



FRIENDS of *Great Salt Lake*

P.O. Box 2655, Salt Lake City, Utah 84110-2655
mail@fogsl.org

801/583-5593

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Winter 2001



The mission of Friends of Great Salt Lake is to preserve and protect the Great Salt Lake ecosystem and to increase public awareness and appreciation of the Lake through education, research, and advocacy.

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Winter 2001 Calendar of Events

January	23	Tuesday	General Meeting 7PM: Kidd Waddell and Brian Loving "Water and Salt Balance of Great Salt Lake (see p. 6)
February	1	Thursday	Board Meeting 7PM
February	3	Saturday	Board of Directors Retreat /Great Salt Lake Marina 9AM
February	27	Tuesday	General Meeting 7PM: "A Look at the Railroad Causeway; Update from the Department of Natural Resources and Others"
March	1	Thursday	Board Meeting 7PM
March	27	Tuesday	General Meeting 7PM Tom Tripp "MagCorp's Technological Upgrades" (see p. 13)
April	5	Thursday	Board Meeting 7PM
April	24	Tuesday	General Meeting 7PM Jeff Salt "Jordan River Education" (to be held at The Ogden Nature Center, see directions below)

Watch the local papers for announcements of speakers and topics at our General Meetings, or call our hot-line at 801/583-5593, and press 1 for monthly activities.

NOTE: General Meetings are held at the Sugarhouse Garden Center, located in the northeast corner of Sugarhouse Park, 2100 South 1300 East in Salt Lake City. Board Meetings are held at the Salt Lake County Complex on State Street and 2100 South in Salt Lake City. Room S3009

The directions to The Ogden Nature Center are:

- I-15 North to the Ogden 12th St. Exit.
- Continue east through 2 traffic lights.
- After the second light on the left you will see the banner for the front gate of the Ogden Nature Center.



Cover: photo of American Bald Eagles by Gary Crandall

President's Message: Connecting the Dots Isn't Always Easy

I'm having a bit of a problem trying to figure out the logic behind two issues that are high profile, long term, and have negative impacts on Great Salt Lake. The first one is the need for the Legacy Highway. This should come as no surprise to readers of this newsletter, since Legacy has been on our radar screen for what seems like forever. The other is more recent but just as troubling because it's another example of careless and myopic thinking. It is the decision by the Salt Lake County Commission to approve a property rezone along the south shore of Great Salt Lake to accommodate 8 billboards.

Let's start with Legacy. Wading through the NEPA process for Legacy was a real eye opener. Presented with only two options to choose from — build the highway or do nothing at all — it came as no surprise that there would be tremendous pressure to build the silly road. The Army Corp's decision to issue a Section 404 permit for the highway is in direct violation of the Clean Water Act. Only the least damaging practicable alternative that destroys the least number of wetlands should be permitted. Without exploring other real alternatives, it is difficult to understand how the Corps could issue a 404 permit. Casting further doubt on the need for this highway is the infamous travel demand model; a model so riddled with inconsistencies that it couldn't hold up to the test of expert scrutiny. And what about the cost? On Christmas Eve, the price tag went up to \$423 million. What a gift. So much money for a 14 mile road that directly destroys 114 acres of Great Salt Lake wetlands, promotes sprawl and exacerbates already existing air quality problems. So much money that could be used to put transit first in our approach to solving our transportation needs for a growing Utah.

Now the billboards, eight of them, coming to Great Salt Lake's south shore. In a 2 to 1 decision to allow a property rezone, the Salt Lake County Commission chose to ignore the considered recommendations of the Planning

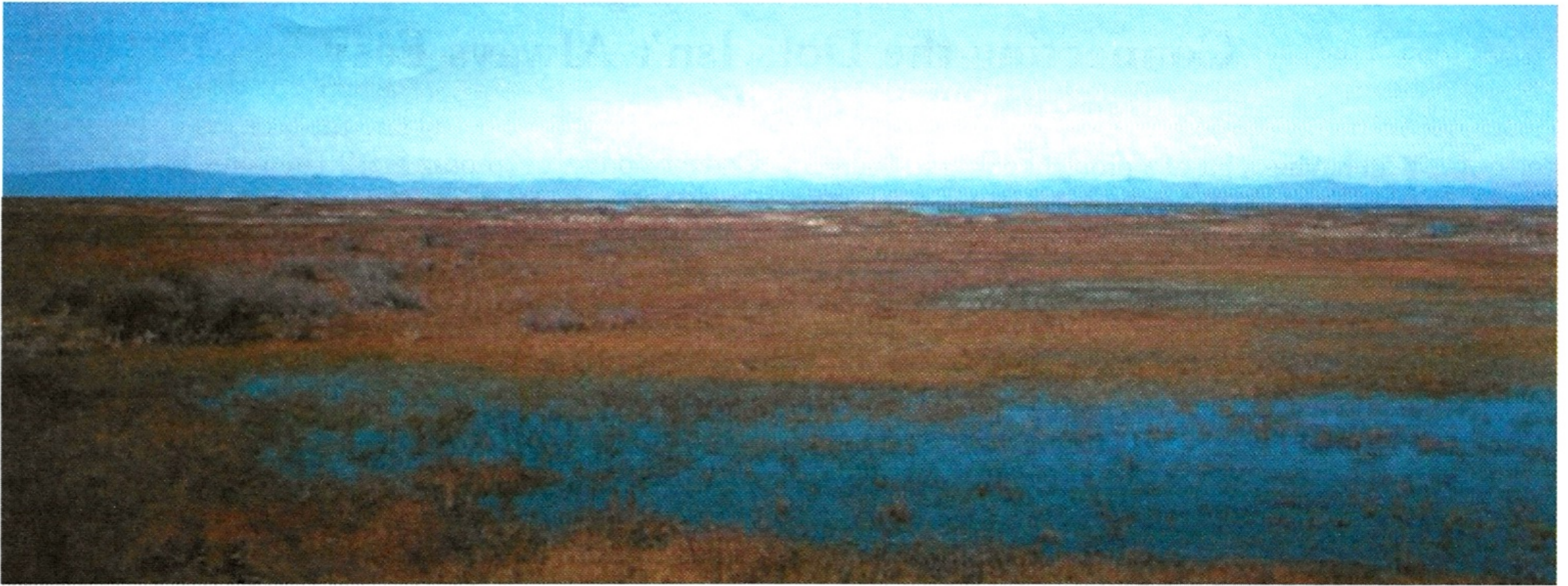
Commission and Planning Staff. The votes, by Commissioners Overson and Shurtleff, clearly contradict the county's own master plan and federal, state, and local laws as well as ordinances that specifically address outdoor advertising. To say the least, I'm angry about this smug defiance of planning principles and the law. I just don't get it. Allowing more "advertising on a stick" to obscure and deface a world class view of Great Salt Lake is unconscionable. Ironically, Kennecott is taking steps to eliminate already existing billboards on their property in an effort to reduce their visual impact on the western gateway into Salt Lake City. What kind of performance can we look forward to from Mr. Shurtleff when he becomes Attorney General in January? He will be given the responsibility of protecting the public trust resources, which include our Great Salt Lake. How will he support the Great Salt Lake Comprehensive Management Plan and its management objectives which include the protection of the Great Salt Lake viewshed and aesthetic views of the lake? I guess time will tell us.

Forgive me for starting this new year on such pessimistic notes. But I suppose the point I'm trying to make is that there will always be challenges facing Great Salt Lake. And with those challenges, we all need to be prepared to offer our talent, time and energy to meet them. Because as we all know, Great Salt Lake is worth it.

On behalf of our Great Salt Lake and its myriad occupants, Happy New Year!

Lynn de Freitas

Lake Fact:
How tall is
the Kennecott
smokestack?



The Pearl of Siberia

By Ann Ellison Manning, DWR biologist

“There are only two things that are not edible in the natural world—the moon and its reflection on the water.”
Chinese proverb

Dr. Igor Taganov of the Russian Geographical Society had recently returned from a reconnaissance trip through Asia, and assured us that Siberians were a little more selective in their menus than their neighbors to the south.

After months of plans and preparations and nearly 30 hours of travel, including a 15-hour time change, Ann Neville, Don Paul and I were amazingly coherent and sprightly. We arrived in the city of Irkutsk and were welcomed with warm Russian greetings by our new colleagues and comrades. Then immediately we were shuttled to our R & R lodging in a village English-speakers call Big Creek, nestled on the bank of the Angara River, the only outflow from Lake Baikal. My mother had warned me that ‘Outer Siberia’ was the dreary place where naughty children were sent—but our accommodations couldn’t have been more charming. We were taken to the summer home of Sasha and Tamara Lobanov, a beautiful wood cabin complete with delicately carved trim along the roofline and windows—built by Sasha’s own hands. Igor was the scientific leader of our expedition, Sasha the provider of our ground transportation and creature comforts, and Tamara the culinary genius behind our 100% authentic Siberian meals. After

welcomed sleep and our first experience in the banya (sauna/bath house) we all sat around the picnic-bench-style table and breakfasted on eggs, tomatoes and bread from a village bakery. Feeling very comfortable I thought to myself, ‘Either they are breaking us in slowly or things here aren’t as foreign as I had imagined them to be.’

Actually, up to this point everything was old hat to Nevy. (This was Don’s first time travelling with two Anns. It was somewhat overwhelming, so to provide some order for him Ann Neville was dubbed Nevy and I was known as Manny.) Last year through Kennecott Utah Copper Corporation and Earthwatch she was awarded the opportunity to join Igor in his research of heavy metal contamination of Lake Baikal waters. While she was there Nevy learned that Igor had plans for the fall of 2000 to investigate avian populations that use the Selenga River Delta. Knowing a good thing when she heard it, Nevy volunteered her help and when she returned to Utah began assembling a research team that would have the experience and know-how to conduct an inventory of waterbirds that use the rich wetlands of the Delta as a migratory stopover site. Many people were interested in the project, but the details of paying one’s own way unfortunately restricted most from participating. One important person enlisted though, and who better for such a scheme than Don Paul (Utah Division of Wildlife Resources) with his many years of study of waterbirds at Great Salt Lake. Fortunately I work for Don and

'Pearl' continued

caught wind of the plans. Having been bitten by the travel bug at a young age, I certainly couldn't let this once-in-a-lifetime opportunity pass me by.

Lake Baikal was just as breathtaking as everything I read said it would be. Crystal clear water purified by *Epischura* zooplankton sparkled under an autumn sun. Banks rose sharply up from the water and became mountains covered with forests of spruce, birch and larch ringing the rocky basin. In the distance a purple-blue range marked the border between Siberia and Mongolia. Shaped like a crescent moon, Lake Baikal is 395 miles long and at its widest point 50 miles across. Apparently the narrowest point is located between our first stop at Big Creek and the Selenga River Delta. As it was with my luck, we were not able to travel to our study site the most direct way since the Delta waters

are much too shallow for the kind of boat needed for such a trip. Instead we traveled by land along the Old Silk Road, following the shoreline west around the southern tip of the lake and then back to the east toward the Selenga River. I'll never understand how all six of us plus our driver (Sasha and Tamara's son-in-law) and all the gear and food for eight days fit into that minivan. We kept ourselves busy during the drive by watching for any sign of the wildlife known to inhabit the area. Brown bear, sable, musk deer and the Siberian chipmunk roam through the taiga forests, but were much too wary to be standing alongside the road for our viewing pleasure.

Igor educated us about their national treasure. Lake Baikal is the deepest (nearly a mile) and most ancient freshwater reserve on the earth containing one-fifth of the planet's fresh surface water. It was formed by a geological cataclysm; tectonic movements shifted the earth both horizontally and vertically, carving the lake's great stone basin. Thousands of years of waterflow from rain, rivers and streams filled the giant crack. This unique ecosystem is home to 1,500 aquatic species, 80% of which are endemic to the lake. There is also a species of freshwater seal known



Ann Manning counting waterfowl from the leaning tower of Siberia.

only to exist at Lake Baikal. The Selenga River is one of six major rivers flowing into the lake and its Delta was internationally recognized as a Ramsar site in 1994. In 1996 it was designated as a natural World Heritage property. Even with these international declarations of significance, though, the Delta has not yet been set aside as a protected area by Russian authorities. Protection is much needed, as currently the Selenga River is the second major source of pollution in the lake, carrying wastewater from industrial plants situated along its course through Mongolia. Our route also took us by the lake's primary source of pollution: the Baikalsk Paper and Pulp Mill. A dozen smokestacks rose into the air and spit out sickly-colored plumes of smoke.

Seven hours later we arrived in Murzino, a small village on the edge of the Selenga River Delta. The minivan bounced along the rutted dirt roads avoiding the free-ranging cows and horse-drawn carts, and came to a stop at

our newest home away from home. We were provided with the luxury of a biological research station owned by Irkutsk University for our 'camp.' The facilities looked as if they hadn't been used for years but were all in working order. We paired up in one-room cabins for lodging, and had our own cookhouse, banya...and as always, an outhouse in the farthest corner of the compound. There to greet us were two locals: well-mannered Benji dogs that remained with us for our 8-day stay. A five-minute walk from the research station was a boathouse and our gateway to the Delta wetlands. Igor arranged for two small fishing boats, complete with knowledgeable drivers, to take us out each day. For many reasons our daily activities proceeded at a relaxing and enjoyable pace. One contributing factor was the shortage of fuel. Every morning our boat drivers drove into neighboring towns to find enough fuel to purchase for the day's expedition—always leaving plenty of time for Don's morning walk and for all to delight in one of Tamara's hearty meals.

Alluvial materials deposited at the mouth of the Selenga River have formed one of the two most extensive delta-

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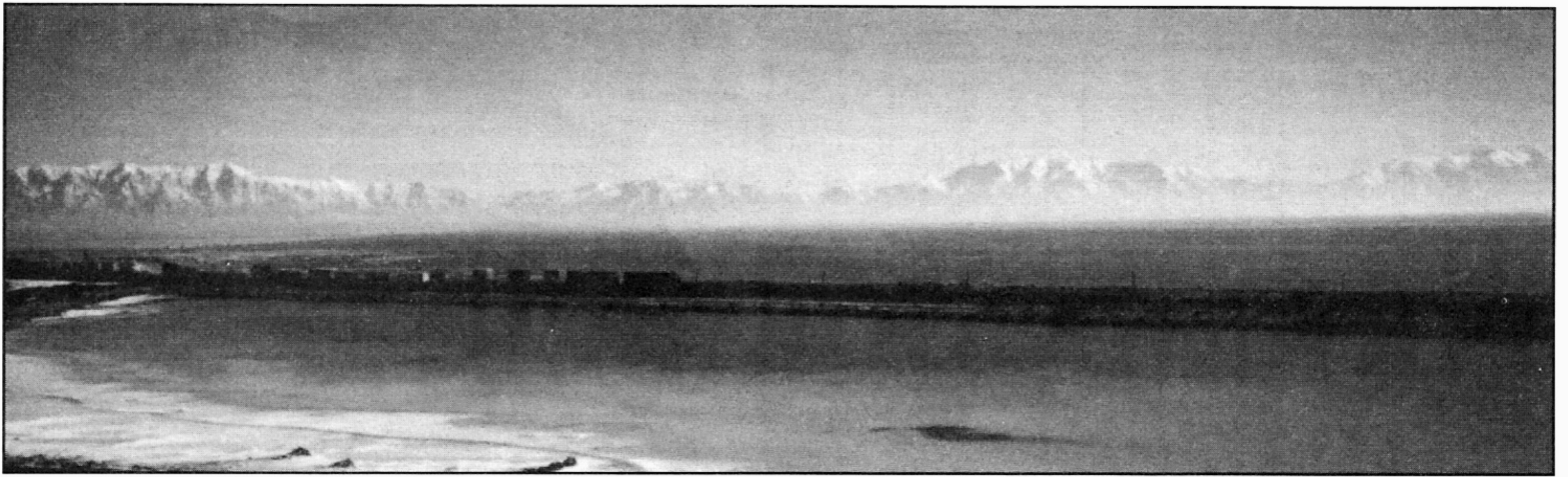


Photo by A. Weller

Water and Salt Balance of Great Salt Lake, and Simulation of Water and Salt Movement through a Rock-Fill Causeway across the Lake, 1987-98

By Brian L. Loving, Kidd M. Waddell, and Craig W. Miller

The Southern Pacific Transportation Company completed a rock-fill causeway across Great Salt Lake in 1959. The effect of the causeway was to change the water and salt balance of Great Salt Lake by creating two separate but interconnected parts of the lake, with more than 95 percent of the freshwater surface inflow entering the lake south of the causeway. The water and salt balance of the lake depends on the amount of inflow from tributary streams and the conveyance properties of a causeway that divides the lake into south and north parts. The conveyance properties of the causeway consist of two 15-foot-wide culverts, a 290-foot-wide breach, and permeable rock-fill material.

The dissolved-solids concentrations of the north and south parts were approximately equal at the time the causeway was completed in 1959, but by December 1998, the concentration was 250 grams per liter greater in the north than in the south. A water and salt balance model of Great Salt Lake, Utah, developed by the U.S. Geological Survey in 1973, was modified to incorporate the effects of changes in the conveyance properties of the causeway and withdrawals from the lake as part of the West Desert Pumping Project during 1987-89. Additional capability was added to the model to simulate (1) stratified flow through submerged culverts, and (2) loads and concentrations of chloride, magnesium, potassium, and sodium in the lake. The model was used to simulate the effects of several combinations of breach depths and widths on the dissolved-solids concentration in each part of the lake.

The USGS is also involved cooperatively with the Utah Department of Natural Resources in a data collection program that includes monitoring of the flows through the causeway breach and culverts. The nature of bi-directional stratified flows are intriguing but difficult to measure and also complicated to describe mathematically. The techniques used to measure the flows will be presented by Brian Loving. Brian has been instrumental in developing the measurement techniques with the latest technology and will illustrate the field conditions and how the data are interpreted. 🐾

Kidd M. Waddell has been a hydrologist with the U.S. Geological Survey since 1962. He has done several studies of the Great Salt Lake including participation in a recently study of the water and salt balance. He is project chief of the National Water Quality Assessment study of the Great Salt Lake Basins. Brian L. Loving has been a hydrologist with the U.S. Geological Survey since 1995, including assignments in Lawrence, Kansas and Salt Lake City, Utah. In the past 5 years he has served as the chief of a data collection project on Great Salt Lake, and chief of a project studying the water and salt balance of Great Salt Lake. His activities related to the lake have included collecting water-surface altitude data, measuring flow through the openings of the railroad causeway, and modeling the lake's water and salt balance. He is currently working towards a MS in civil engineering at the University of Utah. Craig W. Miller PE, is Engineer Specialist with the Utah Department of Natural Resources.



formed wetlands in Russia (second only to the Volga). The Delta is composed of two major habitat types we referred to as 'hard delta' and 'soft delta.' The hard delta is terra firma nearest the mainland cut by four major river channels. This portion is used for horse and cattle grazing, and is traveled by local waterfowl hunters. Closer to the lake the hard delta becomes braided and soft, a more typical wetland habitat with emergent vegetation and ponds. We surveyed the Delta by making counts of all avian species observed along the courses of the four channels, and in the hard and soft habitat types. The soft delta was clearly an important site for migrating waterfowl. Sixty-nine percent of all waterfowl observations were in the soft delta. Of the birds that were counted in the hard delta many had been flushed from abundant ponds between the channels. Common mergansers were the species seen most often on channel waters through the hard delta. Gray herons were consistently observed along the banks. Flocks in the air and on ponds in the soft delta were composed largely of mallards, green-wing teal, northern pintails, northern shovelers, gadwall, common goldeneyes and northern pochards. Not only did the wetlands look like those at Great Salt Lake with snow-dusted peaks in the background and phragmites in the fore, but we were in familiar company! We did see other species that were new to us, like the ruddy shelduck, but it was truly amazing to see first hand that the same species we know to make migratory stopovers at Great Salt Lake also sojourn at a large lake in central Asia. Like our Bear River Migratory Bird Refuge, the Selenga River Delta is essential

habitat to migrating waterbirds; in fact the Great Russian Lakes, of which Lake Baikal is one, are the ancient migration paths for more than 20% of all aquatic birds in the northern hemisphere. We are hopeful that our data and conclusions will lead to further environmental monitoring of the Delta, and that with this baseline information the Russian Geographical Society will be successful in designating the Selenga River Delta as a natural preserve. We look forward to formally presenting our findings and recommendations in the *Journal of the Russian Academy of Science*, in conjunction with Igor's evaluation of anthropogenic influences on the lake.

One sunny afternoon we came upon the rundown hut of a muskrat trapper. Skinned carcasses hung from a rope strung between two poles and a pile of furs lay at the trapper's side. As Igor and our boat drivers spoke with him about maybe extracting a liver sample from any fish he had caught nearby, I went about my duties of collecting latitude and longitude points with our GPS datalogger. I made some notes and suddenly realized the position I had been recording over and over again for points within the Selenga River Delta was 106 (E. Becoming quite excited, I verified with Don that Great Salt Lake was located at 112(W. For a brief while we thought that if we could dig a hole in Antelope Island all the way through the earth to the other side, we might end up at the Delta. Unfortunately, I had miscalculated where halfway around the world from GSL is, but I'll tell you this: Lake Baikal is pretty darn close. We were far from home—yet I felt at home. We were among good people who were working to understand and protect something in which they found beauty, value and sustenance. In some regards we shared much in common: similar waterfowl, similar-looking wetlands, similar problems and similar desires to help people understand why our 'Pearls' are so valuable.

As we were reflecting on our experiences Don said, "There is something intrinsic about conservation that draws people into action regardless of nationality, politics, gender, status. It seems that Mother Nature speaks to the human heart. If we are willing to listen, her language is universal." In the wee hours of the morning as I made my nightly trip across the compound yard to the outhouse I basked in the starlight uninhibited by artificial luminescence. I breathed the cold air into my lungs and tried to listen to the universal language, and once again felt respect and awe for my two homes. 🐾

Salt Lake 2020: Youth-at-Risk Planning for a Healthy Ecosystem

By Chris Carson



Working for a few hours after school last summer, I looked up to see Eric standing in my classroom door. "Hi Chris, can I check on our project?" he asked. I tried not to let my jaw drop. In my three years of teaching at ARTEC school I have not had many students show interest in science outside of class. Based on Eric's behavior in class, I would have put him near the bottom of a list of students predicted to do extra work. He had completed fewer assignments than any other student in class, and often chose to act out and be sent out of the room when there was an assignment that involved writing of any kind. I welcomed him in.

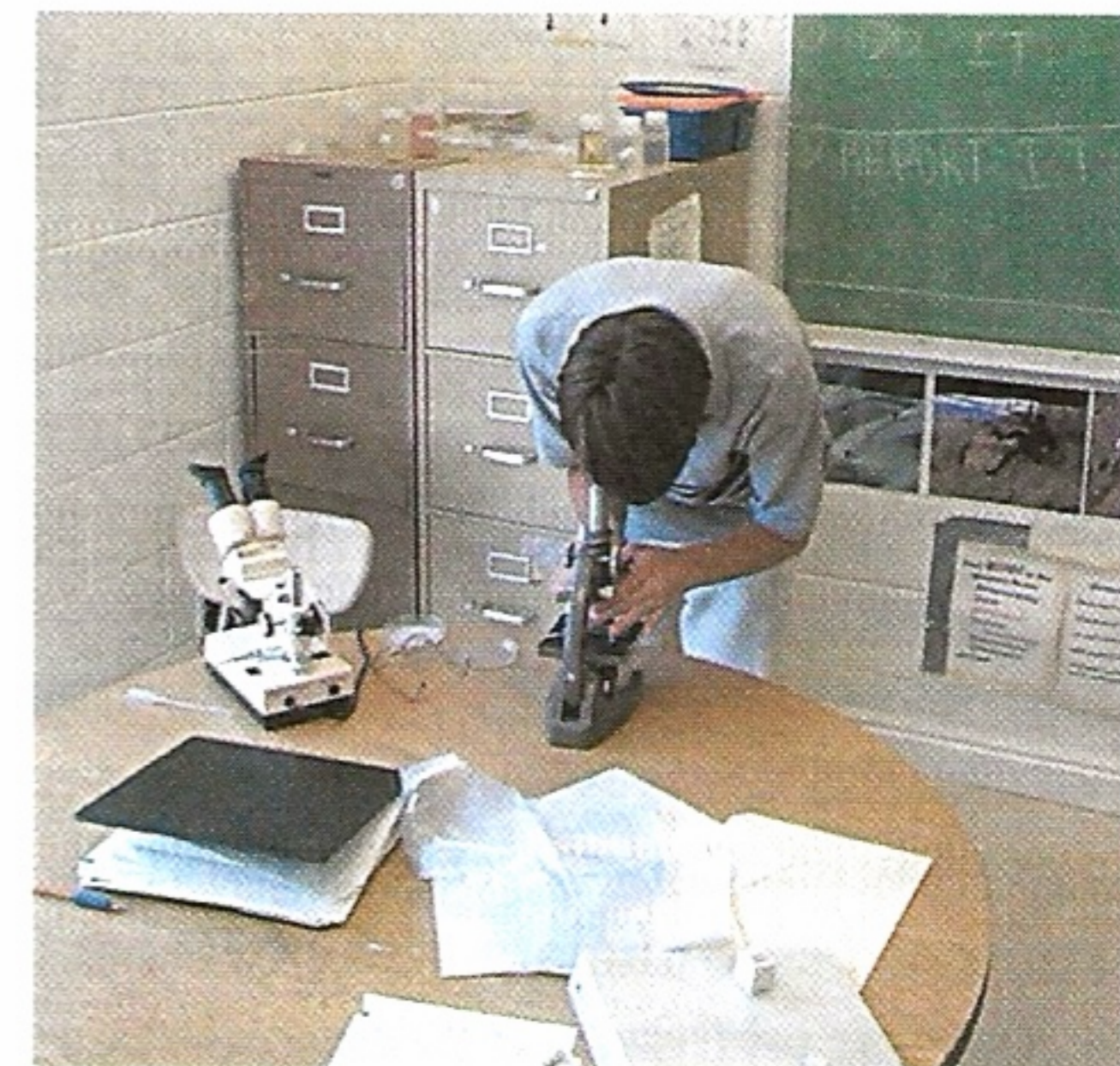
"I was here late for family therapy, and I wanted to come down and check on things" he explained. I took six small containers off of the file cabinet and placed them on the table in front of Eric while he pulled his group's notes out a file folder. Without comment, he began to write about the brine shrimp and water boatmen his team had placed in the containers earlier in the day. I went on with my own work, smiling.

This success story is one of many that

I've witnessed since the beginning of the Salt Lake 2020 project last June. Given that most of my students were unsuccessful in school before they came to ARTEC makes each of these small success stories more sweet. ARTEC (Adolescent Residential Treatment and Education Center) students are teenagers who struggle with behavior problems or mental illness, often stemming from a past history of abuse. There is no typical ARTEC student: some of our students are academically gifted, while others struggle to read and write. The idea for the Salt Lake 2020 project came from two important goals: 1) to increase awareness of the effects of local population growth on the natural systems of the Great Salt Lake basin, and 2) to empower our "at-risk" youth to become citizens working to solve locally important problems. Seeing the potential to address both needs through one project, I solicited the support and advice of Friends of Great Salt Lake and Valley Mental Health (the organization which oversees ARTEC) and applied for a Toyota TAPESTRY grant. While the goals of the project may be lofty, the methods are simple- I try to give my students science background knowledge, research tools, and field experience, and then give them the freedom to tackle problems they see as interesting or important. If you visit my classroom on a day when students are working on their projects, it might seem like chaos- there is no one lecturing, and the only instructions are the instructions the students wrote for themselves. But out of this chaos come the questions, the observations, the cooperation, and the communication which are essential to genuine learning. Because students have such ownership in designing their own projects,



field trips, and labs, they take pride in their reports, and work hard to improve their writing and presentation. The Salt Lake 2020 project is divided into three phases. The first phase, which started in June of 2000, dealt with water quantity issues in the Great Salt Lake Basin and emphasized parts of the state earth science curriculum. The second (going on right now) involves water quality and air quality issues and



continued page 11

Lakeside Learning: The Crowning Glory

By Sander Lazar, the Barbara L Tanner Fellow



“I had so much fun!”

“I learned so much that I’m telling everyone at our school.”

“Thank you! Thank you! Thank you!!!”

These are some of the exclamations expressed in letters from Maria Heath’s 4th graders at St. John the Baptist School to Friends of Great Salt Lake after their Lakeside Learning field trip. The tone in the letters was consistently enthusiastic and grateful so that just reading them increased my sense of excitement over being involved in taking the kids out there.

Of the steps Friends of Great Salt Lake is taking to educate people about the lake, the field trips we conduct with 4th grade classes are perhaps the crowning glory. The children, who learn about Great Salt Lake throughout the year are finally given the opportunity to experience first-hand the place they’ve been learning about. “I liked how you guys told us kids a lot more things about the lake...next time we go I hope we can stay longer,” said Javier Garcia of Mountain View Elementary after a fall 2000 trip to the lake.

Here’s what Javier and others experience at the lake. First we go to the Antelope Island Causeway entrance and unload onto the shore. Teams of four are challenged to orient themselves to distinct landscape features and to find small samples of pickleweed and 2.6 billion year-old banded gneiss, both of which are distinct features of the Great Salt Lake ecosystem.

We then bus over to Bridger Bay where “research” teams of two switch between roles of Sample Collector and Investigator. It is then time to literally immerse ourselves in the lake, and teams are challenged to find and investigate as many of the ten signs of life that can be found in the water as they can. How many can you think of? (The answer can be found at the bottom of page 11.)

It is then time for some reflection at Buffalo Point, when children take out journals and write about their experiences. The day ends with a group sing-along called “Bird Song of Great Salt Lake”. Modified by FOGSL from its original composition by the Young Friends of Bear River Bird Refuge, it is sung to the tune of the Battle Hymn of the Republic: “Mine eyes have seen the glories of the birds upon the wing....”

While we all have a great time learning about what a cool and unique place Great Salt Lake is, there’s a lot more going on in our Lakeside Learning field trips.

The kids awareness expands to include nature and an understanding of ecological principles. They learn teamwork, the joy of science, and an understanding and caring about where they live.

How do we know if what we’re doing has an impact? Starting this spring we will employ our participating teachers in helping us conduct a formal evaluation of our Lakeside Learning program. The most obvious symptom of impact to date has been when the kids have told us they want to come back to the lake. As Mathew of St. John the Baptist School put it, “I want to go to the Great Salt Lake every day now to show my family what you have shown me.”

The Lake Affect

The Lake Affect slide presentation, available to community groups, is now in its fourth season and bookings are filling quickly. The presentation uses live narration with impressive color slides from thirty regional photographers to enhance both knowledge about and care for the future of our Great Salt Lake. Five different scripts allow us to cater the presentation to any group age 9 and up. The cost of \$74 covers our expenses, and 50% discounts are available to educational groups. Anyone interested in hosting a presentation should contact Bruce Thompson as soon as possible by e-mail at fogsled@aol.com or by phone at 467-3240.

Speakers Network

A further resource to our Salt Lake Institute for Conservation Education (SLICE) is our Speakers Network. SLICE teachers are provided a list of speakers from businesses and organizations connected to Great Salt Lake. The speakers will be available to participating SLICE fourth grade classes in the eight-county region surrounding Great Salt Lake.

Our tentative goal of 50 speakers in the Speakers Network was met in November, and we will continue to enlarge the list. Field testing of the network begins in January 2001.

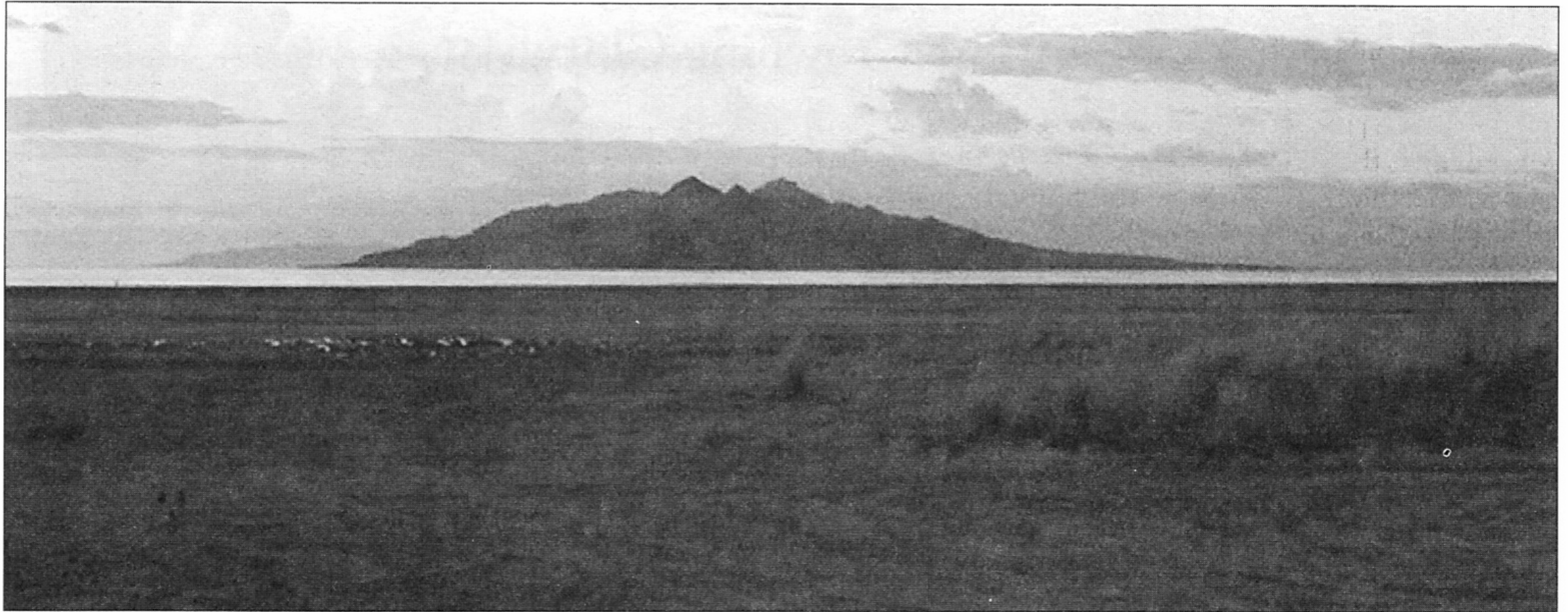


Photo by A. Weller

Antelope Island: To Hunt or Not to Hunt

By Jeffrey S. Packer, Chairman, Utah Board of Parks and Recreation

The Utah State Board of Parks and Recreation passed by unanimous vote a resolution supporting the Antelope Island State Park resource management plan which prohibits hunting of mule deer except as a management tool of last resort. This decision followed one of the most comprehensive public hearing processes ever undertaken by the Division of Parks and Recreation. The idea of hunting a small (one or two) number of deer each year was suggested by Sportsman for Fish and Wildlife. Antelope Island is well known for the 600+ free roaming bison, but the deer herd of approximately 200 was unknown by most of the general public when the Sportsman suggested that auctioning a permit could raise \$100,000 to \$200,000 per year. The island is home to some of the largest mule deer bucks ever seen. It is believed that one of the deer has a 40" spread of horns with as many as 25 points.

The Division of Parks and Recreation has been underfunded for over a decade resulting in a 90+million dollar back log of capital project needs. The possibility of raising private funds rather than public dollars was interesting to some in the legislature and entertained by several of the Parks Board members. The need for funds has become so

acute that recently, Governor Michael Leavitt has increased his budget request to the legislature by 10

million dollars to begin addressing park needs. However, one year ago at the time of the Sportsman's proposal there was no light in the funding tunnel for State Parks.

Courtland Nelson, Division of Parks and Recreation Director stood opposed to the concept of hunting deer on the island and was a vocal supporter to keep the island a unique wildlife viewing experience. Under pressure from some legislators, it was agreed that we ask the citizens of Utah if it was time to change the resource management

plan and permit limited hunting of deer. Public hearings began in Blanding to Logan sponsored by the Division of Parks and the Division of Wildlife, concluding with a joint meeting of the two boards in Price. In spite of a 3/2 vote by Wildlife Regional Advisory Boards against hunting deer on Antelope Island, the Wildlife Board voted to support the concept. In part this decision resulted from the fact that bison are hunted (usually 5 permits) annually on the island.

The deer hunting proposal was very controversial with both proponents and opponents organized and vocal. As



the Parks Board Chairman, I received numerous written letters almost unanimously opposed to the deer hunting proposal. The proponents were well prepared to speak and give input at the various public hearings. A 50/50 split for and against the proposal was recorded at some of the hearings. My personal estimation of the total public input would be 70% against the proposal and 30% in favor.

The ultimate decision was the Parks Board to determine. In the combined meeting with the Wildlife Board, it was clear that any funds received from the sale or auction of deer hunting permits on the island would be controlled by the Division of Wildlife and not the Division of Parks. Further, there is no way for these funds to be used for the capital needs of the state parks.

Our final decision was largely a philosophical one. What do we see as the mission of the island? After some modest splintering by the board at the inception of the proposal, our board united in a common vision that Antelope Island's primary wildlife mission is one of viewing and not hunting. The natural follow up to this decision is to reconsider the bison hunt. For very legitimate reasons, bison have been hunted on the island. The main reason is to control the population and for many years we could sell a hunting permit for more than a live animal. Today, this is changing. The decision to reconsider the bison hunt will be made in the January Parks Board meeting in St. George.

Is this the end of the hunting proposal? No, not if the Sportsman for Fish and Wildlife appeal the Parks Board decision to the Utah legislature. How do you feel about hunting on the island? If you support the Parks Board decision, then contact your legislator. Let them know that it is a rare and remarkable place and should be preserved for the wildlife viewing opportunities. As a deer hunter myself, I think it is OK to maintain Antelope Island as a kind of Yellowstone of Utah where minutes away from the cities, you can enjoy the peace, quiet and splendor of some of nature's magnificent creatures. 🐾



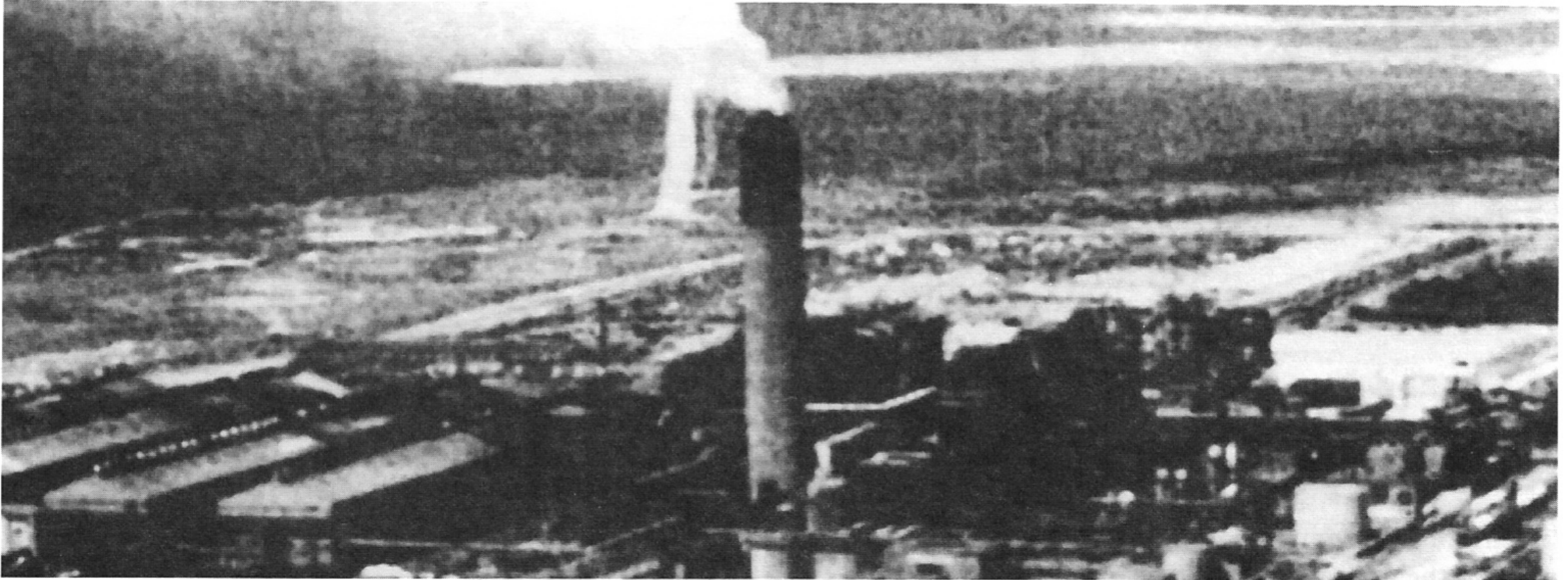
emphasizes core physical science objectives. During the third phase (starting this spring) students will study biological science themes which relate to local population growth, urban sprawl, and habitat loss. During all three phases students take field trips and conduct their own scientific investigations. With each project, students are challenged to consider current problems in relation to our growing population and propose sound policy for the next 20 years. Student work, as well as more information about the project, can be seen on Salt Lake 2020's website (www.granite.k12.ut.us/Artec). I am very appreciative of those who take the time to comment on students' work through the website- perhaps the greatest outcome of this project is when a student feels listened to and valued for their work. The site is updated regularly with new student work. I welcome ideas and comments from the community, and owe a sincere thanks to FOGSL for their support. 🐾

Chris Carson, ARTEC School, 3809 West 6200 South, Kearns UT 84115 crcarson@earthlink.net
www.granite.k12.ut.us/Artec

From page 8:

The ten signs of life are 1) Male brine shrimp, 2) Female brine shrimp, 3) Brine shrimp eggs, 4) Brine fly, 5) Brine fly pupal case, 6) Brine fly larva, 7) Algae, 8) Corixid beetle (water boatmen), 9) Feathers, 10) Human litter.

Lake Fact Answer:
1,235 feet
(compare with Empire State Building. 1,250)



Citizen Activists Win, Magcorp Rolls Over

*By Chip Ward, author of *Canaries on the Rim**

At FOGSL's first Great Salt Lake Issues Forum in 1996, many participants wondered aloud what could be done about Magcorp, scourge of the southwestern shore of the lake. The magnesium refinery is famous for topping out the annual Toxic Release Inventory with scores of millions of pounds of chlorine gas and hydrochloric acid emissions that choke boaters, aggravate the lungs of Tooele Valley residents, and do 'God-knows-what' to millions of migrating birds. Magcorp accounts for 80 pct. of point source chlorine gas emissions in the nation and 90 pct. of Utah's toxic air emissions. It seemed a no-brainer that an operation that burns off chlorine gas to abate its pollution is a likely suspect for dioxin formation though Magcorp insisted it was innocent and the Utah Dept. of Environmental Quality wouldn't bother to find out. Also, Magcorp had just asked for a change to its operating permit so it could add new "sealed cell" production units that were much cleaner than its traditional production technology. This begged the question: "why don't they replace dirty units with clean ones?"

After the conference, a group of activists from FOGSL, the Sierra Club, West Desert HEAL, the Southern Utah Wilderness Alliance, and other groups met at the SUWA offices and formed Citizens Against Chlorine Contamination. CACC consisted of a core group that included ecologist Howard Gross (now director of Hawkwatch),

biochemist Scott Endicott, activists Chip Ward and Erin Moore, and a fifth person who wished to remain anonymous. When Erin moved away, Kathy Van Dame joined the core. Around this group was a broader circle of talented supporters, including FOGSL's Lynn deFreitas, who were kept in the loop and available for advice and participation as needed. CACC was soon adopted into the Utah Chapter of the Sierra Club to provide legal cover.

Tactics and targets varied. The Utah Air Quality Board was persuaded to ask Magcorp to install a redundant chlorine reduction burner as their one troubled pollution abatement device had a checkered history of "unavoidable breakdowns" that resulted in massive clouds of emissions inundating Grantsville. Magcorp officers stormed off protesting that the cost was prohibitive. CACC also pushed for dioxin testing and then argued with the state over how and where to test.

Eventually it was revealed that Magcorp's owner, an elusive billionaire named Ira Rennert who is infamous for his collection of environmentally repugnant industries, was building the largest private mansion in America. Anyone who can afford a 200 car garage and 30 bathrooms can afford to clear the air in Utah. The story of the Magcorp/Rennert Goliath vs. the community activist Davids went national with a feature article in *Vanity Fair*.

Magnesium Corporation of America

By Tom Tripp, Magcorp Technical Manager

Magnesium Corporation of America (Magcorp) is one of the world's three major magnesium producers. Magcorp uses the waters of the Great Salt Lake as its source of raw materials, and its solar evaporation ponds constitute the largest industrial use of solar energy.

In the past Magcorp has frequently been in the local media due to its history of high chlorine emissions and other environmental and regulatory issues.

Tom Tripp, Magcorp's Technical Manager, will speak on recent developments at Magcorp including the installation of new manufacturing technology that will reduce emissions and save energy. Magcorp's new direct chill caster has made it a leader in magnesium metal quality.

Mr. Tripp will also discuss and take questions on topics related to brine shrimping, salt production, and multiple uses of the Great Salt Lake.

'Magcorp' continued

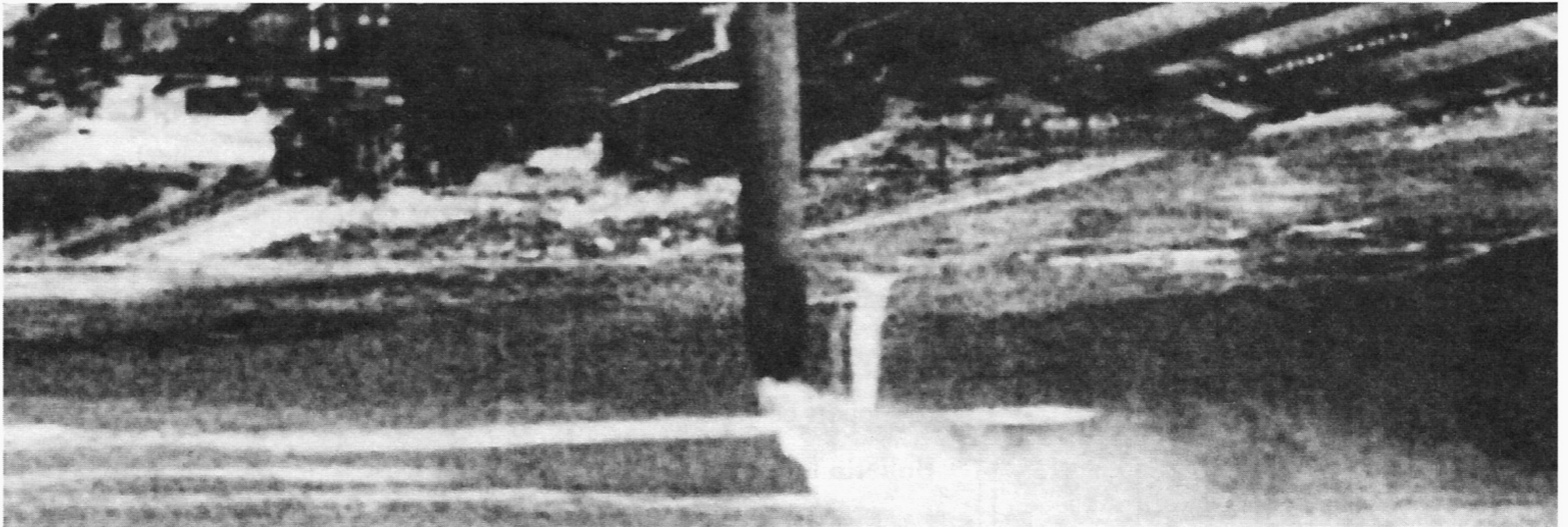
In the meantime, the dioxin testing was done and revealed alarmingly high concentrations in sludge piles and waste water ponds behind the plant. CACC argued that accumulated dioxins eventually flushed into the lake where they can be picked up by brine shrimp and bioaccumulate up the food chain to wildlife and to humans who eat prawns that are fed commercially harvested brine shrimp.

Magcorp decided to talk. In the beginning they had refused and Magcorp's president called CACC leaders "mean and ignorant people who are picking on us." Under continual pressure, however, the corporation changed its mind. They told CACC they were working hard on developing even cleaner production technology that would also benefit them by greatly increasing the plant's efficiency. CACC backed off and waited.

In late October, the State of Utah and Magcorp revealed an new operating permit that confirmed the hoped for results: Magcorp would install more than \$30 million in new technology over the next three years and cut its pollution by 90 pct. It also signed an agreement with the EPA to fence off dioxin laden ground, test it thoroughly, and clean up as required. The two agreements signal a major turnaround for the corporation that seemed impossible just a few years ago.

People often wonder if they can make a difference against seemingly insurmountable odds. The Magcorp story illustrates that they can and underlines the powerful relationship between the vitality of a community's civic environment and the health of its natural environment. Chalk one up for citizen activism. Commitment and determination pay and winning feels good. 🐾

Photo taken from Catalyst magazine, Dec.'97 issue. Photographer unknown.



HOW TO REACH US

Friends of Great Salt Lake
P.O. Box 2655
Salt Lake City, UT 84110-2655
801/583-5593
www.fogsl.org / mail@fogsl.org

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Lynn de Freitas - President
801/582-1496
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Membership Database**
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bbentley@biology.utah.edu
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Robin Hooton
801-272-3619
Heidi Hoven
801/322-4307
hhoven@swcaslc.com
Maryann Hunwick
801-771-3277
ultimaxww@cs.com
Brian Nicholson
435-797-2580
bnich@baobabinternational.com
Lindsey Oswald
801/485-7307
lindsey@suwa.org
Kenneth Sassen
801/322-3216
ksassen@atmos.met.utah.edu
Ivan Weber
801/355-6863
kiweber@kennecott.com

OTHER CONTACTS
Kevin Landis - Web Master
801/972-7054
klandis@usa.net
**Sander Lazar -
Barbara L. Tanner Fellow**
801-272-1777
ripplemaker@hotmail.com
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801/467-3240
ecotracs@aol.com
Anna Weller - Newsletter Layout
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Please consider donating aluminum cans to Friends.

Can donations will be accepted at 1170 East Warnock Ave (2490 South). All proceeds will go to the FOGSL general fund. Cans must be contained in plastic garbage bags. If you have cans to donate, but can't transport them, please call Lindsey and arrangements will be made for pick-up.

If you don't recycle aluminum, please consider starting!! This will greatly benefit Friends. Volunteers are needed for accepting aluminum cans in your neighborhood and/or taking cans to the recycling center.

Questions, please call Lindsey at 801/485-7307.

SUBMITTING MATERIAL FOR PUBLICATION

1. **What to submit:** original articles (historical, geological, geographical, biographical, political, fiction, poetry, etc.) or art work (sketches, photographs, etc.) which pertain to Great Salt Lake.
2. **Submitting material:** Mail or deliver to 1117 E. 600 S. Salt Lake City, UT 84102. Or e-mail to: ldefreitas@earthlink.net
3. **Please call 801/583-5593** to confirm receipt of e-mail or with any other questions, suggestions, comments, or ideas.
4. **Deadlines:** The deadlines for submittals are Sept. 16 (Fall), Dec. 16 (Winter), Mar. 16 (Spring), and June 16 (Summer).

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Have you noticed, and wondered, why you haven't received a FOGSL membership renewal letter? In our effort to save paper, we are asking you, our dear members, to keep track of when it's time to renew your membership by checking the label on your newsletter. On your label, below your name, there will be listed the membership due date. Also, labels will be printed to mention that your due date has arrived. Thank you for your attention to this and your great support!

If you have a question about your membership, please call Lynn at 801-583-5593. **Big Thanks!**



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