



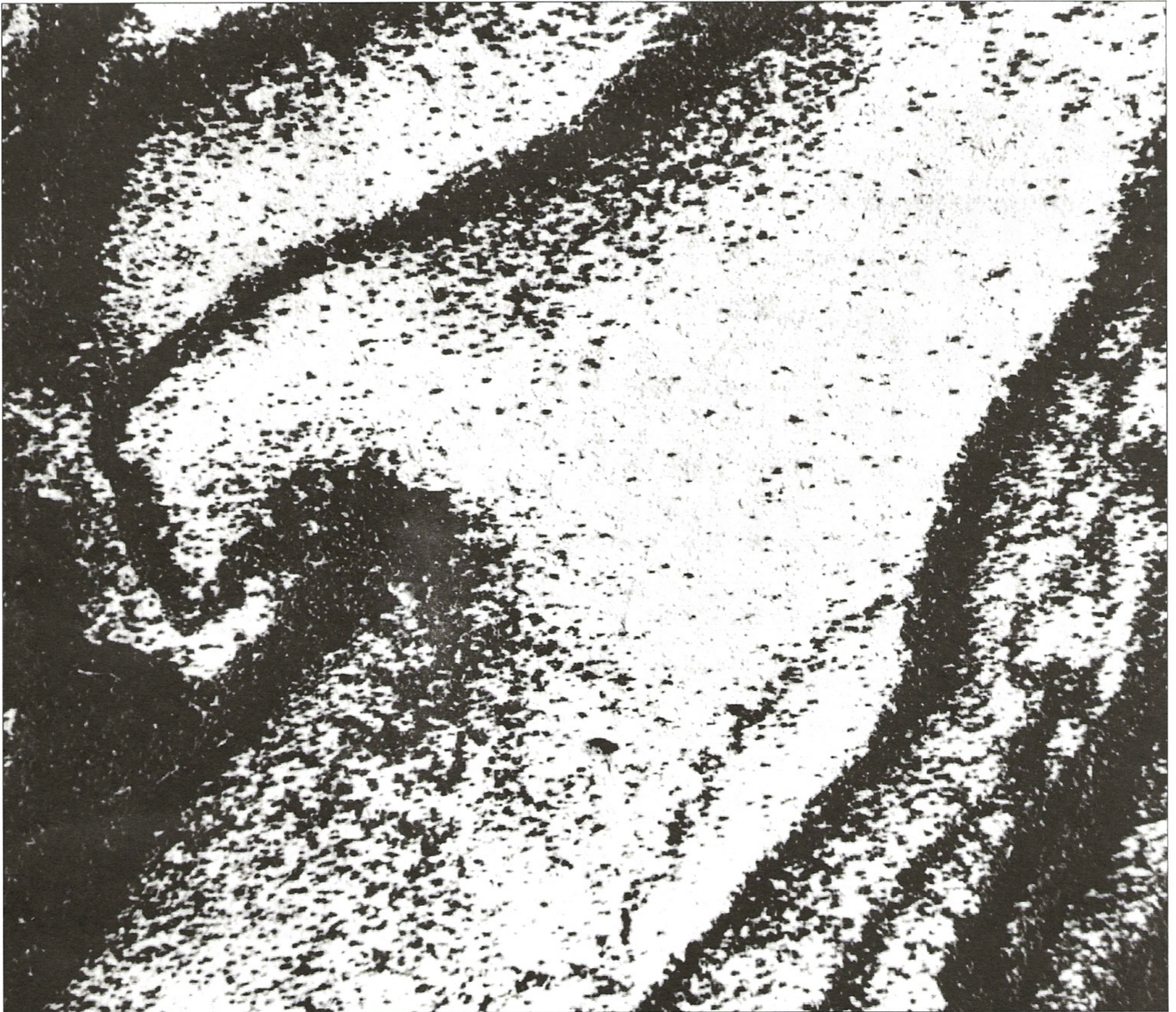
FRIENDS of *Great Salt Lake*

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

801/583-5593

Volume 6 Number 3

Summer 2000



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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* Due to the jam-packedness of this issue, and the timeliness of the articles, Part-II of 'Brief History' will be post-poned.

Summer 2000 Calendar of Events

August 3	Thursday	Board Meeting 7pm
Sept. 7	Thursday	Board Meeting 7pm
Sept. 16	Saturday	Cruise (p.11)
Sept. 26	Tuesday	General Meeting 7pm
Oct. 5	Thursday	Board Meeting 7pm
Oct. 24	Tuesday	General Meeting 7pm, with guest Katrina Moser (on GSL geology)

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

As the NEPA process continues on the proposed Legacy Highway Please note the following:

Early July	Final EIS (FEIS) to be mailed
Mid July	FEIS available at most public libraries
Mid August	Public hearing and information meeting on FEIS and 404 permit scheduled by Army Corps (ACOE).
Late September	FHWA issues Record of Decision (ROD) on purpose and need of highway.
Late November	ACOE issues ROD on wetlands aspect of highway.

Cover: *Brine Fly Pupae from Saltair dike* by L. de Freitas.

President's Message: Sprawl Costs Us All Including Great Salt Lake

At 10:15 PM, it was my turn to speak to the Salt Lake City Council. The topic for this part of the public hearing was the proposed Grand Mall; a massive sprawl inducing mega mall at the intersection of 5600 West and I-80 next to the proposed Western Legacy Highway corridor.

While there were a few who supported the mall, the majority of us waiting since 6 PM that evening spoke against it. Common themes included the impacts this project would have on the pulse of our downtown and existing businesses; induced automobile traffic created by a retail development 40 blocks away from the nearest residential development; the catalyst this mall would be to spawning another segment of the Legacy Highway, and concerns about haphazard development (sprawl) near the south shore of Great Salt Lake.

Early in April, Friends invited members of Mayor Anderson's staff and city council to visit the Lake. This was a first visit for most of them. (Read "..But Now I Am" by Tom Rogan) Joined by National Audubon, Kennecott Utah Copper, and Salt Lake International Airport, our goal was two-fold. We wanted to educate them about south shore issues, that included ongoing mitigation and conservation projects, and we wanted to make recommendations for them to consider as they decide how Salt Lake City will develop.

We discussed conservation easements on additional lands surrounding all mitigation areas to ensure that these areas will remain as open space and keep their upland/wetland values in perpetuity. We commended them for their use of impact fees in the Northwest Quadrant. We emphasized our clear opposition to any proposal for a roadway to Antelope Island from the south. We agreed that there was the need for increased wildlife viewing and recreation/education opportunities for people to better understand the Lake. We talked about the Legacy Highway and its invitation to promote sprawl. And we talked about the Grand Mall and its dysfunctional role in city planning efforts.

The council will make its decision on the Grand Mall sometime in August. There is still time to express your concerns over the way we choose to build our City and the way we choose to think about its relationship to Great Salt Lake.

On behalf of sustainable and responsible development,

Lynn de Freitas

P.S. On May 24, Dr. Doyle W. Stephens died. As a scientist who championed a whole lake perspective, Doyle was dedicated to his work on Great Salt Lake and always generous in sharing it. As a friend, he was affable, sincere and fun to be around, and always had a twinkle in his eye acknowledging the fullness of life. He is greatly missed.

But Now I Am

By Tom Rogan

Salt Lake City Council Member

I wasn't a 'lake' person, but now I am.

I wasn't a 'wetlands' person, but now I am.

I wasn't a 'bird' person, but now I am.

I wasn't aware, but now I am.

I wasn't committed, but now I am.

April 7, 2000, will not go down in history for this reason; but on that day, I changed. For it was then that, for the first time, I drove west of Salt Lake City on I-80, left my car, and experienced first hand what had previously been for me a vast wasteland of nothingness - the Great Salt Lake, its surrounding wetlands, its mysterious geology, and its abundant bird population. Salt Lake City Mayor Rocky Anderson's assistant for environmental affairs, Juan Arce-Larreta, had invited council members to pack a lunch and participate in a tour of the Great Salt Lake's south shore. Council members Van Turner, Nancy Saxton and I were able to make the trip. Joining us were representatives of Friends of Great Salt Lake, National Audubon Society,

Kennecott, and the Salt Lake City International Airport.

I'll refrain from gushing, but I was impressed; and the words 'intriguing', 'magnificent', and 'serene' linger among my memories. For what's at stake, there is no replacement. As Ross Perot would say, "It's as simple as that". We visited the Gillmor Bird Sanctuary and toured the Inland Sea Shorebird Reserve. We counted some 39 species of birds. We connected. Now we must carry on.

People need to understand this part of our State, and elected officials must experience what I have experienced.

Keep up the good work !

I wasn't a part of what you're trying to accomplish , but now I am . 🐦



left to right - Kathy Sheehan, ADA, SLC; Nancy Saxton; Juan Arce-Larreta; Tom Rogan; Ella Sorensen; Steve Domino, SL International Airport; Jon Cherry, KUCC; Christian Turner, Lynn deFreitas; Ann Neville; Wayne Martinson; Van Turner; Ray McCandless, NW Quadrant (SLC)

Festival Cogitations

By Ann Neville

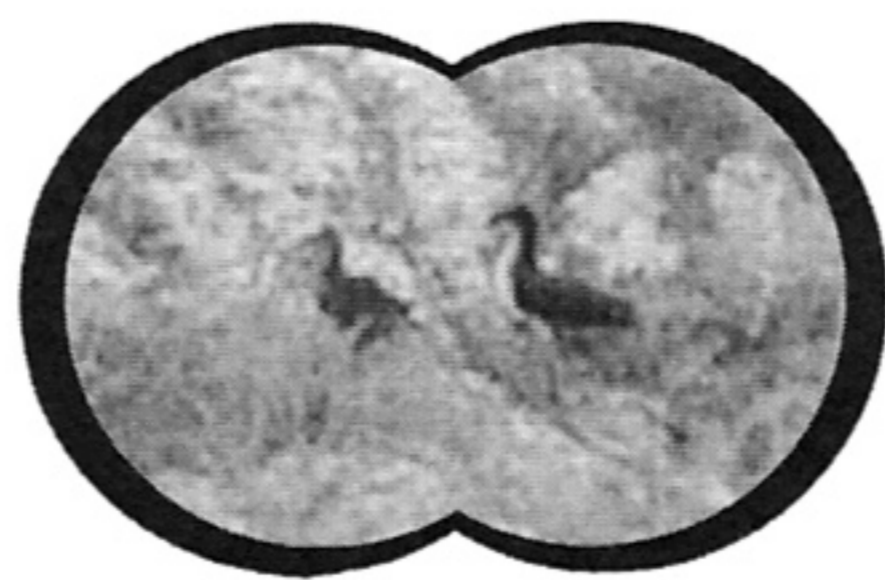
Another spring has come and gone. Most of the migratory birds have either flown from our fair Lake, settled down to nest, or are busy chasing away predators from their chicks. I, on the other hand, am deep into my summer routine of bird and water quality monitoring, raking algae out of ditches and recovering from another Great Salt Lake Bird Festival. We can honestly say we're an annual event now.

Never did I ever think I would participate/help with a community event like the GSL Bird Festival. I always thought people with great bird knowledge, vast experience in raising money, and connections were part of festival committees. HA! I have limited bird expertise (I'm a wetland biologist you know), don't ever balance my checkbook, and flunked schmoozing class a couple of times.

Some committee members were chosen more for being a warm body than for their expertise. I was one of them. Neka Roundy, chair of the Festival, borrowed me from Kennecott Utah Copper for a few hours and asked me to try and do the things that needed to be done. There are many committees involved in planning the GSL Bird Festival. Fortunately I was NOT on the Social/Cultural (entertainment), Education (involving kids/rug rats), Publicity, Technical, Historical, Budget/Treasurer or Events (tours and lectures) committees. I was incredulous to find myself on FOUR other committees: Sponsorship (\$\$ begging), Vendors (cajoling artists and food people to come), Volunteers (convincing generous, gracious people to assist) and the Fun Run/Ride (fund raising exercise).

Guess what? I didn't ruin the festival. With an attendance of over 3,000, people came in flocks (sorry I couldn't resist). They ate bread and ethnic food, bought some beautiful decoys, art work, photos and whistles, watched dancing children, listened to lectures on GSL and how to get birds to come into your back yard, and were entertained and educated by our national bird-expert guest Pete Dunne. The kids had a great time watching live birds, pounding away on birdhouses, building bird feeders, trying to flap their arms like a raven, folding origami birds or counting birds on computers. But mostly, people wanted to see birds. See birds with a guide who knew where and what the birds were! They were thrilled to go to Farmington Bay and Antelope Island to see birds. They seemed ecstatic to go on the 'Behind the Gates' special tours to limited access areas to see birds.

I helped lead the Behind the Gates tour to the south shore (including the Inland Sea Shorebird Reserve,



Audubon Gillmor Sanctuary, and Ambassador Duck Club) on Sunday with Wayne Martinson from National Audubon. We had three vans full of local people and another van held visitors from Canada and Mexico. Did you know we share birds with Canada and Mexico? Bird officianado Don Paul (DWR) came on the tour to introduce our international visitors to a project he has initiated to 'link' our connecting countries together through shorebird preservation. Jim Corven, another birding expert also involved with 'Linking Communities', is from the Western Hemispheric Shorebird Reserve Network came on the tour too. Needless to say, I listened more than I talked.

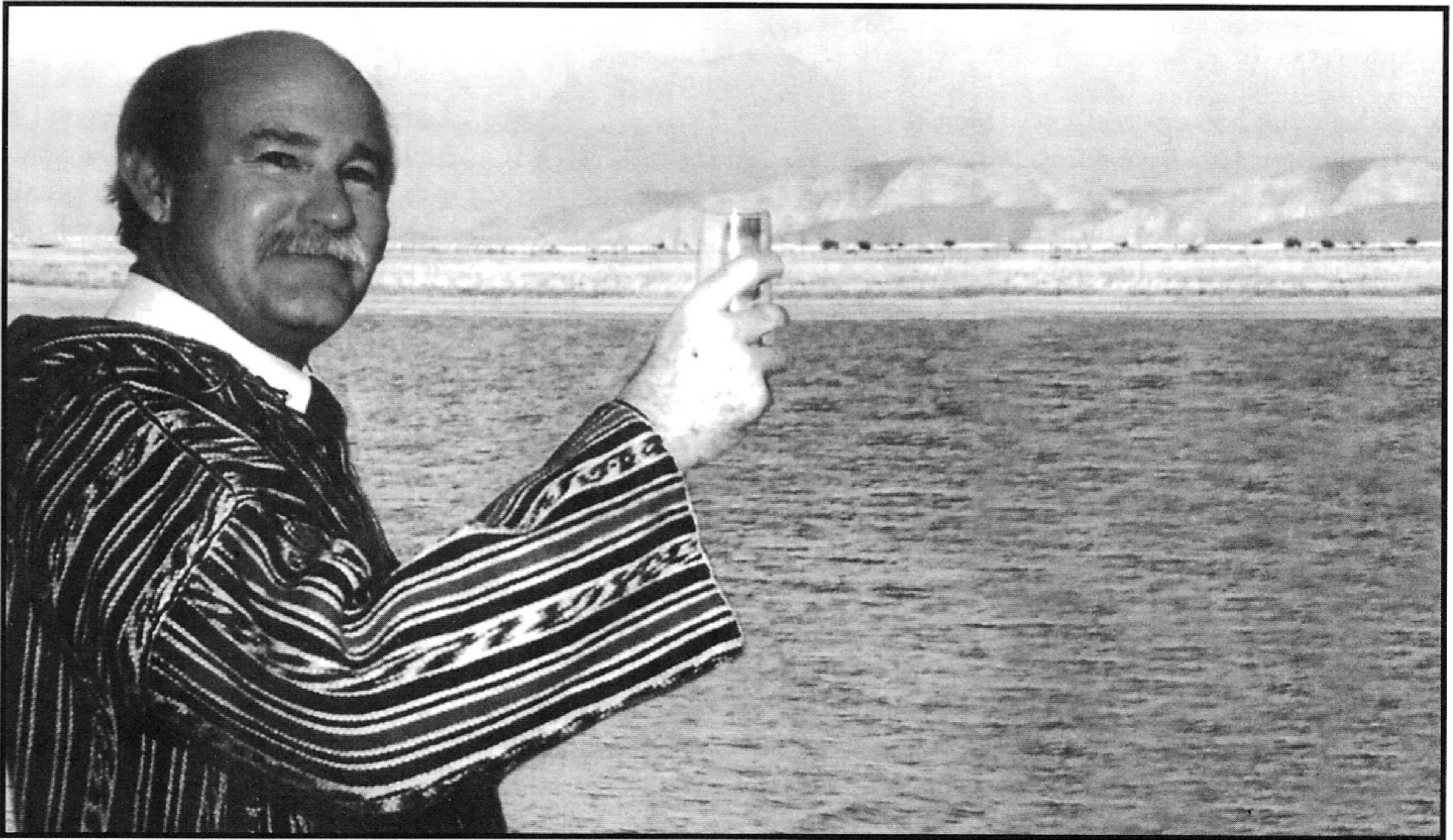
Whilst birding, stopping, and wiping the rain off our scopes the group discussed different wildlife habitats along GSL. Are they pristine or degraded? What types of birds visited these habitats and what are their needs. Other questions were asked. When do the birds come in and leave GSL? What do the birds do in winter in Mexico? Which species nest here and which go on to Canada? We observed different bird behaviors, calls, and plumage. We talked about managed and unmanaged sites, the need to increase shorebird or duck habitat, as well as the values of fresh and brackish water areas. We went on to talk about buffer zones around wildlife habitat, local and international government protection and safety nests (or is that nets on whatever, I may spend too much time with the birds).

The group was enthralled, soaking up all the information as my jeans were soaking up the rain. Problems were aired, alternatives were offered and we all started thinking.

How much had I really known before that tour? I knew that GSL ecosystem is a wonderful, complex, fascinating entity. But innovative ideas gave me a different perspective. Others ideas cemented my thoughts instead of them oozing around like liquefied mud. Some things were new and I tucked them away to be recited on another tour. I learned a lot, some ephemeral, some practical.

Maybe after a 100 or more tours like that I'll FEEL qualified to be on one of the GSL Bird Festival committees. Maybe you, too, would help with planning the Great Salt Lake Bird Festival 2001! We could be overwhelmed and awed together.

Contact Ann Neville: kanevill@kennecott.com or Neka Roundy: tour@co.davis.ut.us . Call 451-3286 for more information on helping with the Great Salt Lake Bird Festival 2001. 🐾



Doyle W. Stephens

April 6, 1944 – May 24, 2000

I've had the pleasure of working and socializing with him for the past 15 years. What a trip! He deserves our utmost professional respect. He was also a great friend, that for whatever reason, together we seemed to click and complement each other. For the U.S. Fish and Wildlife Service for whom I work, he substantially enhanced our capabilities, our professionalism, and our successes. He valued us also, and I believe he responded to our endless needs for data and support because he could see the value added by our efforts, and frankly, he enjoyed and was stimulated by the biological aspects of our job. As a team, we worked on the Irrigation Drainwater Program. Most notable was the identification of selenium problems at Stewart Lake Waterfowl Management Area and Ouray National Wildlife Refuge. The program was noteworthy for its success and efficiency largely due to Doyle's leadership and team support, which occasionally included a scoping meeting in the hot tub with a gin and tonic! Whether at work or play, he was usually up for most any outing or adventure. Some play portraits include: patiently waiting

while slouching against the wall under Jimmy Buffet's Margaritaville sign; huddled over a keg of beer washed up by the surf at Gulf Shores trying to decide how to salvage it and do with it; instructing my dog on the etiquette of ignoring barbeque chicken at nose height during a canoe trip through Labrynth Canyon; or simply sitting with a Pacifico at a seaside restaurant in Mazatlan wearing a Hawaiian print shirt, cap and sunglasses. He was human so we should not canonize him through these tributes, but he will truly be missed. I miss him greatly, and as another friend of mine reminded me, so will a heck of a lot of other people. We can continue his work partly by striving to promote excellence in the science of understanding the dynamics of the Great Salt Lake so that it can be properly managed.

—Bruce Waddell.

U.S. FWS Contaminants Specialist

Nancy and I have a Single-Malt Whiskey-tasting each year in the Fall. Usually, its just a few friends who are interested in learning more about Whiskey. Doyle and Vincie became an important part of that process early-on. A 'process' because this was never JUST about drinking Whiskey. Doyle and I would typically begin discussing the Whiskey line-up for next year even before the current tasting was finished. Would it be the Spey Valley Malts? The Western Island Malts? Highland or Lowland? A mix? Or, maybe this would be the year we tried a Japanese Single-Malt? Doyle always had great suggestions. He would often come with a new Whiskey to add to the selection. Once in a while, I would come into work to find a newspaper clipping on my desk having something to do with Single-Malts. Doyle loved information. Especially, if it was humorous. We would taste each of perhaps five Whiskeys in turn, and he would write down his observations. Nose, what scents could the group come up with? Color? Taste, was it a bit of smokiness, or was it peat? It always was an enjoyable process for Doyle – Food, Drink, Companionship, AND a bit of Science, as well. A good time! AND Doyle loved a good time, no matter that it was a wee dram of Laphoraig or a windy day sampling on Great Salt Lake.

—Joe Gardner

USGS Computer Graphics

Doyle's initial speciality was in water biology, and he never lost that interest even though his work eventually spread into many aspects of water quality.

After graduating from Weber State College with a B.S. in biology in 1967, Doyle received his Master of Science from the University of Utah in 1969 with a degree in entomology-his thesis was on Trichoptera in the Weber River. He was awarded his Ph.D. in 1974 –his dissertation was on the limnology of Great Salt Lake, focusing on its invertebrate life. And in 1974, he summarized biological investigations in Great Salt Lake since 1861 in a report published in the Great Basin Naturalist.

After graduating from the U of U, he went to work for the U.S. Geological Survey as a Research Biologist in a regional laboratory, The Gulf Coast Hydroscience Center in Bay St. Louis, Mississippi. He was a member of a team studying the oxygen cycle and reaeration in streams. Doyle focused on the biological aspects of the oxygen cycle, but got involved with all of it.

In 1980, he transferred to the Utah District of the Survey's Water Resources Division office in Salt Lake City, and it was there that his career bloomed. His initial assignment was concerned with the chemical quality of runoff from the urban area of Salt Lake County, and starting in 1984 he co-authored several published reports on that subject.

Through the next 16 years he did field work on many

different projects and wrote reports for publication for them all. These included the water-quality of the Jordan River; biota associated with irrigation drainage in the Green River Basin; water-supply considerations for Indian lands in southwestern Utah; pollutants in Scofield Reservoir; selenium contamination in wildlife areas from irrigation drainage; changes in salinity of Great Salt Lake; and the assessment of brine-shrimp population and nutrients in Great Salt Lake. He accepted new assignments with alacrity and grace, never complaining, and always a pleasure to work with.

My first close professional relation with Doyle was when I asked him to write the water-quality section of a report that I was writing on the Hydrologic characteristics of Great Salt Lake: 1847-1986. I was thinking of a section simply on salinity, but he did that and then went on to add a detailed discussion of the biological characteristics of the lake for the entire period. That was Doyle Stephens – always eager to do more; always willing to take on added assignments; always finishing everything on schedule. A man to be relied on.

—Ted Arnow

Doyle, roomed next door to me for about 20 years while working as a Research Biologist for the US Geological Survey in Salt Lake City. Doyle and I worked together on several projects and in particular, Great Salt Lake for which there were almost daily discussions on some facet of the lake. For several years his office door has been a poster board for articles on Great Salt Lake. Doyle, enjoying life to its fullest, had integrated all aspects of life so that work was not a job but a rewarding and fulfilling part of his life. The spirit and enthusiasm he conveyed to his friends and colleagues was a huge part of the spirit of this USGS office. His extensive bibliography was only a small part of his contributions to science and to others.

Despite a full schedule and enormous, self imposed work load, Doyle always found time to provide help to others - this included numerous requests for reviews of reports from the academic community. His knowledge of science spanned far more than that of biology and his work ethic and willingness to assist defined a true mentor of students and colleagues. Colleagues were impressed with his willingness and ability to repair his brine shrimp boat or to elaborately articulate the complexities of his science at symposiums or to the news media. Doyle did not like waste of resources and before disposing of things we would joke with Doyle about its usefulness. You soon realized that his resourcefulness was simply a part of his means for being generous to others. What a privilege and pleasure it was to work so long with such a fine person.

—Kidd M. Waddell

USGS Hydrologist

During 1980-94, I was the supervisor of the section in which Doyle worked at the U.S. Geological Survey, Water Resources Division, Utah District. I really didn't supervise Doyle in the usual sense--he was the kind of person that if you just gave him enough money (not always possible, unfortunately) and stayed out of his way (other than to ask him to take the time to write it all down), he would produce good things.

Doyle transferred to the Utah District of the USGS in November 1980, and immediately filled a need for a water-quality specialist/chemist position in studies of the urban runoff in Salt Lake County and of the water chemistry of the Jordan River. After that, his interests in aquatic biology and chemistry, his talents in coming up with new ideas, and his ability to mix easily with people from all parts of Utah's water and wildlife communities and inspire their trust, led him into studies of many kinds.

Probably the two main areas where Doyle made major scientific contributions were identification and management of contaminants in wetlands (principally wetlands created or augmented by runoff/drainage from irrigation projects), and in the limnology/ecology of Great Salt Lake -- his long-time love. His focus in much of his wetlands work was in the movement of selenium and other contaminants with irrigation drainage into and within a number of wetlands in the Green River basin of Utah, creating salinity and toxicity problems. Much of this work was in cooperation with the U.S. Fish and Wildlife Service and the U.S. Bureau of Reclamation, and most of these areas were National Wildlife Refuges or State Waterfowl Management areas. He not only worked on how this was happening, but on ways to remediate the effects. As a consequence of his pioneering work on irrigation drainage and saline lakes, he was selected to represent the USGS on the Salton Sea Science subcommittee, a group working on plans to restore the Sea.

His long-time interest in Great Salt Lake and its biology led him to current studies on the ecology/population dynamics of the lake's brine shrimp -- including all the related physical and chemical aspects of the lake.

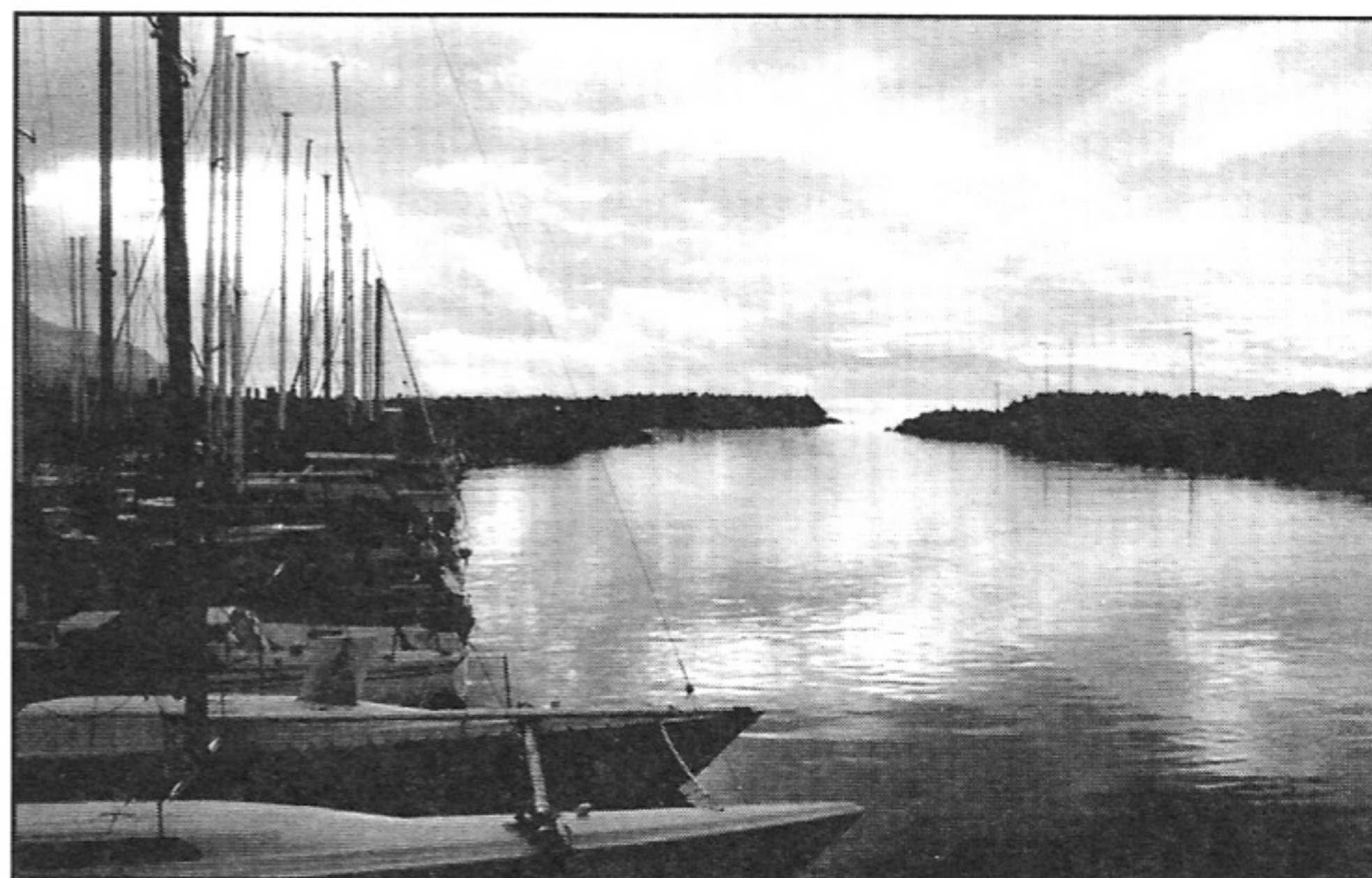
As the lake's brine-shrimp industry has grown over the last decade, and the realization that the lake's ecology is vitally important to bird migration, the significance of his long-time work has been realized.

In addition to all this, Doyle found the time to work on a number of other interesting problems -- the ecology of endangered species at major springs near San Antonio, Texas, limnology of Lake Powell, water quality of Scofield Reservoir above Price, Utah, and even the hydrology of parcels of land newly allocated to the Piute Indian tribes

of southwestern Utah. He also was currently a key member of a team making a water-quality assessment of the entire basin of the Great Salt Lake. Doyle was also a very productive scientist -- he produced 51 papers and reports in his career, and was lead or only author in 34. He also gave 21 formal presentations at scientific meetings (he was lead in 19). In his 26 years with the USGS, he averaged two publications/presentations per year -- a busy schedule. He earned seven performance awards from the USGS -- many of us are happy with one. Doyle did a lot of extra things as well, things that most of us just don't seem to have time for. Recently he cooperated with Joe Gardner, a computer graphics specialist in the Utah District, to create a poster on the brine shrimp of Great Salt Lake -- to be distributed in schools or to interested people. He gave posters and some live brine shrimp to a school in Holtville, California, near the Salton Sea, and enjoyed all the letters he got from students. He recently helped several high school students with projects for science fairs. He assisted Salt Lake Community College in producing a video on ecology -- and was always willing to give interviews to newspapers and TV programs looking for information. Most of all, Doyle was just a remarkable human being -- every year at Christmas, he collected money for the Travelers Aid Society Shelter -- he was not a scientist thinking only about technical things. I don't believe he ever had a grumpy day, and he was one of those amazing people that everyone liked -- nobody ever had a complaint about Doyle. He was the kind of person that made it enjoyable to come to work--you can't really quantify the value that such a person has to an organization, and they really can't be replaced.

—Joseph S. Gates

USGS District Chief (1980-1994) 🇺🇸

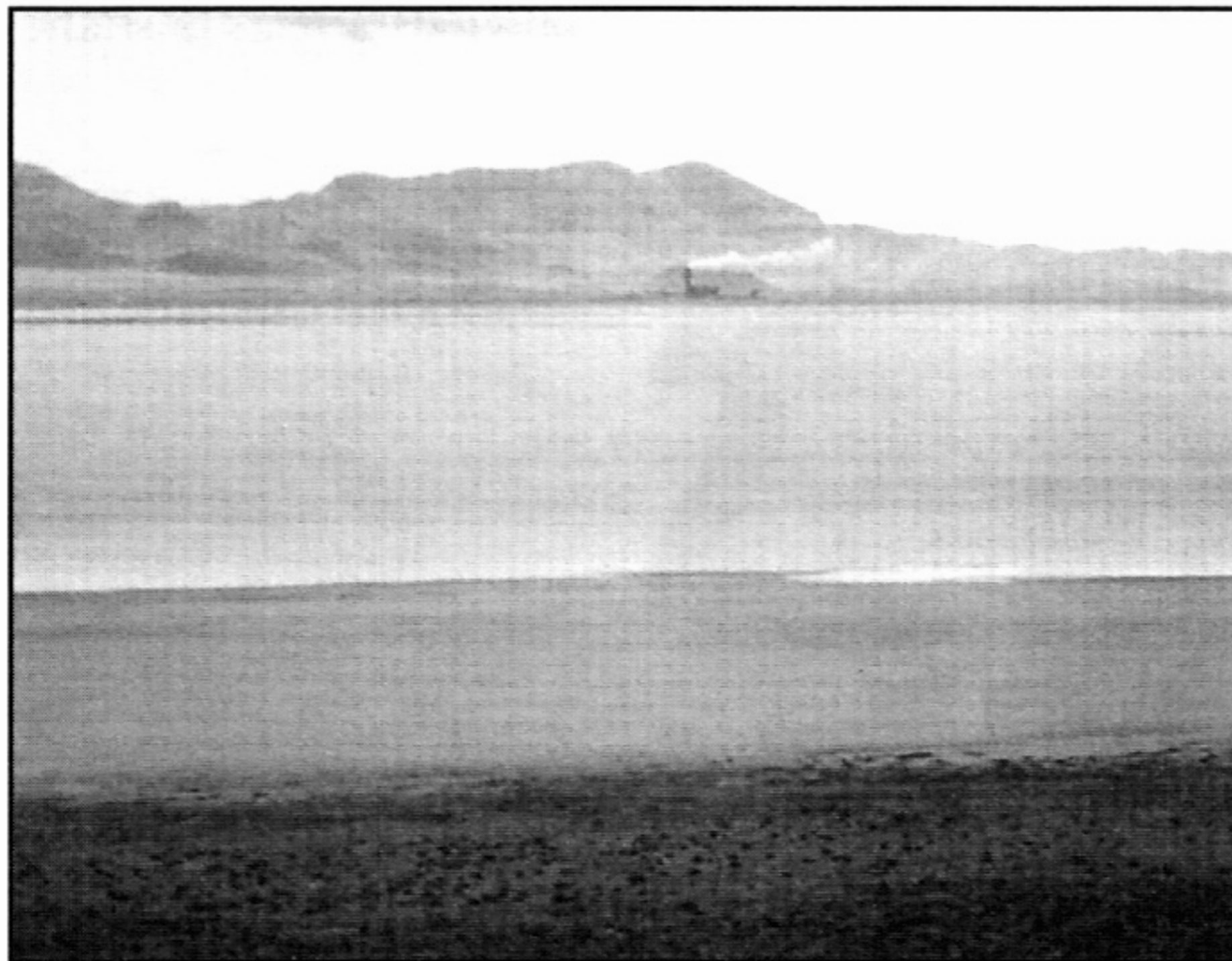


Historic Meeting with MagCorp: Testing for Dioxins/Furans in a high chlorine/HCl stack gas.

By Kathy Van Dame

Photo by Heidi Hoven

On April 18, Utah Division of Air Quality (DAQ) hosted a meeting regarding a stack test for dioxins that would be accurate for MagCorp's high chlorine (Cl) and hydrochloric acid (HCl) emissions. Two representatives of MagCorp were present, 3 from Division of Air Quality, 1 from Utah Division of Solid and Hazardous Waste, 1 from Tooele Co Health Dept, 3 from EPA and 5 environmental representatives, featuring Scott Endicott as our scientist.



EPA reported that Scott had been correct that MagCorp's smoke presented some problems for the normal test, Method 23, for dioxin/furans in stack gases. EPA had found some grant money to pay a contractor, MRI, for the validation of Method 23 for high Cl/HCl emissions in stack gas.

The test revealed that in high Cl/HCl gases, Method 23 has a slight cumulative positive bias, that is, the test results report slightly more dioxin/furans than are actually present in the samples. The degree of bias varies for the individual congeners, some are negative, in a seemingly random fashion.

MagCorp, EPA, DAQ (Dr. Steven Packham), and Scott Endicott agreed that the magnitude of the bias is within commonly accepted variability in industrial and academic settings.

Another problem was that the cellulose extraction thimble got "burned" or charred due high levels of Cl. The cellulose extraction thimble is at the point in the process where the dioxins are removed to be quantified, but this did not seem to interfere with the analysis. EPA suggested that when MagCorp uses this test, glass wool be substituted for the cellulose. Dr. Packham wanted MagCorp to do at least one run with a split sample through glass wool and cellulose to document that the change doesn't affect the outcome. Dr. Packham wanted

MagCorp to do an additional 4th run (3 are usual) to reduce uncertainty.

Scott wanted MagCorp to do dynamic spiking, that is, instill a known quantity of radioactively tagged dioxin/furans into the stack gases to assess the amount of positive bias in real life (as opposed to MRI's test bench). Tom Tripp of MagCorp said their scientist, Dr. Tandor, said that appropriate spiking

is not possible, and would increase the cost of testing by an order of magnitude, from \$25,000/run to \$250,000.

Although MagCorp had to pay for this testing, they didn't believe the small amount of additional information gained by dynamic spiking would be worth the money. Scott was worried that at a later date, MagCorp would challenge results that are inconvenient saying they are caused by the biased test. MagCorp says it performed a test on March 3rd through 5th, 1998 on the cathode and melt reactor stacks and used method 23. According to MagCorp the results indicated an emission of .2lbs/yr.

There were lots of additional detail about what congeners are prominent (more furans) in MagCorp's emissions as opposed to the artificial smoke MRI created to do the validation; where the positive bias comes from, etc. It was a very technical meeting.

Scott and Steven requested that a representative of EPA to be present for the stack testing during the week of May 15. (The test did take place in May, results will take at least 45 days, EPA was here for most of the sample collecting.) This was an historic meeting, MagCorp at the table with EPA, state regulators and environmentalists. Amazing. It will be interesting to see further developments, and if the new testing shows similar levels.

Also discussed was a public meeting to announce the test results when they are available. Thank you all for your interest MagCorp. Stay tuned. 🐦

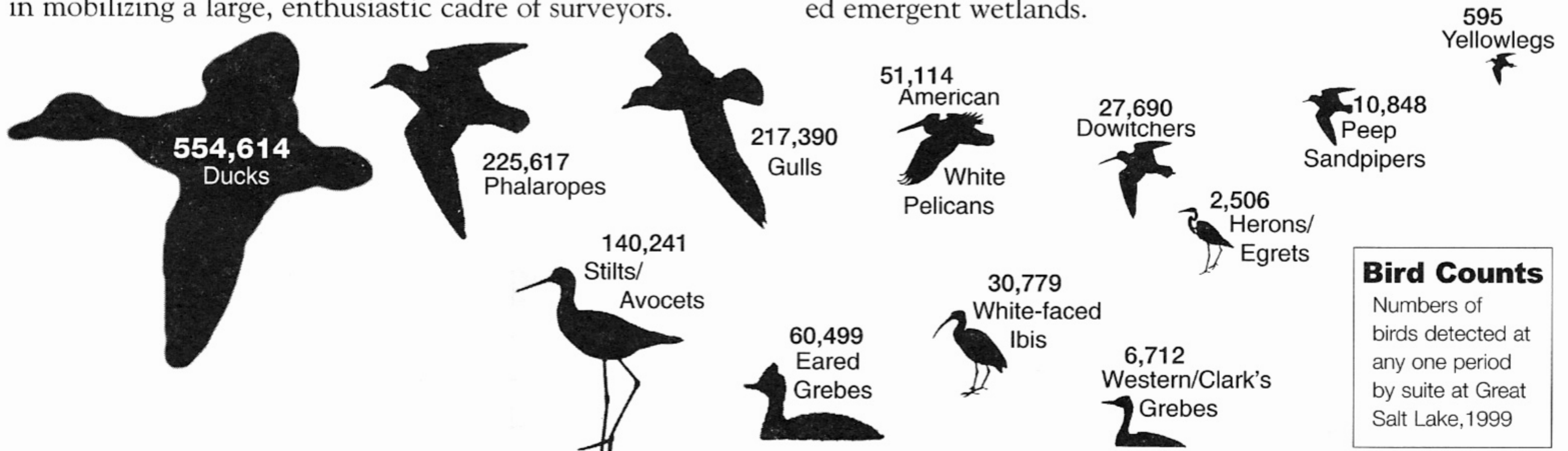
Great Salt Lake Waterbird Survey, 1999 Data.

By Ann Ellison UDWR Biologist

We are currently in the fourth year of a 5 year project. Jonathan Bart, USGS, has provided much analytical help with the 1999 data, and is also working on a west-wide shorebird monitoring program. He has reviewed our project extensively and reported, "The Great Salt Lake Waterbird Survey is currently the largest and most important program for surveying waterbirds in the western United States. It is well organized and has succeeded in mobilizing a large, enthusiastic cadre of surveyors.

At present, no other waterbird survey program can rival the GSL Waterbird Survey in terms of magnitude, organization, or importance."

The report documenting waterbird data for 1999 is still in progress. The lake elevation was higher than the previous 2 years of study, thus we will probably be seeing lower numbers of shorebirds than in 1998, but the data show a good variety of species that rely on fish and flooded emergent wetlands.



LOOKing for Your Support

There are many ways that you can help Friends move forward with achieving its mission. The obvious way, of course, is to become a member. Each new addition to our membership makes our voice for the Lake stronger. That's important!

Continuing your support for the Lake by renewing your existing membership is also important. Strength in numbers does work. With the many challenges we face on behalf of preservation and protection of Great Salt Lake, your support really matters.

Consider volunteering for a board or officer position. Currently, there are 4 board vacancies, and a secretary position. If you are willing to make a commitment for a minimum of two years to work on the board, give me a call. Let's talk about the time involved and the expectations that come with that responsibility. The richness of a board perspective is a valuable experience when working for the Lake.

When you join or renew, consider making an additional donation, beyond the cost of your membership. These donations go directly into funding our education efforts. Currently, we have two education programs: the informal live narrative slide show presentation, The Lake Affect and our four year, 4th grade curriculum development project called Project SLICE (Salt Lake Institute for Conservation Education). We all know that education pays off in the long run. Although change comes slowly, redundancy and consis-

tency of working information about Great Salt Lake encourages that change. We believe that the efforts we make today are critical to the health of Great Salt Lake tomorrow.

The Lake Affect. We need \$10,000 to continue this program. We have reached over 7,000 people in the community with this message. We're proud of this effort and want it to continue.

Project SLICE. We need \$10,000 to pay for 25 field trips during this coming school year. This summer, we will be training SLICE teachers at our Teacher Training Institute. They will then field test the curriculum during the school year. The \$10,000 (\$400/class) is for the class trips to the Lake. Consider being a class sponsor.

Office Space for Full Time Fellow. This fall, Sander Lazar will be a full time fellow for Friends. We need a place for Sander to call home. If you have space in your office for another desk and body, please call and let us know.

Legacy Highway Opposition Campaign. As we continue through the public process on the proposed Legacy Highway, we need money for expert opinion. As we anticipate the release of the Final EIS, we want to be prepared for every opportunity to have expert opinion and review of the documentation on the record. Can you help?

Any way you can help in these areas will be greatly appreciated. Lynn de Freitas

Great Salt Lake Cruise 'The Best Lake Tour'



Come join Friends of Great Salt Lake for a 6-hour charter cruise of the Great Salt Lake, Saturday September 16 from 9:30 am- 4:00 pm. The cruise is a great adventure for first time visitors as well as regular lake enthusiasts. Witness the Lake's rare beauty firsthand, while learning about its many unique aspects from Lake experts. We will also explore five different islands throughout the day. Our cruise is with Salt Island Adventures, on the Island Serenade. The Island Serenade is a 65-foot cruise liner with an enclosed dining area and an open top deck.

COST:

\$30 for Friends of Great Salt Lake members (and others in household)

\$50 for non-members (this includes a one-year membership; \$30 for each additional person in household).

RESERVATIONS:

To reserve your space, send your check made out to Friends of Great Salt Lake by September 1st to:

Lake Cruise

Friends of Great Salt Lake

P.O. Box 2655

Salt Lake City, UT 84110-2655

This tour is a very popular Friends of Great Salt Lake event, and fills up very quickly. Reservations are made on a first come first serve basis, so plan early. Meet at the Great Salt Lake State Park Marina at 9:30 am, Saturday September 16.

DIRECTIONS:

Take Interstate 80 to the Saltair Exit (approximately 15 miles west of Salt Lake City). Turn Left on the frontage road and follow the paved road to the marina. The Island Serenade is docked at the farthest end of the parking lot.

LUNCH:

Remember to bring a sack lunch, and water. There will be a cash bar for juices, soft drinks, and alcoholic beverages.

DON'T FORGET:

Binoculars, field guides, sun protection, and sack lunch.

FOR MORE INFORMATION:

Call FOGSL's activities hotline at (801)583-5593 and leave a message for Kristen in mailbox 1.

Sponsored in part by Salt Island Adventures

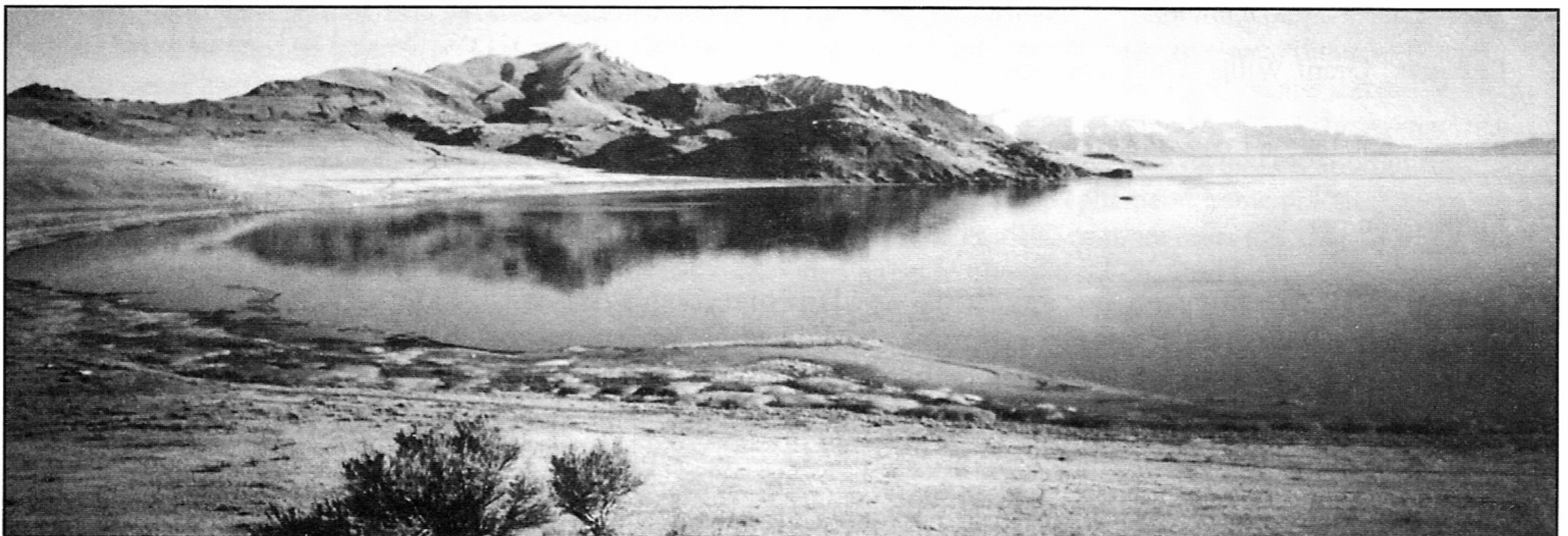


Photo by Heidi Hoven

Utah Geological Association Millennium Tours: Geology of Utah's Parks and Monuments

The Utah Geological Association annually conducts a field conference to highlight aspects of Utah geology. This year's conference (and guidebook) will explore the geology of Utah's Parks and Monuments. It seemed to us that we could not restrict the conference to just one or two parks on a single trip. So the UGA decided to offer four Millennium Tours to visit many of the spectacular parks and monuments. The Tours will be held in September 2000 with two Tours running concurrently on one weekend and the other two the following weekend. They are designed not only for geologists, but for teachers, geohobbyists, naturalists, or anyone who wants to learn more about the geology of Utah's park. Sign up early to reserve a place.

The Wasatch Front Tour consists of two one-day field trips. You can sign up for one or both. The first field trip will explore the geology of Timpanogos Cave National Monument and Wasatch Mountain State Park, and surrounding areas. These parks lie near the junction of several major geologic structures that date back to the early Precambrian. This field trip will look at the cumulative

influence of these structures on depositional, structural, and intrusive events in the central Wasatch Range. We will examine thrust and detachment faults; Tertiary intrusions, hot springs, glaciation; and many other geologic features. The second field trip will explore the geology of Antelope Island, which alone represents the Basin and Range Province in the millennial volume. We will examine the cumulative effects of two major metamorphic events on some of the oldest rocks in Utah, the Farmington Canyon Complex. We will examine the shear deformation and retrograde metamorphic results of emplacement of the Willard and Ogden thrust sheets during the Cretaceous. We will see evidence of Tertiary unroofing of the Willard thrust sheet with adjacent basin deposition, and late Tertiary deposition of volcanic ash in extensional basins. We will also examine Lake Bonneville and Great Salt Lake features and processes.

The UGA has designed a classic Millennium Tours T-Shirt to commemorate the field trips, Utah's parks, and the 30th anniversary of the UGA—a must have to be styling in 2000!!

WASATCH FRONT TOUR

Date(s): Friday, September 15 and Saturday, September 16 (trips begin and end in Salt Lake City departing 7:30 a.m. returning by 6:00 p.m. each day).

Leaders: Grant Willis (Utah Geological Survey) and Julie Willis (Consulting Geologist)

Fees: \$50.00 for 1 day, \$85.00 for 2 days (includes ground transportation, lunches, refreshments, and guidebook)

Limit: 36 persons

Registration is on a first come first serve basis. Deadline to register is August 15, 2000.

Full refunds will be given if cancellations are received in writing by September 8, 2000.

For more information contact Roger Bon or Tom Chidsey, Utah Geological Survey, (801) 537-3300; e-mail addresses: nrugs.rbon@state.ut.us or nrugs.tchidsey@state.ut.us.

From the Utah Water Conservation Forum June 16, 2000

New Board Members Add Depth and Experience to UWC Forum Leadership

The UWC Forum's mission is to support local, state, and federal agencies and citizens in creating a statewide water conservation movement; and to improve the efficiency of water use in Utah by increasing awareness and knowledge of water conservation opportunities through professional conferences, workshops, tours and a quarterly newsletter. Its goal is to assist the water managers of Utah in achieving their conservation goals.

At its annual meeting on March 30, 2000 three new people were elected to the Forum's 13 member board, Cheryl Izatt, Brad Pack and Ivan Weber. Ms. Izatt manages the high profile water conservation programs of the Jordan Valley Water Conservancy District at its West Jordan offices. Brad Pack is owner and CEO of Pack Turf Farms located in Bountiful. Ivan Weber works on environmental programs on Kennecott Utah Copper's Salt Lake County properties.

Re-elected to serve additional terms were: Gene Shawcroft Assistant Manager for the Central Utah Water Conservancy District in Orem, Lyle Summers, Water Education/ Conservation Chief at the Utah Division of Water Resources and Dr. Larry Rupp, Director of the Center for Water Efficient Landscaping and professor in the Plants, Soils & Biometerology Department at USU in Logan. Officers elected to the Executive Committee at the April board meeting are Darrel Evensen Chair, Ed Mathieu Past Chair, Lyle Summers, Vice Chair and Treasurer and Barbara Allen Secretary. Committees were assigned and planning is underway for a fall tour on September 14, 2000 of outstanding water conservation projects and an excellent annual winter conference scheduled for December 7.

For more information contact Darrel Evensen at (801)993-2509 or Lyle Summers at 538-7260

Accomplishments of the UWC Forum include the following projects:

1. creation and distribution of tool boxes containing a video, a CD with samples and masters for brochures which can be customized and reproduced
2. commissioned the first survey of water conservation attitudes and opinions in Utah as a basis for creating their program to raise awareness of water conservation issues
3. introduced important new concepts in water pricing, landscaping, and managing conservation programs to water managers throughout the state.
4. provided speakers for conferences on water conservation topics
5. promoting the distribution and use of soil probes to manage landscape irrigation



Photo by Heidi Hoven

President's Message: Sprawl Costs Us All Including Great Salt Lake

At 10:15 PM, it was my turn to speak to the Salt Lake City Council. The topic for this part of the public hearing was the proposed Grand Mall; a massive sprawl inducing mega mall at the intersection of 5600 West and I-80 next to the proposed Western Legacy Highway corridor.

While there were a few who supported the mall, the majority of us waiting since 6 PM that evening spoke against it. Common themes included the impacts this project would have on the pulse of our downtown and existing businesses; induced automobile traffic created by a retail development 40 blocks away from the nearest residential development; the catalyst this mall would be to spawning another segment of the Legacy Highway, and concerns about haphazard development (sprawl) near the south shore of Great Salt Lake.

Early in April, Friends invited members of Mayor Anderson's staff and city council to visit the Lake. This was a first visit for most of them. (Read "..But Now I Am" by Tom Rogan) Joined by National Audubon, Kennecott Utah Copper, and Salt Lake International Airport, our goal was two-fold. We wanted to educate them about south shore issues, that included ongoing mitigation and conservation projects, and we wanted to make recommendations for them to consider as they decide how Salt Lake City will develop.

We discussed conservation easements on additional lands surrounding all mitigation areas to ensure that these areas will remain as open space and keep their upland/wetland values in perpetuity. We commended them for their use of impact fees in the Northwest Quadrant. We emphasized our clear opposition to any proposal for a roadway to Antelope Island from the south. We agreed that there was the need for increased wildlife viewing and recreation/education opportunities for people to better understand the Lake. We talked about the Legacy Highway and its invitation to promote sprawl. And we talked about the Grand Mall and its dysfunctional role in city planning efforts.

The council will make its decision on the Grand Mall sometime in August. There is still time to express your concerns over the way we choose to build our City and the way we choose to think about its relationship to Great Salt Lake.

On behalf of sustainable and responsible development,

Lynn de Freitas

P.S. On May 24, Dr. Doyle W. Stephens died. As a scientist who championed a whole lake perspective, Doyle was dedicated to his work on Great Salt Lake and always generous in sharing it. As a friend, he was affable, sincere and fun to be around, and always had a twinkle in his eye acknowledging the fullness of life. He is greatly missed.

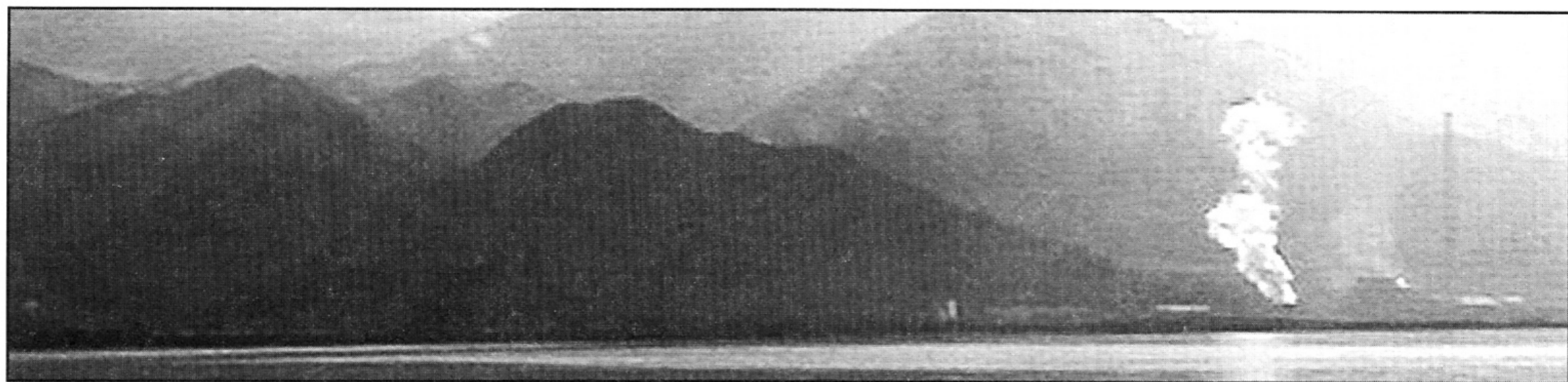


Photo by A. Weller

Big thanks to the following contributors to Our Education Programs

Hugh Gillilan	Elliott Hulet	Dr. Barry Quinn	Randy Speers
Sylvia Gray	Dr. Lucy Jordan	Salt Lake Birders	Jean Francois Van Huele
Mary Gracia	JEPS Foundation	Ken Sassen	Sarah Uhle
Susie Hulet	Dorothy Lopez	Jennifer Speers	Utah Field Office of the Fish & Wildlife Service

Thank You to Our New and Renewed Members for Your Support

Kurt Alloway	Hugh Gillilan	Dorothy Lopez	Ken Sassen
Mark Atencio	Mary Gracia	Sanford Meek	Steve Schaffer
Rita Baden	Sylvia Gray	Kent R. Morby	Dawn Sebesta
Margaret Batson	John Groves	Kaye D. Murdock	Jennifer Speers
Bonnie Baxter	Maurine E. Haltiner	Tom Neuman	Randy Speers
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Elizabeth Dewitte	Jeanie Jasper	Melvin Peterson	Bill Yates
Ginny Eggen	Dr. Lucy Jordan	Dr. Barry Quinn	Ron Younger
Dick Gilbert	Kevin Landis	Salt Lake Birders	Bill Zwiebel

Membership Notice

We are transitioning our membership database into new hands. As a result, we haven't been able to send out renewal notices to you, our loyal supporters, since December 1999.

Would you take a moment to check the mailing label on your last newsletter and note the date of renewal for your membership listed at the bottom. Using that as your guide, please take the initiative to renew your membership with Friends if you are now expired. Instructions are listed on the back cover of the newsletter. If you have a question about your membership, please call Lynn at 801-583-5593. **Big Thanks!**



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- \$30 Family "Wilson's Phalarope"

Contributing Memberships:

- \$31-50 "Brine Shrimp"
- \$51-100 "Eared Grebe"
- \$101-250 "Antelope"
- \$251-499 "American Bald Eagle"
- \$500 Sustaining "Ecosystem Protector"

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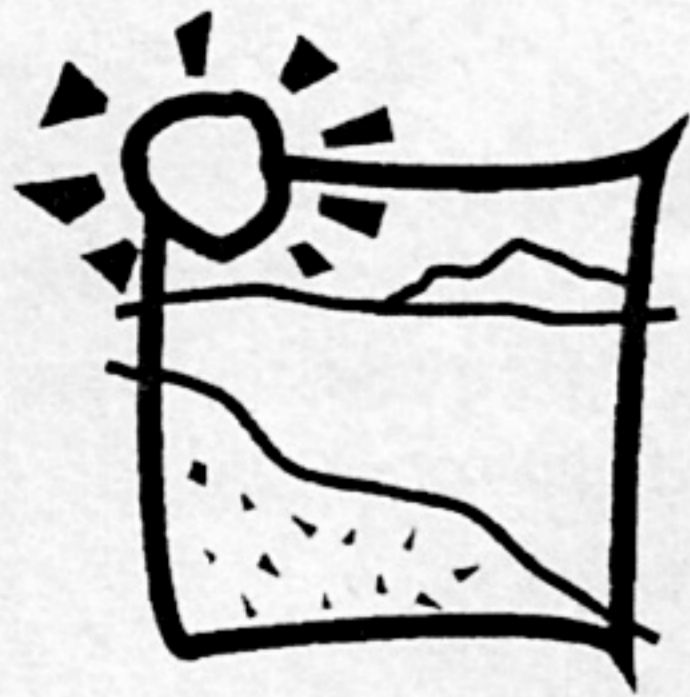
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mail@fogsl.org

Dear Friends: FoGSL Alert!

**Legacy Highway Final Environmental Impact Statement and Army Corps of Engineers 404
Wetlands Permit Public Hearing!**

Wednesday, August 23rd, 2000
Woods Cross High School at 6:00pm
2200 South 600 West in Woods Cross

(Just north of the Salt Lake City limits—East off I-15 2600 South Bountiful Exit, Left at 1st light,
Wildcat Drive)

**THIS IS BY FAR THE MOST IMPORTANT LEGACY HIGHWAY HEARING EVER
FOR YOU TO ATTEND!!!**

The proposed Legacy Highway would run through internationally significant wetlands adjacent to Great Salt Lake, one of the most important nesting and staging grounds for millions of waterfowl and shorebirds of the Western Hemisphere. These unique wetlands are the critical link that makes north south migration possible for many species. It would also increase rather than decrease congestion by inducing more growth and more cars, and would threaten air quality along the Wasatch Front for years to come.

Please make the following points about the proposed highway:

- 1. The National Environmental Policy Act (NEPA) requires agencies to consider all reasonable alternatives** that would meet the purposes of the proposed action. Here, the purpose of the action is to move people and goods efficiently along the Wasatch Front—not to build a highway. Yet the EIS considers only 4 options: 3 highway routes or doing nothing. An acceptable EIS would seriously consider alternatives that would include equivalent investments in transit improvements, along with land use changes designed to help people live closer to their jobs, schools, shopping and other destinations.
- 2. The proposed highway would traverse internationally significant wetlands.** The clean water act prohibits such destruction unless the applicant proves there are no less damaging practicable alternatives to the project. So the law requires UDOT to show conclusively that improved transit systems and land use planning, described above are not feasible before it can be allowed to destroy these critical wetlands resources.
- 3. Garbage in, garbage out.** Experts working with local environmental groups have reviewed the computer models used by UDOT to “prove” that the highway is the best way to meet the region’s travel needs. These experts have shown that the state’s models are fundamentally flawed, and do not produce reliable numbers. It is unconscionable and illegal to allow the state to spend hundreds of millions of taxpayer dollars, and to destroy precious environmental resources, based on models and data that flunk basic standards of science.

The air quality models used by UDOT purport to show, counter intuitively, that building more highways would actually improve air quality! They do so by claiming that more highways would reduce congestion and increase highway speeds. But study after study shows that more highways only encourage people to drive more and to live further from jobs and other destinations. More highways will cause more air pollution, not less.

4. Ask the agencies to require a programmatic Environmental Impact Statement that addresses the cumulative impacts from the full-proposed highway along with all concurrent efforts to meet regional transportation needs. UDOT wants to obscure the full impacts of the entire Legacy Highway, and to ignore region wide land use and transportation alternatives such as those being considered in the Envision Utah planning process. They are planning Legacy in a series of segments, the first being the Legacy West Davis Highway. The FEIS admits that a regional rail system would only be feasible for a larger region than the first 14-mile segment of legacy. So by limiting its analysis to this first small stretch of highway, UDOT is deliberately biasing the analysis in favor of roads and against rail and other transit options.

It is imperative that the federal and state agencies hear from as many people as possible that the Legacy Highway is NOT the correct solution to the transportation needs of the Wasatch Front, but instead would result in more reliance on cars, more traffic congestion, and more air pollution. It will destroy wetlands, open space and wildlife habitat that makes Great Salt Lake one of the world's most important ecosystems.

VERY IMPORTANT! In addition to attending the public hearing, written comments are needed! Please address a copy of your written comments and send or email them to each of the following decision makers below.

Brooks Carter
US Army Corps of Engineers
1403 South 600 West
Bountiful, UT 84010
KAnderson@spk.usace.army.mil
comment deadline: 9.14.2000

Gregory Punske
Federal Highway Administration
UT Division
2520 West 4700 South Suite 9A
Salt Lake City, UT 84118
comment deadline: 9.5.2000

Rebecca Hanmer
US Environmental
Protection Agency
999 18th St Suite 500
Denver, CO 80202

Hanmer.Rebecca@epa.gov

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.

Find us on the web at www.fogsl.org

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