Winter 1990 Vol. 12, No. 3 Carl Dennis Buell

# **MLC Buys Visitor Center**

Home Sweet Home

Since 1979 the Mono Lake Committee has had a store, information center and offices housed in an old, uninsulated building in Lee Vining. The place was built as a dance hall in 1934. Live bands entertained the workers constructing the Tioga Road and tunneling the DWP aqueduct beneath the Mono Craters. Since that time the structure has housed various shops.

For the first two winters we had no heat, and so the essential office (typewriter and phone) migrated two blocks west to the Gaines' home/office. Ten years later, we've progressed to adequate heat in the office space, but visitors still freeze in the store and slide show room. Although the rent has always been reasonable, the inability to obtain a lease curtailed our improvements. The specter of someone buying the building out from under us kept us biting our nails.

Several years ago, we started work on a fundraising program to purchase the building. Since this was a big dream of Dave's, I asked for memorial contributions to be earmarked for this project. \$57,000 in donations ac-

cumulated in this fund and we borrowed the remaining \$19,000 from our operating budget and are now working on repaying it. On October 11, the building finally became ours. Now that we own it, remodeling is on our minds. The eight permanent staff and two to four interns are cramped. They dream of more desk and storage area. (Sorry gang, no jacuzzi.) We also envision building a nicer store and interpretive space.

The MLC is fortunate to have a capable architect working on our renovation plans. Michael Olexo of Olexo Architecture and Landscaping has made several presentations to MLC and Mono Lake Foundation directors and MLC staff. We've had many brainstorming sessions on various designs and are exploring the possibility of a partial second story in the main building to gain light, solar heat and a view of the lake. Outside we will trade asphalt for a native plant garden and shady resting spot for weary tourists.

But before we can start on new construction, we need

But before we can start on new construction, we need about \$150,000 in a new bank account labelled "Visitor Center Remodel." We are looking for grants and new sources of money. You, the members, have been very faithful and generous in support of the lawsuits and the defense of Mono Lake. We do not wish to divert your funds to remodeling, but we do ask you to be thinking of talents, services, equipment or people-power you could donate when we are actually renovating inner walls, plumbing, heating, electrical systems, windows, displays,

office equipment, landscaping materials, etc. Let us know. Your donations of time and skill will help us raise matching funds from granting agencies and donors. Call Shelly Backlar at the LA office, (213) 477-8229, with funding ideas and Sally Gaines at (619) 647-6496, for physical project ideas. And thanks for all your contributions to the memorial building fund which made these dreams possible!

Sally Gaines

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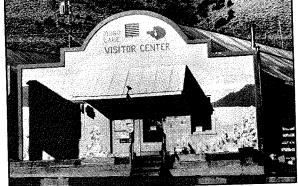
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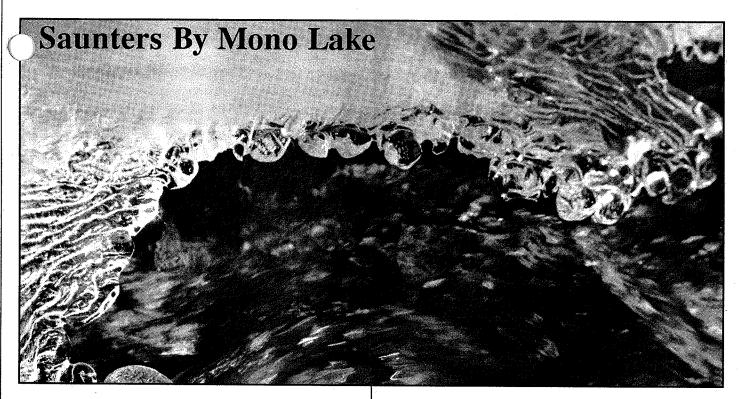
THE MONO LAKE COMMITTEE is a non-profit citizen's group dedicated to saving Mono Lake from the excessive diversion of water from its tributary streams. We seek a compromise that will meet the real water needs of Los Angeles and leave our children a living, healthy and beautiful lake.

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When the ripples at the ford of the creek raise a clear half tone—sign that the snow has come down from the heated high ridges—it is time to light the evening fire.

Mary Austin
The Land of Little Rain

I have been out listening to creeks. Their voices vary with the seasons, but such long-term changes you seldom notice. What intrigues me are the changes that can be heard in an afternoon or quiet morning.

Occasionally, sitting by a stream, preoccupied with reading or writing, I notice a shifting of pitch. I glance at the water after the sound has caught my attention but am always too late. It's like hearing the whir of an approaching ouzel and catching sight of only a shadowy blur disappearing around a bend of the stream bank. It never ocurred to me to wonder why a stream's voice altered until I read Mary Austin.

The most obvious reason for the rising and falling of creek song is an increase or decrease of water. This explains most melodic variations, but there are still mysteries. One late autumn day I was reading along the Dana Fork of the Tuolumne when I half-heard a sudden tonal transition from the water upstream. I went to the spot where the change had been. There was no evidence that the water level had altered, but the timbre was distinctly different. Perhaps a rock had rolled down stream? Was erosion a player in this creek piece? Surrounded by the granite glory of the Yosemite high country, I began to wonder if there was always an answer to why the voices fithe watershed swelled and ebbed. Why analyze the

ter's moods and self-expression?

As winter settled in, the high country lay under snow and I found myself spending more time at home with Lee

Vining Creek. Come fall or spring, below the Los Angeles diversion dam, the creek flows at the same rate—five cubic feet per second. This is the minimum flow the Department of Water and Power is required to release for the creek's trout fishery. It's not much water. In all seasons, I can hop from rock to rock up the middle of the creek, just like the ouzel.

This minimum flow is infinitely better than nothing—which would be the reality without the court-ordered injunction. But Lee Vining Creek's voice can't drown out the sound of traffic on the highway even when I sit right next to it.

As winter solstice approaches, poconip, the freezing fog, takes up residence in the Basin. Ice flourishes. The creek has begun its season of creating infinite frozen sculptures—new each morning. Meandering among the undulating flows, I see dark bubbles darting beneath the ice like schools of fish. I hear the drone note of the water punctuated by clunks and chortles of the ever-shifting ice. Deep-throated gurgles murmur under layers of frozen water, roofs over rocks, bridges between stepping stones. Light, crystalline snaps emanate from the lacy edges of the spray ice. An endless variety of sounds overlays an ongoing monotony.

After a recent morning of creek listening, I returned to the office amid a scene of celebration. We'd just heard that Judge Finney had ordered DWP to release the full flow of Lee Vining Creek. Full flow. The highs and lows of creek life. The stuff that stream arias are made of. When the flow begins in a few days, I will be listening for the glacial resonance and ephemeral rills tumbling down from the ice palaces of Mt. Conness to the lakeshore.

Lauren Davis

# Legal Update: Waiting for the Flow

On December 6, Superior Court Judge Finney issued the final order for the Preliminary Injunction, based on his August 29 decision that DWP must raise and maintain Mono Lake at the 6377 foot elevation by March 31, 1990. The final order reaffirms Finney's conclusion that Mono Lake should remain above the 6377 level and is, in effect, a denial of DWP's motion to reconsider his earlier decision. The order also stipulates that water should be returned to Mono Lake, not only down Rush Creek, but down Lee Vining Creek as well. Earlier, DWP refused to release water down any of the other creeks it diverts. By allowing Lee Vining Creek to flow without diversions, water can reach the lake more quickly. Potential harm to the Rush Creek fishery from excessively heavy flows is also avoided.

Unfortunately, it may be a case of "too little, too late" for Mono Lake. Even if all the water in Grant Lake that is slated for Mono Lake is delivered, it will still be barely enough to cover the landbridge. Our only hope is that Mother Nature will bless the Mono Basin with a wet winter, providing the extra runoff to cover the landbridge thoroughly before the gulls return to nest in April.

On yet another front, our lawsuit involving DWP's violation of Fish and Game codes with its diversion of Mono Basin creeks is back again before the 3rd District Court of Appeals. Last January, the court stated that water licenses issued to DWP in 1974 were not valid because they did not comply with Fish and Game requirements for flows to preserve fisheries below dams. According to the court, DWP never had the right to dry up Mono Basin streams. The decision required the State

Water Resources Control Board to modify the water licenses by including requirements that fish below dams be kept in good condition by restoring water to all four streams. The decision of how the Board was to reissue the licenses was handed to Judge Cecily Bond of the Sacramento Superior Court in July.

Instead of ordering the Water Board to immediately insert conditions into DWP's licenses to protect the fisheries and requiring interim water releases while stream studies were in progress, Judge Bond allowed the Board to go ahead with their lengthy administrative process without recognizing that DWP is, on a daily basis, violating Fish and Game codes. We, California Trout and National Audubon appealed the Sacramento Superior Court's decision back to the 3rd District Court of Appeals. The case will be heard on January 23.

The State Water Resources Control Board is a key player in the Mono Lake issue. The Board is charged with not only reviewing DWP's licenses, but also took upon itself to consider how the public trust resources of Mono Lake will be preserved. The Water Board staff is currently developing a work plan that outlines how they will go about their tasks. The Board is simultaneously holding workshops to receive expert advice on specific areas such as riparian vegetation, wildlife, aquatic resources, air quality, hydrology and water use. These workshops are to provide technical advice and information to the Water Board staff and will be ongoing. The Board has until September of 1993 to complete its review of the Mono Lake issue.

Lauren Davis

# 1989 In Review

January

• The Third District Court of Appeals rules that the Mono water diversion licenses held by DWP are invalid because they violate state laws protecting streams and fisheries. The state is ordered to modify DWP's licenses, restoring water to Mono's diverted streams.

• The U.S. Forest Service receives nearly 2,500 responses to its draft management plan for the Mono Basin National Forest Scenic Area.

February

• The Eastern Sierra Water Symposium is held in Bishop. People from Inyo and Mono counties gather to consider regional water issues.

April

• The National Audubon Society and the Mono Lake Committee file for a preliminary injunction requesting that Mono Lake be raised and maintained above a minimum elevation of 6377 feet through March 30, 1990.

• The California Supreme Court unanimously upholds the Third District Court of Appeals decision invalidating DWP's water licenses.

 On April 21, winds sweeping across Mono's exposed lakebed create a severe dust storm which violates federal air quality standards. The Great Basin Air Pollution District steps up its Mono Basin monitoring program.

May

 Assembly Bills 444 and 1442—to assist the city of L.A. in replacing Mono Basin water supplies—are introduced to the State Assembly.

•El Dorado County Superior Court issues a temporary restraining order halting DWP's Mono Basin water exports. The water is stored in Grant Lake Reservoir pending a decision on the preliminary injunction.

July

• The State Water Resources Control Board wins a decision from the Sacramento Superior Court allowing the board to delay modifying DWP's licenses until multi-year studies on Mono Basin fisheries are completed.

• Evidence of predators on Negit Island raises concerns over declining lake level and the possible disruption of the gull colony during the 1990 nesting season.

August

El Dorado Superior Court grants the preliminary injunction, ordering DWP to raise Mono Lake to 6377 feet. In another case, the same court agrees to stay the Mono Lake Public Trust case four years to allow the State Water Resources Control Board to review the Mono Lake issue.

 MLC and Heal the Bay, a Los Angeles environmental group, launch a water conservation campaign to protect Mono Lake and Santa Monica Bay.

• A severe storm bring heavy rains to the Mono Basin and causes flash floods throughout the Eastern Sierra.

September

- AB 444 receives unanimous approval by the California legislature and Governor Deukmejian signs AB 444 and 1442 into law.
- Additional legislation brought by Senator Garamendi provides funding for water flow studies for the Mono Basin.
- Volunteers from the Eastern Sierra Audubon Society, the State Department of Parks and Recreation, and the local community build and dedicate the David Gaines Memorial Boardwalk at the Old Marina at Mono Lake.

#### October

- •DWP begins releasing water down Rush Creek to comply with the August preliminary injunction decision while its reconsideration request is pending. Rush Creek flows to 100 cubic feet per second.
- The State Water Resources Control Board begins to review DWP's water diversion licenses and to consider public trust values.
- •The Mono Lake Committee purchases the Lee Vining visitor center building with funds donated in memory of David Gaines and Don Oberlin.

#### November

- The Third District Court agrees to review the July decision by Sacramento Superior Court.
- Mono Lake Committee membership reaches 18,000!

  December
- Judge Finney rejects DWP's motion for reconsideration of the preliminary injunction for Mono Lake, and asks DWP to release water down Lee Vining, as well as Rush Creek, to comply with the preliminary injunction order. Lee Vining Creek releases begin December 20.

Paul Kohlberg

# Mono Lake Bill Spawns Lively Dialogue

The unamimous passage of Assembly Bill 444 by the tate legislature late this summer stimulated heated dissision within the water community. What does the bill really signify in the continuing struggle to regain water for Mono Lake? The most fiery debate so far has taken place in the pages of the Sacramento Bee between William Kahrl and Antonio Cosby-Rossmann. Bill Kahrl is currently an associate editor of the Bee, and wrote the book Water and Power. Tony Cosby-Rossmann is a well-known environmental attorney and has been a legal advisor to the Mono Lake Committee since 1976.

In an editorial entitled "Can LA buy its way out of a water crisis?" Kahrl raises the question, is AB 444 "a straight cash-on-the-barrelhead arrangement in which everybody else could wind up paying Los Angeles to stop what the law says it's not allowed to do anyway?"

Rossmann responded with a letter to the editor published in the *Bee* on September 30, 1989. He pointed out that "everybody else" to which Kahrl referred was the state, and that the state had helped to create the problem at Mono Lake. "From 1979 the state [Water Resources Control] board has resisted the Mono Lake Committee's assertion of public trust values violated by the board's 1940 permits [to DWP on Mono's streams]...Thus, appropriately the Legislature can offer state assistance to overcome a problem that the state through its water board has created and maintained." Rossmann also clarified that "Isenberg's bill rightfully prohibits the use of state funds to replace water to which Los Angeles has no lid claim."

AB 444 on current Mono Lake litigation. "Even if court

action does take a little longer, what public purpose would be served by short-circuiting that useful process now, in effect bailing Los Angeles out of the consequences of its own actions with a healthy infusion of somebody else's money?"

Rossmann countered by saying, "as the lawyer on the line as the Inyo and Mono disputes matured in the courtroom, this writer must take issue with Kahrl's unqualified faith in further litigation to produce final decisions protecting Mono Lake. Our past litigation reshaped California water law to place environmental values on a scale from which they had been absent...[but] there is no guarantee that the judges on their own would leave as much water [in Mono Lake] as we want. Thus a practical solution at the bargaining table rather than a doctrinal solution in the courtroom offers greater assurance and protections for the lake's future."

The Mono Lake Committee's goal is to find a permanent solution that meets the real needs of the lake and the city of Los Angeles, without transferring the problem to another ecosystem. In working for Mono Lake's defense for the past decade, we've learned one important strategy—diversify. Just as a diverse natural ecosystem is the most healthy and stable, so too is a diverse approach to problem solving. While Isenberg's and Baker's bills create an opportunity to seek solutions for Mono Lake, it doesn't solve the problem. We will continue to aggressively pursue our legal efforts, along with potential negotiations and public education in our search for permanent protection for Mono Lake.

Lauren Davis

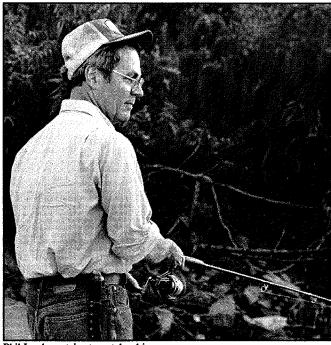
### Sacramento's Odd Couple:

### Mono Lake Backers Isenberg and Baker

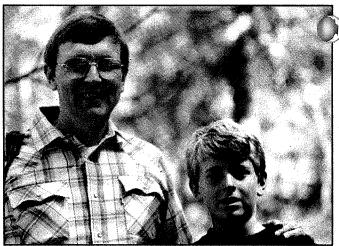
On September 22, California Governor George Deukmejian made history by signing Assembly Bills 444 and 1442 into law. Newspapers across the state hailed the agreement as innovative and unprecedented. Why? Because the bills represent a collaboration between two unlikely California Assembly members, one a Republican and one a Democrat. The two bills, known as the Environmental Water Act of 1989, provide \$390.8 million to help resolve some of the state's important water-related issues. \$60 million of the money is earmarked to fund projects that will assist the Los Angeles Department of Water and Power (DWP) in replacing its Mono Basin water diversions. In the following interview, Assemblyman Phil Isenberg (D-Sacramento) author of AB 444, and Assemblyman Bill Baker (R-Danville), author of AB 1442, reveal how their bills finally became law.

Eight years ago, Phil Isenberg and his wife first saw Mono Lake. Isenberg decided, "I'd like to DO something. It was nothing more specific than that." Late last year, the assemblyman hit upon what he could do and the time was right. "We started with a bond issue, but I knew all along I'd rather have REAL money because I wasn't sure there was the political coalition in the legislature sufficient to get a bond act for Mono Lake."

The opportunity for "real" money presented itself early in 1989 when Assemblyman Bill Baker's AB 1442 began moving through the legislature. Baker's bill eliminates a twenty-year-old debt between the state water contractors and the state of California, thereby providing



Phil Isenberg tries to catch a big one.



Bill Baker and son taking a break from politics.

the funding for solutions to some of the state's water-related problems.

Assemblyman Baker found Isenberg's proposal attractive because "I wanted the (Sacramento) Delta levees program funded. Phil and I both represent Delta counties." They also wanted to include Mono Lake in their legislative package because, at the state level, the problem seemed so intractable. Describing each other as problem-solvers, Isenberg and Baker have worked on a variety of bills together in the last year. Baker says of his colleague: "Phil is very easy to work with. I have a great deal of respect for him."

When asked why he agreed to the Mono Lake package, Baker responded, "I believe in the projects. I also feel strongly that we need more wetlands along the Pacific Flyway. We must work closely with the Mono Lake Committee, the Audubon Society, and the other responsible environmental groups to bring this about... We need to develop water resources in an environmentally sensitive way."

Getting both bills through the Assembly was "pretty easy," according to Baker. The real stumbling block occurred in the Senate Water and Agriculture Committee. Large water users like the Metropolitan Water District were uneasy with the proposal. The California Department of Water Resources also expressed reservations. As Baker says, "They wanted specifics." Isenberg always felt that the chances of ultimately passing both bills was very slim. "Everyone looked suspiciously at the bills, but it's hard to turn down somebody who says, 'Hi, we'd like to help you solve your problem, and we're not asking anything else in return.'"

In hammering out the final agreement to the satisfaction of the Department of Water Resources, staff members of both assemblymen were invaluable. As Isenberg points out, "The staff doesn't get any credit, but they should get 75% of it. Rick Battson and Mark Watts put the issues together and negotiated every term."

Responding to arguments from some quarters that the Isenberg-Baker package bought Los Angeles out of a mess of its own creation, Baker replies, "Read the bills."

None of the money in our bills can be used to help outhern California out of its lawsuits. That's a non-sue, a red herring." Isenberg agreed, pointing out that some people believe it's more important to win lawsuits than save the lake. "I was unwilling to risk the lake in hopes that all the courts would conclude that Los Angeles had screwed up and must bear all the [financial burden], regardless of how high those costs are."

Will water packages like AB 444 and AB 1442 be possible in the future? Yes, say both Isenberg and Baker. Obstacles do exist, however. Baker points to a "natural wariness of legislators, their need to represent their own geography." The key, he says, "is to bring everyone into the process, from big water users to environmentalists, so they will know what we're proposing is not a ploy, a trick. It is essential that everyone be able to claim victory."

The real importance of the two bills, from Isenberg's perspective, is not the \$60 million earmarked for Mono Lake. Rather, the most significant victory is that the state of California has finally been brought into the process. Combined with federal legislation now being proposed by Senator Pete Wilson, Isenberg says, "We will have all the players at the negotiating table." In summing up the work of the Mono Lake Committee over the last decade, Isenberg declared, "It is your ability to organize, and your political skills that have earned you a place as a co-equal at that negotiating table."

Betsy Reifsnider



Carl Dennis Buel

### Lake Level Stabilizes

Christmas and Chanukah have come early to the Mono Basin in the form of 100 cubic feet per second (cfs) of Rush Creek flow. Mono Lake's elevation finally stabilized at 6375.2 feet in November, a month earlier than its usual winter equilibrium. The addition of Lee Vining Creek's full winter flow, another gift for the holidays, will aid the slow steady rise. Currently, the lake stands at 6375.3 feet, over a 1 ½ feet lower than a year ago.

The Mono Basin still wears some of the frosting from a Thanksgiving weekend snowstorm. The storm left over a foot of snow in the Sierra, and about six inches around the lake. For a week after the storm, travelers descending into the basin suddenly found themselves enveloped in dense swirls of poconip. This icy fog completely oscured the lake from Lee Vining, where residents aidn't see the sun's rays until early afternoon.

Andrew Stempel

### Mono Basin Research Updates

Each year we present research updates of ongoing experiments and field observations throughout the Mono Basin. This year's reports will give you a feel for the incredible diversity of life in and around Mono Lake. For more information, you may contact individuals directly. We hope to publish updates on the Tioga Bighorn sheep herd and recent tufa research in the next issue.

#### **Groundwater Circulation Beneath Mono Lake**

David Rogers
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Differences in the salt concentrations in lake and ground waters cause variations in water density. These density variations can have a major impact on how groundwater flows in the sediments beneath and adjacent to the lake. Up to 4,000 feet of lake deposits, sand, gravels, and volcanic debris lie below Mono Lake. These sediments occupy a trough created by the down-dropping of the Sierran granites along the faulted mountain front. During the past year, we constructed a mathematical model to describe groundwater circulation patterns and salinities that might exist in the Mono Basin. We are presently using the model to investigate how changes in lake levels might alter these patterns and salinities.

In our model, a dense column of saline water is present in basin sediments beneath the lake. This brine restricts fresh water flow, so that recharge water from surrounding mountains is forced upward to the ground surface, forming springs at the edge of the lake. The fresh/saline water interface dips steeply beneath the shoreline. Even if recharge rates are low, such as those along the northeastern edge of the basin, the interface never extends much beyond the lakeshore. We have also found that groundwater flow rates and salinities adjust slowly to changes in lake levels, suggesting that groundwater chemistries not in equilibrium with present lake levels are possible.

# The Mineral *Ikaite*: Origin of Mono Lake's Ice Age Tufa Crystals (Thinolites)

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The calcium carbonate crystals found in some of Mono Lake's oldest tufa formations are called thinolites. For many years, the origin of these crystals was a mystery. Recent research suggests that the parent material for the formation of these crystals is the mineral ikaite.

Ikaite forms crystals in solution at temperatures close to zero Celsius but rapidly decomposes at warmer temperatures. Often the shape of the original ikaite crystal is retained when calcium and carbonate ions are redistributed, forming calcite as the ikaite becomes transformed. These calcite crystals are what has become known as thinolite or Ice Age tufa of Mono Lake. The likely implication is that the thinolites record ice-cold episodes during the formation of the tufas.

The mineral ikaite was first discovered in 1963 by Pauly in the waters of Ika Fjord, Greenland. There, ikaite forms tufa columns as high as 20 meters over springs which issue from the fjord floor. The likely relationship between those columns of ikaite and the thinolite-bearing tufa at Mono Lake was not appreciated at the time, because the ikaite samples were granular with no hint of crystal shapes as found in Great Basin tufa.

Over the years, additional ikaite samples were collected from other cold water climates, such as Antarctica and Alaska. Ikaite crystals were also grown in laboratory experiments. Based on this additional information, there are currently three arguments that favor ikaite as the parent material for thinolite tufa crystals: 1) The fact that ikaite breaks down at normal laboratory temperatures, forming calcium carbonate and water suggests that the crystals could transform into calcite by redistribution of the calcium and carbonate ions. 2) If calcium and carbonate ions are neither lost from nor added to the system, the change from ikaite to calcite should involve a very large reduction in volume of the solid phase as water is lost. The many air cavities in the structure of most thinolites is in accord with the prediction. 3) If ikaite is the parent material, highly saline waters or unusual water chemistry would not have been required to create thinolites. During the Ice Age, when the thinolites were formed, Great Basin lakes such as Mono and Pyramid were larger and therefore, less saline than today.

### **Aquatic Ecology**

Gayle L., Dana and Robert Jellison Marine Science Institute University of California Santa Barbara, CA 93106

The focus of our research at Mono Lake over the past ten years has been to monitor year-to-year and seasonal changes in the plankton and determine the interactions within this community. Our research spans periods of declining lake levels and increasing salinities, rising lake levels and meromixis (persistent chemical stratification), and the recent breakdown of meromixis. Monitoring and experiments conducted under these various conditions have greatly increased our understanding of the plankton dynamics in Mono Lake.

This year our goals are to continue monitoring the plankton and use modeling techniques to analyze variations in the abundance and life-history patterns in the brine shrimp, Artemia monica. The modeling analysis will synthesize the Artemia data collected from 1982-1988, specifically examining changes in mortality and fecundity. Current monitoring will provide important information on the return to annual mixing and the stability characteristics of Mono Lake following a major change (meromixis) in its physical environment. This research is supported by a grant to Dr. J.M. Melack from the Los Angeles Department of Water and Power.

Over the past three years, we have been developing a model to explain the large year-to-year and seasonal fluctuations in the brine shrimp population. In 1988, we designed and conducted laboratory experiments which measured *Artemia* development and growth under conditions simulating both meromictic and monomictic conditions. A model was successfully employed to estimate growth and mortality rates in these experiments. This model was then modified to analyze the field data collected over the past seven years.

Our monitoring has shown a return of Mono Lake to its previous condition of annual autumnal mixing from top to bottom. In November of 1988, an abrupt mixing of previously isolated monimolimnectic water (non-mixing water near the bottom) with surface water dramatically affected the plankton. Ammonium, an important nutrient for the algae, which had accumulated deep in the lake during meromixis, was dispersed throughout the water column. This raised surface ammonium concentrations above any previously observed.

Surface concentrations of oxygen declined when deep, oxygen-depleted water was mixed upward. Concentrations decreased further as biological and chemical oxygen demand, which had accumulated in the deep layers, consumed oxygen. Dissolved oxygen concentrations immediately fell to zero. The Artemia population experienced an immediate and total die-off following deoxygenation. This was more abrupt than usual. The brine shrimp always decline in the autumn and are absent by mid-winter each year; the next year's population hatches from overwintering cysts (eggs) in early spring.

Dissolved oxygen concentrations remained depleted in Mono Lake for a few months following the breakdown of meromixis. By mid-February 1989, oxygen levels had increased but were still below those observed in previous years. The complete recovery of oxygen concentrations occurred in March.

Elevated ammonium concentrations following the breakdown of meromixis led to high algal levels in spring 1989. Near surface concentrations in March and April were the highest observed. Subsequent decline to low midsummer concentrations due to brine shrimp grazing did not occur until late June. In previous meromictic years this decline occurred up to six weeks earlier. The concentrations of algae, the brin shrimp's food, affect shrimp reproduction and survivorship.

The timing of hatching of Artemia cysts was affected by the recovery of oxygen. The initiation of hatching occurred slightly later in the spring and coincided with the return of oxygen to the lake in March.

The 1989 Artemia population pattern exhibited a small first generation of adults followed by a summer population over ten times larger. High spring algal levels in combination with the low first generation abundance resulted in a high level of fecundity. This led to a large second generation of shrimp. A similar pattern was observed from 1980-1983. In contrast, the pattern observed during meromictic years was a larger first generation followed by a summer population a more similar size.

The close coupling of Artemia and algae dynamics were apparent when the large summer population of Artemia grazed the phytoplankton to very low levels. The low algal densities led to decreased reproductive output in the shrimp population. Summer brood size, female length, and ovigerity (percent of females with eggs) were all the lowest observed in the period 1983-1989.

Next year, we hope to continue our modeling analysis of the brine shrimp dynamics and monitor the lake's return to monomictic conditions.

#### SCUBA Research on the Alkali Fly

David B. Herbst Sierra Nevada Aquatic Research Laboratory University of California Star Route 1, Box 198 Mammoth Lakes, CA 93546

How deep in Mono Lake can alkali fly larvae and pupae occur? SCUBA diving studies of larvae and pupae densities and habitat associations were completed this summer and early fall. Some 20 dives and a total of 40-50 hours of submerged sampling and observation time were logged. Six locations around the lake, representing a mixture of different bottom features, were sampled to a depth of 10 meters (about 33 feet). This is at or very near the depth limit of fly larvae and pupae. Below this, the water quickly becomes cold and dark. Samples of hard substrates, including tufa, pumice, granite cobblestone and difftwood, and soft substrates—sand and mud—are currently being processed. The completed results and details of the Mono Lake diving experience will be reported in a future newsletter.

This research has been funded by the California Policy Seminar, a University of California program established by the state legislature to help resolve public policy issues. This provides a forum for presenting results directly to the legislature and regulatory agencies. The population model derived from this work will predict how the relative abundance of the alkali fly would change over a range of projected lake levels. The range of lake levels providing optimum habitat for flies can then be identified. This will be useful new information to the Mono Lake water diversion review being conducted by the State Water Resources Control Board.

Among other alkali fly studies that I continue to pursue are comparisons of the body size of flies from old museum collections and from other Great Basin lakes. This sounds desperately dusty and obscure, but it may be the most direct way to tell whether or not flies at Mono Lake have changed through time, especially before and after water diversions. Body size is a good indicator of important traits such as reproductive success (fecundity). Mono Lake has long been a curiosity to entomologists. Many have collected alkali fly specimens over the years and deposited the material in museums. J.M. Aldrich collected the first flies to be deposited in 1911 (his travels to Great Basin lakes were described in the last issue of the Mono Lake newsletter). Results to date show that flies at Mono Lake have become smaller, and flies from other less saline Great Basin lakes are larger than Mono flies. Historical information of this nature on other elements of the Mono Lake ecosystem would be invaluable to interpreting what changes have occurred.

### **Ecology of the North Shore Dunes**

atherine A. Toft Department of Zoology, University of California, Davis, CA 95616

A complex of dunes surround Mono Lake; these are remnants of ancient shores. One semi-stable dune system on the north side of the lake is dominated by Chrysothamnus (rabbit brush), Tetradymia (cottonthorn) and Sarcobatus (greasewood). An abundance of insects occur there, feeding on the flowering shrubs and perennials. We have been studying one species of insect, a bee fly known officially as Lordotus

pulchrissimus, for ten years.

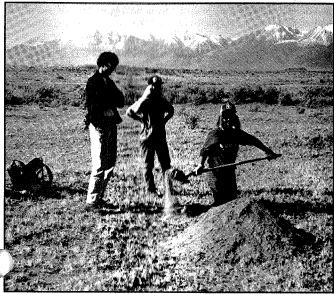
In previous newsletters, I have reported on the mating system of this species. Males of L. pulchrissimus gather at traditional spots to compete for mates. Remarkably, the groups of males, also known as leks, are found exactly in the same spot each year, although all adults die at the end of the season. How can newly emerged individuals find these traditional spots, if there are no individuals left over from the previous year to show them? Many insects gather at traditional locations to mate, but in most instances the locations are simply much better spots than surrounding areas: a hilltop or long-lasting opening in a forest. However, sites where male 1. pulchrissimus gather seem special in no obvious way. The nine or so sites we've followed over the years are like any number of places with no flies, and at the same time, the occupied sites are often quite different. They are typically mid-dune slopes or gullies, facing all the compass directions, usually in areas with the adult's food plant - but this describes much of the dune habitat. The lekking sites are about 10 or 15 meters in diameter and average 120 meters apart, so you see there is a lot of unoccupied habitat left over.

To understand how and why flies chose these spots, we have begun to measure every factor we can think of. So far none of the most obvious reasons flies might gather explain the lek locations (see last

winter's newsletter).

This season, we looked at one more factor, soil type, which turns out to be interesting in its own right. I am collaborating on this project gith Dr. Deborah Elliot-Fisk, of the Department of Geography at UC avis. We recognized four basic habitat types on the dunes: mid-dune slopes dominated by C. nauseosus (L. pulchrissimus habitat); dune tops dominated by Sarcobatus; alkali flats dominated by salt grass, Distichlis; and sandy flats, dominated by C. nauscosus (but which the bee flies avoid, for some unknown reason). We can already see that the types of soil (or more correctly, substrates or parent material) are different among the four qualitative habitat types, and we are now busy analyzing vegetation types as well. Stay tuned for our findings.

Interestingly, ancient volcanic eruptions, primarily those occuring about 600 years B.P., influence present-day plant communities on the dunes. For example, the salt grass flats are characterized by a very hard tephra (volcanic deposit) about a foot below the surface, which ap-



Dr. Debbie Elliot-Fisk and assistants digging a soil pit.

parently pools water. Dr. Elliot-Fisk has been studying the correlations between present plant communities and weathering of the substrate produced by volcanic eruptions in the entire area affected by the Mono Craters, including the White Mountains.

This research has impressed upon me how so many things are interconnected in present-day ecosystems. Not only are the biologies of many species of animals and plants intertwined, but events many hundreds and even thousands of years ago leave their mark today. The more we find out about ecosystems in the Mono Basin, the more complex we realize they are.

### Population Size and Reproductive Success of Gulls in 1989

Jan Dierks Point Reyes Bird Observatory 4990 Shoreline Highway Stinson Beach, CA 94970

California Gulls nest at lakes and reservoirs in the western United States and Canada. The colony at Mono Lake is second in size only to the Great Salt Lake, Utah. In 1989, about 44,000 gulls nested at Mono Lake. Since Point Reyes Bird Observatory's studies began in 1983, the number of gulls nesting at the lake has ranged from roughly 44,000 to 50,000. Each year since 1985, about half of the gulls have nested on Twain Islet. Negit Island had 2,765 nests this year, the most it has had since it was recolonized by the gulls in 1985. The number of nests on Pancake Islet has increased from less than 10 in 1986 to almost 1,400 this year. The number of nests on some other islets has been decreasing in recent years.

Although the number of adults breeding each year has remained relatively constant, the number of chicks produced has been more variable. This year 1.2 chicks of flying age were produced per nest in our fenced study plots. This indicates that about 26,000 chicks were successfully raised in 1989 for the lake as a whole. This figure is similar to those for 1987 and 1988. More chicks were produced in 1986 and fewer in 1983 to 1985. Fewer chicks had ticks this year than in recent years. Brine shrimp made up 70% of the food fed to the chicks, and brine flies 20%. Parasites and food supply are just two of a number of factors which can affect breeding success. Nesting habitat, weather, and preda-

tion can also be important.

Negit Island and Twain and Pancake Islets were connected to the mainland when lake level reached its lowest point in the early 1980's. These islands were not used for nesting while they were accessible to coyotes, but were recolonized when lake level subsequently rose. In 1989, one or more coyotes waded across the emerging landbridge to Negit Island while chicks were present in the colony. We found an unusually large number of dead chicks there in early July, most likely due, in my opinion, to the presence of coyote(s). However, a number of chicks were successfully raised on Negit. In early August, we found canine tracks on Pancake Islet.

This is the seventh year Point Reyes Bird Observatory had conducted research at the gull colony at Mono Lake. The Mono Lake Foundation helped fund the project. Joseph R. Jehl, Jr. contributed

data from Paoha Island and the Paoha islets.

### **Experimental Examinations of Feeding** Behavior and Prey Preference in Wilson's and **Red-Necked Phalaropes**

Margaret C. Rubega Department of Ecology and Evolutionary Biology University of California Irvine, CA 92717

Two species of phalarope, Wilson's phalarope (Phalaropus tricolor) and Red-necked phalarope (P. lobatus) use Mono Lake as a staging ground for their southward migration. They use the lake's abundant invertebrates as a food source while molting and fattening for the trip to South America. This study seeks to assess the impact that changes in invertebrate abundances might have on phalaropes using them for food.

Phalarope feeding behavior and diet composition is difficult to measure in the field without collecting large numbers of birds to examine gut contents. Even then, the information collected cannot be used to answer some questions about the likely effect of changes in the prey base. For instance, gut content analysis cannot tell us at what decreased density of one prey type a bird will switch to eating another prey type, or under what conditions birds will prefer one prey type over another.

During the summer of 1989, Red-necked phalaropes were live-trapped at Mono Lake and maintained in captivity at the Sierra Nevada Research Lab. There we conducted a series of experiments designed to address these questions: 1) What type of prey do phalaropes prefer if given access to unlimited quantities of all invertebrates available in Mono Lake? 2) How do changes in relative densities of available prey affect phalarope prey-choice behavior? 3) At what level of lowered density of any one prey type do phalaropes become mechanically or physiologically limited in feeding rates?

These studies were conducted with a grant from the University of California Water Resources Center, and in collaboration with Dr.

Bryan Obst of the University of California, Los Angeles.

### Recent Publications

Herbst, D.B. Distribution and abundance of the alkali fly (Ephydra hians Say) at Mono Lake, California (USA) in relation to physical habitat. Hydrobiologia — in press.

Herbst, D.B. and T.J. Bradley. 1989. A Malpighian tubule lime gland in an insect inhabiting alkaline salt lakes. Journal of Experimental

Biology 145:63-78.

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Schwan, Tom G., John J. Oprandy, and Andrew J. Main. Mono Lake Virus Infecting *Argas* Ticks (Acari: Argaside) Associated with California Gulls Breeding on Islands in Mono Lake, California. J. Med. Entomol. 25(5): 381-387 (1988).

Shearman, D.J., A. McGugan, C. Stein, and A.J. Smith. Ikaite, CaCO3.6H20, precursor of the thinolites in the Quaternary tufas and tufa mounds of the Lahontan and Mono Lake Basins, western United States. Geological Society of America Bulletin 101:913-917, July 1989.

Steele, Dale T. An Ecological Survey of Endemic Mountain Beavers (Aplodontia rufa) in California, 1979-83. State of California, Department of Fish and Game Wildlife Management Division Administrative Report No. 89-1, 1989.

Abstracts

Dana, G.L. 1989. Life-history Observations on the Artemia Population in Mono Lake During A Recent Period of Meromixis (1983-1988).
 Presented at the Annual Meeting of the Southern California Academy of Sciences, California Lutheran University, Thousand Oaks, CA; May 12-13, 1989.

Dana, G.L. and R. Jellison. 1989. Development and Growth of Artemia monica Population Under Laboratory Conditions Tracking the Natural Environment. Presented at the Annual Meeting of the of the American Society of Limnology and Oceanography, Fairbanks, Alaska; June 18-22. 1989.

Jellison, R. and G.L. Dana. 1989. Cohort analysis of an Artemia monica Population Using a Simulation Model. Presented at the Annual Meeting of the American Society of Limnology and Oceanography, Fairbanks, Alaska; June 18-22, 1989.

Melack, J.M., Jellison, R.S., and G.L. Dana. 1989. Plankton and Ammonium Dynamics of Mono Lake. Presented at the Annual Meeting of the Southern California Academy of Sciences, California Lutheran University, Thousand Oaks, CA; May 12-13,1989.

## **DWP Research Activities**

Glenn C. Singley
Los Angeles Department of Water and Power
P.O. Box 111
Los Angeles, CA 90051

The Los Angeles Department of Water and Power continued to support a broad-based Mono Basin research program in 1989. A brief description of our major areas of study follows:

Basin-wide Geohydrology

We are continuing to study the groundwater and freshwater spring flow to Mono Lake. Water level measurements were made at a half-dozen shallow-profile wells on the lakeshore. Reports on the Mono Lake shoreline springs and the nearshore groundwater flow have been completed by Dr. Shirley Dreiss's UC Santa Cruz students (see separate report by David Rogers and Shirley Dreiss).

We are currently using the Mono Lake hydrological model to evaluate requirements to maintain the lake level above specific elevations under different operating scenarios. This work is being done in cooperation with the Department of Water Resources and Peter

Vorster.

Air Quality Monitoring and Lakeshore Revegetation
We continued to cooperate with the Great Basin Unified Air Pollution Control District in the collection and analysis of meteorological and air quality data at two Mono Lake locations.

Plans are underway to expand these monitoring sites. We continue to fund studies on the re-establishment of native vegetation on barren

dust-source areas.

Brine Shrimp Ecology and Phytoplankton Dynamics
We continue to work with Dr. John Melack, UC Santa Barbara, on
algal productivity and brine shrimp dynamics (see separate report by
Gayle Dana and Robert Jellsion). The breakdown of meromixis and

the lake overturn of November 1988 (see Winter 1989 newsletter for more information) made for an interesting year. Spring algal abundance and the largest shrimp densities and brood sizes ever recorded in Mono Lake were seen in 1989.

Brine Fly Physiology

We funded research by Timothy Bradley, UC Irvine, on the salinity tolerance of the brine fly. Dr. Bradley conducted two laboratory studies designed to identify the ionic regulatory mechanisms used by the brine fly to live in salty environments and the effects of salinity on the growth and development of every life stage from the egg to the adult fly. Completion of this work is expected in mid-1990.

Avian Biology

The Department continues to fund research by Joseph Jehl of Hubbs-Sea World Research Institute. His research focused on: 1) gull productivity and the causes of gull chick mortality; 2) banding of over 350 eared grebes for demographic and physiology studies; 3) studies of metabolic rates in eared grebes and Wilson's phalarope (with Hugh Ellis); 4) population surveys of California gulls, Caspian terns, eared grebes and Wilson's phalaropes at Mono Lake; 5) utilization of Mono Lake islands and islets for nesting; 6) surveys of waterbird colonies and potential staging areas outside the Mono Basin for comparative purposes.

#### **Fisheries**

Mono Lake's tributary streams are the focus of the Department's fisheries research. The Department's fisheries consultant, EA Engineering, Science and Technology, Inc. performed trout population surveys and other studies in Lee Vining and Rush creeks. Both creeks continue to support self-sustaining populations of brown trout, Salmo trutta. A jointly-funded study with the Department of Fish and Game (CDFG) supported Beak Consultants' work in developing in instream model of habitat suitability for fish in lower Rush Creek.

## **MLC News and Activities**

# The 1989 Los Angeles to Mono Lake Bike-a-thon

This year's Los Angeles to Mono Lake Bike-a-thon was the largest and most successful ever. To date, cyclists, their sponsors and generous MLC members have raised over \$90,000. Ninety-five cyclists rode the route, which began at the downtown Department of Water and Power (DWP) headquarters on August 28. Riders make this journey each year to raise both funds and public awareness for Mono's protection, and to symbolically return diverted water to Mono Lake.

Traditionally cyclists collect water from the DWP reflecting pools in test tubes, strap the tubes to their cycles, then depart on the ride. This year, the pools were coincidentally drained three days before the ride. Cyclists were not disappointed, however. DWP provided water for the event in what the riders termed "reflecting"

buckets."



After a press conference, riders left Los Angeles, following the course of the Los Angeles Aqueduct, which carries Mono Basin water south. Riding against the flow, the tour took cyclists over the San Gabriel Mountains, through the Antelope Valley and into the Mojave Desert. Along the edge of the Sierra Nevada, cyclists pedaled past the dry lakebed of the once-beautiful Owens Lake. The next day, riders climbed the

2,500-foot Sherwin Grade, spent the night in Mammoth Lakes and ended their trek on Mono Lake's shore.

Blessed by cool weather and wonderful tailwinds, each day was a cyclist's joy. Riders averaged 65 miles a day with support stops every 10-15 miles. A strong camaraderie developed between cyclists. A commitment to the lake and to each other kept pace lines solid.

Some of the stronger, more adventurous (and perhaps crazier) riders took a few detours—one being the 13-mile, 4000-foot climb up Whitney Portal. On the ride's fourth day, road construction created a small obstacle as cyclists were shuttled from camp in Lone Pine north to the historic site of Manzanar. Many used the time saved from cycling to bathe *au naturel* in the Keogh Hot Springs just outside Bishop.

The 2,500-foot ascent up Sherwin Grade has always been the most challenging leg of the Bike-a-thon. This year Sherwin's climb was almost enjoyable because favorable winds aided riders in their ascent. The only obstacle was the last three miles into Mammoth. There the winds changed their mind and came on full force.

As they approached Mono Lake, cyclists rode single alle down the last hill. Then they joined Bucket Walkers

at the lake's edge to return the water to its rightful destination. Everyone felt a true sense of accomplishment and commitment to protecting this unique environmental treasure.

Bike-a-thon Riders: Steve Acton, Eric Anderson, Roger Backlar, Bruce Bartlow, Grant Bechler, David Bloomer, Elaine Bloomer, Mike Bloomer, Ann Bogazianos, David Boicourt, Pamela Braswell, Keith Brummel-Smith, Troy Buckingham, Dan Burdick, David Calleri, Wendy Calvert, David Casseres, Donna Cassyd, Paul Colley, Peter



Cooley, Jeanne Cosby-Rossman, Larry Crane, Daniel Dressler, Michael Dressler, Paul Falkenstein, Howard Fineman, David Foulds, Jim Goodman, Richard Gorchter, Michael Green, Paul Green, John Gregan, Craig Hansen, Navid Haghdan, Steven Hirsh, Nancy Horsfield, Rich Howe, Rob Jacobs, Katie Kane, David Kanner, David Kearney, Krishan Khalsa, Siri Dharma Khalsa, Dennis King, Kathy Kirk, Patty Kline, Julie Klingmann, Barbara Kniffen, Seth la Forge, Mark Lawton, Janese Lewey, Suzie Lipton, Louis Loeb, Tom Lyons, Mike Mansfield, Gail McDonald, Jill McIntire, Bill Mendoza, Pat Monzo, Israel Mora, Susan Munves, Alice Mural, Kay Ogden, Jay Pelitzer, Dave Perry, Don Pistotnik, Amber Rae, Ian Riedel, Don Rivenes, Robin Roberts, Jim Sayer, John Schaefer, Stephen Schmidt, Stephen Shunk, Derek Smith, Frank Smith, Ed Spaulding, Marlee "Tex" Sondgeroth, Arthur Sorrell, Bonnie Jo Spacek, Ned Tarver, George Tredick, Susan Urquhart, Phil Van Horn, Norma Vedder, Laura Walker, Jon Webster, Kevin Welsh, Paul Willet, David Wimpfheimer, Herb and Jessica Wright, Susan Young, Stan Yurfest.

SAG Drivers:: Pete Smith, SAG Coordinator and Photographer Patricia Amber, Shelly Backlar, Helen Green, Hari Khalsa, Joanne Pistotnik, Betsy Reifsnider, Barbara Rivenes, Bob Schlicting, Yuki Sorrell, Jim and Zoe Stehn.

Ryder Truck Driver: Geoff McQuilken.

Runners: Bill Benz, Tony Crosby-Rossman, Ben Jones.

Photographers: Sean Arabi, John Emmons. Video Camera Photographer: Kelly Burnette.

Special thanks to: Brian Day, Brent Coeur-Barron, Father Christopher Kelly, Kim Fisher, Cathy Hamilton, Craig Hansen, Larry Spillane, The Eastern Sierra Dance Band, The Ecotonz, Susan Beck of Anything Goes, Curtis Herring of Smoke Signals, Zarbie's Catering, Brian Maxwell and Terry Martin of Power Bars, Dennis Smith, John Martin, Lloyd Brubaker, Roger and Betty and all of the Ham Radio Operators, the staff and volunteers of St. Timothy's Church in Bishop, Hubert Von der Beek of Kool 'n Fit, Kent Fonda of Coors Brewery, Bob and Greg Le Mond, Randy Ice of SCOR, Jean-Pierre Pascal of TIME Sport, Tom Eason of Tommaso, Dave Nervell of Sparkletts Drinking Water, Dianna Woods of KMMT, G.G. Stevens of Martin Outdoor Advertising.

Shelly Backlar & Amber Rae with photos by Sean Arbabi



### 1989 Bird-a-thon

Adventurous avian aficionados scanned the skies during this year's Point Reyes Bird Observatory-Mono Lake Committee Bird-a-thon on September 23-24. Birders throughout the state have raised \$22,000 so far to benefit both the Point Reyes Bird Observatory (PRBO) and the Mono Lake Committee (MLC).

In the Bay Area, PRBO and MLC executive directors Laurie Weyburn and Martha Davis counted together, along with PRBO board members and hundreds of other

dedicated birders.

Members of the successful Eastern Sierra birding team included: Earl and Carolyn Gann, Paul and Helen Green, Lina Prairie, David Rice, Dave Shuford, and MLC staff members Emilie Strauss and Melanie Findling. Their count ended just after sighting a beautiful prairie falcon.

We're grateful to all counters, and to the MLC and PRBO members and friends who pledged so generously. Special thanks goes to the PRBO staff for organizing this

event.

### 1989 Free Drawing

Overwhelming support of the 1989 Free Drawing helped raise much neededfunds for Mono Lake. This annual mailing also helps to promote public awareness of Mono's plight. Congratulations to the prize winners:

Lester D. Bodine, Mineral—Signed Ansel Adams lithograph, "Clearing Winter Storm", *Ansel Adams Gallery*, Yosemite.

Ron Stone, Los Angeles – Weekend for Two at Yosemite's Ahwahnee Hotel, *Yosemite Park and Curry Company*.

Janis Frankel, Woodland Hills - \$250 REI Gift Certificate, California REI stores.

Anna Mayers, Ojai – Mono Lake Fall Weekend, Gateway Motel and the Mono Inn, Lee Vining.

Robert E. Nicholson, Santa Rosa—Hot Air Balloon Trip, High Sierra Ballooning, Bishop.

Carol J. Oliver, Moreno Valley—\$100 Adventure 16 Gift Certificate, Adventure 16 Wilderness Stores of San Diego.

Irene Gleason, Lancaster - Cross Country Ski Weekend for Two, Rock Creek Winter Lodge, Mammoth Lakes.

Michael Perry, Hollywood-Tuolumne River rafting trip, Friends of the River, San Francisco.

Sharon Shank, San Francisco – Two Days Skiing for Two, Tahoe-Donner Cross-Country Ski Area.

Suzanne Wilbur, San Diego — \$35 Banana Republic Gift Certificate, *Banana Republic*, Berkeley.

We'd like to send a hearty "thank you" to all the supportive businesses and organizations who donated special prizes to make this drawing a huge success!

### Mono Lake Adventure Travel



Yes! The walruses. polar bears, seals, whales, birds, and more will be there to greet us on the Mono Lake Committeesponsored trip to southern Greenland and northern Hudson Bay with Society **Expeditions Cruises next** July. Not only will we see wildlife of the land, sea, and air, but we will visit prehistoric and present-day sites of human habitation in lands explored by the Vikings. This adventure on sea and land is off the well-

plied tourist routes, and promises to a rewarding experience for participants. This region is unique geographically and historically, and will provide unusual

photographic opportunities.

Prices for this all-inclusive tour start at \$5300, depending on cabin location. The group rate is below retail price and 10% of the group fare is a tax-deductible donation to the Mono Lake Foundation. Airfare is additional. For details, write or call Mono Lake Travel, c/o M. Bennett, 2719 Marin Avenue, Berkeley, CA 94708, (415) 526 1260.

Mildred Bennett, Travel Coordinator



Wave of the Future—Associate Director Betsy Reifsnider and volunteer John Dolan with water saver kit at this fall's Globescope conference. The international conference, hosted by Global Tomorrow, focused on sustainable development. Speakers included former President Jimmy Carter, cable TV mogul Ted Turner, and actor Dennis Weaver. The Mono Lake Committee and Heal the Bay promoted their joint was conservation program at the conference, which drew visitors from As Africa, and Western Europe.





Out On The Boardwalk—Damp weather and gooey mud could not deter volunteers from the Eastern Sierra Audubon Society, the Department of Parks and Recreation and the local community, who built and dedicated the David Gaines Memorial Boardwalk at Old Marina on September 16.

### Staff Hellos and Good-Byes

We welcome Stuart Scofield, who has joined our Lee Vining office staff as Visitor Center Assistant. He's no stranger to the these parts; his family's been around the Yosemite region for over a century. Stuart is also a talented professional photographer.

Matthew Graves, our new Programs Manager in Lee Vining, comes to us from Washington, D.C. Matt has orked as an interpreter in eight national parks, and feels strongly that education is a key to preserving our natural world.

Nancy Zapotocki, also from Washington, is working in Lee Vining as a Policy Staff Assistant. She is a wetlands ecologist and has extensive naturalist/interpretive experience in the National Park Service.

Patricia Holland-Suppa has joined our Lee Vining staff as a Policy Staff Assistant. She has done grassroots organizing, has a teaching credential, and if that weren't enough, is also the mother of an adorable toddler.

We bid a sad farewell to Emilie Strauss, our Staff Biologist. Emilie has headed for the Bay Area and may even join forces with MLC alumna Daria Walsh in the Farallon Islands. We're hoping that Emilie will hear the "call of the wild" and return to the Basin once again.

All MLC staff gathered at the White Mountain Research Station this past December for our first-ever Staff Retreat. We talked about ways we can be even more effective, shared creative ideas and planned future staff gettogethers to bridge the 300-plus mile distance between the offices. We heartily thank our excellent facilitator, Clay Davis, who volunteered his time to work with us.

### In Memory

Thank you to Mrs. Leona McLaren and family, Sandra and Bruce Lipphards, Peggy and Jensen Won, Linda and William Mitchell, and David and Helen Allasia for their gift in memory of Vera White. Mary E. Vestal made a gift in memory of her mother, Eva Gerth.

### MLC Job Opportunities

#### Lee Vining: Associate Eastern Sierra Representative

This full-time staff member assists the Eastern Sierra Representative in developing and implementing of Eastern Sierra political, legal, and media programs. Responsibilities include policy development, researching and preparing comments on local issues; and litigation assistance, including field research, data analysis, and report preparation. In addition, the Associate Representative will act as a media liaison and spokesperson at local, state, and legal proceedings. Experience in lobbying, environmental policy development, and public speaking necessary. Natural sciences background helpful. Willingness to travel to Sacramento and Bay Area essential. If interested, please contact Ilene in the Lee Vining office.

### Volunteer Intern Opportunities

The Mono Lake Committee office in Lee Vining is seeking volunteer interns for our spring and summer seasons. Volunteer interns are a vital part of our efforts to save Mono Lake. For details on ourvolunteer intern program, please contact Matt in our Lee Vining office.

### 1990 Mono Lake Workshops

Our 1990 Mono Lake Foundation workshops offer an exciting array of weekend field seminars. We have old favorites plus a new mammal class taught by expert John Harris. Capture those gorgeous autumn colors with Clinton Smith, a well-known photographer and instructor. Jim Parker adds volcanoes to his repertoire, exploring Mono County's hot spots.

Please see our Spring newsletter for final class listings, or contact Sally Gaines, Mono Lake Foundation Workshops, P.O. Box 153, Lee Vining, CA 93541, (619)

647-6496.

Mono-Bodie Photo Workshop

Lewis Kemper May '90 \$75/person \$60/MLC member

**Birds Of The Mono Basin** 

Dave Shuford June 9-10 \$75/person \$60/MLC member

**Bugs And Butterflies** 

Dave Herbst August 14-15 \$75/person \$60/MLC member

Geology Of The Mono Basin

Jim Parker July 14-15 \$75/person \$60 MLC member

**Volcanoes Of The East Side** 

Jim Parker August 11-12 \$75/person \$60/MLC member

**Natural History Of The Mono Basin** 

Mark Bagley, Dave Herbst, Jim Parker July 6-8 and August 3-5 \$75/person \$60/MLC member Add \$25 for 1.5 units college credit

**High Country Wildflowers** 

Dave De Sante Late July '90, depending on winter snowpack \$75/person \$60/MLC member

**High Country Birds** 

Dave De Sante Early August '90, depending on winter snowpack \$75/person \$60/MLC member

**Mono-Bodie Historical Tour** 

Arlene Reveal, Lily Mathieu August 25-26 \$75/person \$60/MLC member

Writing of the Eastern Sierra

Lauren Davis Date TBA \$75/person \$60/MLC member

**Natural History Canoe Tours** 

Richard Potashin Saturdays & Sundays, Memorial Day through Labor Day Adults \$9 Kids \$5 Sorry, no kids under 4 years Special group tours can be arranged

Mammals Of The Mono Basin And Tioga Pass John Harris June 30-July 1 \$75/person \$60/MLC member

**Mono Basin Fall Photography** Clinton Smith October 5-7 \$150/person \$130/MLC member

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### Great Basin Books

The Sagebrush Ocean: A Natural History of the Great Basin Stephen Trimble, University of Nevada Press, Reno and

Las Vegas, 1989 \$34.95, hardcover.

"The desert," wrote John Steinbeck in Travels With Charley, "has mothered magic things." The Sagebrush Ocean is one of those magic things. Stephen Trimble's love of the Great Basin brings out the hidden beauty of this region. His prose is clear and informative while not forsaking a poetic tone. Complementing the text are ninety-two black and white photographs and forty-four color plates by the author. Trimble's images convey the characteristic high desert blend of gentle subtlety with stark intensity.

The Sagebrush Ocean is a beautifully designed book, and it covers not only the details of Great Basin ecological life zones and biogeography, but also captures the

spirit of the place.

Western Trails: A Collection of Short Stories Mary Austin, University of Nevada Press, Reno and Las

Vegas, 1987 \$24.95, hardcover.

This new collection of Mary Austin's stories by Melody Graulich brings back into print some of Austin's finest work. Also included are a few previously unpublished stories which had been turned down by publishers for being too "radical." Graulich's selections focus on Austin's desire to create literature that honestly resented women's experience of the West. Most of these stories take place in the Great Basin and Southwestern deserts where Austin had an intimate knowledge of the land and people. She explores life in the frontier towns, the Paiute campoodies, and the way that native and non-native residents alike survived with the rugged landscape.

In addition to exploring humanity's relation to the natural world and the relations of women and men, Austin's stories provide the reader with precious historical information. She was an accurate chronicler of what remained of the romantic, frontier West in the early 1900s. She writes about the baby shows so popular in and around the Owens Valley, the ill-fated lives of miners addicted to the search for lost mines and the tragic effects such addictions had on their families, the tenacious beauty of Paiute traditional life in the face of overwhelming change, and the bittersweet ties of individuals to the vanishing wildlife around them. Austin's stories were of their time and yet ahead of their time. Her graceful prose, full of lush description, is still relevant to the era we live in.

Cactus Thorn

Mary Austin, University of Nevada Press, Reno and Las Vegas, 1988 \$15.95, hardcover.

University of Nevada Press and Melody Graulich have one us a great favor by bringing this previously unublished novella into print. The manuscript, apparently

written in 1927, was rejected by Houghton Mifflin. This version was found in the collection of the Huntington Library.

In Cactus Thom, Austin reexamines a storyline that haunted her all her literary life—the relationship of a brilliant, but unhappy man from the urban East with an equally gifted woman from the heart of the Western desert. The story explores the man's tensions between choosing the woman who best benefits his career, or the one who helps him be true to his deeper self. Juxtaposed against his inner struggle is the woman's conflict between her love for the man and her love of wild places. For Austin, exploring these choices was a personal experience. Through writing such stories, she's given us a little known but true heroine of the American West.

Mountains To Desert: Selected Inyo Readings Friends of the Eastern California Museum, Independence,

California, 1988 \$12.95, paper.

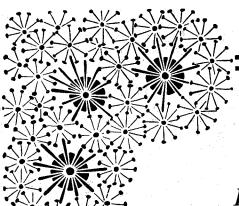
This wonderful anthology was completed to commemorate the 60th anniversary of the Eastern Sierra Museum. Included are articles ranging from the historic water conflict between Owens Valley and Los Angeles Department of Water and Power to how early white settlers dealt with native Indians of Inyo County, to an account of the first woman to ascend Mt. Whitney, as well as several articles on the natural history of the region. Many interesting historic photos are included.

Much to our chagrin, the copy for the following book was accidentally deleted in our 1990 catalog. *Cadillac Desert* by Marc Reisner. The best history to date of the American West's ill-fated love affair with concrete and water. Riveting, frightening and essential for all those who love and would defend free-flowing streams and places like Mono Lake. 582 pp., paper. \$9.95

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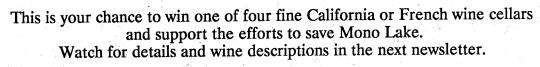
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