including those paid through taxes to support water subsidies) will decrease. Getting more for less is what efficiency is all about. They argue that economic growth will come to a halt if we stop waste. In fact inefficiency is the ultimate brake on growth. The opponents argue that the Act will be disruptive when in fact it provides a workable

framework for breaking out of the costly and divisive struggle of the past decade between water development and environmental conservation. The opponents state in their ballot argument that economists agree that food prices will skyrocket. We would like to know who these agreeable economists are and how they came to this conclusion. The two economic analyses we have seen conclude that food prices would rise by less than one percent even if water costs to farmers increase by 50% over the coming decade because of Proposition 13. The Act seems complex because existing water institutions are already incredibly complicated. To a large extent the Act reduces overall complexity by more narrowly defining the powers and responsibilities of State and local agencies.

Last June, the voters indicated their unwillingness to support costly investments in new water supplies while existing developed water is used inefficiently. An adjustment to the true costs of developing new supplies must come in water use. Proposition 13 provides an efficient economic framework for this transition.

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* Kenneth J. Arrow, Nobel Laureate, is a Professor of Economics at Stanford. Richard B. Norgaard is an Associate Professor of Agricultural and Resource Economics at the University of California, Berkeley.

** The steering committee consists of the authors and Mason Gaffney of U.C. Riverside, Jack Hirshleifer of U.C. Los Angeles, E. Philip LeVeen of Public Interest Economics West, Julius Margolis of U.C. Irvine, and Richard Musgrave of U.C. Santa Cruz.

Critics See Peripheral Canal In Water Industry's Campaign

By Elliot Diringer
Chronicle Staff Writer

A water industry campaign warning that California's drinking supplies are threatened by earthquakes and cancer-causing contaminants is under attack by some water experts as a thinly veiled ploy to revive the Peripheral Canal.

The Association of California Water Agencies, which represents utilities delivering water to the state's cities and farms, plans to hold press conferences tomorrow kicking off an 18-month publicity drive.

The message to the public is that water supplies drawn from the Sacramento-San Joaquin River Delta, a drinking source for two-thirds of the state, are not clean enough to meet expected new health standards and could be cut off indefinitely by a major earthquake.

Although the association insists that the campaign is meant only to highlight these dilemmas, some water officials around the state say the real agenda is to make a new case for a major project such as the Peripheral Canal.

A Shill

"There's a feeling among some of our commissioners that this project is essentially a shill for the Peripheral Canal," said Mike Gage, board president at the Los Angeles Department of Water and Power, which turned down the association's request for $25,000 for the campaign.

"It was apparent that the focus was almost 100 percent on the Peripheral Canal and the delta — not on water conservation, water marketing or agricultural water conservation. They see the drought as an opportunity to finally jam through some plumbing that may not make sense in the long run," said Gage, a former Napa assemblyman and part of a new pro-environment majority on the Los Angeles board.

Similar concerns surfaced at the East Bay Municipal Utility District, but assured by the association that the canal was not on the agenda, the district agreed to kick in $20,000.

San Francisco is not backing the campaign, but not because of qualms about its stated or supposed goals. "We never got to that question, frankly," said Hetch Hetchy general manager Anson Moran. "The first question was can we afford it, and the answer was no."

The Peripheral Canal was to be a 42-mile concrete-lined ditch carrying river water from the north around the mazelike delta, easing its export to the Central Valley and the south. Denounced by northerners as an ecological disaster for the delta and San Francisco Bay, the canal was rejected by state voters in 1982.

Politically Incorrect

Although open advocacy of the plan is still politically verboten, there is growing anxiety in Southern California and the Central Valley about future water supplies and new momentum building for some type of canal or pipeline around the delta.

The water association, in papers outlining its campaign to member agencies around the state, emphasized the need for "a facility . . . to stabilize the situation in the delta." One goal of the campaign, it said, could be to "lay the groundwork for a future ballot measure . . . leading toward . . . authorization of appropriate delta facilities."

John Fraser, the association's executive director, said that although a ballot measure is still a "potential outcome," the association had nothing "in particular in mind" in its reference to delta facilities, and certainly not a Peripheral Canal.

"We have studiously avoided identifying any particular solution in our approach," said Fraser. "We do not want it bogged down with the charge, 'Ah ha, there go the water buffalo again. They're up to the same old stuff.' That's not our intent and we want to make that absolutely clear."

Political Gridlock

The real goal, he said, is to finally break the political gridlock that has gripped California water issues since the divisive fight that led to the canal's defeat in 1982.

"The present situation in the delta cannot be tolerated much longer," said Fraser. "We are bringing the problems to the people and political leaders of California and putting them on notice: These problems must be addressed. We've waited too long."

The three biggest problems, according to the association, are declining fisheries, cancer-causing contaminants and the threat of an earthquake. All three center on the delta and, according to some experts, all could be eased by a pipe or canal skirting the delta.

Contamination emerged as an issue a year ago when the Environmental Protection Agency said it might lower the standard for trihalomethanes, cancer-causing compounds formed when natural organic material in water combines with chlorine added to kill disease-causing organisms.

Water from the delta, which supplies much of Southern California and many Bay Area cities, is naturally high in organic matter. Filtering or treating the water to meet a tighter standard may be extremely costly or impossible, according to some engineers. Taking the water around the delta, on the other hand, would keep the organic levels much lower.

Earthquakes

The earthquake issue is an extension of the perennial worry over the stability of the earthen levees that encircle the delta's many islands.

'They see the drought as an opportunity to finally jam through some plumbing'

Apart from protecting the islands against flooding, the levees serve as barriers against saltwater flowing in from the bay, keeping it from mixing with the river water that is pumped south. Several levees have cracked or crumbled in recent years, raising fears of a major failure that would allow a massive rush of seawater that would obliterate freshwater supplies.

Although state water officials say they have no firm data on earthquake risks in the delta, the water association says its experts believe the risks are real and substantial. "It would knock out our water system for months, perhaps longer," said Fraser.

The association, which plans to convey its message in press briefings, talk show appearances, newsletters and a video documentary, also plans to make recommendations to Governor-elect Pete Wilson on key water appointments.

So far, the nonprofit association, which subsists on dues from its member public agencies, has raised only about half of its $350,000 budget for the campaign. Fraser said he is confident the rest will be raised.

26 Apr. 91 A-3

Farmland Eyed as MWD Water Source

■ **Growth:** Boronkay says that buying agricultural acreage to acquire supply rights is vital to avoid shortages as Southland population continues to surge.

By JENIFER WARREN
TIMES STAFF WRITER

FALLBROOK, Calif.—With surging population growth threatening to overburden a dwindling water supply, Southern California urban users must obtain a share of the water now used by the state's powerful agricultural industry, the general manager of the Metropolitan Water District said Thursday.

In a presentation sure to rile some members of California's farming community, Carl Boronkay told Metropolitan's Board of Directors that freeing a portion of water controlled by agriculture—by buying land for the water rights, for example—is vital if the massive district wants to avoid shortages.

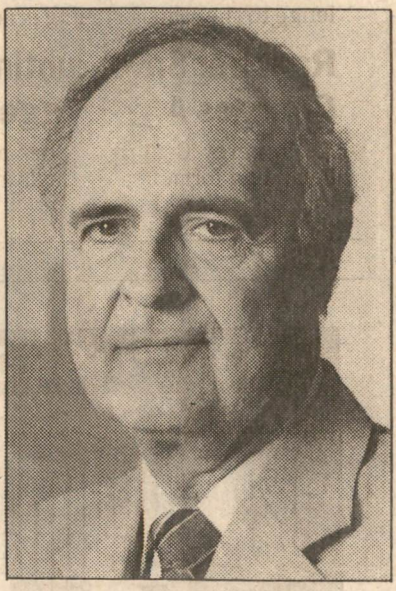
"We're no longer in a time when if you need more water, you simply go out and stake your claim and get more water," Boronkay told the board during the final meeting of a three-day MWD retreat here.

With environmental and financial obstacles blocking the construction of new dams, agriculture—which uses 80% of the water captured in California—is a source that Metropolitan must tap to meet future needs, he said.

Boronkay's comments echo those of a growing contingent of experts who believe urban areas must ultimately turn to the state's farmbelts to find water. Numerous conservationists, led by the Environmental Defense Fund, have long advocated voluntary transfers of water now used on crops as the best way to supply booming cities.

But there is fierce resistance from many farmers in the Central Valley, who are accustomed to contracts that guarantee them federally subsidized water for a fraction of the cost paid by urban users. Many growers fear that large-scale water transfers to cities would cripple local farm economies and could virtually end their way of life.

Boronkay acknowledged that an urban push for agricultural water is a "very touchy subject" and stressed that any reallocation of water "must be voluntary, with a willing seller and a willing buyer."



Los Angeles Times

Carl Boronkay

Already, he noted, Metropolitan has experience in this area. In 1989, MWD officials concluded a deal with the Imperial Irrigation District that will provide up to 106,000 acre-feet of water for Metropolitan customers within four years. (A Los Angeles family of five uses one acre-foot in 18 months.)

Under the landmark agreement, heralded as the wave of the future in water management, MWD is paying to line irrigation canals and make other improvements that help the Imperial district save water. The water conserved is then taken by Metropolitan as needed.

Boronkay said other options now being pursued by the MWD include:

- The purchase of cropland, in the Central or Imperial valleys, and the water rights that go along with the property.
- So-called "dry year" contracts, under which farmers would agree to fallow their land and sell their water to MWD during

Please see WATER, A37

WATER: Need Seen to Purchase Agricultural Land

Continued from A3

droughts.

• Financing the installation of water-saving drip irrigation on San Joaquin Valley farms. Similar to the Imperial district arrangement, this would allow Metropolitan access to any water saved through MWD-funded conservation measures.

Board members, aware that critical water shortages are looming in the Southland, seemed to agree that Metropolitan must pursue these approaches to generate new supplies. Some, however, expressed strong opposition to the outright purchase of farmland, arguing that such a step resembles Los Angeles' controversial purchase of Owens Valley property earlier this century.

"It's been more than 50 years since [the Owens Valley episode] and people are still ragging on the city of Los Angeles about it," said Michael Nolan, who represents Burbank on the board. "I am simply uncomfortable with the idea of buying up land outside the Metropolitan service area and taking it out of production."

But Christine Reed, Santa Monica's delegate to the board, supported the idea, noting that what MWD is proposing is "quite different from what happened in the Owens Valley, where there was a lot of secrecy and clandestine activity."

Metropolitan, which serves 15 million people in six Southern California counties, convenes an annual retreat in an effort to improve relations among board and staff members and build consensus on key issues.

12 March 91 B-1

Desalination plant to treat basin's nitrate-laced water

Chino groundwater could become potable

By Kathleen Salamon
The Press-Enterprise

GLEN AVON

A $42 million water treatment plant that would remove salt and nitrates from Jurupa area groundwater could be under construction as early as 1994, said Jurupa Community Services District general manager John Schatz.

The plant would mean that abundant water in the Chino Groundwater Basin that is currently untouchable because of poor quality would be available for use.

"We've gotten to the point where our water quality is bad enough and water is scarce enough that this makes economic sense," Schatz said.

In five to 10 years, Schatz said, the majority of all the water in the Chino Groundwater Basin could be contaminated with nitrates, byproducts of animal waste and fertilizer from the dairies and other farms in the area. Nitrates can interfere with the body's ability to process oxygen in blood, particularly in infants and the elderly, when the levels in drinking water become too high.

Much of the water in the Chino Groundwater Basin, extending from Pedley to Chino, suffers from poor-quality water because of nitrates accumulating in soil during the past 100 years.

Water providers like the Jurupa district have had to close some wells drawing from the basin when nitrate levels in some areas of the basin exceeded levels deemed safe for drinking in state and federal regulations.

The desalination plant currently being planned would be able to produce 10 million gallons per day of potable water.

The community services district is also trying to get a zero or low-interest loan from the federal Bureau of Reclamation to finance the majority of the plant's construction.

If the district is successful in obtaining a $30 million interest-free loan it could save $62 million during the 35-year life of the loan.

Schatz said at a services district meeting last night that the Santa Ana Watershed Project Authority has an assurance from the state that it can at least obtain a $15 million low-interest loan from the state's Agricultural Drainage Loan Program.

In order to get the loan, Schatz said, the district must prove the project will benefit agriculture — in this case, the district's 8,000 acres of dairy land in the Eastvale area, a sparsely populated area north of

Please see **PLANT, B-3**

t

Urban Water Bill OKd by Assembly

■ **Drought:** New bloc representing cities in north and south overcomes rural opposition. Measure would make sales by farmers easier.

By VIRGINIA ELLIS
TIMES STAFF WRITER

SACRAMENTO—After a long, acrimonious debate, urban lawmakers in the Assembly overwhelmed their rural colleagues Tuesday and won passage of a landmark measure that will make it easier for agricultural water to be distributed to cities.

In a 46-25 vote that demonstrated the emergence of a new alliance between urban Northern and urban Southern California, the Assembly passed legislation by Assemblyman Richard Katz (D-Sylmar) that would allow farmers to sell their water without interference from their local irrigation districts.

Assemblyman Phillip Isenberg (D-Sacramento) said the vote not only represented the first significant break in the philosophical bond between urban Southern California and corporate agriculture on water issues, but demonstrated the growing dissatisfaction within the state over the way its water is distributed.

In the past, Southern California and corporate agricultural interests joined to provide the political clout to construct the state's massive water projects. Traditionally, Northern California has opposed efforts to expand these projects, contending that the south was taking too much water from the north.

On Tuesday, the old divisions seemed to dissolve as urban interests banded together to oppose agriculture.

Isenberg said the bill would remove a major impediment to the transfer of water between agriculture and cities by preventing local water agencies from stopping sales between farmers and urban interests. For years, he said, agricultural water districts have "artificially prevented any interested property owner who wished to transfer water . . . to urban areas or anywhere outside their boundaries . . . from doing that."

The agencies, on the other hand, have maintained that water-rights water belongs to the district and not to individual farmers. If a farmer fallows his land and does not use all his water, it should be sold back to the district for farm use, they have insisted.

Echoing an argument presented repeatedly by urban lawmakers, Isenberg said agriculture, which in most years uses 80% of the state's water captured for consumption, has to be willing to share more with urban areas.

"Water is the lifeblood of our society and we've had a system to deliver that lifeblood that makes no sense," agreed Assemblyman Pat Nolan (R-Glendale).

"It is directed by politics, by muscle, by everything other than the people's need."

Drawing an analogy to the Owens Valley, where water has been

Please see WATER, A22

Gorbachev Grants His Blessing to New Liberal Movement

■ **Soviet Union:** The group could pose a threat to the Communist Party, which the president heads.

By ELIZABETH SHOGREN
and MICHAEL PARKS
TIMES STAFF WRITERS

MOSCOW—President Mikhail S. Gorbachev gave his blessing Tuesday to a new political movement formed by a group of prominent liberals, although it could grow to pose the greatest threat yet to the Soviet Communist Party that Gorbachev leads.

Vitaly N. Ignatenko, Gorbachev's press secretary, said the president welcomed the organization of the Democratic Reform Movement, whose leaders include former Foreign Minister Eduard A. Shevardnadze and several top Gorbachev advisers, saying that it supports his *perestroika* reform movement.

"We see the declaration as an invitation for cooperation of all democratic movements," Ignatenko said. "It is clear that the movement is non-confrontational. It inspires cooperation from all those who support *perestroika*. We view the movement in this light."

Ignatenko added that Gorbachev, head of the Soviet Communist Party since 1985, has no plans to resign as its general secretary. "Gorbachev will remain leader of the Communist Party as long as he considers it possible for himself," Ignatenko said.

But Gorbachev's senior adviser, Alexander N. Yakovlev, said in an article in the government newspaper Izvestia that the Communist Party has demonstrated that it is incapable of reforming itself.

"but I could not go as far as to describe the president as a 'consultant' at its birth."

Dozens of parties have been formed since the Communist Party gave up its constitutional monopoly on political power a year ago, but no strong opposition parties have yet emerged to challenge it on a national basis.

Democratic Russia, an umbrella movement that is supported by many parties in the largest Soviet republic, mounted Boris N. Yeltsin's successful election campaign for the presidency of the Russian Federation, but it is far from an organized party.

Yakovlev and Shevardnadze joined Moscow Mayor Gavriil Popov, Leningrad Mayor Anatoly A. Sobchak and the other organizers of the new political movement in a declaration that stressed that their group would try to unite all democratically minded people in the country, not just the Russian Federation. Until now, the Democratic Movement has been divided by republics with separate movements in Russia, the Ukraine, Armenia, Georgia and the Baltic republics.

"The experience of the last two years has shown that the unconnected, detached democratic forces in the republics have a very negative effect on the execution of reforms," Sobchak told a press conference at Moscow City Hall.

Organizers of the new movement said they believe that it

WATER: Assembly OKs Measure Easing Sale by Farmers

Continued from A3
taken and moved south to Los Angeles, rural lawmakers insisted that the measure would destroy California's agriculture. As a result of the water exports to Los Angeles, the Owens Valley is no longer the highly productive agricultural area it once was.

Critics complained that by allowing individual farmers to sell their water to the highest bidder, the bill would create a "free marketplace for water" where more and more water would be siphoned away and sent to cities.

"When you look at the long term," said Assemblyman Rusty Areias (D-Los Banos), "what this will do to the San Joaquin Valley is equivalent to strip mining. . . . You're going to end up with a parched earth, a scorched earth, policy."

Other rural legislators said they feared that the bill was the first step in an long-range urban strategy to dissolve agricultural water rights that date back 150 years.

Assemblyman Trice Harvey (R-Bakersfield) said local agricultural economies will be undermined if too many farmers fallow their land in order to sell water to urban bidders with deep pockets. "This [legislation] is designed so urban areas where the big bucks are can buy that water out from under the agricultural communities of this state," he said.

But Katz maintained that his legislation empowers state water agencies to veto any proposed sale that is found to cause harm to a local economy. He also said it prohibits sales from areas in which there is an overdraft of ground water resources.

The search for water: How Riverside got an early start



THE COUNTY'S PAST

Tom Patterson

At the height of the recent concern about the drought, before the amazing March rains, the news reports told about those cities 90 per cent dependent on water from afar — by way of the Metropolitan Aqueduct from the Colorado River and the California Aqueduct from the Central Valley river system.

Riverside, conversely, is less than 10 per cent dependent on those sources, obtaining most of its water from the Santa Ana River. (It can nevertheless call upon the Metropolitan and California aqueducts on a basis comparable to that of the more dependent communities.)

How did Riverside achieve such enviable status?

Answer: By tapping the Santa Ana River while it still had plenty of unclaimed flow, by aggressively diverting the water into its canals and pipelines and by using astute legal stratagems to keep what it had appropriated.

Riverside, founded in 1870, wasn't first to tap the river, but it did make its first claim while there was plenty for all who could divert some of the stream or drill wells near it.

The first diverters of our part of the river (we'll deal later with Orange County) were the Spanish and Indians around 1819-1820. They tapped Mill Creek, a tributary, near the point where it emerges from the mountains east of Mentone, irrigating land adjoining the San Gabriel Mission auxiliary, now called the Asistencia.

Members of the Mormon colony that founded San Bernardino in 1852 tapped the river or its tributaries and even engaged in lawsuits. A group north of the river opposed another south of the river. The dispute was settled out of court.

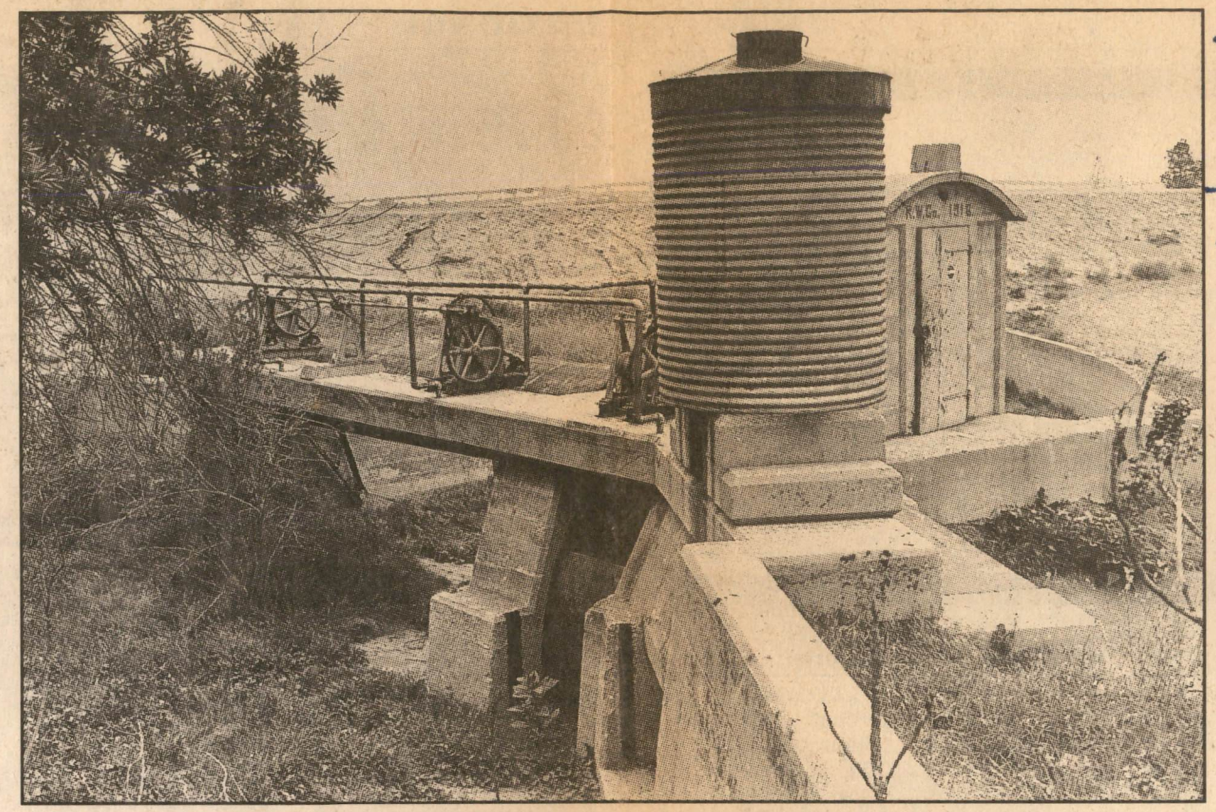
San Bernardino County (formed in 1853) established a water commission in 1854. There were other local lawsuits but essentially there was plenty of water in the early years.

A number of small water companies acquired rights prior to the founding of Riverside including Meeks & Daley, Jaramillo, Belarde & Salazar, and Agua Mansa Water companies. Some diverted water directly from the river and some from Warm Creek.

That creek was one of several with a year-round artesian flow. The underground San Bernardino Artesian Basin was the greatest of many such natural storage basins in Southern California. Wells were drilled and the water, trapped underground, came out as a geyser. San Bernardino basements were flooded. Great marshes east of what's now San Bernardino's Inland shopping center, supported tule thickets and mosquitoes. To early San Bernardino the excess water was a nuisance.

A natural underground dike near Colton was the major factor in creating the storage basin.

The San Bernardino County Water Commission authorized Riverside's first diversion. Its original canal started a half mile west of the La Cadena Drive bridge. In 1874 a rival firm, with land south of Arlington Avenue, tapped the river a mile or so downstream. These two ditches became known as the Upper and Lower Canals of the Riverside Water Co. No serious fuss had yet developed between Riverside and San Bernardino.



Riverside Water Co. intake on Warm Creek in Colton, this one completed in 1916.

But it soon became evident that the river was dangerously low in late summer at the Riverside intakes, while there was plenty of water upstream, in the artesian basin.

Accordingly, the Southern California Colony Association, founder of Riverside, bought the Mathews (earlier Meeks) mill near the mouth of Warm Creek. The rights of that mill prevented additional diversions farther upstream.

In 1886, after compromise of the internecine water dispute, the new Riverside Water Co. built a new intake on Warm Creek. It flumed the water across the river and turned it into its Upper Canal in the Highgrove area.

Also in 1886 Riverside's Gage Canal, to irrigate higher land, began taking water from the surface flow and from artesian wells in the Loma Linda area.

By 1890 the water table in the artesian basin and the flow of Warm Creek was diminishing. Riverside Water Co. began drilling wells in the artesian basin. This maintained its supply although the flow of Warm Creek diminished.

Riverside Water Co. initiated a domestic system in 1887, also supplied from the Artesian Basin.

The first major lawsuit pitting one community against the other was that of Barton vs. Riverside Water Co. in 1904, challenging the right to transfer water from one basin to the other. The appeal court ruled in Riverside's favor, saying that riparian (stream side) rights must be exercised or lost, pointing out that Riverside had developed an economy with the transported water and that it was too late for objection.

Eventually, appropriation and use became more important than stream side rights.

Riverside took over the domestic system in 1913 and expanded it.

San Bernardino sued Riverside in 1915. That went to the California Supreme Court, which approved the principle of limiting export of water, but in fact allowed Riverside to take what it had been taking plus giving the city unlimited right in a portion of the Artesian Basin, called the Antil Basin.

Meanwhile, a Tri-county Water Conservation Association (Orange, Riverside and San Bernardino counties) had been formed to build check-dams in sandy areas to encourage the percolation of excess water into underground storage instead of running into the ocean.

For a time that appeared to serve all parties, until 1932 when the Irvine Ranch of Orange County, wanting surface flow for its agriculture, asked the courts to limit such water spreading. Before the suit was decided other complainants had joined Irvine Ranch. Together they formed the Orange County Water District. Again, while the court limited the spreading, it permitted what already was in progress.

Riverside, meanwhile, had supplemented its supply by local wells. Spring Brook, originally a year-round artesian stream, ceased to flow.

In 1931, Riverside voted not to join the Metropolitan Water District to become eligible for Colorado River water. The chief argument against joining was that the city had sufficient water for all its needs and that the proponents were those who wanted to develop more land.

"Let such people pay for their own water," ran the argument.

San Bernardino, which had joined MWD, then voted itself out and some of its leaders charged Riverside with double-crossing to obtain water at its neighbor's expense.

As we all know, the water prospect was grimmer by the 1950s. In 1955 Riverside, Corona and Elsinore, and contiguous areas, voted to form Western Municipal Water District and through it to affiliate with Metropolitan Water District and become eligible for Colorado River water.

Through Metropolitan, Riverside also became eligible for water from the Central Valley river system through the California Aqueduct.

In 1951 Riverside, by condemnation proceedings, took over both the Riverside Water Co. and Gage canals.

Shortly thereafter the Orange County Water District sued four cities — Riverside, San Bernardino, Colton and Redlands asking for a limitation of their take from the river, by wells, stream diversion or whatever. Orange County won. Limitations were set. So encouraged, the Orange County Water District in 1962 sued every water agency and individual upstream.

After seven years of negotiation under court supervision, an immensely complex decision was handed down. It provides many variants depending on the changing flow of the river, with allowances for conservation.

It sets up a Santa Ana River water master consisting of five experts who monitor the flow and the compliance on the part of all concerned and report annually to the court. Hence the court retains jurisdiction.

Two major groupings are recognized in the upper river.

The San Bernardino area users are required to guarantee that the river flow at the Riverside Narrows (Pedley) will average 15,250 acre feet per year. An acre foot is the amount of water to cover one acre one foot deep.

The users of the Riverside area and Chino Basin are required to see that this is supplemented to the extent that 42,259 acre feet flow annually past Prado Dam near Corona.

There are many detailed requirements including penalties and rewards, but essentially each water agency's allotment is based on historical use. Specifically, on *beneficial* use.

One aspect of allocation based on such use is that farmers or cities first divert and use water by crude systems. Conservation measures often are delayed until the pinch is on.

With this in mind, a remark by Riverside's Mayor Walter C. Davison, who served from 1941 through 1948, may be pertinent.

"Riverside's water use doubled during my term of office," he said.

And that may have a bearing on Riverside's entitlement under the 1969 court decision. Of course other water-using agencies may have built their records of use similarly.

• • •

Straightening the record of last week: Paul Gedansky tells me that the Fluke-Orleans building renovation from second-story hotel to office use began before George Freeman acquired it in 1972 and began a comprehensive remodeling.

Tom Patterson, a former Press-Enterprise reporter and editor, has published three books and numerous articles on Riverside County history. His column appears on Sundays.

PLANT

Continued from **B-1**

Norco and south of Mira Loma.

Because clean-up fines of up to $40,000 per acre against the dairies are currently being considered by the Santa Ana Regional Water Quality Control Board, Schatz said, there is a "high probability" that the fees will lead to the dairies leaving the area.

Construction of the plant could help dairy farmers by cleaning up the groundwater and eliminating the reason for such fines, Schatz said.

Possible sites for the plant have not yet been chosen, Schatz said.

28 Apr. 91 A-3

Well-Made Plans Keep Palm Springs an Oasis in a Drought

■ **Water:** Officials say criticism is unjustified because they take care in pumping from underground reserves.

By JENIFER WARREN
TIMES STAFF WRITER

PALM SPRINGS—Like a mirage lurking in a dip in the highway, Palm Springs shimmers enticingly atop the Sonoran Desert, an impossibly green splotch on a canvas of tawny brown.

Outside the city, the flat, sandy landscape is broken only rarely by scraggly tamarisk trees, yucca plants and pathetic shrubs twisted by relentless desert winds.

But in town it's another world, with lush grass and petunias lining the boulevards, fountains gurgling outside local landmarks and shaggy palms swaying soothingly in the breeze. There are even misters on several restaurant patios, which shower diners with a fine, tropical spray.

For visitors from drought-stressed corners of California, the dramatic contrast provokes instant suspicion: Is this artificial oasis hogging water while folks in other regions are skipping showers?

It *does* look suspicious, but appearances can be deceiving. The truth is, Palm Springs—which gets just 5 inches of rain annually and sweats out 120-degree temperatures most summers—sits atop a vast sea of ground water, which has been carefully managed and now insulates the city from the effects of drought.

And, although residents here use about twice as much water per capita as their counterparts in Los Angeles, rationing the ample local supplies would be of little help to needy regions: There is simply no way, officials say, to transport the water out of the desert.

"It really bugs me that people see us as bad guys," griped Mayor Sonny Bono. "If we hadn't taken good care of our resources, we wouldn't be in good shape. But we did."

The roots of such prudent management, locals say, can be traced to Palm Springs' earliest settlers, who learned the hard way that without a reliable water supply, life in the desert is a risky proposition.

In 1887, Palm Springs pioneer James McCallum was hailed as a hero when he built a 16-mile canal to funnel runoff from the San Gorgonio Mountains to a small village of settlers and Agua Caliente Indians. The settlers, who had moved to the desert for health reasons, quickly took advantage of the water, planting figs, olives and other crops that thrived in the sunny climate.

But two flukes of nature—a flood that washed out the canal and a 10-year drought that dried up their mountain source—rudely interrupted the merry desert experiment. Lacking water, the settlers gave up and fled.

Later, enterprising explorers discovered the area's true treasure—a huge underground sink, filled with amazingly pure water pooled through centuries of snowmelt. Initially, it seemed there was an endless supply, but by 1960, the desert dwellers were in trouble again: excessive pumping was draining the subterranean basin, causing the water table to plummet 70 feet.

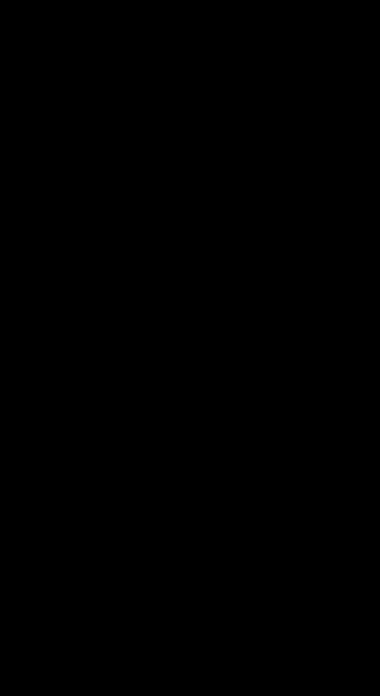
Faced with continuing growth and dwindling supplies, desert water managers decided to join the State Water Project, a system of dams, reservoirs and aqueducts authorized by the California Legislature in the 1950s. The move gave Palm Springs the right to imported water, but there was a hitch: no facilities had been built to connect the desert with the massive state

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on toxic air pollutants and extended concessions to the aerospace industry on the use of certain paints and coatings. Faced with protests from car rental agencies, it delayed a rule requiring fleet operators to purchase cars that run on cleaner-burning alternative fuels.

Even so, the district has pushed through a number of innovative smog controls, including pollution limits on all new or expanding businesses in the basin. The controls require these firms to reduce not only the pollution they produce but some percentage of what is caused by others. To do that, they can either pay for controls placed on other polluters or purchase so-called emission credits from companies that cut smog more than required.

In some other areas, the AQMD has little or no authority to regulate the source of pollution and must rely on cooperation from other agencies.

Strained Relations

About 15% of all emission reductions depend on cities and counties. Another 30% depend on the cooperation of the Air Resources Board, which is responsible for regulating motor vehicle emissions and consumer products ranging from hair sprays to household cleaners.

The AQMD's relations with local and state agencies have been tense.

"It's not all sweetness and light. There are strains and we try to work them out," said Mark Pisano, executive director of the Southern California Assn. of Governments.

"The concern is local control, especially as it relates to land use. That has a direct impact on quality of life and tax-base issues in each community," said Burbank Mayor Tom Flavin, a frequent critic of the district.

The AQMD says the concerns are groundless. "Those people who were ready to pounce and jump on us for usurping local government are totally misreading the agency," Lents insists.

Nonetheless, Los Angeles County and the California Building Industry Assn. persuaded Sen. Cecil N. Green (D-Norwalk) to introduce legislation this year that would strip the AQMD and other air quality districts of their authority to deny emission permits to new housing developments, regional shopping centers, airports and stadiums unless they meet air quality regulations.

Environmentalists said the district should have been doing more to build its political bridges.

"They haven't done enough to court the local political Establishment," said Veronica Kun of the Natural Resources Defense Council.

Former Santa Monica City Council member Christine Reed observed, "[AQMD officials] have this attitude: 'We have the power. We have the will. And we're going to do it.' You could make a rap song out of it."

City Planning

Fewer than half of the 142 cities and counties in the basin take air quality into account in their planning, primarily because of limited funds and staff. The record could improve, however, for two reasons.

First, the Legislature last year approved a $4 surcharge on motor vehicle registration renewal fees to finance local governments' air quality planning costs. The fee will raise $5 million this year and, when fully implemented, $10 million four years from now.

Second, there is concern that the AQMD will impose its own constraints on local actions if cities fail to act. Until now, the AQMD has limited its intervention in local planning decisions to offering advice on some local developments.

"That's the gorilla in the closet," said Anne Baker, environmental planning director with the Southern California Assn. of Governments.

Some environmentalists say that, at minimum, the district should do more to influence decisions in such crucial areas as transportation planning, which significantly affects air quality.

"Even in situations where they ought to have a seat at the table . . . I don't see the AQMD down at the Los Angeles Transportation Commission and the RTD raising

Please see SMOG, A45

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RESORT: Water Planning Makes Oasis in Drought

Continued from A3

system.

Instead, the Desert Water Agency signed exchange agreements with the Metropolitan Water District. Under the contracts, the agency gives its allotment of state project water to Metropolitan, and in return receives an equal amount of Colorado River water, which is diverted from the MWD's aqueduct into earthen basins north of Palm Springs, and allowed to seep underground. Between 1985 and 1987, about 600,000 acre-feet of river water percolated into the underground reservoir, providing a 10-year supply for desert customers.

Although pleased that they have evaded the drought's clutches through prudent water management, locals are highly sensitive to their city's image as a water-gobbling resort. Bono and other officials—who receive bundles of letters from critics accusing Palm Springs of profligacy—are particularly touchy, and are well-armed with proof that their city strives for water efficiency.

Let's start with the "moisture probes." These tiny devices—buried in the turf that covers city parks and many median strips—are equipped with sensors that detect precisely when the grass needs water. Although they have been dogged by reliability problems, the probes and the installation of electronic timers to control sprinklers have helped the city cut irrigation water usage by as much as 25% in some areas, officials reported.

Other gizmos used to save water include wind sensors—which shut down sprinklers at times when gusts might blow the spray off-target—and soil polymers, tiny water-filled granules that slowly release their contents to keep roots moist.

Then there is reclaimed water—the fancy term for highly treated sewage. The Desert Water Agency, which serves Palm Springs and Cathedral City, opened a state-of-the-art reclamation plant in 1988 and plans to double its capacity in the coming years. Already, the facility churns out about 3 million gallons of treated waste water a day, pumping it to several Palm Springs parks and ball fields, the municipal golf course and private links.

"At first, the golf course people were afraid the [reclaimed water] would smell and be slimy," said Ron Baetz, spokesman for the Desert Water Agency. "Now they love it. They especially love the price, because it's half the rate [of potable water]."

There are attempts to be progressive on the landscaping front as well. At the water agency headquarters, a veritable wonderland of desert plants grow in a sort of outdoor laboratory, including flowering sage, blooming ocotillos, exotic grasses and other drought-tolerant specimens.

Around town, the vegetation results are more mixed. The newer buildings—the senior citizens complex and the convention center, for instance—are surrounded by boulders and native vegetation scattered attractively atop crushed rock. Many of the downtown planting beds have been redesigned, and now use only a narrow necklace of grass around more water-efficient selections. Overall, the city reduced its landscape water usage 10% over the last five years while at the same time adding parkland.

But image can be everything, and running up the center of one of the city's main thoroughfares—Tahquitz-McCallum Way—is a wide band of turf accented with colorful petunias. Even the most novice gardener knows the rap on turf—it's a water-guzzler. Why not replace it with a less thirsty species?

"We've tried to integrate the desert-style landscaping, but it just doesn't appeal to a lot of people," said Terry Lortz, the city's park and golf course superintendent. "The tourists want to see that lush grass and those bright flowers. They're from back East, they've been in the snow. When they come here, they want to feel like they're in Shangri-La."

The mayor agreed: "You can't have all dirt and cactus. In my opinion, Palm Springs isn't lush enough."

Specifically, Bono said he believes some businesses have gone too far with the concept of xeriscape—or desert-style vegetation. A new Motel 6 in town, for instance, is surrounded by a rather sparse collection of drought-tolerant selections.

"I'm not real happy with that," Bono said. "They can't put in a cactus and throw up a wooden tree and tell me that's their desert theme."

As for Palm Springs residents, at least one nursery worker reports that there is little interest in xeriscaping. Instead, according to the Sunrise Nursery employee, most people favor "the dense, tropical look."

"I hope that doesn't become popular," the nurseryman said with a grimace when asked whether he thought drought-tolerant plants might catch on in the resort city. "This is *Palm Springs*. We're not Tucson."

Joan and Bo Mayne, however, seem to see things differently. The retired couple, recent transplants to Palm Springs, were examining the nursery's small cactus section one recent day, looking for something to augment their patio collection.

"It's funny, but people don't seem too concerned about water out here," Bo Mayne mused. "It's as if we're not even in the desert."

WHAT GOES UP: THE GLOBAL ASSAULT ON OUR ATMOSPHERE
By John J. Nance
Morrow • 324pp • $20

IS THE SKY REALLY FALLING?

James Hanson, director of NASA's Goddard Institute for Space Studies, faced a Senate hearing in June, 1988, to address a burning issue: Was the climate getting warmer as a result of the greenhouse effect? Hanson sprinkled his response with caveats and said that the summer's heat wave and drought couldn't be blamed on global warming. But he did say that "the greenhouse effect has been detected, and it is changing our climate now." Those remarks wound up in headlines proclaiming that the drought was a product of global warming. They unleashed a storm of disagreement among Hanson's peers. And the dispute over whether the planet is warming still rages.

In *What Goes Up: The Global Assault on Our Atmosphere*, John J. Nance helps put the controversial issues of global warming and the damage to the ozone layer in perspective. He begins by describing the 15 years of wrangling that finally led scientists, politicians, and business to agree that chlorofluorocarbons (CFCs) were destroying the earth's protective ozone layer and to the landmark Montreal Protocol, which phases out the chemicals. He also fleshes out what is and is not understood about global warming. While providing a fascinating glimpse of scientists and the scientific process at work, Nance also shows how slow the route can be from the first scientific identification of a serious problem to public policy that attempts to address the issue.

Nance explores ozone loss through the experiences of the scientists who pieced together the evidence that CFCs were the culprits. His vivid, you-are-there narrative drives home how fraught with disagreements and errors the process was.

The ozone wars, as Nance calls them, began in 1974, when two University of California at Irvine chemists, Sherwood "Sherry" Rowland and Mario Molina, published a theory to explain what happens to CFCs after they are released. It was a bombshell. CFCs, they said, wend their way slowly into the stratosphere and decompose, releasing chlorine atoms. These atoms break down ozone, and that would lead to a gradual decrease in the ozone layer that protects earth from radiation. The chemists could offer no evidence of ozone loss, however, nor of elevated levels of chlorine in the atmosphere. The theory was promptly denounced by the chemical industry and disputed by other scientists.

Support didn't come until 1985, when Joe Farman of the British Antarctic Survey published the first data that showed a hole was appearing in the ozone layer each winter over Antarctica. What Farman documented was not the linear decline Rowland and Molina predicted, but an exponential loss of 40% during the 1984 winter, far greater than the first small decline he detected in 1981.

Farman's paper stunned the scientific community. Other groups monitoring the atmosphere in Antarctica hadn't reported any decrease. Scientists at NASA's Goddard Space Flight Center quickly reviewed their own data and made a chilling discovery: Their instruments had recorded the losses, but the computer interpreting the results had been programmed to ignore readings that deviated so far from normal.

Nance goes on to describe how scientists verified the findings, discovered losses over the Arctic, and determined the process by which chlorine destroys ozone. At every point, environmentalists and industry clashed over the validity of the findings. The chemical industry continually demanded more proof. The disagreement kept Washington paralyzed.

Nance considers the current debate over whether a global warming has begun and what effect it might have on climate to be at the same point the CFC-ozone issue was in 1975. Findings that indicate a warming may have begun are very much in dispute among scientists, industry, and government. With both issues, as Nance points out, the key question has been: When does society have enough proof to justify action? With global warming that means curbing carbon dioxide emissions.

As those in the "act now" camp see it, industry and other entrenched interests oppose corrective action because it would interfere with profits. But industry is legitimately opposed to environmental laws that require huge investments unless they are absolutely necessary. It boils down to assumptions: Should you assume that what you don't know can't hurt? Or should you act on the assumption that it can?

In Nance's view, the ozone wars dramatize the perils of failing to embrace the latter assumption. The discovery of the ozone hole proved that atmospheric change is not necessarily linear. Any climate change kicked off by global warming could be sudden, exponential, and unpredicted.

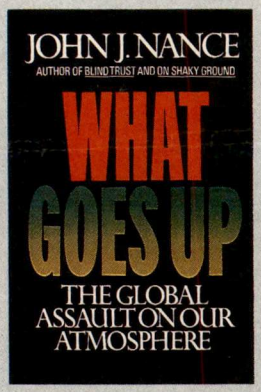
Nance is clearly impatient for action on global warming. He considers the consequences of warming risky enough to justify action now, even though scientists don't agree that a warming has begun. He blames at least some of the foot-dragging on scientists' failure to communicate the issues clearly. In addition, he thinks the media's tendency to reduce complex issues to two-sided conflicts exaggerates the disagreement among scientists, creating an obstacle to public understanding.

To those familiar with the politics of public policy, Nance's analysis of the stumbling blocks to change will come as no surprise. His major prescription—better communication—is ill-defined. But for those who wonder what the hoopla over global warming is all about, Nance's lucid explanations of this complex issue make the book worthwhile.

BY EMILY T. SMITH

Smith is Science editor of BUSINESS WEEK.

Nance helps put the issues of global warming and the ozone layer in perspective



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The Accord HONDA

MWD OKs builder's plea for annexation

By Barbara Metzler
The Press-Enterprise

Stepping up to the microphone, Richard Cullen swallowed his pride and appeared as a supplicant.

Metropolitan Water District directors listened as he told them his story. He had invested his life savings and that of his friends in his Murrieta housing project and had been working for the annexation of his 20 acres to the water district for nearly two years.

"If the annexations are stopped, then basically I'm stopped," he said.

Although water districts routinely approve requests for annexation, that's not the case at Metropolitan as it faces the driest year of its history. Annexations increasingly get tough scrutiny by some directors, who feel Metropolitan has no business adding new customers in a continuing drought.

"We have people who are feeling deeply concerned with the political angle of annexation," said Lois Krieger, Metropolitan's board chairman and a Riverside representative on the 51-member board. "The influencing factor is it's hard for the public to understand how you can annex and talk about water shortage."

Metropolitan approved Cullen's annexation — a feat he celebrated with champagne. But, in stepping up to the Metropolitan Water District microphone Feb. 12, Cullen faced the biggest threat yet in his two-year effort with Crystal Aire, a 72-home project aimed at the first-time buyer.

He later admitted his sob story was somewhat embellished. As project manager of the Crystal Aire housing tract, he stands to lose only a job if the project doesn't go through, but that is enough for him.

"If that project didn't materialize because of the water problem, I'd be out of work. I took it from there. I've got a wife and two kids," he said. "I haven't had nail bags on for five to 10 years and I was looking at having to do that if I didn't get annexed."

Cullen's plea before Metropolitan's board was one of the last stops in a long road toward getting Crystal Aire annexed to various water districts for water service. Annexation first had to be approved by Elsinore Valley Municipal Water District, then Riverside-based Western Municipal Water District, which provides half of Elsinore's water, then by Metropolitan, which supplies all of Western's water.

Next, it goes to the state Board of Equalization, then back to the Local Agency Formation Commission. Those approvals are expected, now that Metropolitan has granted Cullen's request. But, at this point, Elsinore Valley has halted water to construction projects and yanked Cullen's meter.

"I got a razor blade on my jugular vein and they're pulling it across," Cullen said.

The agenda for the Feb. 12 Metropolitan meeting that contained Cullen's request for annexation also included a request to consider halting annexations, as has been done for brief periods four times in the utility's history. Member S. Dell Scott of Los Angeles, who has worked eight years to outlaw annexations, was poised to call for a fifth such moratorium.

Others worked quickly to avoid that, and the matter — at least for the present — was pulled from the agenda, relieving Cullen and board member Charles Barker, who is chairman of the annexation committee.

"We're very concerned, frankly, if we call a moratorium that it will essentially or effectively perhaps damage the orderly development of both Eastern and Western" municipal water districts, Barker said. He is chairman of Metropolitan's subcommittee on annexations and representative for Western Basin Municipal Water District of Redondo Beach. That concern also applies to other growing areas, he said.

Instead of halting annexations, Barker said, the committee has focused on various restrictions — for example, prohibiting use of potable water on golf courses and greenbelts in newly annexed areas.

Scott, also a member of the annexation subcommittee, has opposed annexations ever since Metropolitan begged voters to pass a ballot measure to construct the Peripheral Canal in 1982. That vote was defeated, but awakened Scott to an argument that haunts him today.

"It seemed to me to be disingenuous for the Met to go out telling people that we needed the canal, that we didn't have a reliable water supply, and at the same time annex property," Scott said.

He feels the same way when Metropolitan annexed 14 parcels — 10 of them in Eastern and Western municipal water districts' territory.

Annexations mislead the public into thinking there is enough water available, Scott said.

"You're leading these people down the primrose path."

Cullen is treading that path with ammunition he hopes will keep him on track. He has a will-serve letter that promises him Elsinore Valley will serve Crystal Aire. And, he plans to make it stick.

Barker has two arguments for allowing annexation to continue.

Developers who cannot develop outside Metropolitan's boundaries because the district will not annex the area will move into the district and develop, he said. So, the new demand for water cannot be averted by halting annexations.

Annexations also hold economic importance. Cutting off development cuts off jobs, Barker said.

"We just add to the present economic woes."

In the meantime, Scott's proposal to call a moratorium on annexations is back in committee, where he expects it to be locked indefinitely.

"They're going to committee this thing to death," he said.

Metropolitan operates by a document called the Laguna Declaration, which says the district will serve water to the Southern California coastal plain. As the drought lengthens, there is some discussion that perhaps that declaration should be altered so it is less hospitable to new demand.

"My feeling is that . . . there is a fearfulness of a lack of water, and, as a consequence, Met's board people tend to be polarizing.

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By Barbara Metzler
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Metropolitan approved Cullen's annexation — a feat he celebrated with champagne. But, in stepping up to the Metropolitan Water District microphone Feb. 12, Cullen faced the biggest threat yet in his two-year effort with Crystal Aire, a 72-home project aimed at the first-time buyer.

He later admitted his sob story was somewhat embellished. As project manager of the Crystal Aire housing tract, he stands to lose only a job if the project doesn't go through, but that is enough for him.

"If that project didn't materialize because of the water problem, I'd be out of work. I took it from there. I've got a wife and two kids," he said. "I haven't had nail bags on for five to 10 years and I was looking at having to do that if I didn't get annexed."

Cullen's plea before Metropolitan's board was one of the last stops in a long road toward getting Crystal Aire annexed to various water districts for water service. Annexation first had to be approved by Elsinore Valley Municipal Water District, then Riverside-based Western Municipal Water District, which provides half of Elsinore's water, then by Metropolitan, which supplies all of Western's water.

Next, it goes to the state Board of Equalization, then back to the Local Agency Formation Commission. Those approvals are expected, now that Metropolitan has granted Cullen's request. But, at this point, Elsinore Valley has halted water to construction projects and yanked Cullen's meter.

"I got a razor blade on my jugular vein and they're pulling it across," Cullen said.

The agenda for the Feb. 12 Metropolitan meeting that contained Cullen's request for annexation also included a request to consider halting annexations, as has been done for brief periods four times in the utility's history. Member S. Dell Scott of Los Angeles, who has worked eight years to outlaw annexations, was poised to call for a fifth such moratorium.

Others worked quickly to avoid that, and the matter — at least for the present — was pulled from the agenda, relieving Cullen and board member Charles Barker, who is chairman of the annexation committee.

"We're very concerned, frankly, if we call a moratorium that it will essentially or effectively perhaps damage the orderly development of both Eastern and Western" municipal water districts, Barker said. He is chairman of Metropolitan's subcommittee on annexations and representative for Western Basin Municipal Water District of Redondo Beach. That concern also applies to other growing areas, he said.

Instead of halting annexations, Barker said, the committee has focused on various restrictions — for example, prohibiting use of potable water on golf courses and greenbelts in newly annexed areas.

Scott, also a member of the annexation subcommittee, has opposed annexations ever since Metropolitan begged voters to pass a ballot measure to construct the Peripheral Canal in 1982. That vote was defeated, but awakened Scott to an argument that haunts him today.

"It seemed to me to be disingenuous for the Met to go out telling people that we needed the canal, that we didn't have a reliable water supply, and at the same time annex property," Scott said.

He feels the same way when annexations are approved even as Metropolitan increases water cuts.

"I think it's laughable, and I have told them that they are making fools out of themselves."

Scott is further angered by developers such as Cullen who don't mind bending the facts to win their case, but he said approval of Cullen's project was assured because it had been in the pipeline.

"They would've approved it if the devil himself came before them," he said.

Between 1980 and 1989, Metropolitan annexed 18,361 acres, Scott said. By 2050, the district is expected to need nearly 160,000 more acre-feet of water annually to serve the new residents of annexed areas.

Many of those annexations are in Riverside County because of mushrooming population. Between Aug. 1 1989, and Sept. 25, 1990, Metropolitan annexed 14 parcels — 10 of them in Eastern and Western municipal water districts' territory.

Annexations mislead the public into thinking there is enough water available, Scott said.

"You're leading these people down the primrose path."

Cullen is treading that path with ammunition he hopes will keep him on track. He has a will-serve letter that promises him Elsinore Valley will serve Crystal Aire. And, he plans to make it stick.

Barker has two arguments for allowing annexation to continue.

Developers who cannot develop outside Metropolitan's boundaries because the district will not annex the area will move into the district and develop, he said. So, the new demand for water cannot be averted by halting annexations.

Annexations also hold economic importance. Cutting off development cuts off jobs, Barker said.

"We just add to the present economic woes."

In the meantime, Scott's proposal to call a moratorium on annexations is back in committee, where he expects it to be locked indefinitely.

"They're going to committee this thing to death," he said.

Metropolitan operates by a document called the Laguna Declaration, which says the district will serve water to the Southern California coastal plain. As the drought lengthens, there is some discussion that perhaps that declaration should be altered so it is less hospitable to new demand.

"My feeling is that . . . there is a fearfulness of a lack of water, and, as a consequence, Met's board people tend to be polarizing. They're tending to go to their own interest," Krieger told Western's directors last week.

"So far, hardship cases, those annexations that have been considered before, are still being listened to," she said. "It's tough, and my feeling is it could go either way."

MWD Reserves

12 May 91

■ In an article ("MWD's Cup Runneth Over," Commentary, May 1), Assemblywoman Gwen Moore criticized the Metropolitan Water District for its financial reserve policies. We are, of course, pleased with the assemblywoman's interest, but wish to correct any impression that MWD has a surplus of funds.

MWD has different legally required reserve accounts such as its bond indebtedness reserves. In addition, the board has established a water rate stabilization fund. That fund is used to keep consumers' water costs at a manageable level and, for a number of sound reasons, has the strong support of the 27-member agencies comprising Metropolitan.

MWD's reserves provide consumers the following: (1) a financial buffer against wide swings in water rates caused by rapidly changing economic and weather-driven water supply conditions; (2) a source of funds that the district may use to support a $6-billion distribution system construction and improvement program; (3) a cushion necessary to achieve an excellent bond rating that translates into savings of hundreds of millions in additional interest costs, and (4) a source of funds to purchase needed water from the governor's emergency water bank which will alleviate hardships this year and provide storage against another dry year.

Metropolitan's financial policies have given its 15 million consumers something to be coveted in today's economy—a public agency that is not facing a fiscal crisis.

LOIS B. KRIEGER
MWD Board Chairman
Los Angeles

To p. 30

BonnieC. Saliba and David Bush, 1987. Water Markets in Theory and Practise: Market Transfers, Water Values, and Public Policy. Boulder: Westview Press.

p.63. Ariz, may only buy water and land together. Appurtenancy means business? No, just apply to Ariz. DWR.

p.178. AB-3491, 1982, lets district or other WUO sell surpluses; AB-1029, 1985, lets you sell conserved or salvaged water; AB-2746, 1986, lets state help convey.

p.113, describes BR water banking, 1977-78, under Emergency Drought Act. Bought marginally more than they sold, but only bought 46,438 af.

p.115. "Pumping rights, including leases, are taxed as property rights by L.A. Cty." sourced to "Robert Potter, presentation at 'Buying and Selling Water in Cal,' UCLA Ext Pub Policy Conf, Sta. Monica 1986." Not very definitive!

p. 252. "...markets reflect and reinforce the existing distribution of water rights and wealth. ... Those who have neither water rights nor money cannot participate ... " (My emph.)

Upton Sinclair, 1933. I, Governor of California. Los Angeles: Upton Sinclair.

p.18. Proposes graduated prop. tax, and 10% rate on vacant lands.

P.23, to avoid being vacant, substantial improvement and production required.

P. 21. Tax-reverted land to be put to use immediately. A State Authority would acquire all tax-sale land. Then establish colonies, erect buildings, operate farms and businesses.

p.22, a money authority will issue scrip.
Steeply graduated inheritance tax. On heirs, 50% of all > $50k; on donors, 50% of all > $250k.

P.24, opposes Washington nationalization, too remote.

P.26 "... the man who will sell out EPIC can have a chain of automobiles all the way across California." Thus he forecast his Judas, S. Downey.

p.28, "Either the idea of Democracy is a delusion, or the people will be sufficiently interested in their own rights to fight for them ..."

p.30 "... the business of persons with ideas is to have them appropriated."

p.31. His autobiography is American Outpost. Also the stories in The Brass Check tell of his private life.

p.32. The last chapters in The Jungle "contain everything in EPIC and more ..."

p.34 Sheridan Downey, a Sacto lawyer, published Onward America, a pamphlet calling for a people's movement. The Judas!

p.43 "We have to answer every lie before it is invented."

1922, 1924, power companies overwhelmed campaigns for state water and power development. Sinclair, I, Gov, p.43.

Back page. Fans include John Haynes Holmes, and Kathleen Norris.

James Bryce, 1891. The American Commonwealth. London: Macmillan and Co. 2nd Edition Revised. Vols. I, II.

Vol I.

p.vii Well connected! Consulted with chair of ICC Tom Cooley; James Thayer, Harvard Law School; Seth Low, ex mayor of Brooklyn; E.L. Godkin of NY; Theodore Roosevelt; Justice Holmes, supreme ct of Mass; H. Villard of NY; Jesse Macy of Grinnel, Ia (remember C. Ward Macy speaking of him?); A.B. Houghton, Corning NY; John Hay of D.C.; Hon. Andrew D. White of Syracuse; etc.

p.491. U.S. Feds used direct tax "freely during the War of Secession."

p.491. State rev. is almost wholly direct, bcs of commerce clause. (Wrong! Internal excises invented long before 1891.)

p.492"The chief tax is in every State a property tax, ... real and personal, ..."

p.493, n.1, recognizes that state tax assessors reach "the property of the corporation itself." This doesn't stop him from bewailing inability to reach intangible prop like corp shares! Still, in his times one could be only half-blind; today, they are all-blind.

p.496, n.1. "It is a case of bad law tempered by violation."

p.496, n.1, attributes suburbanization to tax avoidance, around Boston. May 1 was assessment day, so they left Boston because the assessor there had determined to let no one escape filing the personal property return. After a while the country assessors decide to follow Boston, and then the rich part of the town organizes into a tax enclave, hence the cut-up small suburbs around Boston.

p.497 Not much use made of death duties, nor income taxes. 5 states "authorize" it. No progressive income or death taxes, "such as some of the Swiss cantons have imposed."

499 1876, Texas caps prop rate at .5% "on the valuation," plus debt service.

Regardless, in 1888 ran surplus of $2m, called special session to dispose of it.

502, many northern states, too, cap debt and tax rate at low levels.

500 State debts: 1842, $204m; 1870, $353m. Part of this rise was due to "loans contracted for the raising and equipping of troops by many Northern States to serve in the Civil War, the intention being to obtain ultimate reimbursement from the national treasury." Also, p.w.

500-01. States repudiated some debt in the 1870s, bringing sum down to $251m in 1880, from $353m in 1870.

501. As states learned to temper their borrowing in 1870-, towns, counties, but "above all, cities trod in the same path, ..." Part of city debt was due to bounties to vets of civil war. Also, took shares in pvt corpns (probly rails).

501. Many state constns, they wrote in that with every debt there must be established a sinking fund to retire it within a few years. (Modern fully amortized debts obviate this old practise today. Still, use for problem in Ec. 162.)

503 Caps on local debt and taxes growing stricter and stricter - he says. (Cf. Hoyt on Chicago debt during this boom; also, high plains states; etc.)

503. Extra costs of building "piecemeal." What is the antonym? Economies of Wholeness.

504. State and county debts have been worked down a little, 1870-80. However, city debts more than doubled, same time. In 1880 they were $710m (cf. $251m state debts, p.500-01).
Oddly, he gives no more recent data, although published in 1891. Probably city debts rocketed, 1880-93.

504. It is easier for states to repudiate than for cities and towns.

636-39. "On Constitutional Conventions." He likes them, gives several good reasons why they attract superior persons. (A brief classic, might use it some time.)
(Later he rags Cal Convention of 1879, altho it seems to support his point in spades! Bryce is conservative, altho literate, courteous, and a bit open-minded.)

683. Cal Constn of 1879. Begins with Article I, Declaration of Rights. Secs. 1 and 2 paraphrase Decln of Indep, (unlike U.S. Constn). (so Jeffn was popular in Calif in 1879).

Article I, Sec 21, "No special prvileges or immunities shall ever be granted which may not be altered, revoked, or repealed the the Legislature, ..."

Sec. 24, "No property qualification shall ever be required for any person to vote or hold office."

Article IV, Legislative.
Sec. 24, English-only.
Sec. 25, no special laws exempting prop from taxation.
Sec. 35, lobbying is a felony

Article IX, Education

Sec. 4, funds from sale of lands etc. shall be funded, not spent, "shall be and remain a perpetual fund" (i.e. no drawing down capital) to support "common schools throughout the state." (I.e. state support of education).

Sec. 6, all state spending shall be for primary and grammar schools. (Vol. II, p.407, this had result of making locals spend more on high schools.)

Article XII, Corporations

Sec. 9, No corp shall hold for > 5 years any r.e. not nec for carrying on its business.

Article XIII, Rev and Taxn

Sec. 1, Prop includes intangibles and personal.

Sec. 2, Land and improvements shall be separately assessed.

"Cultivated and uncultivated land, of the same quality, and similarly situated shall be assessed at the same value."

Sec. 3, Tracts > 640 acres shall be assessed by sections or fractions of sections.

Sec. 4, A mortage is deemed as an interest in the property by which secured. Owner is assessed on equity; creditor assessed on the unpaid balance. (These were smart people!)

Sec. 7, prop taxes may be paid by instalments.

Sec. 9, equalization shall never raise any mortgage above its face value. (Note how including mortgages in the base automatically forces equalization, and 100% assessment!)

Article XIV, "Water and Water Rights"

Water appropriated for sale or distribn is subject to state reg. Silent on other appropriations.

Article XVII, Land and Homestead Exemption

Portion of homesteads protected from forced sale.

Holding large tracts unused should be discouraged.

State lands to be granted in no more than 320 acres.

Article XX, Misc.

Sec. 8, no community prop.

Sec. 17, 8 hour day on all public work

Sec. 18, "No person shall, on account of sex, be disqualified from entering upon or pursuing any lawful business, vocation, or profession."

VOLUME II (separately paged)

386 para on land concn. Mild, but even the conservative Bryce recognized a problem.

388-9 n.1 As source on Kearney, credits "a brilliant article by Mr. Henry George ...", Pop Sci Monthly, Aug 1880, "... deserving to be well weighed by California statesmen."

390, legislature of city office-seekers "or of petty country lawyers, needy and narrow-minded men."

391 "A self-cultivating Lyceum sounds as harmless as a Social Science congress, but there are times when even mutual improvement societies may be dangerous."

391 The Chronicle made Kearney a celebrity, to raise circn and establish itself.

395 Kerney formed new party, the Sand Lot Party. Threw weight behind having new constl convention, prevailed. Allied with Grangers, which spread in from upper Miss. states. Bryce repeats summarily his praise of constl conventions in general.

398, notes provision of taxing mortgages locally.

399 San Fran had 1/3 pop of state. Constn adopted.

400 After convention, Kearney fizzles out, a "spent rocket." Bryce downgrades him. Looks to me as though he succeeded in his goals: a, new Constn; b, Chinese exclusion, which he toured the nation to promote federally.

403 "Every stump orator in the west says a great deal more than he means, and is promptly discounted by his hearers."

404 n.1 H.George not satisfied with convention results, gave too much to landowners. Pop Sci Monthly, Aug 1880.

408 1887 act imposed .01/100 for supporting UC, on all prop in state.

697 Enterprising and unsettled Americans come west. "Everything is speculative, land (or, as it is called, 'real estate') most so, ..."

698 High i.r. in west. E.g. Walla Walla, 1881, 14% on good secure mortgages.

700 "... the less faith the more superstition."

700 Raising the price of your city's real estate, ... "a kind of religion."

701-2 The Great West ought to be happy. "But there is often a malignant influence at work to destroy happiness in the shape of a neighbouring city, which is making progress as swift or swifter, and threatnes to eclipse its competitors."

703 "Many a place has lived upon its boom until it found something more solid to live on;" many newspapers per town, keeping up the city.

703-4 Bismarck was the center of Dakota, Dakota of the U.S., the U.S. of the world, Bismarck has destiny. Spot chosen for the Capitol was a mile from edge of town. It is "intended to be in the center of the city; it is in this direction that the city is to grow." It is the same everywhere: "Men seem to live in the future rather than in the present: ... they see the country not merely as it is, but as it will be, ..."

1888 Bryce II:747
Scott Chinese exclusion act, lobbied for by Denis Kearney.

BANK: There's More Water Than Demand

Continued from A1
pistachio trees alive.

It did not work out that way.

"The price is just way too high," said Klepper, who hopes the young trees he is growing near Lost Hills can "take some stress" and survive the summer on the measly amount of water he was able to scrounge from local sources. "For the cities, it's no big deal. But for us? Forget it."

There have been other problems as well. Environmentalists complain that the bank lacks a reliable mechanism for ensuring that some water is dedicated to fish and wildlife needs. When he established the drought bank, Wilson pledged to allocate some of the emergency supply to declining fisheries in the Sacramento-San Joaquin Delta. There is water available for fish in the bank; the snag is over who will pay for it.

"I'm not at all confident that the [Wilson] Administration will follow through on that pledge, and I'm not sure the governor had the power to make the pledge in the first place," said Thomas Graff, senior attorney with the Environmental Defense Fund.

"The trouble with the way the bank was set up is that there were no guarantees [for fish and wildlife]. . . . That's why the state is facing this problem now."

Grumbling can also be heard among some Northern California farmers who agreed to fallow their land this year and sell their water to the bank. Initially, the farmers believed that their actions were vital to help communities scrape through a desperate water crisis. Instead, the bank's biggest beneficiary—the Metropolitan Water District—may buy enough water to bring Southern California's supply close to normal levels, possibly removing the need for strict rationing.

year, and is valued at close to $105 million, according to state calculations.

The Department of Water Resources made the purchases based on requests filed by water agencies from Los Angeles to the Bay Area. Those requests—and the severity of the drought when the bank was formed in February—persuaded experts that the demand for bank water would greatly exceed the supply.

"When we went into this thing, everyone was fearing that we wouldn't have nearly enough bank water to fulfill demand," said Tom Clark, general manager of the Kern County Water Agency in Bakersfield. "Well, the opposite happened."

One reason was the heavy March rains, which eased the drought's pinch in many areas and reduced the desperation of many anxious cities and farmers. The price of bank water also drove many buyers away. Although the state purchased the water at $125 per acre-foot, the price for buyers rose because of administrative fees and costs associated with shipping the water through the delta.

The Kern County Water Agency was among those scared off by the price. Initially, farmers served by the agency planned to buy 165,000 acre-feet from the bank. Gradually, growers dropped out, and the agency has slashed its request to 53,000 acre-feet—one-third of its original need.

Urban areas also found the price a bit too lofty. The Santa Clara Valley Water District initially figured on buying 50,000 acre-feet from the state bank; now, it wants only 20,000 acre-feet.

"We were really driven by the economics of the situation," said Robert R. Smith, assistant general manager of the district. "This year, we just could not afford to purchase any more than we did."

Surplus water—perhaps as much as 405,000 acre-feet—might not seem like bad news during a drought, but controversy is swirling around what to do with the leftover bank water—and who will foot the bill.

'The price is just way too high. For the cities, it's no big deal. But for us? Forget it.'

BILL KLEPPER
San Joaquin Valley farmer

Environmentalists—citing Wilson's initial pledge—want some of it used to aid fish in the delta. Several species in the delta, a web of rivers southwest of Sacramento, are suffering because of unprecedented exports of water by the massive State Water Project and others during the drought.

With the state facing a potential $14.3-billion budget deficit, there are no substantial government funds to buy water for fish. Consequently, State Water Project contractors—those 30 agencies that purchase water through the state system—fear that they will be saddled with the costs.

While the water agencies would be willing to buy the excess bank water if it is held in reservoirs for their use next year, they object to paying for water released into the delta.

"What we're concerned about is that they will use the water for the purpose of benefiting fish and wildlife and then stick the water contractors with the cost," said Quinn of the MWD, the largest of the state project contractors.

Douglas Wheeler, Wilson's secretary of resources, acknowledges, "In our haste to assemble the water bank, we did not include a mechanism to deal automatically with the needs of fish and wildlife. Any future bank should absolutely do that."

As for this year, Wheeler noted that a bill before the Legislature would provide $5 million to the state Department of Fish and Game to purchase bank water for the delta fish. Although $5 million would buy at most 40,000 acre-feet of water—far less than the amount environmentalists say is essential to help the delta recover—Wheeler believes that that supply would meet the delta's most pressing needs.

While Klepper and many of his neighbors lament the bank's failure to meet their expectations, those farmers who were able to afford the emergency water call it a savior.

Doug Anderson, who grows pistachios on 140 acres near Lost Hills, will shell out about $260 per acre-foot on bank water this year—about quadruple what he normally spends. The high cost hurts, but Anderson says it is worth it.

"We bought enough just to get by, no more than that," Anderson said. "I think I can handle it this year, but this can't go on. We can't dodge a bullet every year."

District—may buy enough water to bring Southern California's supply close to normal levels, possibly removing the need for strict rationing.

"A great number of people up here felt pressured into participating in the water bank, but many of them did so because they believed they were helping cities get through an emergency situation," said Paul Minasian, an Oroville lawyer who represents numerous agricultural water districts north of Sacramento.

"They are now very much aware that life in Southern California is going along pretty much as normal this year while one out of two acres in Northern California is out of production. . . . That does not make for happy feelings."

Despite such misgivings, even critics acknowledge that the state did a commendable job assembling the bank quickly during a time of crisis. Agencies benefiting from the bank—such as the MWD—have still higher praise.

"When the bank got put together we all told the department 'go out there and get water' and by God they did," said Tim Quinn, who represented the MWD in negotiations for state bank water. "This is the kind of dilemma one ought to want to have in the middle of a drought—what to do with water."

Richard Howitt, an agricultural economist at UC Davis, agreed and argued, "The fact that they didn't sell it all tells us that the supply and demand of water came into balance in California this year."

Advocates of voluntary water transfers say the state bank also set an important precedent. Although not yet perfected, the bank proved that moving water between a willing buyer and seller can work.

"I think there were a lot of lessons learned, both positive and negative ones," said Graff, who has pushed the concept of water transfers in California for a decade. "We're encouraged because now Aladdin's lamp has been lit, and I don't think you can jam the genie back in the bottle."

When Wilson unveiled plans for the bank, it was hailed by many as a landmark effort to coordinate the redistribution of water from areas with plentiful supplies to areas in need. Although some minor water transfers occurred in the past, nothing on the scale of Wilson's centralized drought bank had been attempted in California.

Under the program, the state urged Northern California farmers with ample river water to sell some of their supply to the bank, which would allocate the water to thirsty communities, fish and wildlife and depleted state reservoirs. The Department of Water Resources set out to pool up to 1 million acre-feet for these purposes.

At first, potential sellers courted by the state were wary. The price offered by the bank—$125 per acre-foot—was considered too low, and many growers feared that their future water rights could be compromised if they chose to sell.

Before long, resistance melted and water began flowing into the bank. The emergency supply is slightly more than the amount used by Los Angeles in a normal

agency has slashed its request to 53,000 acre-feet—one-third of its

be willing to buy the excess bank water if it is held in reservoirs for

year, but this can't go on. We can't dodge a bullet every year."

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CALIFORNIA WATER RESOURCES

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$77	Adams, Frank (1875-1967) Irrigation , Reclamation and Water Administration. 1959, 491 p.	Irrigation engineer and economist
$41	Banks, Harvey (b. 1910) California Water Project, 1955-1961. 1967, 82 p.	Civil engineer, Director of Department of Water Resources
$83	California Water Issues, 1950-1966. 1981, 458 p. Interviews with:	
	Edmund G. Brown, Sr., "The California Water Project: Personal Interest and Involvement in the Legislation, Public Support, and Construction, 1950-1966."	Attorney general, Governor of California
	B. Abbott Goldberg, "Water Policy Issues in the Courts, 1950-1966."	Deputy Attorney General, Deputy Director, Department of Water Resources
	Ralph M. Brody, "Devising Legislation and Building Public Support for the California Water Project, 1950-1960; Brief History of the Westlands Water District."	Attorney, special counsel for water problems, manager of Westlands Water District
	William E. Warne, "Administration of the Department of Water Resources, 1961-1966"	Director of Department of Water Resources
	Paul R. Bonderson, "Executive Officer, Regional and State Water Pollution and Water Quality Control Boards, 1950-1966."	Executive officer of regional and state Water Pollution and Water Quality Control Boards
	(Goodwin Knight/Edmund G. Brown, Sr. Project)	
$64	Downey, Stephen W. (1876-1958) California Water and Power Attorney. 1957, 316 p.	Attorney

$54 Durbrow, William (1886-1958) — Manager, irrigation district
Irrigation District Leader. 1958, 213 p.

$39 Gianelli, William R. (b. 1919) — Civil engineer, Director of Department of Water Resources
The California State Department of Water Resources, 1967-1973. 1986, 86 p.

$84 Harding, Sidney T. (1883-1969) — Professor of Irrigation, UC Berkeley
A Life in Western Water Development. 1967, 524 p.

$70 Lambert, Charles F. (1887-1959) — Land promoter, irrigation district official
Sacramento Valley Irrigation and Land. 1957
376 p.

$40 Leedom, Sam R. (1896-1971) — Newspaperman, water project administrator
California Water Development, 1930-1955. 1967
83 p.

$69 Mason, J. Rupert (1886-1959) — Municipal bond broker specializing in irrigation district bonds
J. Rupert Mason on Single Tax, Irrigation Districts, and Municipal Bankruptcy. 1958, 372 p.

$42 Robie, Ronald (b. 1937) — Director of Department Water Resources
The California State Department of Water Resources, 1975-1983. 1989, 97 p.

$55 Save San Francisco Bay Association, 1961-1986
Interviews with:
Barry Bunshoft, Esther Gulick,
Catherine Kerr, Sylvia McLaughlin.
1987, 220 p.

$43 The San Francisco Bay Conservation and Development Commission, 1964-1973.
Interviews with:
Joseph E. Bodovitz, first executive director;
Melvin Lane, first chairman; E. Clement Shute, Jr., first legal counsel representing the attorney general. 1986, 98 p. (Ronald Reagan Era Project)

Taylor, Paul S. (1895-1984) — Professor of Economics, specialist in reclamation
California Social Scientist. (Three volumes)

$66 Volume I: Education, Field Research, and Family. 1973, 342 p.

$120 Volumes II and III: California Water and Agricultural Labor. 1975, 519 p.

See also related interviews with Herbert Jones, Louis Bartlett, and lists of interviews on Land-Use Planning and Sanitary Engineering in California.

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January 15, 1987

LAND-USE PLANNING

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$112	Lowdermilk, Walter Clay (1888-1974) Soil, Forest, and Water Conservation and Reclamation in China, Israel, Africa and The United States. 1969, 704 p. (Two volumes)	Forester, Soil Conservation Service; Resources Management Consultant
$ 92	Packard, Walter E. (1884-1966) Land and Power Development in California, Greece, and Latin America. 1970, 603 p.	Consulting agricultural engineer
	Taylor, Paul S. (1895-1984) California Social Scientist. (Three volumes)	Professor of Economics, specialist in migrant labor, reclamation legislation, administration
$ 66	Volume I: Education, Field Research, and Family. 1973, 342 p.	
$120	Volumes II and III: California Water and Agricultural Labor. 1975, 519 p.	
$ 60	Tooker, John S. (1934-) "Director of the Office of Planning and Research, and Legislative Assistant, 1967-1974," in The Governor's Office and Public Information, Education, and Planning, 1967-1974. 1984, 80 p. (Ronald Reagan Era Project)	Director, Office of Planning and Research; Legislative Assistant
$ 55	Save San Francisco Bay Association, 1961-1986. Interviews with Barry Bunshoft, Esther Gulick, Catherine Kerr, Sylvia McLaughlin. 1987, 220 p.	
$ 43	The San Francisco Bay Conservation and Development Commission, 1964-1973. Interviews with Joseph E. Bodovitz, first executive director; Melvin Lane, first chairman; E. Clement Shute, Jr., first legal counsel representing the attorney general. 1986, 98 p. (Ronald Reagan Era Project)	
$190	Statewide and Regional Land-Use Planning in California, 1950-1980. Interviews with Francis Lindsay, Samuel Wood, Richard Carpenter, William R. MacDougall, Alfred E. Heller, T.J. Kent, Jr., Victor Jones, Stanley Scott, John T. Knox, Bill Press, Paul H. Sedway, Ilene Weinreb. 1983, 1273 p. (In three volumes)	

See also lists on Water Resources; Agriculture; Sierra Club; Forestry, Parks and Conservation; The Patterson Family and Ranch: Southern Alameda County in Transition.

Taylor interview

Biblio: Add B.C.
Oral Hist.!

Vol. I, p. 362

Downey cuts Boke off payroll for 7 mos. 1949/48.
(Vol. II, p. 193, Boke stood firm on 160 ac. limit; Wayne & Straus waffled.)
✓ David Seckler (ed.) Cal. Wtr U C Pr. '71.

Vol. II, p. 137

Dave Seckler took on wtr. issue, failed of tenure.
(cf. Phil LeVeen).

p. 140 It took 160 a. wtr. issue to bring out land monop. issue.

~~Back to p. 158~~

p. 161 As You Sow, all refs. to BAE sponsorship are deleted.

p. 216 Grace McDonald, Sta. Clara Valley CDC, a "Henry Georger." Opposed Downey '44; supported Engle vs. Odegard, '50, to get extension to Sta. Cl. Valley.

p. 255 Cites Polly Roberts' 1971 summary of Nader Rpt. "Power & Land in Calif."

Vol. III, 264-65. Dismisses me as "a single tracer."

R. Kirkendall, Soc. Scientists & Farm Politics in the Age of Roos. Col: U Mo Pr., 1966. 223–25.

Arv.-Rin. study "contrib... to the A in demands that restrictions be placed on it (BAE),..."
Fulton Lewis, Jr., & B. Sokolsky joined the pack.

CAT->

Sid Berger

Search request: F SU TAYLOR, PAUL
Search result: 13 records at Riverside
25 records at all libraries

Type HELP for other display options.

13.
Author: Taylor, Paul Schuster, 1895-
Title: Paul Schuster Taylor, California social scientist : an interview / conducted by Suzanne B. Riess ; with an introd. by Laurence I. Hewes, Jr. [Berkeley] : Bancroft Library, University of California/Berkeley, Regional Oral History Office, Earl Warren Oral History Project, c1973-c1975.
Description: 3 v. : ill. ; 29 cm.

Notes: Reproduction of typescript, with additions in ms.
Some illustrative matter consists of mounted photographs.
Includes indexes.
Vols. 2-3: Interview conducted by M. Chall.
Contents: v. 1. Education, field research, and family.--v. 2-3. California water and agricultural labor.
(Record 13 continues on the next screen.)
Press RETURN to see next screen. Type PS to see previous screen.
CAT->
Search request: F SU TAYLOR, PAUL
Search result: 13 records at Riverside
25 records at all libraries

Type HELP for other display options.

13. (continued)

Subjects: Taylor, Paul Schuster, 1895-
Social scientists -- California -- Correspondence, reminiscences, etc.

Other entries: Riess, Suzanne B.
Chall, Malca.
Earl Warren Oral History Project (Bancroft Library)

Call numbers: UCR Rivera H59.T38 A35 1973 Spec Coll

There are no more records to display. Type PS to see previous screen.
CAT->

Paul S. Taylor, Vol II

Taylor: Don't you realize that you are dealing with a subject in which the pressures are enormous?

Chall: A foundation, generally speaking, is supposed to be above and beyond these pressures.

Taylor: That was always the assumption of what was desirable and to a high degree was the fact. [Laughs]

Chall: In what way did Walter Packard inform you about the 160-acre limitation?

Taylor: I have already explained that, to my surprise, acreage limitation is the law. Even more important than so advising me, Walter Packard went to Secretary of the Interior Harold L. Ickes and so advised him. Apparently that was in 1941 while exemptions for the Truckee and Humbolt projects in Nevada were progressing through Congress with help from Ickes' aides, and unbeknown to Ickes until Packard informed him of what was going on.* That is how Secretary of the Interior Ickes became prepared to support acreage limitation against attack in 1944.

The Bureau of Agricultural Economics: Central Valley Project Studies

Chall: If I am right, the Bureau of Agricultural Economics was asked to determine, among other questions, whether acreage limitation should apply to the Central Valley Project, and they were assigned this task by the Bureau of Reclamation.

Taylor: Yes, by a transfer of funds. The BAE was serving the Bureau of Reclamation, but as a team of the BAE; that is correct. They made a series of studies with respect to size of farm in the area that was to served by the Central Valley Project, both the size existing and the adequacy of 160-acres. They published the results in mimeograph form and I believe you have them.

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*See P.S. Taylor, "Excess Land Law: Legislative Erosion of Public Policy." 30 Rocky Mt. Law Rev. 1 (1958).

Chall: Yes. I have seen a few in your carton in The Bancroft Library.*

Taylor: Then they worked on the Central Valley Project Study Number 19. Do you want to talk about that now? Because chronologically that is dated September, 1944.

Chall: All right. I had been puzzled about the reason why Marion Clawson of the BAE was the director when the Bureau of Reclamation was responsible for that series of studies.

Taylor: They were responsible but they found professional competence in the BAE.

Chall: Was this BAE staff transferred from Washington, D.C. to Berkeley?

Taylor: No. The BAE had already established a regional office here. Presumably that was to bring it closer to the ground problems of the country, to the variations in problems in different parts of the country. And remember that was done, I believe, under bureau director Howard Tolley, who had been director of the Giannini Foundation on the Berkeley campus. In my judgment that regionalization was an excellent move, taking the BAE out of the sterilized atmosphere of Washington and putting the staff in touch with the problems of people in rural society, right on the ground.

Chall: Were these people like Clawson and [Mary] Montgomery and [Edwin] Wilson local or did they move out here from the East or Midwest?

Taylor: Clawson was a Nevadan, a Harvard doctorate. Edwin Wilson, I don't recall his professional or personal pedigree. There were also J. Karl Lee, Cruz Venstrom, and then Mary Montgomery.

Chall: So they were assigned, probably, from Washington?

Taylor: They were assigned from Washington to do the work of the BAE out here, assigned to it by the Bureau of Reclamation. The Bureau of Reclamation financed it and gave them, I believe, complete freedom. The Bureau of Reclamation didn't have the professional competence on its own staff. The BAE staff did fine work. Their projects were good and they told it like it was.

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*See also: Mary Montgomery and Marion Clawson, "History of Legislation and Policy Formation of the Central Valley Project," (Berkeley: United States Department of Agriculture, Bureau of Agricultural Economics, 1946).

Chall: Did you have much contact with this group of the BAE as consultant for the power division?

Taylor: I had personal relationships with them; we talked about the problems. I did not work with them professionally. But I was on good terms with them personally and I believe that my views with respect to acreage limitations were very close to their own.

Problem 19: Acreage Limitation in the Central Valley

Chall: Now Problem 19--that laid the groundwork for the controversies that are still with us.

Taylor: That's right. That laid the groundwork for an understanding of that issue. You must realize that the acreage limitation issue was kept under wraps. I don't think that is too strong a term. It was well known by the large landowners that this was a part of the law. They wanted to escape it in one way or another. It had received, so far as I know, no publicity whatsoever initially. In the early forties I believe they did go to the legislative reference service of the state and from an attorney there got an opinion which I am sure they did not like, saying that the acreage limitation law did in fact apply to the federal Central Valley Project.

The question came to a focus when Harlan Barrows of the University of Chicago geography department, working with William E. Warne of the Bureau of Reclamation, set up about twenty-five separate studies. One of them, Problem 19, was to be devoted to study of the acreage limitation. Most of the others, or at least a large number of the others, reached the stage of print. This one never got beyond mimeograph. There was no agreement on the issue. There was sharp division of opinion; study of the problem fell apart because of the division of interest and of feeling. That doesn't mean that the study, although only mimeographed, is not valuable. It was very valuable.

If you want to follow through on the BAE, Clawson had charge of putting the material together for that study. In 1946 Mary Montgomery and Marion Clawson came out with their History of Legislation and Policy Formation of the Central Valley Project Studies. That was produced in multilith form, again by the BAE. But that study also never reached print.

MEETING OF PROBLEM 19 COMMITTEE
Central Valley Project Studies
Berkeley, California
March 10, 1943

Problem 19

What modification, if any, of the existing statutory limit to the size of land holdings that can receive water from irrigation works constructed by the Bureau of Reclamation should be recommended with respect to the Central Valley Project?

Attendance

Name	Agency	Address
Walter E. Packard	Calif. Housing & Planning Ass'n.	Berkeley, Calif.
Henry Holsinger	Water Project Authority	Sacramento, Cal.
Ralph Wortheimer	Bureau of Agric. Economics	Berkeley, Calif.
W. W. McLaughlin	Soil Conservation Service	Berkeley, Calif.
W. U. Fuhriman	Bureau of Agric. Economics	Berkeley, Calif.
Lyman Lantz	Calif. Dept. of Agriculture	Sacramento, Cal.
J. J. Deuel	Calif. Farm Bureau Federation	Berkeley, Calif.
Dave Davidson	U.S.D.A. War Board	Berkeley, Calif.
Randoll Calhoun	Bureau of Agric. Economics	Berkeley, Calif.
Gordon Fuller	Bureau of Agric. Economics	Berkeley, Calif.
R. L. Adams	Univ. of Calif. - Agric.	Berkeley, Calif.
Charles O. Busick	Calif. State Planning Board	Sacramento, Cal.
Louis Bartlett	Calif. Housing & Planning Ass'n.	Berkeley, Calif.
Harlan H. Barrows	University of Chicago	Chicago, Ill.
Marion Clawson	Bureau of Agric. Economics	Berkeley, Calif.
Walter R. Goldschmidt	Bureau of Agric. Economics	Berkeley, Calif.
George W. Howson	Bureau of Reclamation	Sacramento, Cal.

Morning Session

The meeting was opened with a discussion by Professor Barrows of the function of the Central Valley Project Studies. Professor Barrows pointed out that the studies were well under way, for 19 committees have initiated activity and 5 will submit preliminary reports by the end of March. Of the criticism leveled at the studies he wished to answer only that one which accused the studies of being of his own making. For, he pointed out, the problems of the studies were not raised by any one person since they are inherent in the Central Valley Project itself. Mr. Barrows then presented answers to those questions which he had been most frequently asked.

Taylor: Not long after that the personnel of the regional offices of the BAE began to shrink. I have no documentation for what I am about to say. I have not heard it from anybody inside the BAE. But I remember thinking at the time, and I continue to think now, that there were pressures upon Washington to keep these BAE people out of regional political issues. It was too hot and the pressures too great.

I believe there were changes in personnel in the Department of Agriculture in the higher echelons unsympathetic to the position on acreage limitation taken by Clawson and the other members of his staff. They were under the influence I believe of the large landowners and I believe that the regional offices were shrunk for the reason that I've described--it got into hot political questions. Of course they were doing an excellent service in getting into those questions, in my opinion.

Chall: At that time, did Clawson leave the area, did he leave the BAE? In '46 or '47?

Taylor: I believe he went to the BAE, Washington, didn't he?

Chall: Well, I don't know.

Taylor: Wait a minute, it is coming back to me. The Bureau of Reclamation of the Department of the Interior liked his work. He wanted some administrative experience and the position of director of the Bureau of Land Management became open, and Interior nominated him. Because of Clawson's work in support of the acreage limitation law, both his support in the studies that he made and in the testimony that he gave as a government official before congressional committees in 1944, when his name was presented to the U.S. Civil Service Commission, Senator Sheridan Downey, I was told, went to Madame [Frances] Perkins (who had then moved from secretary of labor to the chairmanship of the Civil Service Commission) and tried to keep Clawson from getting the job of director of the Bureau of Land Management. But Downey was unsuccessful. Clawson became the director and he remained there for several years, until he went with Resources for the Future. You see that at every point there were pressures on this issue.

Chall: I was interested to read in Walter Packard's oral history a little story that he told about the cooperation of the staff of the Bureau of Agricultural Economics and you on trying to head off the allocation of money to build Friant-Kern canal during

Chall: the war.*

Taylor: Oh, yes. I'd forgotten about that!

Chall: It was presumably important for agriculture during the war.

Taylor: They were using the war as an excuse, world food, but the main crops to be grown were not in short supply and the dam was unlikely to be completed during the war anyway.

Chall: Well, if there was that close an association between people who were politically interested in obtaining a 160-acre limitation and staff members who may have had sympathy with them, one could see why the opposition would take affront and try to whittle them down to size.

The committee that was studying Problem 19 on the acreage limitation was made up of people who basically were on opposite sides of the question--Walter Packard, and Gilbert Jertberg, and Louis Bartlett and Ray Wiser. I was interested to see Lewis Mumford's name among them. Do you know how he got to be there?

Taylor: No, I don't know and have no recollection of that. Although of course I have met Lewis Mumford.

Chall: I think he was at Stanford at the time. Some of the people were members of a group called California Housing and Planning Association. Do you know what that group was?

Taylor: I've forgotten in detail the persons involved.** But I know the kind of people. They were citizens who were becoming concerned over the issue when they heard about it. I think it was already in existence and then turned its attention to this.

Chall: I see. Now a large number of the people refused to sign the report; this is the reason why it never was printed. But I was

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*Packard, Walter E., "Land and Power Development in California, Greece, and Latin America," Regional Oral History Office, The Bancroft Library, University of California, Berkeley, 1970, pp. 369-374.

**Perhaps it was the California affiliate of the National Association of Housing Officials, of which Hugh Pomeroy was western representative. La Follette Committee hearings, part 62, page 22541ff.

Taylor: Yes, but the big ranchers get the power. The bigger the user, the cheaper the power per unit. So they work together.

The Downey Bill: S 912 - 1947

Chall: Well, now, let's talk about S 912. This is generally known as the Downey bill and its intent was to repeal the 160-acre limitation in Texas, California, and Colorado.

Taylor: They got six senators onto it with projects in three states. Yes, in order to build up its strength. That's right.

Chall: So you had two senators in this state who were strongly opposed to the 160-acre limitation.

Taylor: We faced not only two California senators in an 80th Republican Congress, but four other senators as their allies from states that had no background of information on the meaning of the acreage limitation issue. By coincidence a Berkeley friend showed me an article in, I believe, The New Republic by a man who was with the Texas Observer. The article showed that he was sympathetic to the kind of position that the acreage limitation represented, but that he was uninformed about it. His name is Hart Stillwell, I believe. So I took steps to advise him, as a result of which Texans appeared at that S 912 hearing and said in the face of their own senators, "We don't want an exemption in Texas."

You see how enormously important it is that people shall know what is being done in Congress. Otherwise the wool is pulled over their eyes and they never know what has been done to them until it is too late. That's the way a large part of government business is done by special interests in the presence of an ill-informed public.

Chall: Now was the battle on S 912 pretty much the same as it had been on the Elliott rider, the issue was the same?

Taylor: Yes, the issue was the same.

Chall: The people were the same, except for the addition of the Texans and the Coloradans?

TAYLOR, Paul Schuster (b. 1895) Professor of Economics, Emeritus

California Social Scientist

Volume I: Education, Field Research, and Family 1973; x, 342 p.

Childhood in the Middle West; contact with the LaFollettes; influences of family, University of Wisconsin, and World War I; graduate studies, UC; working for state relief administration with photographer Dorothea Lange; UC economics department, curriculum and chairmanship; comments on working within the system on the California water problem and Mexican immigration; travels for AID, work abroad; life with Dorothea Lange Taylor and extensive reflections on her method of work. Appendix A: "Migrant Mother: 1936," on DLT's work. Appendix B: "The Assignment I'll Never Forget," by DLT. Appendix C: An account of siege during WWI by PST. Introduction by Laurence I. Hewes, Jr., Visiting Fellow, Center for the Study of Democratic Institutions, Santa Barbara.

Interviewer: Suzanne Riess Cost: $40.00

Volumes II and III: California Water and Agricultural Labor 1975; xiii, 519 p.

Labor strife in the cotton fields, labor leaders, farmer reaction; migrant labor studies, housing, exemptions from Social Security Act; studies of Mexican immigration, 1920-1950; the 160-acre limitation issues: Central Valley Project studies; congressional battles, 1944-1968; attitudes toward enforcement and administration during presidential terms from Franklin Roosevelt through Richard Nixon, and California governors Earl Warren, Edmund G. Brown, Sr., and Ronald Reagan; complexities of the California Water Plan; law suits; Paul Taylor's research, writing, consultation, and testimony before federal and state legislative committees; participation in Democratic party and Commonwealth Club. Travels for AID and UN to developing countries in Asia, Middle East, and Latin America on land, water, and population problems. Reflections on values of small farms and rural communities, the importance of political action, the relationships between law, politics, and administration in the United States and abroad. Appendix: "Paul Taylor, The Power of a Tenacious Man" by Mary Ellen Leary, The Nation, 12 October 1974; Paul Taylor bibliography; "Bibliography on the 160-Acre Anti-monopoly Water Law" compiled by Charles L. Smith, January 1974. Introductions by Paul W. Gates, Professor of History, Cornell University and George M. Foster, Professor of Anthropology, University of California at Berkeley.

Interviewer: Malca Chall Cost: $64.00

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October 1975

PAUL SCHUSTER TAYLOR ORAL HISTORY MEMOIR COMPLETED

Five years in the process, the three-volume oral history memoir with Paul Schuster Taylor, emeritus professor of economics at the University of California at Berkeley, has been completed by the Regional Oral History Office of The Bancroft Library as part of its continuing effort to tape record autobiographical interviews with persons who have contributed significantly to the development of the West.

Paul Taylor, best known for his championing of the 160-acre limitation provisions of the Federal reclamation law, his studies of migrant labor, and his collaboration with his wife, documentary photographer Dorothea Lange, has had a broad career as a teacher, administrator, writer, and consultant at home and abroad.

All facets of his career have been carefully documented in this tape-recorded account of his life. It begins with his family background and education in Iowa and Wisconsin and continues through his fifty-six years in Berkeley where he arrived as a graduate student in 1920 and stayed to become a professor, carrying on administrative functions, extensive research, field studies, writing, and consultation, the latter both in the United States and abroad.

Through the memoir a link develops between Professor Taylor's immense output of research and publication, and his personal accounts of participation and observation of many decisive legislative, administrative, judicial, and political controversies which have long swirled around the issues concerned with the welfare of the migrant field laborer and compliance with the 160-acre law. Illuminating details are added to his written reports following trips abroad to consider problems of land, water, and population problems in the developing countries of Asia, the Middle East, and Latin America.

The interview was financed jointly by the National Endowment for the Humanities as part of the Earl Warren Era in California Politics oral history project and by donations from Paul Taylor's friends and colleagues, an effort coordinated by Dr. and Mrs. Clark Kerr.

The three illustrated, indexed and bound manuscripts, California Social Scientist: Volume I, Education, Field Research, and Family; and Volumes II and III, California Water and Agricultural Labor, are open for research at The Bancroft Library, University of California at Berkeley, and the Department of Special Collections, University of California at Los Angeles. Copies are available to other depositories. For further information, address the Regional Oral History Office, Room 486 Library, University of California, Berkeley, California 94720.

MWD official wants to give more water to farmers

30 March 91 A-4

By Sharilyn Bankole
The Press-Enterprise

After a two-day tour of drought-stricken farmland in Riverside, Orange and San Diego counties, Metropolitan Water District Chairwoman Lois B. Krieger said she wants to make more water available to farmers.

"I can't help but feel that they're making a 100 percent effort, but there is a snag; it is that agriculture has received interruptible service from MWD," Krieger said yesterday. "That has to change."

Currently, MWD, Southern California's major water wholesaler, operates under legislation that designates agricultural water as "interruptible" or secondary to residential or industrial use.

Agriculture — which represents 8 percent of MWD's water — has endured more severe rationing measures as water supplies dry up.

"It is silly to think that agriculture is somehow a disposable industry and others are not," said Krieger.

Last month, MWD, which supplies water to Western and Eastern municipal water districts in Riverside County, moved to the sixth stage of a water conservation plan.

Under the plan, beginning May 1, agriculture water supplies were to be cut back by 90 percent and residential, industrial to 30 percent of last year's level. The past two weeks of rain, however, has prompted MWD officials to call a meeting to reconsider the step — the harshest cutbacks in its history.

This week, the Riverside, Orange and San Diego County Farm Bureaus took Krieger and 17 other board members on a tour aimed at showing them that agriculture is a large and important part of Southern California and that

Please see **WATER, A-6**

WATER

Continued from **A-4**

farmers aren't wasting water.

While Krieger would not indicate whether she will advocate rescinding the board's vote to increase cuts, she did say she would push for changing legislation governing MWD's mission.

Krieger thinks MWD's primary purpose should be to provide water for "all beneficiary uses" which would include agriculture.

A few weeks ago, amid forecasts of dwindling water supplies, Riverside grower Gary Weaver was wrestling with which thirsty acres to irrigate and which to let go dry.

But now, with the immediacy of the drought assuaged by more than 13 inches of rain over the past two weeks, Weaver, part owner of McMillan Farm Management Company, is not making any decisions.

Non print

Huge Costs, Decades of Work Seen in Job of Purifying Water

By MIKE WARD, *Times Staff Writer*

Purifying contaminated ground water in the San Gabriel Valley will cost hundreds of millions of dollars and require decades of work, preliminary estimates by the federal Environmental Protection Agency indicate.

Paula Bisson, section chief at the regional EPA office in San Francisco, said the cost is so high that it is not clear how the project can be financed, even though the contamination problem is on both the federal and state Superfund clean-up lists.

About 70 of the 400 wells in the main San Gabriel basin are contaminated with industrial solvents, such as trichloroethylene. The 46 private companies and public agencies that pump water from the basin, serving nearly 1 million customers, have closed the contaminated wells or are blending the water with other supplies to meet state and federal requirements.

Effect on Consumers

San Gabriel Valley residents are not in danger of receiving unsafe water, but they may face higher water rates because of the ground water contamination, said Robert Berlien, manager of the Upper San Gabriel Valley Municipal Water District. As more ground water becomes contaminated, he said, utilities will have to turn to more expensive imported water or build costly treatment systems.

Neil Ziemba, who directs the EPA project in the San Gabriel Valley, told a meeting of water producers that after years of study, complete cleanup of the basin seems beyond reach.

It would take up to $51 million and seven to 10 years to devise a full cleanup plan and another $217 million to $800 million to carry out the work, an EPA study said.

"In any kind of time frame that we could contemplate, say 50 years or so, you are not going to clean up the basin to the point where you are going to operate wells without having to treat [the water]," Ziemba said. The most that could be hoped for, he said, is to keep the contamination from spreading.

Questions Remain

EPA officials have not said how much they would be willing to spend or what steps they will take if funds to pay for the cleanup cannot be raised.

The EPA has identified four major plumes of contaminated water underlying parts of Alhambra, El Monte, La Puente, Baldwin Park, Azusa, the City of Industry and Irwindale and also has found contaminants in the Whittier Narrows area. The Whittier Narrows contamination is especially worrisome, Ziemba said, because ground water from the San Gabriel Valley flows through there to other water basins stretching south to the coast.

Ziemba said that instead of trying to clean up all the ground water in the San Gabriel Valley, an alternative would stop the spread of contaminants at Whittier Narrows and purify San Gabriel Valley water as it is drawn at wells for delivery to customers.

Bisson said it would take $3 million to $5 million to plan treatment systems for up to 150 San Gabriel Valley wells and from $185 million to $270 million to install the equipment and operate it for 50 years. The exact means of treatment would be determined in the planning process.

Bisson said it would take three to six years and $5 million to $18 million to prepare a plan to stop contaminants from passing under Whittier Narrows. The cost of carrying out the plan over 50 years would be $160 million to $340 million, she said.

In addition to these measures, Bisson said another proposal would attempt to keep the San Gabriel Valley's four plumes of contaminated ground water in place, limiting the problem to wells that are already bad. She said it would cost $14 million to $32 million to develop a plan and from $215 million to $678 million to carry it out.

Bisson said that when EPA officials began analyzing the costs, it became obvious that decisions must be made about cleanup alternatives and how to pay for the work. The Superfund authorization bill signed by President Reagan in 1986 provides $8.5 billion in cleanup funds nationwide over five years, and many projects compete for that money.

Bisson said EPA normally pays all the study costs and 90% of the capital costs for its Superfund projects. In addition, she said, on projects that restore ground water, EPA pays 90% of the operational costs of cleanup for up to 10 years.

Fund Outlook Clouded

At this point, Bisson said, EPA cannot guarantee that it will have the money to pay for its customary share on the San Gabriel Valley project. And, she said, state and local officials are being asked to begin thinking about how they could help finance the work.

EPA outlined the funding problems to top officials of state agencies last month. Robert Ghirelli, executive officer of the Regional Water Quality Control Board in Los Angeles, said no consensus emerged from the meeting, but a new funding mechanism must be found, perhaps through state legislation, a bond issue or a surcharge on water rates.

Until now, Ghirelli said, water utilities in the San Gabriel Valley have been able "to dance around the pollution problem" by closing contaminated wells and drawing water from their other wells, which are clean. But if the contamination is allowed to spread unchecked, he said, more wells could be affected, and severe water supply problems could develop.

Assemblywoman Sally Tanner (D-El Monte) said she will resist any effort to force residents of the San Gabriel Valley to pay for the cleanup themselves. She said the point of getting the contamination on the federal and state Superfund lists was to have the state and federal governments pay for the work. "I don't see how it can be a local responsibility," she said.

Bisson said some of the cleanup cost could be charged to polluters who caused the ground water contamination. But, she said, tracing sources of contamination, some of which may have occurred decades ago, is difficult.

WATER WORKNOTES

1922, 1924, power companies overwhelmed campaigns for state water and power development. Sinclair, I, Gov, p.43.

Mutual Water Cos. are not true Coops, because voting is not per member but per share, i.e. per acre. The only protection for the small member is state law, there is a duty to serve. If the trustee concept were to break down, small members would be helpless.

KRWA Board has one member from each member agency, regardless of "size." Fresno I.D. has only one member. Sounds like MWD! - KRWA, 1950, p.6. Then there is an XCom of 6: one @ from Fresno, Alta and Consolidated; other three from "lower river agencies." P.27 says XCom members are apptd by full Board.

KRWA claims to own the power drop at Pine Flat and elsewhere. p.11, KRWA, 1950.

KRWA p.15. Efforts to integrate are "... a careful, fully conscious and deliberately planned attempt to bring about in the U.S. the same kind of collectivization they have in Russia."
p.19, "... Fascism is exactly what we will get."

What about USBR customers who have been breaking the excess land law? Shall they, too, have a salable vested interest in waters received this way?

Bringing water to dry land is more than an ordinary unearned increment, like extending a highway. It adds the ownership of water to the ownership of land, and in proportion to the land previously owned. Water is finite, and scarcer than land surface. The water now may be sold separately

Taylor, 1949. P.249, re voting in KRWA.

Taylor, 1955, p.478. Big landowners allege they have "a moral claim to water in proportion to their landholdings, ... and to defeat ... equitable distribution of water among individuals."

Taylor, 1957. p.83. Cal SC covered unapprop waters with a property right based on landownership, an approp right modeled on riparian law.

same, p.79. Cal Constn nowhere says State hold water as trustee for the benefit of landowners or, indeed, for anyone.
So delete that from MS!

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August 1991

WATER RESEARCH FACULTY AND RESEARCH SCIENTISTS

DEPARTMENT CHAIRS, DEANS AND DIRECTORS
OF WATER RESOURCES RELATED UNITS

RE: Annual CALL for Research Project Suggestions/Due **October 4, 1991**

The Systemwide Water Resources Center is charged with developing, coordinating and funding University conducted water-related research programs and with disseminating research results. The Center does not conduct research directly, but is organized to rely upon the existing departmental and degree granting structures throughout the various campuses of the University of California and various state and private universities within California.

State funds, supplemented by federal funds, underwrite the Center's research program, technology transfer program and water resources library collection. The Center's source for federal funds is the Water Resources Institute Program, presently administered by the Geological Survey of the U.S. Department of the Interior.

The PROJECT SUGGESTION SHEET (Attachment I) is used as a preliminary basis for evaluating possible research projects. Please note the timetable for submissions included in Attachment II. The Suggestion Sheet is due prior to **October 4, 1991.**

The Guidelines for Preparation of Project Suggestion Sheets (Attachment II) defines the scope of water-related problems which fall within the Center's purview. The Project Suggestion Sheet includes space to define the problem to be addressed by the proposed research, summarize the objectives of the study, briefly describe the research approach and methods to be used, and state who will use the findings. The Suggestion Sheet will provide sufficient information to evaluate the potential research project's relevance to the Center's program without putting the principal investigator to the task of preparing a lengthy proposal until the Suggestion has been reviewed. It will also enable us to provide feedback concerning how the full proposal might be made more relevant to the Center's program. Please limit your Suggestion to one page--only one page will be submitted for review. An investigator may submit no more than three Suggestions.

The project Suggestion Sheet is informal; therefore, it will not be necessary to route it through campus administrative channels. Simply MAIL ONE COPY DIRECTLY TO THE WATER RESOURCES CENTER. If you have questions about your Suggestion or the procedures to follow, please call before getting underway. To be included in the Suggestion Sheet review process, Project Suggestions should be submitted by October 4, 1991. FAX submissions will be accepted [FAX (714) 787-5295]. Please mail the original.

In recent years, more than a third of the Project Suggestions have ultimately been developed into full proposals. The Center typically funds about 40% of the proposals.

If you have questions concerning any aspect of our program, please phone (714) 787-4327. The Director's Office is located in Rubidoux Hall, University of California, Riverside, California 92521.

Please assist us in disseminating our CALL by passing this to any new faculty in your department who may not have received it.

Sincerely yours,

Henry J. Vaux, Jr.
Director

HJV:mdh

Attachments:
I. Project Suggestion Sheet
II. Guidelines for Preparation of Project Suggestion Sheets
III. Water Research Areas of Interest
IV. List of Projects and Principal Investigators

ATTACHMENT I

PROJECT SUGGESTION SHEET
(Must be limited to one page)

Suggestion No. P-_____
WRC Category _____
WRC Use

DUE DATE: OCTOBER 4, 1991

TITLE:

Proposed
Project Duration (years) _____
First Year Cost $_____
Total Cost $_____

RUNNING TITLE (Limit to 35 characters):

PRINCIPAL INVESTIGATOR(S) (Name, Title, Department, Campus, Tel. No.)

IN THE SPACE BELOW PLEASE IDENTIFY, BY NUMBER, YOUR RESPONSE TO EACH QUESTION: 1) DEFINE THE PROBLEM TO BE SOLVED IN SIMPLE AND CONCISE TERMS; 2) STATE THE SPECIFIC OBJECTIVES OF THE PROPOSED STUDY; AND, 3) DESCRIBE THE RESEARCH APPROACH AND METHODS TO BE USED.

WHO WILL UTILIZE THE FINDINGS?

STUDENT TRAINING OPPORTUNITIES

LIST OTHER EXPECTED SOURCES OF FUNDING

MAIL ORIGINAL DIRECTLY TO THE WATER RESOURCES CENTER, RIVERSIDE

ATTACHMENT II

OFFICE OF THE DIRECTOR

WATER RESOURCES CENTER

UNIVERSITY OF CALIFORNIA
RIVERSIDE, CALIFORNIA 92521
(714) 787-4327

August 1991

GUIDELINES FOR PREPARATION OF PROJECT SUGGESTION SHEETS

1. Project Suggestion Sheets -- Due **October 4, 1991**

2. Full Project Proposals -- Due **FEBRUARY 7, 1992**
   (Preparation instructions will be provided separately)

Research projects supported by the Water Resources Center emphasize water and its uses. Projects focusing primarily and directly on water receive the highest priority while projects focusing primarily on subjects relating to water, but in which water is secondary, receive lower priority.

The scope of research activities supported by the Center includes all aspects of the hydrologic cycle with emphasis on fresh waters, inland saline waters and estuaries. Projects which focus primarily on oceanic waters will normally not be supported. Research should focus on the water problems of California and contiguous areas although it need not be restricted to these areas. Federally funded projects should emphasize results which have regional or national applicability.

Although the Water Resources Center does not take advocacy positions on public policy issues, research projects bearing directly on significant current policy issues are encouraged. The Center supports basic and applied projects which require a sustained research effort to address intermediate or long-term water issues and problems. By contrast, studies related to short-term operational problems or crisis-oriented issues will normally not be feasible to support within the time and funding constraints of the Center's research cycle.

The Center endeavors to support a portfolio of high quality research projects which:

1. are reasonably balanced between natural sciences and social sciences;

2. entail the support of graduate student research related to degree programs;

3. may lead to development of larger programs suitable for extramural funding by other agencies;

4. promote interdisciplinary and multidisciplinary efforts.

Attachment III lists areas of interest to various water agencies by water research category. This list is a guide and is not intended to limit the range of proposals. The Center welcomes any proposal which falls within the scope of the General Policy Guidelines cited above. Attachment IV is a list of the Center's current projects which may serve as a guide to the range of research which the Center supports.

Center sponsored projects average two years in duration with annual budgets between $10,000 and $20,000. These norms may be exceeded only when there is compelling justification. In no event will projects be supported for more than three years. Projects will not be supported at levels in excess of $30,000 annually with the exception of bona fide multidisciplinary projects which may be supported at no more than $35,000 annually.

Researchers at any California college or university (including those located at laboratories or research centers in California that are affiliated with a California college or university) are eligible to apply. At least one of the applicants must be designated as the principal investigator and must be qualified by his or her own institution to serve as such. Except in extraordinary cases, a principal investigator may receive no more than a single award from the Water Resources Center at any one time.

Projects which entail the use of professional or full time staff and/or the purchase of expensive or excessive equipment require special justification and are discouraged.

The research review schedule for projects to be funded in fiscal year 1992 is as follows:

> Project Suggestion Sheets received at the Center by the due date, **October 4, 1991,** will be reviewed during October and November by representatives of various water related governmental agencies and quasi-public organizations, the Center's Advisory Council and Coordinating Board and the Director's Office staff. The external review focuses primarily on current or anticipated needs for information related to policy level decision-making and water management requirements.
>
> In December 1991, we will provide feedback on the Project Suggestions with instructions for full proposal preparation. Completed proposals will be due by **FEBRUARY 7, 1992.** Final approval of projects and the allocation of funds is made by the Center's faculty Coordinating Board after a thorough peer review. We should be able to inform you by late **MAY 1992,** if your project has been approved for funding contingent upon anticipated federal or state budget actions. The project commencement date is subject to budget appropriation actions, but the target date is July 1.

Approved proposals will be selected for funding from state appropriations for water research or federal funds provided by the Water Resources Research Act. **Projects selected for funding from universities outside the University of California system must be supported with federal funds.**

Projects selected and approved by the Coordinating Board for support with federal funds will be included in the Water Resources Research Institute Program (WRIP) package for California. The WRIP is subject to approval by the U.S. Department of the Interior. This approval is dependent upon compliance with federal regulations and the appropriation of federal funds.

For federally funded projects, COST SHARING, either in the form of "hard money" or "in kind" cost sharing is required. Allocation of Federal Institute Program funds toward indirect overhead costs is not permitted, but such costs may be used as matching funds to meet the cost sharing requirement. Information regarding other funds available (or in prospect) to support the project should be mentioned.

Federally funded projects require a strong national or regional policy component in terms of basic informational needs or policy inputs for governmental decision-making. These projects may be multi-year, but do require a reportable element at the conclusion of each year of research.

In the development of your suggestion, it would be helpful to review current research listed in the most recent Selected Water Resources Abstracts of the U.S. Department of the Interior. They are available at your campus libraries and at the Center's Archives collection [Berkeley (415) 642-2666].

If you have any questions relative to submissions for Water Resources funding, please call at any time to discuss your ideas [Riverside (714) 787-4327].

Only two on public policy: both safe.

ATTACHMENT IV

WATER RESOURCES CENTER SPONSORED PROJECT PORTFOLIO - 1991-92

W - 739 PI(S): Erman TERM: 89-92
DEPARTMENT: Forestry & Resource Management CAMPUS: UCB
TITLE: The Response of Stream Organisms and Habitat Structure to Long-term Stream Diversion

W - 740 PI(S): Chang TERM: 89-92
DEPARTMENT: Nutritional Sciences CAMPUS: UCB
TITLE: Novel Alternatives to Coliform Tests in Water Microbial Quality Assessment

W - 741 PI(S): Pittenger/Hodel TERM: 89-92
DEPARTMENT: Botany & Plant Sci./Coop. Ext. CAMPUS: UCR
TITLE: Determination of Minimum Irrigation of Non-turf Ground Covers in the Landscape

W - 750 PI(S): Kavvas/Rolston TERM: 89-92
DEPARTMENT: Civil Engineering/LAWR CAMPUS: UCD
TITLE: Solution Methodology and Validation of Physics-based Stochastic Subsurface

W - 752 PI(S): Dozier/Loaiciga TERM: 89-92
DEPARTMENT: Ctr. for Remote Sensing CAMPUS: UCSB
TITLE: Hydrologic Study of Snowmelt and Runoff in Emerald Lake Watershed, Sierra Nevada

W - 754 PI(S): Orlob TERM: 90-92
DEPARTMENT: Civil Engineering CAMPUS: UCD
TITLE: Impacts of Global Warming on the Quality of Surface Waters

✓

W - 755 PI(S): Hanemann TERM: 90-92
DEPARTMENT: Agricultural & Resource Econ. CAMPUS: UCB
TITLE: The Impact of Block Rate Pricing on Urban Water Use

W - 757 PI(S): Jury TERM: 90-92
DEPARTMENT: Soil and Environmental Sci. CAMPUS: UCR
TITLE: Assessing the Influence of Preferential Flow Mechanisms on the Transport of Pesticides through Unsaturated Soil

W - 758 PI(S): Bradley TERM: 90-92
DEPARTMENT: Ecology and Evolutionary Bio. CAMPUS: UCI
TITLE: Water Use Planning in the Mono Lake Basin: Optimum Salinity Conditions for Primary Benthic Productivity

W - 759 PI(S): Scow TERM: 90-92
DEPARTMENT: Land, Air and Water Resources CAMPUS: UCD
TITLE: Biodegradation of Sorbed Chemicals in Soil

W - 761 PI(S): Loaiciga/Marino TERM: 90-92
DEPARTMENT: Geography CAMPUS: UCSB
TITLE: Regional-scale Ground Water Quality Monitoring and Model Testing

W - 762 PI(S): Kelley TERM: 90-92
DEPARTMENT: History CAMPUS: UCSB
TITLE: A History of the Origin and Development of the Metropolitan Water District of Southern California, 1900-1990

W - 763 PI(S): King TERM: 90-92
DEPARTMENT: Civil Engineering CAMPUS: UCD
TITLE: Elements of Tidal Marsh Circulation

W - 764 PI(S): Moyle TERM: 90-92
DEPARTMENT: Wildlife and Fisheries Biology CAMPUS: UCD
TITLE: Effects of Temperature, Flow and Disturbance on Adult Spring-run Chinook Salmon

W - 765 PI(S): Botsford TERM: 90-92
DEPARTMENT: Wildlife and Fisheries Biology CAMPUS: UCD
TITLE: Population Dynamics and Extinction of Winter Run Chinook Salmon

W - 766 PI(S): Dracup TERM: 90-92
DEPARTMENT: Civil Engineering CAMPUS: UCLA
TITLE: Improved Methods of Assessing Effects of Climate Change on Hydrologic Systems using GCMs

W - 767 PI(S): Yeh TERM: 90-92
DEPARTMENT: Civil Engineering CAMPUS: UCLA
TITLE: Optimal Control and Investigation of Ground Water Quality Changes and Migration of Ground Water due to Conjunctive Use of Surface and Ground Water

W - 768 PI(S): Cayan TERM: 90-92
DEPARTMENT: Climate Research Division CAMPUS: UCSD
TITLE: Sierra Nevada Runoff Fluctuations

W - 769 PI(S): Rejmankova TERM: 90-93
DEPARTMENT: Botany CAMPUS: UCD
TITLE: Selection of Native Wetland Plants for Water Treatment of Urban Runoff

W - 771 PI(S): Oechel TERM: 90-93
DEPARTMENT: Biology CAMPUS: SDSU
TITLE: Effects of Global Climate Change and Increased Atmospheric CO2 on Water Use and Productivity of Mediterranean-type Ecosystems

W - 772 PI(S): Hurlbert TERM: 90-92
DEPARTMENT: Biology CAMPUS: SDSU
TITLE: Salinity Effects on the Plankton and Benthos of the Salton Sea

W - 773 PI(S): Brooks/Morgan TERM: 91-93
DEPARTMENT: Environmental & Civil Engr CAMPUS: CIT
TITLE: Physics and Chemistry of Pollutant Transport with Colloids in Ground Water Flow

W - 774 PI(S): Parlange TERM: 91-93
DEPARTMENT: Land, Air and Water Resources CAMPUS: UCD
TITLE: Land Surface Fluxes for Agricultural Water Resources

W - 775 PI(S): Bruvold TERM: 91-94
DEPARTMENT: Social & Admin Health Sci CAMPUS: UCB
TITLE: Extending the Model of Residential Water Conservation Nature and Scope

W - 776 PI(S): Olson/Knapp TERM: 91-93
DEPARTMENT: Soil & Environmental Sciences CAMPUS: UCR
TITLE: Economics of Ground Water Management with Uncertainty and Learning

W - 777 PI(S): Kabala TERM: 91-93
DEPARTMENT: Soil & Environmental Sciences CAMPUS: UCR
TITLE: Borehold Measurement of the Local Vertical Hydraulic Conductivity by a "Dipole-flow Test"

W - 778 PI(S): Waines TERM: 91-94
DEPARTMENT: Botany and Plant Sciences CAMPUS: UCR
TITLE: Water Use of Tall and Dwarf Crop Plants

W - 779 PI(S): Vilker TERM: 91-93
DEPARTMENT: Chemical Engineering CAMPUS: UCLA
TITLE: P-450 Monooxygenase Catalysis for Conversion of Trace Hydrocarbon Constituents

W - 780 PI(S): Anderson TERM: 91-92
DEPARTMENT: Soil & Environmental Sciences CAMPUS: UCR
TITLE: Monolayer Formation and Its Role in the Transport of Organic Contaminants within Ground Water Systems

W - 781 PI(S): Keller TERM: 91-93
DEPARTMENT: Environmental Studies Program CAMPUS: UCSB
TITLE: Hydrogeologic Response of Small Watersheds to Wildfire

W - 782 PI(S): Rubin TERM: 91-94
DEPARTMENT: Civil Engineering CAMPUS: UCB
TITLE: Geophysical Imaging for Contaminated Site Characterization

W - 783 PI(S): Shennan TERM: 91-94
DEPARTMENT: Vegetable Crops CAMPUS: UCD
TITLE: A Cropping Systems Approach to Improving Water Use Efficiency in Semi-arid Irrigated Production Areas

W - 784 PI(S): Jackson/Hartz TERM: 91-92
DEPARTMENT: Vegetable Crops CAMPUS: UCD
TITLE: An Innovative Method for Measurement of Water and Nitrate Dynamics in Vegetable Crop Systems

W - 785 PI(S): Hoffmann TERM: 91-92
DEPARTMENT: Developmental & Cell Biology CAMPUS: UCI
TITLE: Pollen Germination as a Bioassay for Water Quality: Toxicity of Pollutants and Cross Effects with Chloramines

W - WP-1 PI(S): Tanji TERM: 91-93
DEPARTMENT: Land, Air and Water Resources CAMPUS: UCD
TITLE: Modeling Saline Drainwater Reuse in Agroforestry Systems

W - WP-2 PI(S): Robinson TERM: 90-93
DEPARTMENT: Land, Air and Water Resources CAMPUS: UCD
TITLE: Alfalfa Water Stress Management Study

Water district answers charges of wrongdoing

B-3 3 Jan 92

By Barbara Metzler
The Press-Enterprise

LOS ANGELES

The Metropolitan Water District has released a five-page report answering allegations of impropriety leveled last month by state Assemblyman Richard Polanco.

The report responds to allegations by Polanco that the water district engaged in questionable lobbying practices; laundered money to the Riverside law firm Best, Best and Krieger; and attempted to improperly influence members of the San Diego County grand jury by taking them on a tour of state water projects.

"I believe that our responses explain away any possible suggestion of impropriety," wrote MWD General Manager Carl Boronkay in a report to board members.

Polanco, D-Los Angeles, had asked why MWD listed $180,000 paid to Best, Best and Krieger under the heading "equipment, supplies and incidentals." Polanco suggested this amounted to a hidden payment.

Boronkay blamed the allegation on a misunderstanding of accounting procedures. He said legal costs were billed to the account cited by Polanco because the law firm did not have a direct contract with MWD. While he denied any wrongdoing, he said the district was willing to change its accounting procedures to allay concerns.

Boronkay acknowledged in the report that "listing our portion of the expenses of the firm Best, Best & Krieger . . . under the category Equipment, Supplies and Incidentals, while proper is not very descriptive and that we would consider reporting such costs under an entry labeled Professional Services."

MWD Chairman Lois Krieger — whose late husband Jim was a senior partner in the Riverside law firm — had previously blamed Polanco's charge on a misinterpretation of financial data.

"I hope that he will be open to correcting his misinterpretation," she said at the time.

Polanco had also questioned whether Lois Krieger's connection with the water district and the law firm had resulted in "sweetheart deals" for Best, Best and Krieger. Lois Krieger and the firm denied the allegation, and said she had sold her interest 15 years ago.

In response to Polanco's other charges, Boronkay defended the San Diego grand jury trip as part of the agency's responsibility toward "educating people about the problems and needs associated with their water supply system."

Boronkay said lobbying funds are reported to the state Fair Political Practices Commission. The agency's lobbying expenses are audited by the state Board of Equalization, he wrote.

Polanco, who made his allegations at the MWD board's Dec. 10 meeting, was not satisfied with Boronkay's response, according to his Sacramento consultant, David Peters.

"They didn't answer any of the questions," Peters said.

Peters said he was drafting a bill that would require MWD's 51 board members to be elected by district beginning in 1994. The bill also addresses MWD's ability to levy property taxes and requires Public Utilities Commission review of certain rate hikes, Peter said.

WATER RESEARCH AREAS OF INTEREST

CATEGORY I: HYDROLOGY, CLIMATOLOGY AND HYDRAULICS

Description: This category encompasses the physical processes that lead to water being available for human use on the land, in lakes, streams and aquifers. Examples of investigations that logically fall in this category include studies of precipitation and streamflow relationships; weather forecasting; climate modification; micrometeorological processes linking atmospheric water, solar energy, water use by plants (both commercial and native), and available soil moisture; hydrologic and hydraulic modeling and processes; and the development of data bases.

AREAS OF INTEREST

1. Ground Water Hydrology

   a) Field studies of ground water/surface water interaction to develop an understanding of the management alternatives for protection of aquifers from contamination.

   b) Development and demonstration of innovative techniques for characterizing aquifers. Development and demonstration of ground water flow and contaminant transport models capable of modeling the site variability and heterogeneity, and the associated uncertainties.

   c) Studies to develop improved ways of characterizing, with limited data, ground water basins in overdraft and those with degraded quality.

2. Climatology and Micrometeorology

   a) Continued studies on ways to improve short, intermediate and long-term weather forecasting techniques. Improvements in understanding the dynamics of west coast precipitation patterns are particularly needed.

   b) Studies of micrometeorological processes that govern the use of water by plants and the availability of soil moisture.

   c) Develop improved methods for determining the magnitude and probability of extreme drought and flood events. Additional work is also needed in paleoclimatology aimed at identifying and understanding long-term climatic patterns.

   d) Studies of the impact of possible global climatic change on the quantity and quality of California's water supplies and on the demands for those supplies.

   e) Specific attention should be devoted to linked atmospheric and watershed run-off models and to models of ground water/surface water interactions. Improved methods should be developed for evaluating and interpreting the risk inherent in hydrologic uncertainty.

3. Surface Water Hydrology

   a) Development of improved methods and models for assessing run-off from disturbed watersheds, including consideration of the effects of vegetation management and wildfire on water yield/flow relationships and sediment and debris production.

   b) Develop improved models of hydrologic conditions during extreme dry and wet weather events.

   c) More studies and better data are needed on relationships/separation/mixing at the tidal interface. A better understanding of salt/freshwater barrier processes is needed.

CATEGORY II: AQUATIC ECOSYSTEMS

Description: This category encompasses basic observational, analytical and theoretical knowledge about aquatic environments and ecosystems. Research areas of interest include biological, chemical and physical mechanisms that govern the behavior of aquatic ecosystems, including work on the classification, transport and impact of contaminants and pollutants. Also included in this category are studies of the use of artificial ecosystems for water reclamation; fundamental investigations related to wetland management; studies of the impact of land use practices on aquatic habitats; and reconstruction ecology.

AREAS OF INTEREST

1. Basic Research on Aquatic Ecosystems

   a) Continued attention should be paid to the impact of regulated streamflow changes on aquatic and riparian ecosystems. This would include the identification of streamflow and temperature requirements to maintain fish and wildlife habitat. Determination of optimal and minimal flows to sustain different fish population levels. Comparative studies of the streamflows needed to sustain anadromous and resident fish and investigation of competition between species under different flow conditions.

   b) Evaluation of the distribution and quality of wetland and riparian ecosystems in relation to wildlife habitat needs. Develop criteria for this purpose.

   c) Assessment of the effects of changes in fresh water inflows and municipal, industrial, agricultural and storm water discharges on the aquatic life of estuaries and bays, including San Francisco Bay.

   d) Assessment of the success (or lack thereof) of biological mitigation programs in meeting habitat needs.

   e) Assessments of the successes of the restoration and/or enhancement of riparian systems in wetlands.

2. Effects of Contaminants on Aquatic Ecosystems

   a) Particular attention should be paid to pollution emanating from industrial, municipal and agricultural sources, especially point and non-point sources releasing nutrients, pesticides, heavy metals and trace elements into the aquatic environment. Research is needed to identify the types of contaminants being released, the magnitute of the releases, the nature of their transport through water bodies and the extent of effects and potential effects on aquatic ecosystems.

   b) There is a need to determine the long-term concentration levels of contaminants that can be tolerated by different forms of aquatic life (at different stages in the life cycle) as well as the biological effects of low levels of complex contaminants.

   c) Development of methods, including natural filtration systems, to prevent entry of pollutants into ecosystems.

   d) Studies are needed to identify and evaluate the synergistic effects of different combinations of contaminants in the aquatic environment.

   e) Attention should be paid to contamination caused by atmospheric transport of pollutants, other than acid rain, and their subsequent deposition in water bodies.

   f) Evaluation of the behavior of contaminants in stream and lake sediments and the impacts of such sediments on aquatic biota. Particular attention should be devoted to studies of how the biological effects of contaminants are altered by the presence of sediments.

g) Identification of the implications of salinity increases or contaminant uptake by fishes and other aquatic life in non-marine saline waters.

h) Identification and investigation of phenomena through which aquatic contaminants are assimilated and concentrated in the human food chain.

3. Effects of Land Use Practices on Aquatic Ecosystems

a) Studies of the socio/economic effects of preservation of wetlands and ecosystems.

b) Evaluation of land use practices such as urban development, agricultural practices, timber harvesting, grazing, mining and recreational uses on aquatic ecosystems.

CATEGORY III: WATER QUALITY

Description: Research in this category encompasses all factors and processes affecting the quality of the sources of surface and ground water regardless of use, and the quality and treatment of water in the transportation and distribution systems. Topics that fall within this category include: studies of the sources and the nature of contaminants including those emanating from agricultural and industrial processes; effects of contamination on human health, plant and wildlife; wastewater treatment and reclamation processes; and retrospective evaluations of the effectiveness and impacts of different strategies utilized in California for improving water quality and for preventing water quality degradation.

AREAS OF INTEREST

1. Health Aspects of Water Quality

   a) Continued examination of possible health problems associated with the use of reclaimed wastewater, especially for ground water recharge and agricultural uses.

   b) Develop improved processes for communicating water quality information to the public.

2. Water Quality and Treatment

   a) Development of innovative and cost effective treatment methods for removing organic chemical contaminants from drinking water, including potential but as yet unconfirmed contaminants. The development of inexpensive treatment methods for removing nitrates from drinking water.

   b) Identification of techniques and strategies for removal or in situ treatment of natural and man-made contaminants from ground water. Special consideration should be focused on the removal of nitrates and organic contaminants such as DBCP from ground water.

   c) Development of water treatment methods which enhance water quality including investigations of the sources and production of trihalomethane precursors and evaluation of site specific controls.

3. Surface Water Quality

   a) Impact of drought on water quality.

   b) Development of source control strategies and techniques for preventing both point and non-point sources of contamination.

   c) Impacts of abandoned mines, including oil and gas production facilities, on water quality and develop innovative methods of control.

4. Ground Water Quality

   a) Investigations of the contamination of ground waters by organic pollutants, especially pesticides and solvents. Basic information must be generated on the infiltration, movement, dispersion, sorption, persistence, reduction and decay of these and other chemicals, both singly and together in soils. Consideration should also be given to percolation through both saturated and unsaturated materials as well as the effects of ground water pumping on the travel rates of pollutants. Special emphasis should be given to the spatial variability of these processes.

   b) Impacts of radon and other radionuclides. Relate geological formation to ground water with respect to radionuclides.

c) Development of innovative means of monitoring ground water quality in the presence of contaminants.

5. Irrigation Impacts to Water Quality

a) Further information is required on leaching processes and the drainage requirements for major crops. Innovative methods of managing irrigation water to minimize drainage volumes are also needed.

b) Continued research is needed on salt pickup and deposition problems in irrigated agriculture.

c) Investigations leading to an improved understanding of the behavior of agricultural drainage waters under differing conditions. Development of strategies for managing agricultural drainage water, including chemical manipulation of drainage waters to improve quality and minimize the operating costs of drainage systems.

6. Intermedia Studies

a) Basic studies of the contribution of atmospheric contaminants (including acid rain and synthetic organic contaminants) to water quality and corresponding studies of water as a source of atmospheric contaminants.

b) More studies are needed regarding intermedia transfer of contaminants between air and water including the associated institutional issues.

CATEGORY IV: WATER DEVELOPMENT AND MANAGEMENT ALTERNATIVES

Description: This category encompasses methods and techniques for formulating and evaluating water resources planning, development and management alternatives. Topics that logically fall in this category include: policies and programs directed at increased water savings; development of models for use in planning and operating water supply systems; conjunctive use of surface and subsurface storage; alternative uses for reclaimed and low quality water; water markets and water pricing; and development of improved criteria for water project planning.

AREAS OF INTEREST

1. Short and Long-term Water Reallocations and Exchange

   a) Evaluation of the potential impact of water transfers in terms of: i) their capacity to stretch water supplies, ii) third party effects, iii) socioeconomic impacts on communities from which water is transferred and on those to which it comes, iv) potential changes in the patterns of agriculture and rural development that could result from transfers of various magnitudes.

   b) Incentives and disincentives for transfers and exchanges between service areas.

2. Augmentation of Water Supplies

   a) Investigations of the economic impacts of intermittent shortages of imported water to both urban and agricultural sectors.

   b) Economic analyses of alternative urban drought contingency plans available to water agencies and users, including the willingness to pay for reduction in the risk of drought through the development of additional supplies.

   c) Development and evaluation of technologies for desalinization of seawater and brackish water. Assessment of the environmental impacts of desalinization technologies.

   d) Evaluation of the feasibility of water supply development alternatives (including the management of vegetation on watersheds) in terms of the potential benefit of supply augmentation (especially in times of drought) and costs, including environmental impacts and other factors.

3. Urban Water Conservation

   a) Evaluation of possible reductions in water use which might be achieved through conservation programs in the commercial and industrial sectors.

   b) Continued study of means through which water use for landscape maintenance can be reduced including dual plumbing.

4. Agricultural Water Conservation

   a) Continued investigation of the relationships between water application, crop yields and farm management practices. Information on the relationship between the timing of water applications and crop yields as well as the response of different crops to moisture stress at different points in the season is especially needed.

   b) Development and evaluation of improved water management systems for irrigated agriculture, including engineering and economic analyses of the substitution of capital, labor, energy and materials for water.

c) Development of improved methods of managing and disposing of agricultural drainage waters.

5. Water reclamation and reuse studies to develop methods which encourage agriculture waste water reclamation and brackish water treatment to include the effects of expanded energy costs on water reclamation.

6. Conjunctive Use

   a) Further information needs to be generated on the management and economics of the conjunctive use of ground water, particularly where such use is planned in connection with water transfers or as a conscious means of drought protection.

   b) Further study is needed of the conjunctive use of waters of differing qualities. Attention should also be devoted to investigations of possible water quality changes within aquifers.

7. Criteria for Management of Storage and Conveyance Systems

   Development and evaluation of improved models to use for operating state and federal water projects in optimal fashion, including exchange and implementation of existing interagency arrangements such as COA in the Central Valley.

8. Development of new methods and strategies for operating and managing small municipal water supply systems. Also needed are studies of the impact of new drinking water quality regulations on small water supply systems.

9. Studies to develop empirical data and establish a relationship between development and the management or maintenance of environmental resources such as:

   a) wetlands
   b) disposal of agricultural drainage in bays and the ocean
   c) endangered and threatened species

10. Safe Drinking Water Standards/Water Supply Development

    a) Development of improved techniques of risk assessment and improved methods of risk management as they relate to the quality of drinking water supplies.

CATEGORY V: WATER LAW, INSTITUTIONS AND POLICY

Description: This category encompasses all institutional arrangements (including laws and regulations) that are available or potentially available for developing and managing water resources. Topics which logically fall in this category include: institutional arrangements for managing water scarcity; institutional arrangements for managing ground water (both quantitatively and qualitatively); potential institutional conflicts associated with specific water development and management alternatives; and the evolution of water management institutions in California. There is an especially compelling need for policy studies which involve analytical investigations of alternative policies for dealing with all aspects of California's water situation.

AREAS OF INTEREST

1. Research, identification and means of resolution of potential institutional conflicts associated with specific development and management alternatives such as water conservation and reallocation programs, watershed management, interregional transfers, ground water management, environmental resource management and conjunctive use of ground and surface waters. Special attention should be paid to private property institutions and to the role of water rights.

2. Identification of the institutional problems of managing the quality and quantity of ground water supplies. There is a special need to understand how and why aquifers come to be well managed.

3. Investigation of alternative means of increasing public awareness of future water problems. Studies could include retrospective investigations of how public attitudes and perceptions about water are formed. There is also a need to develop more effective ways to communicate to the public an understanding of the role of risk in all water management and water development endeavors.

4. Studies to determine costs and payment sources for environmental management to include identification of benefited groups and an assessment of the various groups willingness to pay. not WTA

5. Studies to improve institutional arrangements which will establish formal relationships between water planning and land use planning.

WATER WORKNOTES

1922, 1924, power companies overwhelmed campaigns for state water and power development. Sinclair, I, Gov, p.43.

Mutual Water Cos. are not true Coops, because voting is not per member but per share, i.e. per acre. The only protection for the small member is state law, there is a duty to serve. If the trustee concept were to break down, small members would be helpless.

KRWA Board has one member from each member agency, regardless of "size." Fresno I.D. has only one member. Sounds like MWD! - KRWA, 1950, p.6. Then there is an XCom of 6: one @ from Fresno, Alta and Consolidated; other three from "lower river agencies." P.27 says XCom members are apptd by full Board.

KRWA claims to own the power drop at Pine Flat and elsewhere. p.11, KRWA, 1950.

KRWA p.15. Efforts to integrate are "... a careful, fully conscious and deliberately planned attempt to bring about in the U.S. the same kind of collectivization they have in Russia."
p.19, "... Fascism is exactly what we will get."

What about USBR customers who have been breaking the excess land law? Shall they, too, have a salable vested interest in waters received this way?

Bringing water to dry land is more than an ordinary unearned increment, like extending a highway. It adds the ownership of water to the ownership of land, and in proportion to the land previously owned. Water is finite, and scarcer than land surface. The water now may be sold separately

Taylor, 1949. P.249, re voting in KRWA.

Taylor, 1955, p.478. Big landowners allege they have "a moral claim to water in proportion to their landholdings, ... and to defeat ... equitable distribution of water among individuals."

Taylor, 1957. p.83. Cal SC covered unapprop waters with a property right based on landownership, an approp right modeled on riparian law.

same, p.79. Cal Constn nowhere says State hold water as trustee for the benefit of landowners or, indeed, for anyone.
So delete that from MS!

"California Agricultural Background," 1939. Supplementary Exhibits, Part 62. Violations of Free Speech and Rights of Labor. Hearings before a Subcommittee of the Committee on Education and Labor, U.S.S., 76th Cong. 3d Sess, pursuant to Sen. Resolution 266 (74th Congress). Washington: U.S.G.P.O.

T.5, p.22494. Landholdings > 1,000 ac in Delta-Westside Sectors, San Joaquin Cty., ≠ 1938. Assessed values. Land = $5.4m; Improvements = .95m; total = 6.3m.

T.2, p.22493. Farms spending > $4,000 to hire labor, 1930 Census. 38.5% of such U.S. farms were in California.

Chart 9, p.22505. Paid farm labor/all persons gainfully employed in ag. In Calif = 57.2%, cf. U.S. = 26.1%.

p.22517, chart of indexes of gross ag income and of farm wages including board, California. From USDA, AMS, 1924-39.

1924-29=100

Inc. rises to 121, 1929; falls to 60, 1932. Then recovers to 112, 1937.

Wages rise to 107, 1929; falls to 47, 1933. Then recovers to 65, 1937.

Defns not given, but these are evidently wage bills, not rates, so they might reflect mechanization as well as lower wage rates.

Still, class war went sharply vs. labor beginning 1932.

p.22537, n.41. Clark Kerr co-author with Paul Taylor, Doc Hist of the Strike of Cotton Pickers in Cal, 1933.

This helps explain Taylor's staying power at Berkeley: he was friends with Clark Kerr!

p.22774. Extent of large scale opn not evident in Census because it reports ea. opg unit as a separate holding. Earl Fruit Co. farms 27 different properties; Calpack operates 10; California Lands, Inc. (B of A) "operates or leases out 1700 different farms."

(Today, 1991, there are many financial foreclosers like old Cal. Lands, Inc.)

pp. 22851 ff., corp inc tax data, returns filed in Calif., selected industrial classifications (ag and agbusiness). 1933 ff.

High incomes for some are variable; others are steady. Consistent names are Limoneira, Corona Foothill, Irvine, KCLC, Sutter Basin, Fontana Farms Co., Miller and Lux, Calpack, Boswell, El Tejon, --

"Princes come, princes go, a moment of pomp and show they know, then over the sands of time they go; wise men come, ever promising the riddle of life to know, wise men come, ever promising, then over the sands of time they go, ..."

Tenants come, tenants go, these rents persist and grow.

Winning Guacamole Recipe

"I use avocados for just about everything. There's so many uses for them," said Cheryl Meyer of Santa Paula in an interview with the *Santa Paula Daily Chronicle.*

And Cheryl should know the many ways to put avocados to good use. Her guacamole dip beat out 14 other competitors to win first prize at the Ventura County Fair.

Salads, soups, omelettes and even as snacks for your pet, are just some of the uses for avocados, said Cheryl, who works for the huge Limoneira farming company. "My dog loves 'em."

Here's the recipe for a serving for two:

Two firm, ripe and peeled avocados
One fresh chopped tomato
Fresh chopped green onion
Chopped green chiles
Fresh chopped cilantro
Garlic Powder Salt Lemon juice

Mash the avocados in a medium size bowl and then sprinkle with a dash of lemon juice, garlic powder and salt.

In a separate bowl, mix together the tomato, onion, chiles and cilantro. Drain the juice from this mix and add to avocado mix and serve with chips, crackers, and assorted vegetables. □

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Water Trading Suggested As One Way To Deal With Future

Staff Report

Escondido, CA — "Is there a future without water?" was about the only question that drew a unanimous answer when six experts from a range of fields gathered here in early September for a water forum panel jointly sponsored by the California Avocado Society and the Avocado Growers Association.

When the state's elected politicians went home after defeating the governor's bill on "purely political" lines, republicans versus the democrats, said Donald Brooks of the Metropolitan Water District, it underlined the need for a "cooperative plan to meet everyone's needs."

"We think this can be done," Brooks told an audience of about 175 growers at Escondido High School here. But Brooks left untouched the red hot issue of "how" it was going to be done.

Facing a shortfall by 1985 under dry conditions, San Diego needs to follow three steps, according to Lawrence Michaels, general manager, San Diego County Water Authority:

1) Improve reliability at home by building reservoir capacity.

2) Reclamation.

3) Investigate new water sources, but Michaels did not detail his agency's controversial plan to buy water from private vendors in other states.

Michaels also made the point that were all three aquaducts carrying San Diego's water from the north to be cut by an earthquake, there would be no imported water for San Diego for a minimum of 90 days. San Diego would have to depend on stored water, thus the need for the Pamo dam in Ramona.

Trade arrangements and sales between the water "haves" and "have nots" may be the best answer to growing needs, Dr. Henry Vaux, University of California (Riverside) economist, told the audience, while at the same time challenging Brooks' usage figures as perhaps too high.

Had such trading occurred during a recent shortfall, the benefit to water users annually would have been $53 million and the benefit to the sellers (in Imperial County,) in turn, would have been $14 million.

"Current policies worsen our situation...these outdated policies for modern problems just make things worse," said Vaux in support of such a market system.

At the same time, Vaux suggested there may be sufficient facilities in place or under construction already and that money may be used better in other ways.

One problem with today's heavy reliance on new facilities is that demand will not grow evenly county to county, said Vaux.

Perhaps the day's most shocking revelations came from State Senate office researcher Dean Misczynski, an economist, who earlier in the year had helped zap Senate Bill 1369 with his carefully researched findings that Southern California would pay a hugely uneven proportion of the cost of the bill's water projects.

One of Misczynski's chief conclusions:

"Southern California will pay a remarkably large share of the project's cost and get a remarkably small share of the water in exchange. Southern California will pay 61 percent of the project's cost and get 13 percent of its water in the year 2000, if that year has average rainfall. Even worse, in 1995, Southern California will pay 63 percent of the project's cost in return for just 7.6 percent of the new water. In both cases, Southern California will also pay the full cost of transporting the water to Southern California."

Miscynski also found that "in 2000, Southern California will pay nearly $1400 per acre foot (in 1983 dollars) for the water it gets from the new projects. That compares to the $205 per acre foot that Southern Californians will pay for other State Water Project water, again in 1983 dollars."

Misczynski made his point even clearer:

"Southern Californians pay so much because the project is badly timed from their point of view. It is too early. In a clumsy analogy, it is as if a family decided that they would need a new car 15 years from now—and bought the car and let someone else use it for free for the 15 years."

In opening the forum, Warren Currier, AGA's managing director, set the stage this way: "As Mark Twain once said, 'whiskey is for drinking, water is for fighting.'"

Others on the panel included Tim Wallace, Extension economist, and Dorothy Green of the Working Alliance To Equalize Rates, a consumer advocacy organization. □

were boxed in on all sides to a depth of three feet with plywood and isolated from neighboring trees.

Twelve tensiometers are located around each tree for a total of 48 and there are eight neutron access tubes per tree. The tensiometers are at depths of 12, 24, and 36 inches. The neutron tubes allow a probe to make measurements every six inches to a depth of 48 inches.

The object of the experiment was to keep the topsoil moist while keeping soil below 24 inches dry with minimal deep drainage. A meter on each tree measured the precise amount of water required to do the job.

When the experiment was started, the trees were stressed and Peck and his team felt it would take 16 drippers per tree to irrigate them properly. They changed over to microjets, wetting a 180 degree pattern on each side of each tree.

They judge the system today to be about 70 percent efficient.

According to their figures, they were able to reduce water usage on the four trees by about 40 percent over traditional use. In a less efficient system, this might work out to about 25 percent less.

In actual figures last summer, the team ended up irrigating the trees with 21 gallons per day (South slope) and 17 gallons per day (North slope) on an average day.

"But a grower is going to have to put more on," Peck says, "depending on the efficiency of his system, and a leaching factor is going to have to be figured in."

What exactly does the finding mean, Peck is asked.

"I interpret this as using less water, probably 40 percent in this case. Translating that out to the real world, I expect you couldn't realize a saving of 40 percent. In the real world I would expect (a reduction of) 25 percent, somewhere in that area.

"Telling a grower out here he can cut 40 percent isn't the real world. If he's operating efficiently now, there's not too many places he can cut.

"If he's operating at 70 to 75 percent efficiency now, there is nothing more he can do."

One finding is that growers must be able to measure their own irrigation system efficiency in order to assess water needs before they can go out and safely reduce or increase amounts.

For growers who want to get a fix on their irrigation needs, a start can be made by keeping track of what runs through the meter in a 10 hour period, then divide that by the number of trees, says Peck, "but that may not be what's happening out in the grove. Trees on the lower slopes may be getting a lot more water and you have to be aware of the whole system." □

letters

Amplification

Two errors that crept into the published version of the Avocado Nutritional Research Committee story (*Avocado Grower,* November, 1984) will confuse its readers.

At one point in the story I stated: "Notwithstanding its significant contributions, the Avocado Nutritional Research Committee is *NOT* largely unknown to the great majority of California avocado growers." In fact, the committee *is* largely unknown within the industry. The mistake was mine; I regret it.

In the final paragraph of the story, several words in the manuscript did not find their way into print, thus rendering the sentence—and the thought—incomprehensible. With the omitted words (italicized) restored, the affected sentence would read: "There can be no doubt that this *has come to pass because, as Dr. Briggs observed in a personal* letter to the author, 'No other California food industry with the possible exception of the giant dairy industry maintains such warm personal ties with nutrition and food leaders.'"

Jack Shepherd
Altadena, CA

Injection Research

In October 1984, my wife and I had the privilege of leading an Avocado and Citrus Grower's Study Tour to Kenya and South Africa.

While in South Africa we visited a number of orchards to learn of their production methods. The group attended meetings/seminars/field tours at the University of Pretoria, Citrus & Subtropical Fruit Research Institute and Burgershall Research Station. Two very large, privately owned estates, Westfalia Estates and Hall & Sons, were visited to see their extensive plantings and to hear about the research being conducted at both places.

Avocado root rot disease is extremely bad and widespread in South Africa. Dr. Joe Darvas, a research plant pathologist at the Westfalia Estates, presented a seminar on his work. He also conducted a field tour for the group showing the field work he was carrying on with the injection technique in fighting root rot. We learned about his pioneering work with the injection of a systemic chemical, Alliete (Ca).

Continued on page 12

A Holiday Message From San Diego Growers Association

As we pause to reflect upon the past and to peer into the future, we wish to thank all of our growers, large and small, for their loyalty and support during the 1983-84 season.

For the 1984-85 season, we pledge to do our utmost to maintain the confidence you have placed in us.

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MWD's Thirst f
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■ Drought: Critics urge a moratoriu
Officials say it is not a growth-control

By FREDERICK M. MUIR
TIMES STAFF WRITER

Southern California's largest water agency has annexed thousands of acres of mostly dry hillside into its six-county service area and agreed to supply water to tens of thousands of new homes and businesses—even as its water supplies have dwindled during five years of drought.

The continuing expansion of the Metropolitan Water District service area worries some water officials, who argue that it is senseless to promise to supply new areas when there is not enough water to serve the existing 15 million customers. The MWD, they say, should declare a moratorium.

"It's time to wake up and smell the coffee," said S. Dell Scott, one of eight Los Angeles representatives on the MWD board. "I don't see why we should encourage development when we don't have enough water already. . . . It's preposterous."

Some water agencies around the state have barred new water hookups and, in effect, stopped development in the face of tight water supplies. Annexations by the MWD have continued while the agency imposed the most severe restrictions in its 63-year history.

A dozen such annexations gained final or interim approval in December—at the same meeting that the board of directors voted to impose 10% mandatory cuts in water deliveries.

At the January board meeting, when directors voted to impose a 17% overall cut in deliveries to MWD agencies, approvals were given for five annexations totaling several hundred acres.

In February, when 31% cuts in water deliveries were approved, directors approved a request for

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MWD: Some Urge Halt to Annexations

Continued from A1

supplies water to more than 300 communities stretching from the Mexican border to Ventura County, including the Los Angeles Department of Water and Power.

During the last two decades, lucrative development in the western San Fernando Valley, northern San Diego County, the Oxnard Plain and booming western Riverside County communities such as Murrieta Hot Springs and Temecula was made possible by the MWD agreeing to annex the territory and share its water supply.

Under the agency's statement of purpose, the so-called Laguna Declaration, the MWD is to provide all the water requested of it by members. Or as MWD director Charles D. Barker put it: "We don't like to deny anyone anything."

Under the MWD's charter, written in 1928, the agency's purpose is to bring in the water necessary for the economic development of Southern California. The agency, traditionally dominated by business and development interests, has stuck to that mandate from the time it served 13 cities in the Los Angeles area to today, as it provides water for 300 communities throughout Southern California.

But as the state's water supplies remain low, some directors say it is time to declare at least a temporary halt to new water connections.

Last Tuesday, the board's five-member annexation committee voted unanimously to delay until May consideration of any new annexation proposals, except hardship cases. By then, directors said, the rainy season will be over and MWD will have a much better idea of what the year's supply will be.

For now, officials do not believe they have the votes on the full 51-member MWD board to win approval for more annexations. "I think we'd be in trouble if we went to the [full] board with a host of annexations now," said Barker, chairman of the annexation committee.

Talk of a possible moratorium may explain the rush of annexation proposals during the last few months, officials said. "The drought has engendered a flood" of applications by developers and communities hoping to submit their requests before the district closes the door, said Scott.

On Tuesday, the annexation committee heard but did not vote on proposals for 11 annexations that cover more than 3,750 acres—including the city of Port Hueneme, which is worried about the declining quality of its ground water. That doubles the number of annexation proposals

At the MWD, the idea of limiting service area expansion has gained some support in recent years because population growth has threatened to outstrip the agency's supply.

In the last two decades, the number of residents in areas served by the MWD has increased by about 50%. While water supplies declined, the population in the district went from 10.2 million in 1970 to 12 million in 1980 to an estimated 15 million now.

The MWD is a wholesaler of water from the State Water Project's sources on the Sacramento River and water from federal projects on the Colorado River. The MWD provides about 60% of all water consumed in Southern California.

Landowners often seek inclusion in MWD's service area as an early step in the development process. Without a guarantee of water, it is unlikely that they would receive permits for development.

Those seeking MWD water are required to pay a $3,000 processing fee plus a minimum fee of $832 per acre of raw land, officials said. Developed properties pay higher fees, based on the value of the land. Developers are also required to pay the costs of laying pipe and other connection-related construction.

Smaller agencies and cities often aid the landowners in obtaining MWD water because they want to promote economic growth.

Developers of the Murrieta Springs Mall are seeking a 44.4-acre annexation that they say would provide 1,700 construction jobs and 3,400 permanent jobs. Developer John Haskell said the mall is projected to increase sales and property taxes by $100 million in its first 20 years.

The Eastern Municipal Water District of Riverside County has sought more MWD annexations than any other agency during the drought. Spokesman Peter Odencrantz said that the MWD annexations, in addition to assisting development in the rapidly growing area, help avoid the depletion of local ground water supplies.

The drought—and suburban growth—have caused MWD directors to debate how much control the agency can and should exercise over development.

The MWD by law cannot deny annexations to its original members, including Los Angeles and Pasadena. It can deny annexations to the suburban water agencies where most of the recent growth has occurred.

Last summer, the MWD adopted annexation guidelines aimed at making the new areas as efficient as possible in the use of water. Annexation candidates must now show that they are planning water conservation and use of reclaimed water.

Boronkay said that even with the new guidelines, "the philosophy remains the same. . . . We exist under the law to serve water, not to shape the size of the community by the supply of water."

Other directors say the new rules are a start, but the MWD must show greater leadership and help put the brakes on development.

"The MWD has to stop pretending that it is not a growth control agency," said MWD director Timothy Brick of Pasadena. "The MWD is not a neutral servant of growth. It is actually the handmaiden of growth."

Boronkay argues that the amount of land left to be annexed is insignificant, perhaps as little as a 2% addition to the existing service area. "The potential for burdening MWD is not very great," said Boronkay.

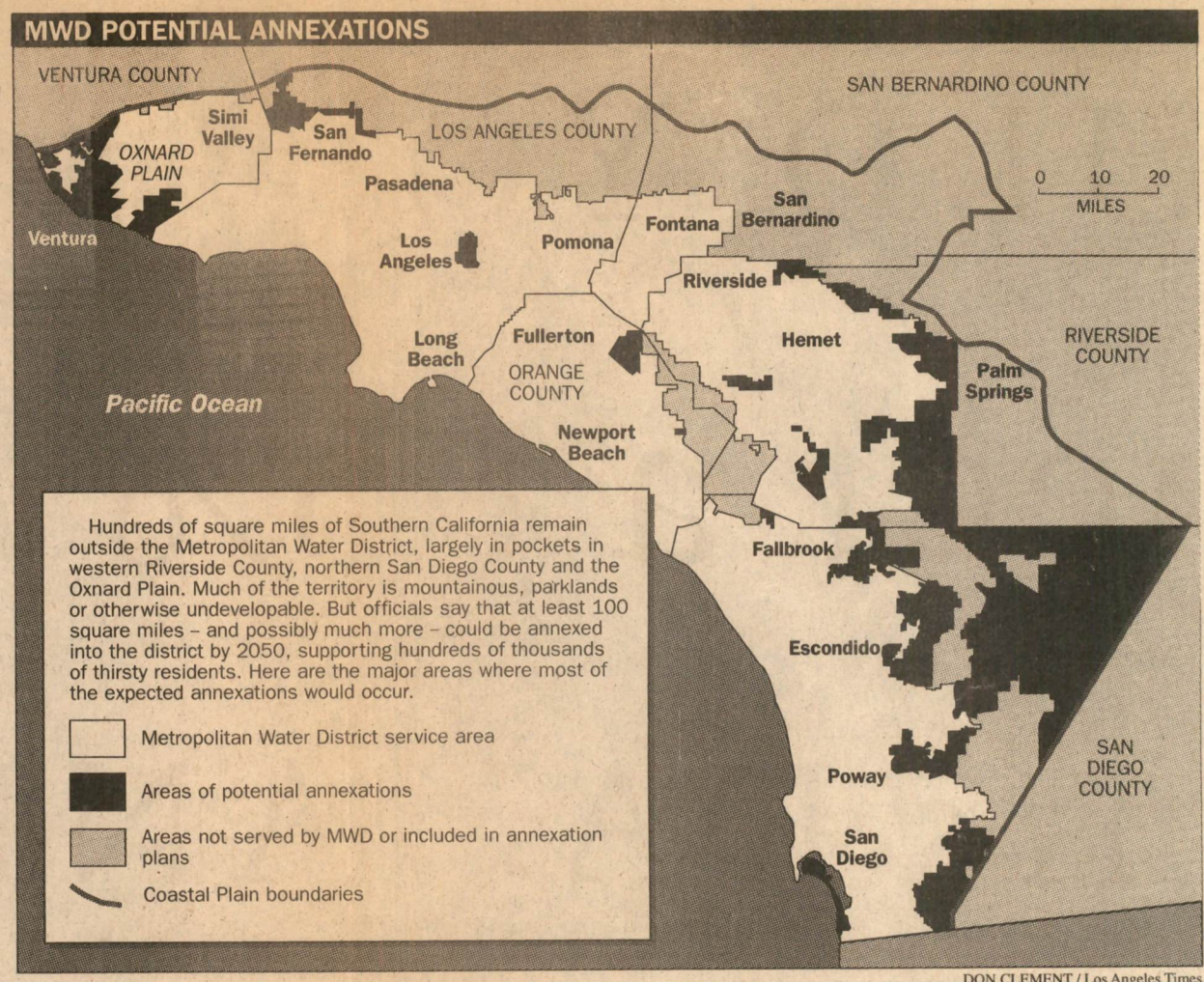
Brick argues that much of the new territory is in desert-like areas—particularly in Riverside County—where per capita water consumption tends to be high.

Boronkay's position is supported by a study last June by the MWD staff that concludes that about 110 square miles could be annexed for development in the next 60 years. That area amounts to about 2% of MWD's current service area.

The study does not include the Oxnard Plain along the coast of southern Ventura County, which is almost certain to be annexed; nor a 20-square-mile section of Santa Susana Mountains that the city of Los Angeles is considering for annexation.

An earlier study, in 1982, concluded that 1,000 square miles of territory could be annexed by MWD—an increase of 20%.

Wiley Horne, MWD planning director, could not explain why the estimates varied so widely. "All I can guess," he said, "is that the [1982 report] had a more boundless vision of Southern California."



DON CLEMENT / Los Angeles Times

Wenzer 301 589 3930

There is a growing movement to let water be traded in private markets, even though such markets hardly exist, and are barely possible in a commodity whose value is low relative to the cost of moving it. Actual markets have developed only glacially, but the expectation has grown rapidly. The result is a number of preemptive strikes. What Henry George called "The Law of Concentration" is manifesting itself well ahead of actual trading.

For one example, Sid and Lee Bass of Ft. Worth are buying up "thousands of acres" of farmland in California's Imperial Valley, through their vehicle, Western Farms. They are gambling they can take Colorado R. water from the Federal government for $12/af, and sell to some major buyer for $400/af (triple the going rate). Met (MWDSC) and Las Vegas said no to the high price; San Diego has said yes.

San Diego is moved by fears that Met's other members will make it pay for most of the new Domenigoni Reservoir, whose capital cost is now estimated at $2 billions. This is hardball bargaining. If San Diego buys .5 million acre-feet from the Basses, Met's 26 other agencies will have to pay for Domenigoni - which few need or want. San Diego thus gets more leverage bargaining with Met, which it will use to get a higher mix of Northern California water, 50/50, in its share (Colorado River water is lower quality).

Met wants the right to store more Colorado River water in Federal reservoirs. To counter this, the Basses helped stir up AZ to require its water agency to take its entire Colorado River entitlement and store it in AZ - thus killing Mets plan to use more Colorado R. storage space. There is concern that Met is getting too ponderous to outmaneuver these new hardball players. (Fulton, Wm., 1996. "Shifting Politics of Water." LAT 19 May 96 M1)

APPENDIX 27: Castaic Lake Water Agency To p. xx

LAT 22 Sept 93 A3; 11 Sept 95 B1; 12 Sept 95 B8

Castaic Lake Water Agency (CLWA) serves the Sta. Clarita Valley, including the Newhall's cities of Valencia and Newhall. It is virtually a Newhall satrapy, although it is nominally a public agency, enjoying all the tax and other privileges of a public agency. General Manager Robert Sagehorn and three Board members hold financial interests in Newhall. Serving Newhall lands is the main business of this Agency. Newhall lands also benefit from priority claims on the valuable Santa Clara River, a key resource in a bone-dry area. Its flows are regulated and floods abated by the little-known, Federally financed Matilija Dam on Sespe Creek. To own land is to gain automatically from worthy public works.

CLWA service territory abuts MWD-served lands, but CLWA maintains a separate existence. Lying right on the State's main water line, it buys directly from the State. Like MWD, Castaic Lake buys below cost from the State water agency, then sells water for a profit. Powerful as MWD is, Castaic Lake (CLWA) is moreso. It spent $304,000 on lobbying during 1993 state budget talks, April 1 - June 30. It outspent every other government agency in Calif. Castaic Lake serves 150,000 residents. MWD, serving 15 million residents, and not shy about lobbying, spent 1/4 as much in the same period. The immediate result was that this agency got an exemption from Gov. Wilson's plan to divert property tax revenues from special districts to schools, including in this case the schools of Sta. Clarita, which tends to buck the Newhalls. It saved $6.5 million in property tax revenues that the Governor had threatened to take. More generally, Castaic's independent existence and key location seem to rank it a notch above other local agencies.

In 1995 Castaic sued the City of Sta. Clarita for a larger share of its property tax revenues. The State A.G. and the County of L.A. immediately lined up on Castaic's side. As George observed, landownership brings power.