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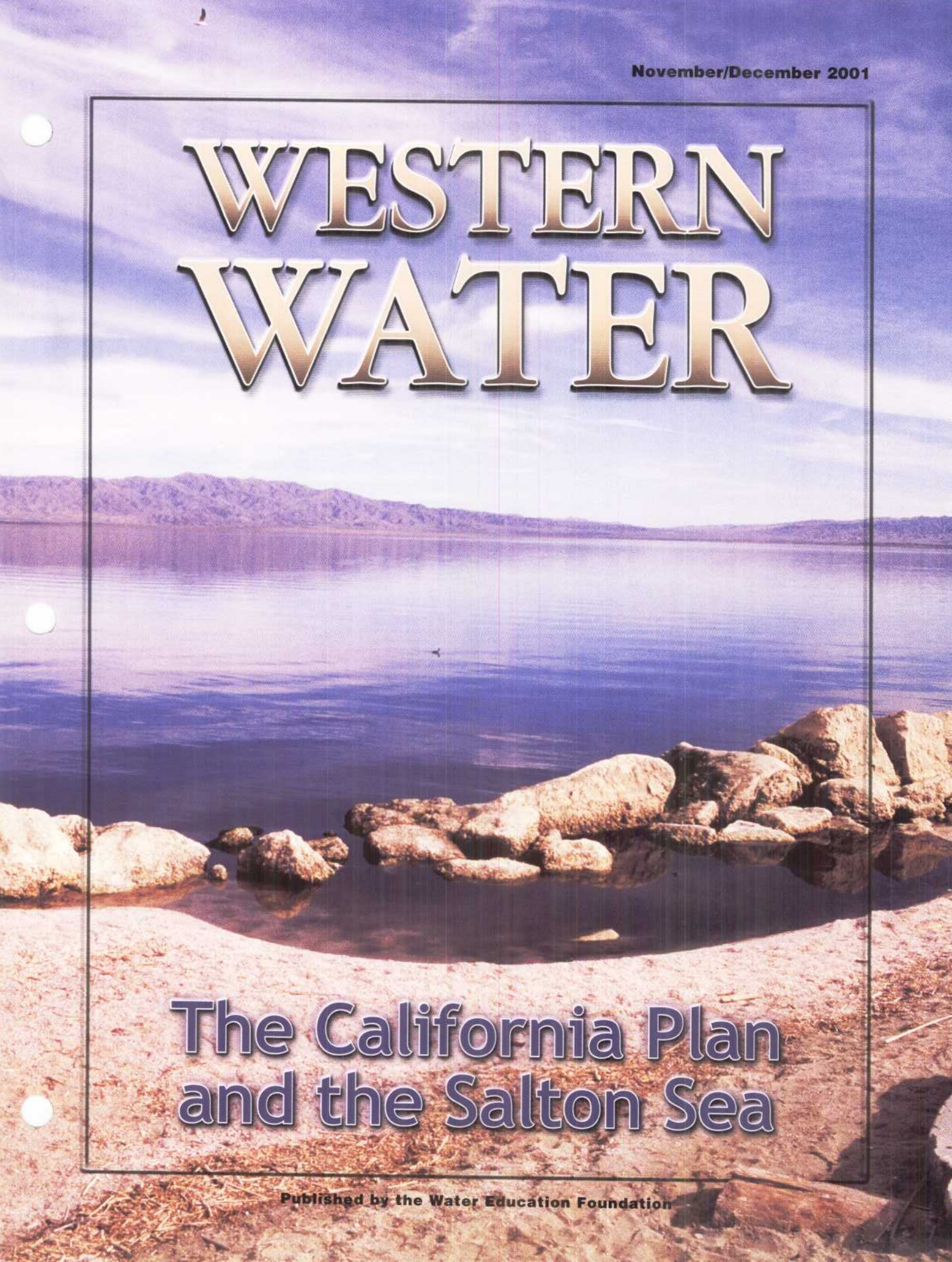
WESTERN WATER



The California Plan and the Salton Sea

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On the Cover

A view of the Salton Sea.

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Editor's Desk

It's been said many times by now, but the events of September 11 changed all our lives. Certainly the safety of our drinking water in the United States became a bigger-than-ever concern.

In this issue of *Western Water* we've briefly profiled the events that could affect our water supply in the aftermath of the World Trade Center attack. (See "In the News.") In the January/February issue, Writer Gary Pitzer will look at the long-term effects of dealing with water terrorism on our own soil.

On September 11, like you, I woke up to the terrible news about the attack. I had planned to fly to southern California that day to assist Judy Wheatley Maben with our first Southern California Groundwater Tour. After discussions with speakers and participants, we decided to move forward with the tour and continue our efforts to educate people about this important resource. So instead of driving to Sacramento International Airport, Judy and I drove about 500 miles to southern California to carry on the tour. Although 15 of the 55 participants weren't able to join us because of travel difficulties, we were all glad to be together and concentrate on our work for a few days.

We had never before begun a tour with the Pledge of Allegiance, but now it seemed a meaningful way to begin. For three days we traveled by bus together, keeping in touch with world events, learning about how groundwater is managed in six southern California basins. It's a story of progressive and innovative thinking. We'll be having more tours and conferences analyzing groundwater issues in the West, and I hope many of you will join us for these events in 2002.

On that tour after the September 11 attack, I had a chance to think about how through the years, water issues became the focus of my career. Perhaps many of us are questioning our work. Is water an important issue in a country at war? Some things now seem turned upside down. After some thought, I decided that I want to stay engaged with those working to make a difference for improvement of our environment, cities and farms.

So we'll be following issues like CALFED again soon. In fact recently, while anthrax scares surrounded the capitol, the U.S. Senate debated a bill that would allow federal funds to continue to support the extensive plan for restoring California's Bay-Delta estuary and assuring a reliable water supply for the state. A House version, HR 3208, recently cleared the House Resources Committee. On a somewhat ironic note, the measure, by Reps. Ken Calvert, R-Riverside, and Cal Dooley, D-Fresno, is named the Western Water Security Enhancement Act. But the name is not in response to September 11; rather it dates back to May when Calvert introduced similar legislation.

Water issues do make a difference on how we live now and how our children will live in the future Western U.S. As good citizens we should join in debates on issues we believe matter. And I think water is one of the most important issues. While a few misguided people want to terrorize and tear things down, we can take this opportunity to re-dedicate ourselves to our work to improve our world. ❖

Rita Schmidt Sudman

See page 14 for more on WEF's latest activities, or visit our web site at www.watereducation.org

In the News

Water Officials Enact Safety Measures

The Sept. 11 terrorist attacks on the World Trade Center and the Pentagon prompted federal and state officials to launch a massive reevaluation of the integrity of the nation's water storage and delivery systems, given the possibility of further attacks. Congress is in the midst of considering how much to appropriate for beefed up security measures.

"The terrible attacks on Sept. 11 taught us, as a nation, to imagine unimaginable acts against us and take sound, swift steps to make sure they can't happen," said Rep. James V. Hansen, R-Utah, chair of the House Resources Committee. "At a time like this, we must take actions to facilitate fully-trained, ongoing security at our federal dams and hydroelectric power plants . . .."

Officials took immediate steps to heighten security at water facilities in the wake of the attacks. National Guard troops were deployed to Hoover Dam, a key strategic target in the West. U.S. Highway 93, the main road between Phoenix and Las Vegas that crosses the dam, was closed Sept. 11 but reopened two days later to passenger cars and small pickup trucks. A ban on local trucks, buses, motor homes and boat trailers has been gradually eased. In California, many facilities were immediately closed Sept. 11, including Friant Dam. Kirk C. Rodgers, acting regional director of the U.S. Bureau of Reclamation's mid-Pacific region, asked water contractors in a letter to maintain "a high level of alertness and security at the Reclamation facilities you operate and maintain."

Security also was increased at State Water Project facilities, and at hundreds of other dams, reservoirs and water conveyance systems throughout California. Increased security patrols, aerial surveillance of the California and Colorado aqueducts by the California Highway Patrol and additional testing of water supplies are ongoing.

Gov. Gray Davis, following a tour of a water treatment plant along the American River Oct. 16, said, "While the possibility that our water supply could be contaminated by a biological or chemical threat remains remote, I want the people of California to be assured that we are on full alert and taking every precaution to safeguard our water." Scientists and agency officials emphasize it is unlikely that anyone would poison a water system because of the large volume of contaminants needed to cause an impact.

Agencies have taken steps to upgrade electronic security, particularly the amount and type of information available via the World Wide Web. In the days following the attacks, information that could have been used by terrorists against water systems was removed from web sites. The Association of California Water Agencies made several recommendations to its members, including that they review public information posted on web sites, review printed material that includes information about water facilities and operations and prepare board members and staff to respond to public inquiries about security measures.

Legislative proposals to increase security funding emerged immediately after the attacks and will continue throughout next year. One law allows the Bureau to contract with local, state and federal agencies to provide trained and certified law enforcement security at federal dams. On the funding side, proposals have surfaced for the federal government to spend as much as $105 million to develop vulnerability assessments and emergency response plans for water facilities nationwide. "A substantial investment is needed for water infrastructure security [research and development] to address potential vulnerabilities at our nation's drinking water and wastewater systems," says the Association of Metropolitan Water Agencies. ❖

– Gary Pitzer

WEF 2002 Calendar

January 30 – February 1
WEF Colorado River Stakeholder Symposium
Rita Schmidt Sudman, coordinator
Santa Fe, NM

March 14
WEF 19th Annual Executive Briefing
Rita Schmidt Sudman, coordinator
Sacramento, CA

March 20-22
WEF Lower Colorado River Tour
Judy Wheatley Maben, coordinator
Las Vegas, NV

May 22-24
WEF Central Valley Tour
Judy Wheatley Maben, coordinator
Sacramento, CA

May 30
WEF 25th Anniversary Party
Rita Schmidt Sudman, coordinator
Sacramento, CA

June 19-21
WEF Bay-Delta Tour
Judy Wheatley Maben, coordinator
Sacramento, CA

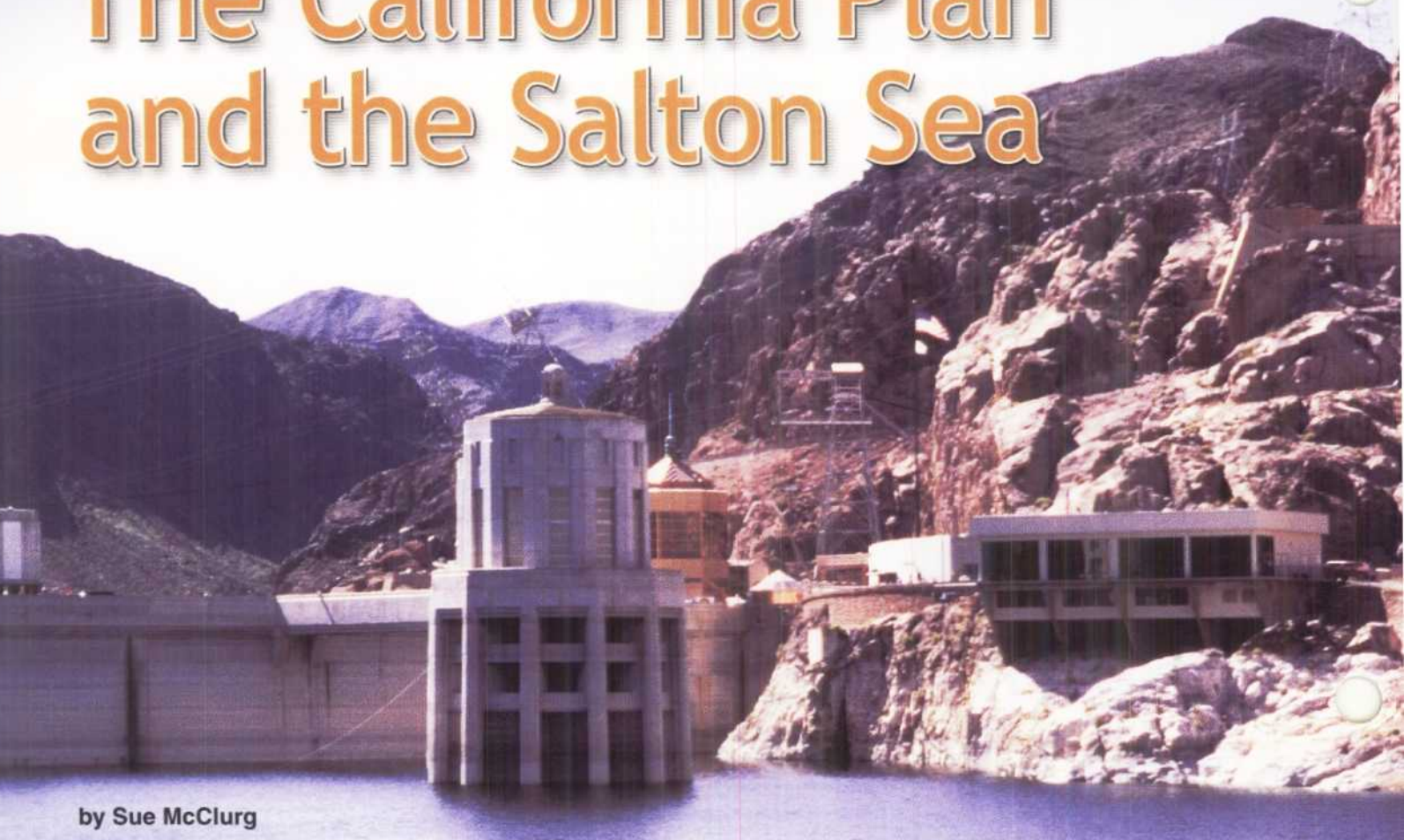
July 18-19
WEF Water Law & Policy Briefing
Rita Schmidt Sudman, coordinator
San Diego, CA

September 11-13
WEF Sierra Watersheds Tour
Judy Wheatley Maben, coordinator
Sacramento, CA

October 2-4
WEF Northern California Tour
Judy Wheatley Maben, coordinator
Sacramento, CA

October 23-25
WEF Southern California Groundwater Tour
Judy Wheatley Maben, coordinator
Ontario, CA

The California Plan and the Salton Sea



by Sue McClurg

Water from the Colorado River transformed the sagebrush and desert sands of the Imperial, Coachella and Palo Verde valleys into lush, green agricultural fields. The growing season is year-round, the water plentiful and the local economies are based almost entirely on farming. As the waters of the Colorado River allowed the deserts to bloom, they allowed southern California cities like Los Angeles and San Diego to boom. Suburbs, jobs and people followed, and the population within the six counties served by Metropolitan Water District of Southern California (MWD) grew from 2.8 million in 1930 to more than 17 million today.

Key to this southern California economy is water from the Colorado River. More water; in fact, than California is entitled to under the various agreements and contracts that form the Law of the River. Water that California is now under obligation to cut back under a deal worked out with the other Colorado River Basin states and the federal government.

To reduce the state's annual draw on the Colorado River from some 5.2 million acre-feet to 4.4 million acre-feet, the state's basic apportionment, the California parties agreed to implement water conservation measures, initiate agricultural to urban transfers and develop comprehensive groundwater banking and conjunctive use programs. It was California's commitment to this Colorado River Water Use Plan (commonly called the 4.4 Plan) that ultimately led to an agreement between California and the other six basin states over the use of surplus water. Adopted in the final days of the Clinton administration, the Interim Surplus Guidelines (Guidelines) are designed to provide California with 15 years of greater certainty of surplus water from Lake Mead as the state gradually cuts its water use.

The linchpin of the 4.4 Plan is the historic water conservation-transfer agreement between Imperial Irrigation District (IID) and the San Diego County Water Authority (SDCWA) in which up to 200,000 acre-feet of water will be transferred from Imperial Valley farms to San Diego via a water exchange arrangement with MWD. (An additional 100,000 acre-feet may be transferred from IID to its agricultural neighbor, the Coachella Valley Water District (CVWD).)

Every drop of water saved and transferred will help California reduce its overall Colorado River use. But

every drop of water saved and transferred is one less drop than would normally flow into the Salton Sea, a vast, saline lake located in the Imperial and Coachella valleys. Formed by the joint forces of man and nature in the early 1900s, agricultural drainage from area farms helps sustain the sea.

The dilemma of how to save the Salton Sea and at the same time implement the transfer has become the overriding issue in the ongoing effort to move the California plan from proposal to reality. Indeed some say the transfer and 4.4 Plan are in danger of collapse, or significant delay – which could mean a loss of surplus water, at least for a time.

"IID is looked at as a source of water for other Colorado River users and to the extent the transfer can be accomplished in a way that is environmentally sound, we would like to proceed," said Board President Andy Horne. "But if we can't proceed, this transfer is in real trouble and so is the 4.4 Plan."

If the transfer deal fails or is delayed, southern California urban water suppliers and users are most at risk because they are last in line when it comes to state's Colorado River water apportionment. "The risk of being cut off is onerous," SDCWA General Manager Maureen Stapleton told the *San Diego Union-Tribune*. "You're talking about being forced to make up a substantial amount."

California officials say they have made substantial progress on finalizing the 42 legal and environmental documents necessary to implement the components of the 4.4 Plan. But the original schedule for completion has slipped and much remains to be done to meet the December 2002 deadline to have a final plan in place.

Noting that the transfer faces numerous challenges, Tom Hannigan, director of the California Department of Water Resources (DWR), stressed that the 4.4 Plan is too important to California's future to allow it to fail. "I remain confident we can work these issues out," he said. "We have to."

The list of issues to be worked out is long and complex. "It was a major undertaking when we started, but it has only gotten bigger in scope as we went along," said Dennis Underwood, vice president of Colorado River issues for MWD. "The complexities have been added by external forces – not because we've been bogged down administratively."

Environmental issues top the list, but underlying the debate over how to resolve these issues is the continuing political controversy within the Imperial Valley over the water conservation-transfer agreement itself.

One of the most volatile issues is how farmers should conserve water. The existing contract prohibits fallowing, instead calling for IID farmers to farm the same amount of acreage, and install on-farm improvements such as tailwater recovery systems (financed by the money provided by SDCWA for the water) to conserve water for transfer to San Diego.

But the water that runs off the land is so important to the Salton Sea, U.S. Bureau of Reclamation (Bureau) and Salton Sea Authority officials developed an alternative proposal in which farmers would be paid to fallow a portion of their acreage to make water available for transfer to San Diego. The reductions of inflows to the Salton Sea would be less under a fallowing program than conventional conservation techniques, reducing the transfer's effect on the sea.

"No fallowing," however, has long been the rallying cry in the Imperial Valley where there is deep concern over the transfer's potential third-party impacts on farm workers, tractor dealers and the local economy in general.

As Imperial Valley interests debate fallowing, MWD and farmers in nearby Palo Verde Valley are finalizing an agreement in which farmers would fallow between 7 and 29 percent of their land in any given year, transferring water not used to MWD at a cost of $153 to $206 per acre-foot. MWD

"IID is looked at as a source of water for other Colorado River users and to the extent the transfer can be accomplished in a way that is environmentally sound, we would like to proceed. But if we can't proceed, this transfer is in real trouble and so is the 4.4 Plan."

– Andy Horne, IID

The Boulder Canyon Project Act of 1928 paved the way for construction of Boulder (Hoover) Dam. The Act was signed by President Coolidge, center.

officials believe if this deal goes forward, it not only will help MWD maintain a full aqueduct, but help California meet its water reduction requirements (see page 11).

The question of how much the IID-SDCWA transfer will affect the Salton Sea, and how to mitigate for those effects, is complicated by the fact that the sea's ecosystem already is deteriorating. Even without the IID transfer, scientists say the sea will eventually become too salty for fish; the transfer will accelerate that process. The issue at hand is how much of the larger Salton Sea restoration effort (see page 8) should be borne by the transfer.

"The Salton Sea will be lost whether transfers occur or not so it's not fair to say transfers have to bear the brunt of the Salton Sea fix," said Robert Johnson, regional director of the Bureau's Lower Colorado Region.

How to pay for these environmental mitigation measures also must be determined. In its agreement with SDCWA, IID placed a $15 million cap on the amount of money it would spend on upfront mitigation (plus an additional $15 million for ongoing mitigation), providing an escape clause from the transfer deal if the costs were greater. There are many indications that the mitigation proposed by the U.S. Fish and Wildlife Service (USFWS) will cost much more, and in order to keep the transfer alive, some of the other California parties and/or the federal government may need to help foot the bill.

Rep. Duncan Hunter, R-El Cajon, has introduced legislation, HR 2764, capping the transfer's share of Salton Sea mitigation at $60 million, and providing federal funds to pay for it. But that $60 million would not be available until 2008, according to environmentalists, who also dislike the bill because it would eliminate public review of a habitat conservation plan (HCP) for certain endangered species.

"It's a terrible bill," said Michael Cohen, senior research associate for the Pacific Institute for Studies in Development, Environment and Security. "It arbitrarily limits the rights of groups to sue, and the time they have to do so, and it relies on an HCP that has been drafted in secret by IID and still has not received any public review."

Although Hunter's bill remains stalled in the House Resources Committee, another bill, HR 3208, by Rep. Ken Calvert, R-Riverside, that includes a $60 million appropriation for activities to address environmental impacts on the Salton Sea associated with implementation of the Quantification Settlement Agreement (QSA) recently cleared the committee 24-18.

Endangered species also are an issue at the state level. The California parties backed legislation to provide the IID-SDCWA water transfer with a waiver from the state's Fully Protected Species Act, which prohibits the "taking" of certain endangered species. Two of California's "no take" species – the brown pelican and desert pupfish – are found in the Salton Sea.

A bill amending this law on a statewide basis failed to pass the state Legislature before it adjourned, but can be reconsidered when the Legislature reconvenes in January. Although

environmentalists oppose the bill, they have indicated a willingness to negotiate on a Salton Sea-only relaxation of the rule, as provided in AB 1561.

The California parties say passage of the state and federal legislation is crucial to the future of the transfer, especially if they are to make the looming deadlines to complete the studies, legal documents and begin transferring water by January 2003.

Even as officials grapple with Salton Sea-related questions, another environmental issue looms on the horizon – supplying water for the Colorado River Delta. Environmentalists tried, but failed, to gain a reliable source of water for this wetlands area south of the border in the Guidelines. They fear implementation of the 4.4 Plan may further reduce what water the Delta does receive through flood control releases because Lake Mead will be maintained at a lower level.

"The lower Lake Mead is, the lower the possibility we will have flood flow releases out of Lake Mead to the Delta," said Pam Hyde, executive director of Southwest Rivers. "Are we looking at no water for the Delta?"

This issue of *Western Water* updates progress on the 4.4 Plan, with a special focus on the Salton Sea restoration/water transfer dilemma. More Colorado River information is available in the Foundation's recently updated *Layperson's Guide to the Colorado River*, written proceedings of Colorado River symposia, back issues of *Western Water*, and the biannual *River Report* newsletter, which focuses exclusively on Colorado River issues.

Background

With the signing of the 1922 Colorado River Compact, each basin was granted roughly 7.5 million acre-feet a year. (The Upper Basin states are required to send to the Lower Basin states 75 million acre-feet every 10 years.) Water within the Lower Basin was divided this way: California, 4.4 million acre-feet; Arizona 2.8 million acre-feet and Nevada, 300,000 acre-feet. Yet California has historically used up to 5.2 million acre-feet a year, some 800,000 acre-feet beyond its basic apportionment. For MWD, such water is crucial because its share of the 4.4 million acre-feet, 550,000 acre-feet, is less than half the capacity of its Colorado River Aqueduct.

Until the 1990s, the fact that California consumed more than its share of Colorado River water provoked only minor controversy; after all, the state was simply using water its Lower Basin neighbors did not use. But things changed. Unprecedented growth in southern Nevada brought it close to its full apportionment while Arizona implemented a groundwater storage program under which it diverts nearly its full share.

The first formal surplus under the Annual Operating Plan was declared by the Secretary of the Interior, who serves as watermaster of the Lower Colorado River, in 1996. Favorable hydrologic conditions allowed for subsequent surplus declarations in 1997, 1998, 1999 and 2000.

California's continued reliance on surplus water and the fact that the Lower Basin was near its full apportionment generated unease in the Upper Basin; officials fear such a situation long term could jeopardize the delicate political balance established by the Compact.

With political pressure building from the other Colorado River Basin states and the federal government, California's Colorado River contractors gradually moved from conflict to cooperation (see page 8).

The subsequent Guidelines allow, under certain circumstances, for the greater draw down of Lake Mead, providing California with a greater probability of surplus water. (In 2001, a limited surplus was declared by Interior under existing guidelines.)

For 2002, the Bureau plans to declare a full domestic surplus from Lake Mead as defined in Section 2 of the guidelines as adopted in early 2001, with the amount of surplus water to be released from Lake Mead

"The Salton Sea will be lost whether transfers occur or not so it's not fair to say transfers have to bear the brunt of the Salton Sea fix."

– Robert Johnson, US Bureau of Reclamation

not expected to exceed 640,000 acre-feet. This will provide MWD with a full aqueduct, and some surplus water for domestic users in Nevada and Arizona. (The decision will be reviewed mid-year.)

The IID-SDCWA transfer and the larger Salton Sea restoration proposal each is the focus of its own Environmental Impact Statement and Environmental Impact Report (EIS/EIR). According to SDCWA, the study of the transfer's effects on endangered species has been completed, and SDCWA and IID have made "good progress" on reaching agreements with federal and state fishery officials on what types of projects are needed to offset the impact on the Salton Sea. But they say progress has been slowed because of questions about the Salton Sea that they had expected to be addressed in the larger EIS/EIR, originally scheduled for completion in 2000. If those questions aren't answered, they can't finish their EIS/EIR, which means the transfer won't go forward. But those who are working on the sea's restoration say it is difficult to choose an alternative until they know when the transfer(s) will take place and how much inflow will decline.

"The two EIRs are on parallel tracks," said IID President Horne. "But at some point, the tracks intersect and there is a real chance of a train wreck."

The Salton Sea

Once California's largest fresh water lake, the 375-square-mile Salton Sea today is 25 percent saltier than the Pacific Ocean. Without a natural outlet, water trapped more than 200 feet below sea level in this massive desert sink continually evaporates, increasing the salt content in the remaining water an estimated 1 percent per year. It is a natural process; one embodied in the highly saline Great Salt Lake in Utah and the Dead Sea of the Middle East.

Located in an otherwise harsh desert climate, the Salton Sea is tremendously attractive to birds, especially those in search of a stopover on the Pacific Flyway, the migratory route between South and North America. According to the Salton Sea Authority, millions of birds use the sea each winter day, and some 408 species of birds have been identified at the sea, which is a popular site for birders from around the world. USFWS officials say the disappearance of some 90 percent of California's wetlands makes the sea all that more important.

The Salton Sea originally was inhabited by fresh water fish transported via the Colorado River or intentionally introduced. But the sea gradually became saltier and by the 1930s, many of these fish had died. Wanting to maintain a viable recre-

The California Plan

As outlined in the 1999 Key Terms for Quantification Settlement Agreement, the California parties that share the Colorado River established these broad conditions:

- IID's basic annual apportionment was set at 3.1 million acre-feet of the 3.85 million acre-feet apportioned to the agricultural districts. This is the baseline from which IID will establish a program to conserve water and, ultimately, reduce its use to approximately 2.7 million acre-feet. The water conserved will be transferred to other entities.
- CVWD's basic annual apportionment was set at 330,000 acre-feet. But, CVWD will have the ability to obtain additional water, including 100,000 acre-feet from IID and MWD, for an annual total of 456,000 acre-feet.
- MWD's basic annual apportionment under its fourth priority is to remain at 550,000 acre-feet, but combined with related transactions, could reach as high as an additional 651,000 acre-feet annually. In addition, the Guidelines will allow MWD to receive enough water, in most years, to fill its 1.25 million acre-feet Colorado River Aqueduct.
- Between 130,000 and 200,000 acre-feet of water is to be transferred annually from IID to SDCWA under terms of those agencies' agreement and an exchange agreement between SDCWA and MWD.

The key terms also provided 16,000 acre-feet for facilitating implementation of the San Luis Rey Indian Rights Settlement. This water, as well as an additional of 77,700 acre-feet for MWD, will come from conserved water generated by lining portions of the All-American and Coachella canals.

ational fishery, California fish and game officials planted some 30 species of salt-water fish from the Gulf of California into the Salton Sea. Many thrived, and the sea became one of the most productive fisheries in California. Although some of the fish continue to persist in the current salinity concentration of 44,000 parts per million (the ocean is 35,000 ppm), scientists fear when the sea's salinity reaches 50,000 ppm to 60,000 ppm, the fish will begin to die off. Many of the birds at the sea, in turn, would lose their primary source of food.

Since 1998, the Bureau and the Salton Sea Authority have studied ways to stabilize the sea's salinity through the Salton Sea Restoration Project by annually extracting some 5 million tons of salt, creating, in effect, an artificial outlet. In 2000, officials released a draft EIS/EIR focusing on five potential options: diking off portions of the sea, allowing some areas to grow saltier; accelerating the atural evaporation/salt concentration process by pumping water out of the sea and spraying it into the air; or a combination of these two approaches.

Even as officials look for a way to have water to transfer and to help restore the Salton Sea's ecosystem, some question whether it might be easier and less expensive to replicate the environment of the Salton Sea somewhere else within the Colorado River Basin.

"My understanding is the Salton Sea is going to die if nothing is done, and while the transfer may expedite this process, this is part of the natural process. I question whether it makes sense to hold up a water transfer that is not creating the problem," said Patricia Mulroy, general manager of the Southern Nevada Water Authority (SNWA). "There are a lot of environmental issues on this river that need to be addressed, and I question whether the Salton Sea is the place to put the money."

Others, however, believe the sea offers valuable habitat. The local group Save Our Sea II advocates saving the sea not only because of its benefits to the environment, but to the local economy as well.

In November, federal legislation by Rep. Mary Bono, R-Palm Springs, providing $4.5 million for ongoing restoration was signed into law.

Even without the transfer, if nothing is done to offset the sea's increasing salinity, scientists estimate the sea will reach the 50,000-ppm to 60,000-ppm threshold in 12 to 20 years. The sea now receives about 1.3 million acre-feet in inflow. Agricultural drainage from IID farms provides most of that water, about 1 million acre-feet. If both the IID-SDCWA and the IID-CVWD transfers go through, inflow from IID farms could drop to 700,000 acre-feet.

Since 1998, the Salton Sea Authority and the Bureau have been studying ways to stabilize the sea's salinity by annually extracting some 5 million tons of salt, creating, in effect, an artificial outlet for the sea.

Because the sea's evaporation rate is now equal to its present inflow, this reduction would accelerate the sea's rising salinity. With the transfers, scientists believe the Salton Sea would reach the 50,000 ppm to 60,000 ppm threshold at least 10 years earlier, maybe even sooner. The sea also would shrink in size, leaving many people who now have lakefront

If the transfer deal fails or is delayed, southern California urban water suppliers and users are most at risk because they are last in line when it comes to state's basic Colorado River water apportionment.

property several hundred yards from the shoreline.

According to Mike Walker, who manages the Bureau's Salton Sea Program, the link between the transfer and the sea's decline has left officials with this difficult question to answer: "How do you mitigate for time?"

One controversial approach included in the pending Bureau-Salton Sea Authority revised draft EIS/EIR, to be released early in 2002, would leave some IID farmland unplanted (fallowed) to provide water for the transfers *and* maintain some inflow to the sea. How much land would be fallowed depends on the amount of water that IID transfers. To produce the 200,000 acre-feet IID has committed to transfer to SDCWA would require the idling of some 35,000 acres – a little less than 10 percent of IID's 450,000 irrigated acres.

The proposed QSA, however, calls for the conservation and transfer of 300,000 acre-feet, which would require fallowing at least 50,000 acres. With additional acreage needed for construction of solar evaporation ponds to reduce the sea's salt concentration, officials estimate at least 74,000 acres of land within IID would need to come out of agricultural production.

Although the revised draft EIS/EIR was not released publicly, it was leaked to area newspapers, and quickly generated criticism from Imperial Valley residents and IID directors, who voted at a Nov. 7 meeting to oppose fallowing to save the sea because it would cost the area too many jobs.

Two of the six alternatives would include some "land use conversion" (fallowing), including the least-expensive alternative in the revised draft. Although these dollar figures may change, the six alternatives (based on future inflow of 1 million acre-feet) and their "present value," (which includes capital costs and estimated operation and maintenance costs for the life of the project) are:

- Construction of in-sea solar evaporation ponds, with terraced in-sea salt disposal facilities, using standard dike-construction procedures, $1.6 billion.
- Construction of ground-based enhanced-evaporation systems (turbo-enhanced blower units), $630 million.
- Construction of tower-based enhanced-evaporation systems and on-land terraced salt-disposal facilities, $918 million.
- Construction of in-sea and on-land solar ponds in combination with some "land-use conversion," $450 million.
- Construction of on-land solar evaporation ponds with on-land terraced salt-disposal facilities, $413 million.
- Construction of on-land evaporation ponds and "land-use conversion," $250 million.

Bureau officials say they know how controversial the subject of fallowing is in the Imperial Valley, and that it is ultimately up to the community to determine how to proceed. But they want to make sure the community has all the facts on fallowing vs. on-farm conservation methods – including the economic benefits and trade-offs – when it comes to saving the Salton Sea, and meeting obligations to provide water for transfer.

Although he conceded that fallowing might have the least envi-

ronmental impact on the Salton Sea, Horne said fallowing has long been considered off-limits within the Imperial Valley. "The transfer agreement has a prohibition in it against using fallowing as a way of water conservation," he said.

The legality of discharging water saved by fallowing directly to the Salton Sea is questionable.

In the 2000 draft EIS/EIR, the Bureau and Salton Sea Authority had proposed tapping the Colorado River in flood years to provide periodic transfusions of fresher water into the sea. But such a measure is illegal under the Law of the River, not to mention politically infeasible when California already is under pressure to reduce its use of the river. The agencies are no longer considering this option.

Nor would such a measure gain support from environmentalists who already are fighting to gain access to such flood releases for the Mexican Delta (see page 12).

Even as water officials search for a way to save the sea and implement the transfer, the transfer itself continues to generate opposition from some IID board members and local citizens.

But if the transfer does not go through, it could very well jeopardize the state's ability to tap surplus water over the next 15 years. To ensure that California reduced its draw on the Colorado River, the other Colorado River Basin states linked completion of and adherence to the QSA (including the IID-SDCWA deal) to receiving the benefits of the Guidelines.

The MWD-PVID Proposal

In an effort to fulfill the 4.4 plan, MWD is aggressively pursuing programs in which it would bank and store Colorado River water. In July, MWD officials announced the potential for yet another source of Colorado River water – a landmark partnership with Palo Verde Irrigation District (PVID) in which farmers would be paid to fallow part of their land, transferring this water to MWD.

Under terms of the proposed 35-year agreement, MWD would make a one-time payment of $3,170 per acre to participating PVID farmers, up to a maximum of $84 million. For each acre fallowed, MWD would pay PVID farmers $550, plus a yearly percentage that has yet to be determined.

PVID farmers, in turn, would fallow 7 to 29 percent of their irrigated acreage in any given year of the program, providing MWD with 25,000 to 111,000 acre-feet of water per year – 1.76 million acre-feet to 3.63 million acre-feet over the life of the agreement. Annual acreage participating in the program would range from a minimum of 6,000 acres to a maximum of 26,500 acres. Currently, about 91,400 acres are being farmed in PVID. To address potential third-party impacts to farm workers, equipment dealers and others, MWD has proposed investing $6 million in local community programs.

PVID officials say they are exploring the partnership primarily because of economics. If the transfer deal is implemented, participating farmers would receive a stable income that could help them re-pay debt or finance on-farm improvements.

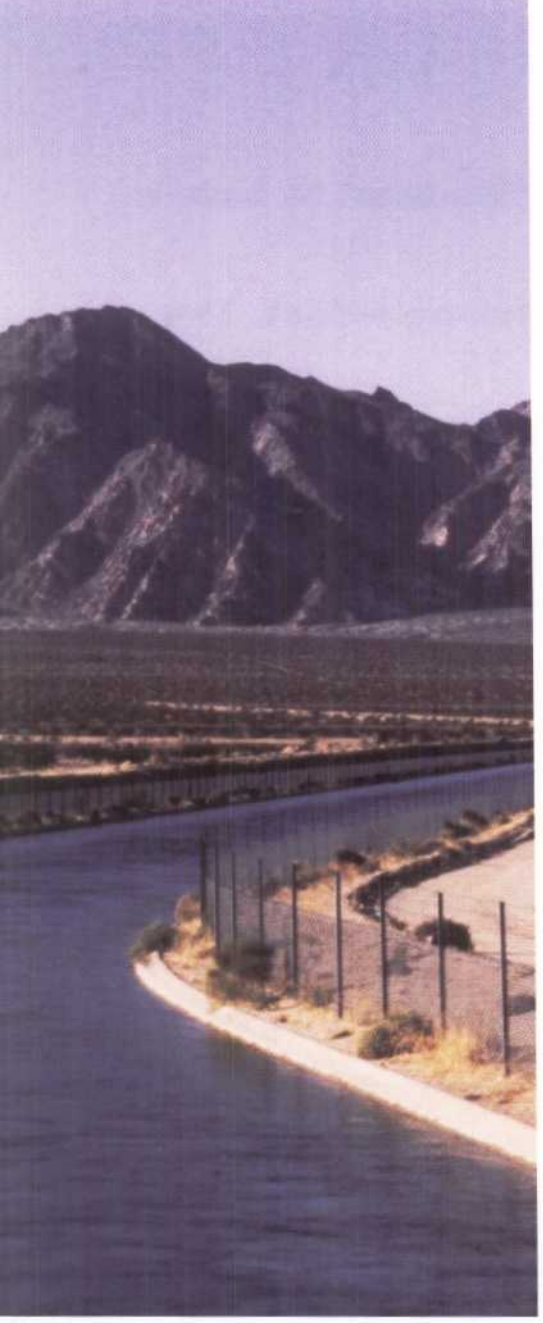
For MWD, the deal would provide even more assurances that it will be able to maintain a full Colorado River Aqueduct beyond the 15-years of surplus water provided by the Guidelines. "We want to have a full aqueduct," Underwood said. "The farther you go out in time, the less likely there will be surplus water, the more problems we would have."

But the program could be in place as early as 2002, leading MWD to suggest that it could help California meet the reduction targets for agricultural water use outlined in the Guidelines.

"The Guidelines are clear," MWD Chief Executive Officer Ronald Gastelum wrote in an Aug. 27 letter to DWR Director Hannigan. "If the Quantification Settlement Agreement is not executed by December 31, 2002 by all the parties, the Guidelines will

"We want to have a full aqueduct. The farther you go out in time, the less likely there will be surplus water, the more problems we would have."

– Dennis Underwood, MWD



The Colorado River Aqueduct.

be suspended unless we can demonstrate a reliable reduction in California's water use of Colorado River water as specified in the Guidelines.

"I am confident," the letter continued, "we can demonstrate compliance with these benchmarks and would welcome an opportunity to explain how Metropolitan has made and is planning to make the necessary investments in programs and projects to reduce Colorado River water use."

According to Underwood, MWD's intent was to point out that even if the IID-SDCWA transfer were delayed because of the Salton Sea dilemma, California could meet the conservation targets established through negotiations with the six other Colorado River Basin states, allowing the Guidelines to proceed as planned.

But the letter stirred up a political firestorm among the other California parties, in part because the QSA's goal was that everyone move forward together. Some of the other agencies also questioned whether MWD correctly interpreted the Guidelines.

The California parties also disliked Gastelum's letter because it indicated legislation might not be necessary to resolve the Salton Sea's environmental issues, legislation the other entities say is crucial to the plan's success.

Gastelum subsequently wrote a second letter to Hannigan. In his Aug. 31 letter, Gastelum noted "the four agencies believe everything possible must be done to facilitate execution of the QSA by December 31, 2002, including state and federal legislation to deal with the Salton Sea issue and the state fully protected species provisions."

As part of its program with PVID, MWD announced in October that it was purchasing 16,344 acres near Blythe from the San Diego Gas & Electric Co. for $42.5 million. Palo Verde farmers are now leasing about 9,704 acres of the property and MWD plans to include this land in the program. As with other PVID lands, however, MWD has pledged to fallow no more than 29 percent of this acreage in any given year.

PVID has one of the oldest and highest priority rights to water from the Colorado River, filing its first appropriative claim in 1877. In contrast to IID, which holds the Colorado River rights in trust for its farmers, water rights in PVID are attached to the land and each landowner controls his or her rights. At this point, it is unclear how many farmers will ultimately sign up for the program, but under a MWD-PVID 1992-1994 test program, 63 agreements with landowners and lessees were signed, saving nearly 93,000 acre-feet of water per year for two years.

The Mexican Delta

In its natural state, the turbulent Colorado River changed course as the force of its waters carved through the region's sandstone. At times, the 1,440-mile river ended at the Gulf of California in Mexico. Other times, th river discharged into the Imperial Valley, forming ancient Lake Cahuilla, twice the size of today's Salton Sea. In fact, millions of years ago, these two bodies of water were linked – until the build up of soft silt carried down the river cut off the sea from the gulf.

The Colorado River Basin's extensive storage has helped even out the annual flows, providing for a more reliable source of water. And since completion of Glen Canyon Dam, water seldom reaches the Gulf of California. (Mexico uses most of its 1.5 million acre-feet annual Colorado River entitlement for irrigation and domestic use in the Mexicali Valley.) Wet conditions and high storage in Lake Mead changed that in the 1980s and 1990s as water flowed down the river below Morelos Dam, reaching the Delta. (Water actually reached the Gulf itself five times.)

Wetlands in the Delta region just below the U.S.-Mexico border benefited from these flows. The flows regenerated vegetation, improving habitat for fish and wildlife, including

endangered species such as the desert pupfish, southwestern willow flycatcher and Yuma clapper rail.

Throughout the process to develop the Guidelines, environmentalists fought to include regular water supplies for the Colorado River Delta, contending that Interior's decision to draw down Lake Mead to provide surplus water will reduce the frequency of flood releases to the Delta region.

Although Interior did not include water for the Delta in the Guidelines, top officials worked with environmentalists and Mexico on an interim step – a conceptual framework to consider U.S. and Mexico studies related to restoration of the Delta.

In September, 400 water users, researchers, stakeholders and government officials from Mexico and the United States – including representatives from the Interior and State departments – met in Mexicali at the Colorado River Delta Stakeholder Symposium. Although it was disrupted by the Sept. 11 terrorist attack, some participating agencies still believe the symposium was beneficial. Others, however, think the symposium should be repeated at a future date because many people had to leave early in response to the attack.

For environmentalists, the symposium was only the latest event illustrating the Colorado River Delta's increased status among the basin states and Interior. "A lot of progress has been made. We have made the Delta into a major environmental issue," said the Southwest River's Hyde, "but we still have not gotten any water."

In March, environmental groups launched a new program in which they call for 1 percent of the river's flow – 150,000 acre-feet – to be delivered annually to the Delta.

"The Delta is an issue that's not going to go away," said SNWA's Mulroy. "I think we'll be forced to deal with it."

What Next?

"Win-win" has become the common catchphrase of today's focus on finding compromise solutions to intractable water problems. It is an admirable goal, yet one difficult to achieve. Consider the 4.4 Plan. California's Colorado River parties have made progress in developing a compromise plan on how to share this valuable resource, yet conflicts and controversies remain.

At the heart of the ongoing effort is the yet-unresolved dilemma of whether it is possible to save the Salton Sea and implement the landmark IID-SDCWA conservation-transfer agreement.

No easy answer exists, which is why the Salton Sea's rising salinity remains unresolved some 35 years after the Bureau and California DWR first conducted a joint appraisal of possible alternatives.

The California parties say passage of the federal and state bills related to the sea's endangered species would be a significant first step toward finding a solution. "I think most people believe some sort of legislation will be needed to address both the federal and state endangered species acts," said Tom Levy, general manager of CVWD.

Yet even if the state and federal environmental issues are resolved by passage of this legislation, the issue of local support for a water transfer that may require fallowing rather than water conservation has heightened questions about whether the IID-SDCWA transfer will truly proceed.

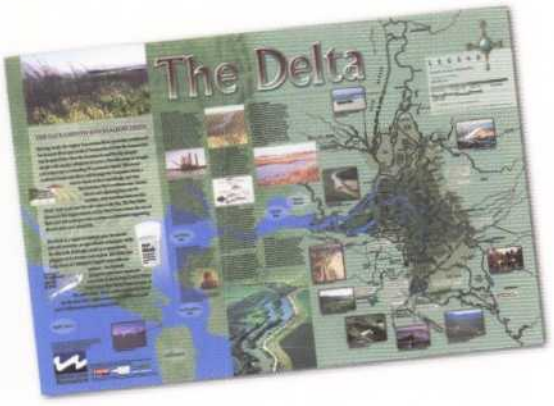
Bureau Regional Director Johnson is convinced the 4.4 Plan's difficulties will be resolved. "I think IID stands to lose more by not implementing the transfers," he said. "In fact, they have a lot to gain by implementing the transfers."

Hyde agreed. "I think that California has gone far enough now that they have a lot of incentives to keep the plan moving forward," she said. "And I think there are a lot of powerful interests who will ensure that these linchpins will go forward. Somebody will find a path around the impasse to make this happen." ❖

"California has gone far enough now that they have a lot of incentives to keep the plan moving forward. Somebody will find a path around the impasse to make this happen."

– Pamela Hyde, Southwest Rivers

What's New



The new Delta Map includes many of CALFED's proposed projects.

New Delta Map – Now Featuring CALFED Proposed Projects

A revised and updated version of our popular **Delta Map** poster is now available from the Foundation.

The base map, adapted from the California Department of Water Resources' *Delta Atlas*, shows waterways, pumping facilities and canals in the Delta. The revised poster also includes Los Vaqueros Reservoir and the location of the proposed Delta Wetlands Project. Text and photos explain Delta issues, and the importance of the Delta to all Californians.

The 2001 version of the map also features many of the proposed projects and studies identified in the CALFED Bay-Delta Program's 2000 Record of Decision, such as fish screens, the dissolved oxygen study, channel enlargements and agricultural drainage improvements. Assisting the Foundation with development of this revised map were CalFed the Bank, the U.S. Geological Survey, and the CALFED Bay-Delta Program.

Suitable for framing and display in any office, copies of this beautiful 36x24" poster are available for $8.50 each, plus appropriate sales tax and shipping charges. To order, visit our web page, www.watereducation.org, or contact Diana Farmer at the Foundation, 916-444-6240.

Lake Tahoe is a stop on the Foundation's Sierra Watersheds Tour.

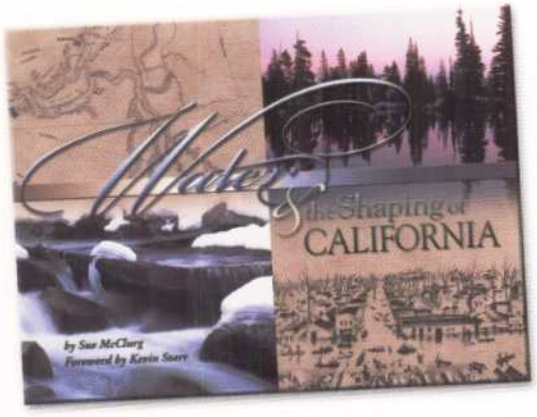
Tour Dates Set, Briefings Scheduled

Mark your calendars – the Foundation has set the dates for its **2002 water tours and briefings**. The tours offer participants a firsthand look at the water facilities, rivers and regions critical in the water debate. Speakers from different viewpoints discuss water supply, water quality, groundwater, environmental restoration, flood management, water marketing and water conservation.

In 2002, the Foundation will offer six tours! Seating is limited – most of these are one-bus tours – so register early!

Tour dates: **Lower Colorado River, March 20-22; Central Valley, May 22-24; Bay-Delta, June 19-21; Sierra Watersheds, September 11-13; Northern California Fisheries and Facilities, October 2-4; Southern California Groundwater, October 23-25**. All tours are three days and two nights.

The Foundation also has scheduled its two annual briefings. The **Executive Briefing will be March 14** in Sacramento. The **Water Law and Policy Briefing will be July 18-19** in San Diego. Watch our web site – www.watereducation.org – for more information, including on-line registration forms, or call the Foundation and request a free tours brochure.



The Foundation's book, *Water & the Shaping of California*, is the ideal gift for clients and colleagues.

The Perfect Holiday Gift

The story of California is the story of water and no book tells that story better than *Water & the Shaping of California*. Released in 2000, **this beautifully designed; oversized "coffee table" book is an ideal gift for colleagues and clients**. Filled with gorgeous photos, a treasury of water literature, and general text written by Foundation Chief Writer Sue McClurg, *Water & the Shaping of California* discusses the engineering feats, political decisions and popular opinion that shaped the nature of the state's most vital resource – water.

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Available in both hardcover and paperback, copies can be ordered through our web site, www.watereducation.org, or by calling the Foundation, 916-444-6240. Discounts are available for orders of five or more books – contact Diana Farmer at the Foundation for more information. ❖

Colorado River Materials

Item No. 4010 November/December 2001 *Western Water*, The California Plan and the Salton Sea, $3.00 each.

Item No. 4000 Yearly subscription to *Western Water*, a bimonthly magazine, $35.00

Item No. 2020 Colorado River Water Map, 32x38 inch poster, suitable for framing, depicts the seven Western states that share the Colorado River. $8.50 each. (100 or more, $7.00 each, Item No. 2020.1)

Item No. 4540 *Layperson's Guide to the Colorado River* 28-page guide updated in 2001, $6.00 each (10 or more, $5.00 each, Item No. 4540.1)

Item No. 4020 Yearly subscription to *River Report*, a bi-annual newsletter devoted to Colorado River issues, $25.00 (Call for information regarding back issues)

Item No. 7090 Colorado River Facts, 4x9 inch slide card that includes information about the Colorado River, $1.00 each (100 or more, $0.85 each, Item No. 7090.01)

Item No. 4675 *Colorado River Symposium Proceedings*, 158-page proceedings of 1999 symposium "Managing the Colorado River: Past, Present and Future." A vital resource for universities, libraries and law schools. $50.00 each.

Item No. 4670 *Colorado River Symposium Compact Proceedings*, 204-page proceedings of 1997 stakeholder symposium marking 75th anniversary of the Colorado River Compact. A vital resource for universities, libraries and law schools. $50.00 each.

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