FRIENDS of Great Salt Lake

P.O. Box 2655, Salt Lake City, Utah 84110-2655 801-583-5593

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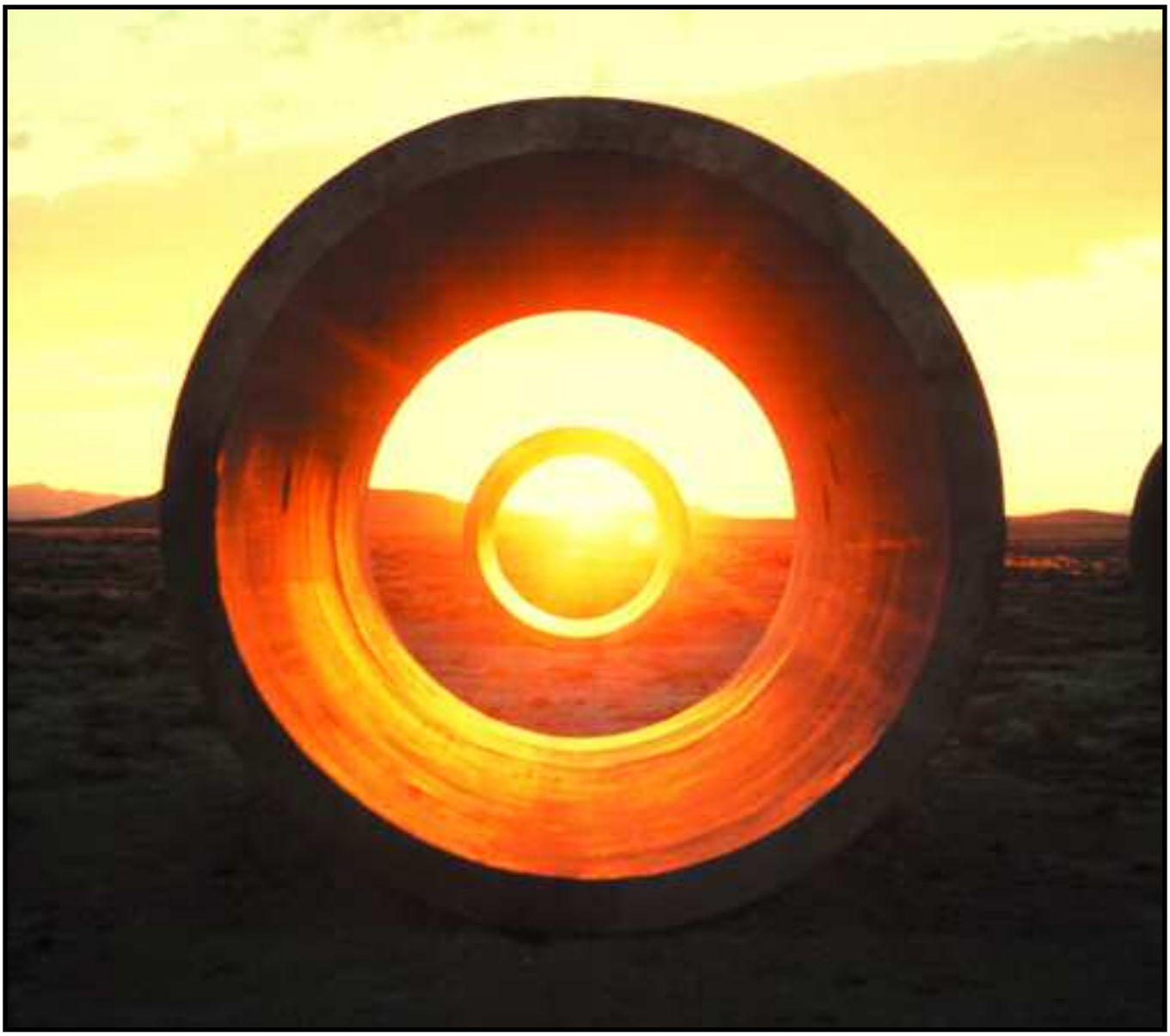


Sun Tunnels, Sunset Summer Solstice, Great Basin Desert, Utah 1976: Nancy Holt

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.

President's Message

Understanding What We're Doing Before We Do It (Take Smaller Bites)

Sun Tunnels by Nancy Holt

"Our engineering tends to be brilliant but brief, not sustainable across ecological time frames or even across the span of more than a few human generations."

- Chip Ward, Hope's Horizon: Three Visions for Healing the American Land.

The first meeting of the SouthWest Jordan Valley Groundwater Remediation Project Stakeholder Forum was held on March 17 at the South Jordan City Hall. The goal of this mouthful of a Forum is to ensure convenient, clear and direct communication between representatives of various community groups and stakeholders, the Department of Environmental Quality (DEQ), Kennecott Utah Copper (KUC), and Jordan Valley Water Conservancy District (JVWCD). The Forum will also be used to discuss and select an alternative for by-product disposal that is a part of the remediation process.

Dianne Nielson, in her capacity as Director of DEQ, is Trustee of the Natural Resource Damage (NRD) settlement proposal related to this Remediation Project. The goal of the NRD proposal is to clean-up two groundwater aquifers (Zone A and Zone B) in the Southwest Salt Lake County that were contaminated from KUCC mining activities. It will also provide municipal quality drinking water to the Affected Areas. To achieve this, the groundwater would be pumped through a reverse osmosis facility. The by-product of this process would then need to be disposed of.

The DEQ, has been working with Kennecott and Jordan Valley to achieve the terms of the NRD settlement that was reached in 1995. Last year, JVWCD, responsible for the clean up of Zone B, was issued a UPDES permit to discharge contaminants of selenium and sulfates from Zone B into the Jordan River and Great Salt Lake wetlands. This alternative was determined to be untenable by the stakeholders, including FRIENDS, and the public. As a result, in January of this year, JVWCD requested a withdrawal of this permit with the Division of Water Quality.

In an attempt to find an alternative that will move this settlement plan forward, the Stakeholder Forum was convened. At the next meeting on March 31st, Forum participants will be reviewing a list of disposal options currently under consideration.

- No Action by JVWCD
- Deep Well Injection
- Discharge to Great Salt Lake
- Discharge to KUCC GSL Discharge Pipeline
- Discharge to KUCC Tailings Impoundment
- Evaporation
- Distillation
- Discharge to KUCC Tailings Pipeline

Last year, FRIENDS and other stakeholders asked for exactly this kind of listing during the initial public hearings. But at that point we were presented with only one alternative to consider. Now we have this more complete listing BUT the time pressure is intense. The Forum will be expected to make a technically feasible and ecologically sound recommendation by April 14th so that JVWCD can present one of these alternatives to its Board of Trustees at their April 28th meeting.

Is it feasible that a defensible alternative can be developed that quickly?

We know that Jordan Valley has commissioned consultants to review the recommended alternatives. Will they include nationally recognized authorities on saline lakes and contaminants in these unique systems?

Although there is a process that has been presented to us, sources who have been working on this remediation project have already indicated that the next preferred alternative is to discharge the contaminants directly into Great Salt Lake.

We know that Kennecott is already doing this discharge under existing UPDES permits so, they will argue, what's the problem with another discharge?

Well, there is a problem. One of haste. We simply don't know what the ecological consequences of these kinds of discharges will be. If not now, then when are we going to take the time to be thorough in our evaluations and assess the kinds of long term decisions we are making before we take the next step for our Great Salt Lake neighborhood?

In saline,

Lynn de Freitas

What You Can Do

Go to the DEQ website www.deq.utah.gov/issues/nrd/index.htm to review project related information, meeting agendas, and summaries.

Participate in the Stakeholder Forum meeting scheduled on April 14th at the South Jordan City Hall, 11175 South Redwood Road from 5:30-7:30PM.

Watch for Public Notice and Public Comment opportunities.

FRIENDS ORGANIZATIONAL STATEMENT

The mission of FRIENDS of Great Salt 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.

FRIENDS has a very active Board of Directors and an Advisory Board consisting of professionals in the scientific, political, literary, education, and broadcast communities. Founded in 1994, we have organized and sponsored an array of programs, activities and materials in pursuit of our mission.

Since 1996, we have sponsored a biennial Great Salt Lake Issues Forum that provides a gathering for policy makers, researchers, planners, industry reps and citizens who are involved in and concerned about the Great Salt Lake.

The goal of each Forum is to encourage constructive dialogue about the future of the lake's ecosystem and its resources, and to illuminate the complexities involved in research, management and planning for the lake.

In 1997, we hired Bruce Thompson as our education director and initiated a major regional education project designed to enhance both the knowledge about and care for the future of Great Salt Lake. Bruce wrote and produced a live-narrative slideshow program "The Lake Affect: Living Together Along the Shores of Something Great." Over 11,000 people in the 5 counties surrounding Great Salt Lake have seen the program.

We are presently working on video & DVD versions of The Lake Affect. With this and the Project SLICE, a Great Salt Lake curriculum correlated to the fourth grade science core curriculum, we hope to achieve a positive, long-lasting impact on the future of Great Salt Lake and those who dwell upon its shores.

In 2003, we awarded our first Doyle W. Stephens research scholarship. Until his death in May 2000, Stephens served as a research hydrologist for the U.S. Geological Survey. He is particularly remembered for his work toward increasing public awareness of the Great Salt Lake Ecosystem.

FRIENDS was awarded the Conservation Achievement Award by the Utah Chapter of the Wildlife Society in 1998.

On the Cover

Sun Tunnels, Sunset Summer Solstice, Great Basin Desert, Utah 1976: Nancy Holt

Deliberately and strategically placed on the dry lakebed of ancient Lake Bonneville, Sun Tunnels is located near Lucin, Utah, in the remote western desert of Box Elder County. Sun Tunnels was created by the artist Nancy Holt, who has spent over twenty-five years making large scale, outdoor, site-specific sculptures. When she began her work on Sun Tunnels in 1973, she selected this site because of the "physical presence of time that exists in Utah's Great Basin Desert."

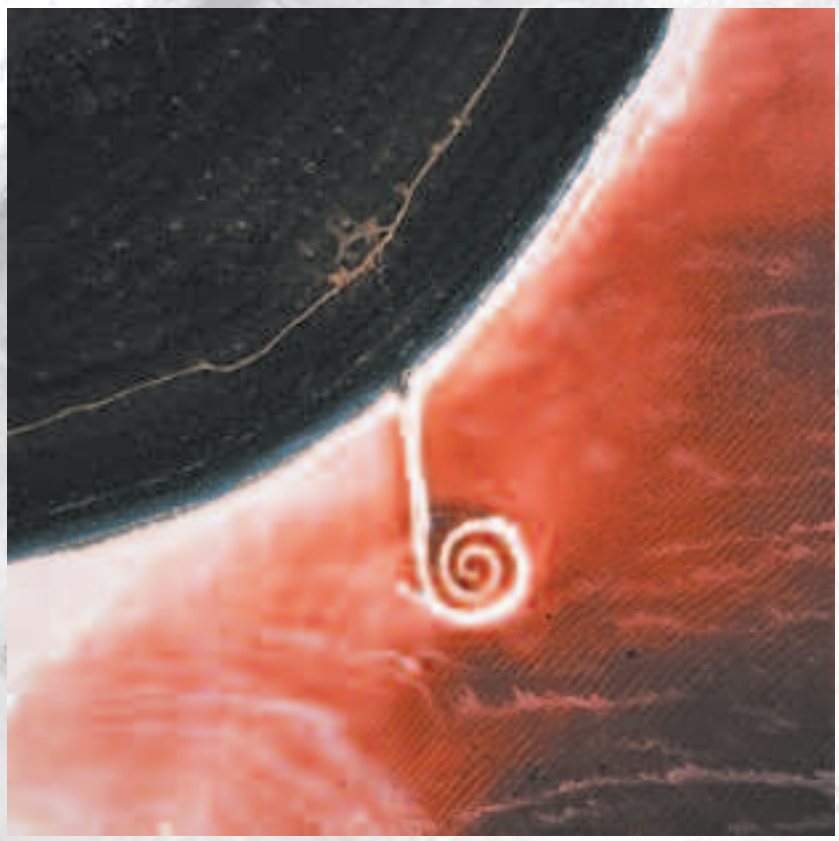
The sculpture consists of four concrete tunnels that are laid out on the desert floor in an open X configuration, 86 feet long on the diagonal. Each tunnel is 18 feet long and has an outside diameter of 9 feet, 2.5 inches, and an inside diameter of 8 feet. The tunnels are aligned with each other and with the angles of the rising and setting of the Sun on the days of the solstice, around June 21st and December 21st. On these days the Sun is seen on the horizon centered through the tunnels.

In the upper half of each tunnel is a configuration of holes that corresponds with a constellation, either Capricorn Columbia, Draco, or Perseus. The four diameters of the holes vary from 7 to 10 inches, relative to the magnitude of the stars to which they correspond. During the day, the Sun shines through the holes and casts a changing pattern of pointed ellipses and circles of light on the bottom half of each tunnel. The shapes and positions of these circles change hourly, daily, and seasonally, relative to the positions of the Sun, and reflect the cyclical time of Nature and the solar year.

Nancy Holt will be talking about Sun Tunnels at the Great Salt Lake Issues Forum on Friday and Saturday.

2004 Great Salt Lake Issues Forum

April 23-24, at the Main Salt Lake Public Library



Terminal Mirage #251- 4: David Maisel, ©2003

Photograph of the Spiral Jetty, sculpture by Robert Smithson, 1970. Copyright by the Estate of Robert Smithson/VAGA.

Expressions of Great Salt Lake

The Art and Science of Our Inland Sea

FRIENDS of *Great Salt Lake*

The 2004 Great Salt Lake Issues Forum will celebrate our relationship with Great Salt Lake from a scientific, artistic, historic and cultural perspective. Through oral histories, documentaries, research and planning efforts, the forum will emphasize the inextricable relationship that exists between Great Salt Lake and its neighbors.

Multimedia Presentations

The Sun Tunnels	Human Prehistory and GSL	Wetlands Restoration
The Spiral Jetty	Living on Antelope Island	Wintering Bald Eagles

Keynote Speakers

Friday, 4/23: Dr. Will South, Curator of Collections, Weatherspoon Art Museum, Greensboro, NC

Saturday, 4/24: Norman H. Bangerter, former Governor of the State of Utah 1985-93

April 23-24, Main Salt Lake Library, 210 East 400 South. For more info, visit www.fogsl.org or contact FRIENDS of Great Salt Lake at 801-583-5593.

Made possible by: FRIENDS of Great Salt Lake, The Nature Conservancy of Utah, SWCA Environmental Consultants, Utah Wetlands Foundation, Kennecott, Utah Copper Corporation, Utah Artemia Association, SLC Public Library and a grant from the Utah Humanities Council

The City Library

The City Library

2004 GSL Issues Forum - Friday 4/23

Keynote:

Friday, 5:30PM: Dr. Will South, Curator of Collections, Weatherspoon Art Gallery

Auditorium:

10:00 - GSL as an Artistic Muse - Virginia Catherall, Curator of Education, University Museum of Fine Arts

11:15 - Sprial Jetty: A Visual History - Hikmet Loe, Art Historian

12:30 - Sun Tunnels and the Cyclical Time of Nature Nancy Holt, Artist and Creator of Sun Tunnels

1:45 - Saltair: The Coney Island of the West - John McCormick, Dean of the College of Humanities, SLCC

3:00 - The Lake Affect: Living together along the shores of something Great
Bruce Thompson. Director of Education for FRIENDS

4:15 - Terminal Mirage Images - David Maisel, David Maisel Photography

Downstairs:

(Great Salt Lake Images Exhibit) Room C

10:30 - 11:15 - Exploring the Great Salt Lake: The Stansbury Expedition 1849-50
Brigham D. Madsen, Professor Emeritus of History at the University of Utah

11:30-12:15 - Restoration of a Wetland - Dick Gilbert, Harrison Duck Club

12:30-1:15 - Structures and Other Treasures of Antelope Island - Max Harward, Author

1:30-2:15 - The West Desert Pumping Project: Its Design, Development, and Operation
Mike Talbot, Project Engineer for the Division of Water Resources

2:30-3:15 - South Shore Conservation Efforts-Ella Sorensen, Gilmor Preserve Manager, National Audubon

3:30-4:15 - Building Spiral Jetty-Bob Phillips, Project Coordinator

4:30-5:15 - Birds, Bugs, Plants and Playas: Seven Years Mitigation Monitoring and Management on the Inland Sea Shorebird Reserve - Ann Neville, ISSR Manager

5:30 - KEYNOTE DR. WILL SOUTH

Rooftop Reception and Urban Level Dinner - 6:45-10:00PM.

Come celebrate the evening with program presenters, special guests and the FRIENDS Board of Directors on Friday night following Will South's keynote.

A cash bar reception on the Library rooftop at 6:45PM will be a perfect way to schmooze and talk about the events of the day. Dinner on the Urban Level will follow. The Doyle W. Stephens Scholarship, and the Friend of the Lake Award will be presented. Special guest: Mayor Rocky Anderson.

Cost for the dinner is $20. An RSVP no later than April 9th, is required for both reception and dinner. Seating is limited. Contact Brian Nicholson, briannicholson@utah.gov or 1-435-797-8058

2004 GSL Issues Forum - Saturday 4/24

Keynote:

Saturday, 12:30PM: Norm H. Bangerter, Governor of Utah, 1985-1993

Auditorium:

10:00 - Sprial Jetty: A Visual History - Hikmet Loe, Art Historian

11:15 - Sun Tunnels and the Cyclical Nature of Time-Nancy Holt, Artist and Creator of Sun Tunnels

12:30 - KEYNOTE NORM H. BANGERTER

1:45 - Burrowing Owls: Everything You Wanted to Know -Bonnie Messenger

3:00 - Great Salt Lake Wildlife and Landscapes - Gary Crandall, Wildlife Photographer, Dancing Crane

4:15 - The Lake Affect: Living together along the shores of something Great
Bruce Thompson, Director of Education, FRIENDS

Downstairs:

(Great Salt Lake Images Exhibit) Room C

10:30-11:15 - The Brine Shrimp Industry: A Sustainable Economic Resource
Don Leonard, President Utah Artemia Association

11:30-12:15 - Great Salt Lake As An Important Bird Area
Wayne Martinson, IBA Coordinator for National Audubon

BREAK for KEYNOTE (12:30-1:30)

1:45-2:30 - Human Prehistory of the Great Salt Lake Region-Kevin Jones, State Archeologist

2:45-3:30 - Linking Shorebird Communities: Hemispheric Neighbors-Don Paul, Great Basin Bird Coordinator

3:45-4:30 - Wintering Bald Eagles Like This Place-Bob Walters, Utah Division of Wildlife Resouces

4:45-5:30 - Our Role in the Neighborhood: Acknowledging Natural Relationships
Chip Ward, Asst. Director, SLC Public Library and author of Canaries on the Rim

Co-sponsored by The Salt Lake City Public Library

Special Thanks To:

The Nature Conservancy of Utah, SWCA Environmental Consultants, Utah Wetlands Foundation, Kennecott Utah Copper Corporation, Utah Artemia Association, SLC Public Library and a grant from the Utah Humanities Council

Auditorium Programs begin at 10:00AM.
Each program is one hour with a 15 minute transition time between each program.

Downstairs Programs begin at 10:30AM.
Each program is 45 minutes with a 15 minute transition time between each program.

2004 GSL Issues Forum - Keynote

Dr. Will South

On Friday, April 23rd at 5:30PM, Dr. Will South will keynote the 2004 Great Salt Lake Issues Forum at the downtown Salt Lake City Public Library.

South will argue that Great Salt Lake as both a natural feature and as an artistic subject plays a crucial and beneficial role in the psychological, spiritual and physical life of the community surrounding it.

South is Curator of Collections for the Weatherspoon Art Gallery, University of North Carolina at Greensboro, where he is also an adjunct faculty member in the Department of Art.

With an illustrative career as educator, lecturer, author and exhibition organizer throughout the United States, South received his M.A. in Art History from the University of Utah in 1986. His thesis was The Life and Art of American Impressionist James T. Harwood. He received his doctorate in Art History from the City University of New York in 1994. His dissertation topic was American Modernist Stanton Macdonald-Wright.

South was Research Curator at the Utah Museum of Fine Arts, University of Utah, from 1990-1999. In that capacity he organized the Centennial Exhibition and catalogue "Images of the Great Salt Lake". According to the late Frank Sanguinetti, Director of the Museum of Fine Arts, Great Salt Lake was selected as a subject for the exhibition because "for centuries, the Lake was the most striking physical feature in Utah and a source of legend, curiosity and mystery." Sanguinetti went on to state that the essays of Will South and the late Professor Dean May in the catalogue "should become a part of the ongoing public dialogue regarding the use, conservation and future of this amazing resource. "

In 2001/2002, South served as a Henry R. Luce Visiting Scholar by the University of Lincoln, Nebraska, where he investigated sound/color analogies in the work of early American modernist painters.

Among his most recent projects was organizing the exhibition, "Georgie O'Keeffe from Southern Collections," for the Weatherspoon Art Museum.

2004 GSL Issues Forum - Keynote

Norman H. Bangeter

On Saturday, April 24th at 12:30PM, former Utah Governor, Norman H. Bangerter, will keynote the Great Salt Lake Issues Forum at the downtown Salt Lake City Public Library.

Successful real estate developer and businessman, Bangerter began his political career in 1974 when he was elected to the Utah House of Representatives where he served until 1985. During that time, he served as Assistant Majority Whip, Majority Leader, and Speaker of the House.

Bangerter was Governor of the State of Utah from 1985-1993. He outlined three priorities for his administration: Education, Economic Development, and Efficiency in Government. As governor, he was instrumental in drawing national attention to Utah's economic vitality and high quality of life.

He was Chairman of the Western Governor's Association in 1986, and served on the Executive Committee of the National Governor's Association.

In May of 1986, as Great Salt Lake continued to rise nearly twenty feet from its record low level of 4191', the Utah State Legislature approved a $71.7 million flood control plan that was approved to pump water from the Great Salt Lake into the west desert. It was during Bangerter's administration that the West Desert Pumping Project was instituted.

In 1990, the governor added the Environment to his priority list and was instrumental in the creation of the Department of Environmental Quality.

Born in 1933 in rural Salt Lake County. He attended Cyprus High School, Brigham Young University and the University of Utah, where he majored in history. He served in the U.S. Army in Korea, from 1953-54.

He holds a number of Honorary Doctorate Degrees from Utah colleges and universities and is past chairman of the Interstate Oil Compact Commission.

2004 GSL Issues Forum - Field Trips

Saturday, April 24th

Field trips are scheduled on Saturday, April 24th following the Saturday keynote by Former Governor Norm H. Bangerter. There is a $10 registration fee. Seating is limited so contact Brian Nicholson at briannicholson@utah.gov or 1-435-797-8058, no later than April 9th. Trips will depart from Library Square at 1:30 and return about 5:30PM.

Field Trip #1: Birds, Bugs, Plants and Playas
Ann Neville, ISSR site manager, will discuss the evolution of the ISSR, results from monitoring and plans for the future. This 3,700 acre mitigation site was created as the KUCC tailings wetland mitigation project located near the south shore of GSL, and constitutes the largest mitigation bank in Utah. It is one of the largest wetland mitigation banks in the west. Peak shorebird migration is April-May, so bring along your binoculars. Limited to 12.

Field Trip #2: The Changing Face of the West Layton Marshes
Chris Brown, TNC Shorelands Preserve Mgr leads this sneak peek into the completed Nature Conservancy visitors facility which consists of an observation tower and a one mile board walk through the west Layton Marshes. We will discuss current managment of the Great Salt Lake Shorelands Preserve, upcoming projects, and current threats to the preserve. A variety of species will be present from harriers, waterfowl, stilts, avocets, gulls, to the often seen rails and soras shuttling from under the boardwalk. This is a great way to see GSL wetlands up close and personal.

Field Trip #3: Ecology of the South Shorelands of Great Salt Lake
Come explore the southern shore of the Great Salt Lake with Dr. Ty Harrison, Professor of Biology from Westminster College. During this field trip, participants will discover the biological and physical processes that create the Lake's truly unique ecosystem. We will meet the members of this saline community, everything from diatoms, to Salicornia (pickleweed), to breeding waterbirds, and possibly even a Great Basin Pocket Mouse. No experience necessary.

Field Trip #4: Lake Bonneville and Glacial Changes in the Wasatch
Dr. Elliot Lips, Adjunct Professor, Geography Department at the University of Utah will lead you on an exploration of the interactions between Lake Bonneville and Wasatch Mountain glaciers. During the late Pleistocene, Lake Bonneville rose to its highest level at about the same time that glaciers from Little Cottonwood and Bells Canyon reached their maximum extent in the Salt Lake Valley. We will examine the shoreline and glacial deposits, discuss the rise and fall of the Lake, and interpret the climatological conditions that existed at the time.

Field Trip #5: Tooele Valley Wetlands: The Oft Overlooked Left Side of the Lake
Wetlands in northern Tooele Valley are currently undergoing a special area management plan (SAMP) process, which will identify future preservation areas, development parcels, and mitigation sites. As part of this process, wetlands have been mapped across the 110 square-mile plan area using satellite imagery. Wetland functions have been assessed and a steering committe comprised of landowners, local government officials, state and federal agency representatives, and conservationists is using this information to develop the SAMP. SWCA Consultant, Spencer Martin will lead this field trip circumnavigating the plan area, stopping at various sites representing the diversity of wetlands and waters of the U.S that occur there. At each of these stops we will review the wetlands mapping and functional assessment and discuss aspects of the planning process including its goals and objectives, methods, and potential endpoints. There will be opportunities to learn how wetlands are delineated and assessed and to observe the myriad bird species that use these areas during migration.

2004 GSL Issues Forum - Awards

Friend of the Lake Award

The Friend of the Lake Award is given to a person, organization, or business performing outstanding work in education, research and/or advocacy to benefit Great Salt Lake.

There is a vibrant and active community of people working on behalf of the lake Their efforts help increase our understanding and awareness of our big, salty neighbor. Understanding can lead to positive action for preservation of Great Salt Lake.

To recognize these talents and contributions, FRIENDS of Great Salt Lake has established an award to be presented at our Biennial Great Salt Lake Issues Forum. The recipient of the Friend of the Lake 2004 Award will be announced on April 23rd at our 2004 Great Salt Lake Issues Forum.

In 2002, the first award was presented to Dr. Donald R. Currey, geomorphologist in the Geography Department at the University of Utah. Dr. Currey has worked to raise awareness of and preserve the unique geomorphological features that surround Great Salt Lake, and are in constant threat of destruction by urbanization.

Doyle W. Stephens Scholarship Fund

On Friday, April 23rd, the recipient of the Doyle W. Stephens Scholarship will be announced at the 2004 Great Salt Lake Issues Forum.

Dr. Stephens was a research hydrologist for the US Geological Survey. His extensive research on the Great Salt Lake Ecosystem has provided tremendous insight into the Lake's ecology.

The scholarship was created in Dr. Stephens name to help build upon the scientific literature of Great Salt Lake through original research.

In 2003, FRIENDS awarded the first scholarship to Hyochang Lee, a doctoral candidate in economics at the University of Utah. Mr. Lee is developing a mathematical model for the optimal management of brine shrimp.

Meet the Lake:

Farmington Bay Wildlife Management Area - North Entrance

Hidden along Great Salt Lake's shores, within 20 minutes of downtown Salt Lake City, is some of the best shorebird viewing in North America. The sheer number of birds that arrive is simply astounding. In the spring, expect to see American Avocets, Black-necked Stilts, White faced Ibis, Marbled Godwits, Marsh Wrens, Great Blue Herons, Killdeer, American White Pelicans, Northern Harriers, Canada Geese, Greater and Lesser Yellowlegs, Cinnamon Teal, Northern Shovelers, Cormorants, Willets, Wilson's Phalaropes, and Dowitchers-just to name a few.

Essentials:
Field guide to birds, spotting scopes or binoculars, water and some food.

Notice: No dogs allowed

More Information:
Farmington Bay
Wildlife Management Area,
(801) 451-7386

Directions:
Take I-15 North to Exit #322

Make an immediate right on "Frontage Road" and head South to Glover Lane

Take a right on Glover Lane, over I-15 and past the high voltage towers on your left-heading west.

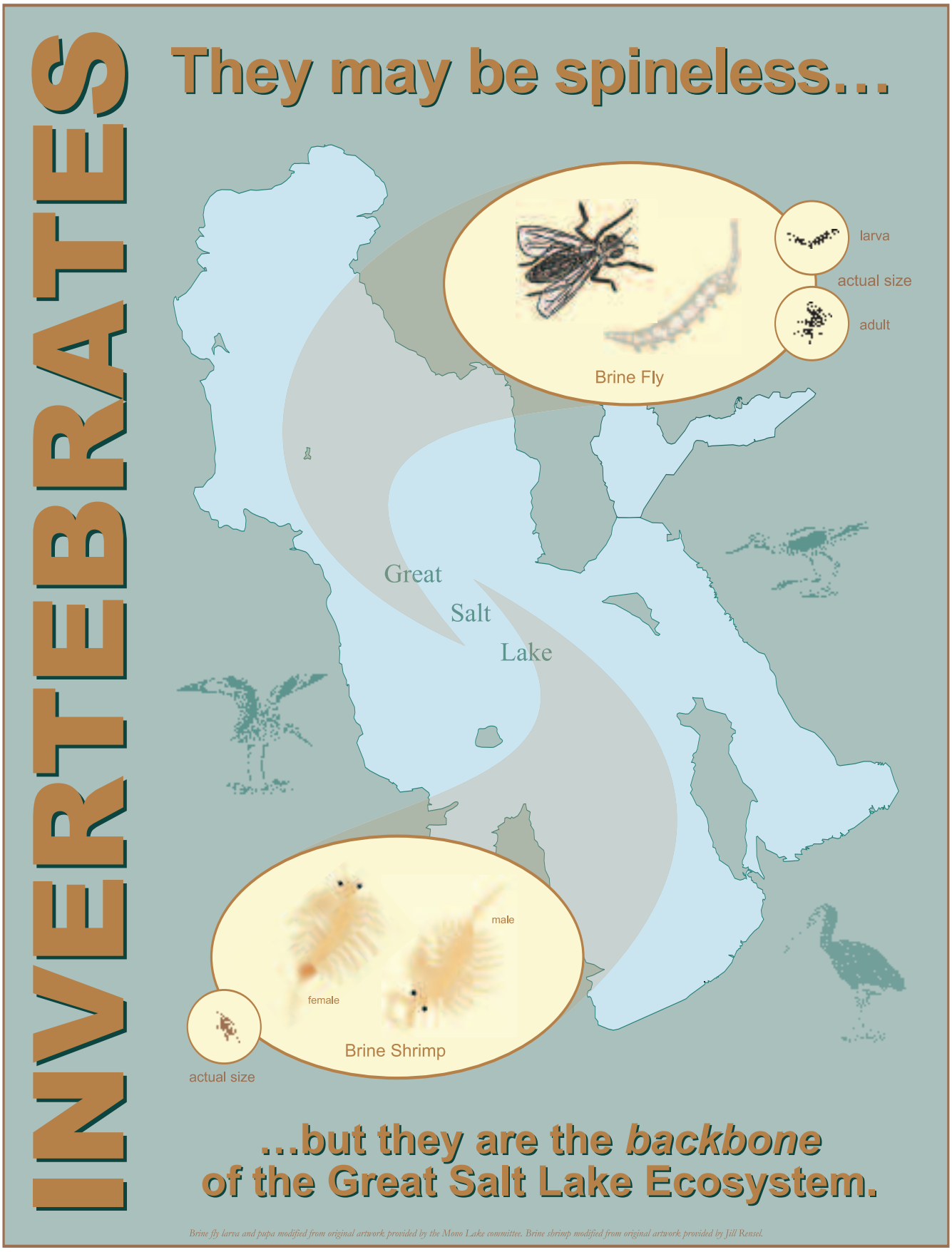
Take a left on 1325 west. Continue south on dirt road to the North Entrance of Farmington Bay Wildlife Management Area

Avocet Sky by Bruce Thompson

Lake Fact:

Up to how much salinity (percent) can pickleweed tolerate in soils?

See page 19 for answer.


INVERTEBRATES
They may be spineless...
larva
actual size
adult
Brine Fly
Great
Salt
Lake
male
female
Brine Shrimp
actual size
...but they are the backbone
of the Great Salt Lake Ecosystem.
Brine fly larva and pupa modified from original artwork provided by the Mono Lake committee. Brine shrimp modified from original artwork provided by Jill Rensel.
Project SLICE: The FRIENDS of Great Salt Lake Initiative for Conservation Education • Produced by ECOTRACS Salt Lake City, Utah ecotracs@aol.com © 2001 FRIENDS of Great Salt Lake rev. 08/02/02

How Do We Protect Water Quality and Beneficial Uses of the Great Salt Lake?

What should be our future direction?
by Don A. Ostler, Director, Utah Division of Water Quality

The Great Salt Lake, (GSL), is a uniquely important body of water to the State of Utah and its citizens. However, this uniqueness also creates difficulties in understanding and managing this resource. Traditional water quality standards developed through research of the USEPA do not fit the GSL situation. Site-specific standards developed just for the GSL are needed to better facilitate water quality management of this resource.

The development of standards for the GSL has not been possible to date due to the lack of funding and support for this type of work. EPA has not been willing to develop standards for this water body as it has for other fresh water and ocean waters of the United States. The cost of developing site-specific numeric criteria for more than 120 pollutant parameters is expected to be in the tens of millions of dollars. At the current time, DEQ has no budget to do this type of work.

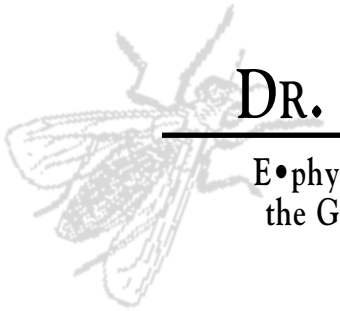
In addition, the complexity of developing site-specific standards is compounded by the fact that the USEPA standard methodology for doing this work is not applicable to the unique waters of the GSL. This is due to the limited biodiversity in the GSL and the lack of species that fit EPA's standard reference. We also know that the high salinity of the lake appears to interfere with standard water quality laboratory procedures. Newly emerging research indicates that some standard laboratory procedures must be modified to give accurate results and to avoid over-reporting pollutant concentrations. This could limit the usefulness of sizeable amounts of GSL data already gathered by this and other agencies.

With the increased interest in the lake at this time, we would support efforts to increase understanding and dialog about the lake as pursued by FRIENDS of Great Salt Lake. We are desirous to have standards developed for the lake, as this would make our job much easier. However, recognizing the enormity of the task, we are interested in a dialog about how to phase efforts to match available resources and identifying partners that can contribute to this effort. Perhaps a first step may be to develop and obtain agreement on the methodology that can be used to develop site-specific criteria for the GSL that would be approvable by USEPA. We are also continuing our water quality study of Farmington Bay to identify the health of the open waters and the wetlands.

Although the discussion so far has been on the need to develop standards for the GSL, I do not want to leave the impression there is not a protective strategy in place. In many cases, it may actually be more protective than a site-specific standards approach. Site-specific standards currently exist for the Bear River Wildlife Refuge, Farmington Bay Waterfowl Management Area, Howard Slough Waterfowl Management Area, Ogden Bay Waterfowl Management Area, Public Shooting Grounds Waterfowl Management Area and Salt Creek Waterfowl Management Area. These areas, sometimes referred to as wetlands of the GSL, all have numeric standards for approximately 120 pollutants. Other wetlands that are fed by fresh water, but not specifically mentioned in the water quality standards, would take on the classification of their fresh water source or would be classified as protected for waterfowl, shorebirds and other wildlife not included in other classes including necessary aquatic organisms in their food chain. These areas also have numeric standards to insure their protection. The major wetlands are already covered by numeric standards.

However, for the reasons previously mentioned, the GSL open water does not currently have numeric standards, but is protected for primary and secondary contact recreation, aquatic wildlife and mineral extraction. These uses are protected by state narrative standards in R317-2-7 which basically say it is unlawful to discharge substances that will interfere with the designated beneficial uses. The way this standard has been implemented is to require any discharger to a fresh water tributary to meet the fresh water numeric standards. It is believed that these standards are much more stringent than any standard that may be developed for the GSL in the future. A discharge directly to the lake would be required to meet background concentrations in the lake or site-specific studies would be required to establish a standard that is protective. For many, if not most pollutants, this approach of using background as the standard will be much more protective than a site-specific numeric standard based upon impacts to organisms present in the GSL.

In summary, development of numeric criteria for the lake would be very desirable, and we should seek for ways to begin this process. In the mean time, there are numeric standards that are applicable to all of the fresh water fed wetlands and there is a conservative method to evaluate discharges directly to the lake. There is still much that is not understood about the functioning of the lake and we need to begin studies to gather needed information. It will take a cooperative, partnership approach to make progress in these areas in the future.



DR. EPHYDRA - WE WELCOME YOUR QUESTIONS VIA EMAIL OR PHONE

E•phy'•dra, a noun; a genus of two species of brine flies that live on the bottom of the Great Salt Lake as larvae and pupae, and along the shores of the Lake as adults.

Brought to you by the Science Committee to help explain the science surrounding Great Salt Lake. We welcome your questions via email or phone. Contact Amy Marcarelli at amym@cc.usu.edu

An Introduction to Bioindicators

One of the main objectives of the Clean Water Act is to restore and maintain the biological integrity of water bodies in the United States. The goal of measuring biological integrity is to assess water quality by observing the organisms living in rivers lakes and streams. However, many different organisms live in aquatic environments, and different species may respond differently to pollution or disturbances. One way to overcome this difficulty is by using bioindicators to determine biological integrity.

Bioindicators can be a species or group of species of fish, insects, algae or plants that show a quick, dramatic response to a disturbance. For example, if Chemical A is introduced to the Great Salt Lake, it may quickly kill all the individuals of one algae species in the lake, but may have a delayed and less detectable effect on brine shrimp and brine flies. The algae species may be used as a single-species bioindicator for Chemical A, because of its rapid response to Chemical A compared to other organisms in the Great Salt Lake.

Every state in the United States has some biological water quality program in place, although they are in varying states of development. Utah uses bioindicators at a limited number of stream sites; there are no bioindicators currently used in the Great Salt Lake. However, the EPA is now requiring all states to develop intensive biological water quality programs and the Utah DWQ has recently hired a scientist to organize their biological program.

For more information about bioindicators, visit the water section of the EPA website: (http://www.epa.gov/ebtpages/water.html).

GREAT SALT LAKE FIELD SEMINAR SERIES

TRIP TO THE WEST DESERT PUMPS, SATURDAY MAY 1ST.

Back by popular demand, a spring trip to the West Desert Pumps with Mike Talbot, project engineer for the Division of Water Resources is planned for Saturday, May 1st.

We'll meet in the Department of Natural Resources parking lot (1594 W. North Temple) at 9AM to organize carpools for the drive out to the pumps. Return time will be around 3PM.

Contact Brian Nicholson at briannicholson@utah.gov or 1-435-797-8058 if you would like to come along.

(For background information, read the Winter 2004 newsletter, online at www.fogsl.org).

Linking Communities

By JimWoolf

VILLA HIDALGO, Mexico – A puppet show presented last January in this small community is my symbol of hope for migratory birds that visit the Great Salt Lake.

Elementary school students using colorful homemade puppets of avocets, plovers and stilts told the sad story of migrating birds arriving in Mexico in the autumn to find their wetland homes drained for farmland and destroyed by pollution.

The message of protecting wetlands and bird habitat was obvious to the 200 fascinated youngsters and their parents – along with five visitors from Utah – who sat on a sunny playground to watch the performance.

The puppet show was part of the first bird festival organized at the Emiliano Zapata Elementary School in this community located in the western Mexico state of Nayarit about midway between the resort towns of Mazatlan and Puerto Vallarta.

Although the performance took place some 1,500 miles from the Great Salt Lake, a direct link exists between the two sites. The extensive wetlands around Villa Hidalgo, known as the "Marismas Nacionales," are the winter home for many birds that nest at the Great Salt Lake or stop there to "refuel" on the journey to breeding grounds farther north in Canada.

The word "marismas" means brackish wetlands in Spanish. So these are the national wetlands of Mexico.

Some of the birds that migrate between the Great Salt Lake and the Marismas Nacionales include American white pelicans, American avocet, black-necked stilt, marbled godwit and the peregrine falcon.

Habitat loss in Mexico reduces the number of birds returning to the Great Salt Lake, just as destruction in Utah impacts bird populations in Mexico.

The puppet show, bird festival, and a new school curriculum involving shorebirds are clear signs that Mexico is taking seriously its commitment to preserving these crucial wetlands. And it is starting with the children who live closest to them and soon will determine their fate.

Prior to the educational effort, most of the youngsters in Villa Hidalgo were unable to tell an avocet from a stilt, said Carlos Villar, the Mexican wildlife expert who organizes the program. Today, kids are tracking the arrival of each species, monitoring where they feed, and recording when they head north again.

Villar organized a tour of the area for a group of five Utahns from a group known as "Linking Communities, Migratory Birds and Wetlands." That organization is trying to support habitat protection at three critical spots along this migration path: the Marismas Nacionales in Mexico; the Great Salt Lake; and Chaplin Lake in Canada.

Don Paul is the leader of the Utah "Linking" group. He was the Great Salt Lake biologist for the Utah Division of Wildlife Resources and now is coordinating wetland protection in the Great Basin for a quasi-governmental group known as the Intermountain West Joint Venture.

Don Paul, Jim Woolf, Yae Bryner, Jim Cole, Carlos Villar, Neka Roundy

Joining him on the trip were Yae Bryner, a kindergarten teacher and environmental educator from Ogden; Jim Cole, director of the Intermountain West Joint Venture; Neka Roundy, tourism director for Davis County; and myself, a journalist.

One goal of the trip was to make donations to Mexicans trying to preserve the Marismas Nacionales. The group presented a $1,000 gift from an anonymous Utah donor to encourage education efforts like those taking place in Villa Hidalgo. Another $872 gift raised at the Great Salt Lake Bird Festival was presented to a group of fishermen developing an eco-tourism project by taking visitors out in their boats to see birds, mangrove swamps and crocodiles.

These Mexican wetlands are seriously threatened by shrimp farming, pollution, and disruption of the hydrologic system by both hurricanes and manmade activities.

But there is hope. A dedicated group of activists slowly is working to help farmers and fishermen to find a way to augment their incomes through sustainable use of the wetlands and children are learning to appreciate the incredible diversity that exists around them. It all starts with a hand puppet of an American avocet.

To learn more about the "Linking Communities, Migratory Birds and Wetlands" group, contact Don Paul: avocet@qwest.net

Making Puppets

Neka Roundy and student

HOW TO REACH US
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HELP WANTED - FRIENDS Treasurer

The Office of Treasurer is currently vacant. We are looking for someone to take on the following responsibilities for a term of at least one year. It is a volunteer position requiring 2-3 hours per week.

Track all existing accounts on Quickbooks Software.
Prepare a monthly account report for the Board of Directors.
Prepare for a semi-annual compiled financial statement.
Assist in developing an operational budget.
Oversee necessary tax reporting requirements
Maintain currency in all organizational/operational accounts (corporate status, website renewals, mailbox rental, insurance, etc.)
Issue payments for all necessary expenditures
Reconcile bank records

If you would like to know more about this position, please contact either Tim Brown at twbslcut@yahoo.com or Lynn de Freitas at ldefreitas@earthlink.net.

SPECIAL THANKS

To the Salt Lake City Public Library for co-sponsorship of the 2004 GSL Issues Forum, the Nature Conservancy of Utah, SWCA Environmental Consultants, Utah Wetlands Foundation, Kennecott Utah Copper Corporation, Utah Artemia Association and the Utah Humanities Council

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WE want to thank **btreemedia.com, Tooele Transcript Bulletin, Xmission.com** and all who have donated to the **Transit First/Legacy Highway Lawsuit Campaign.**

SUBMITTING MATERIAL FOR PUBLICATION

Mail or Deliver to: 1117 E. 600 S. Salt Lake City, UT 84102,
E-mail to: ldefreitas@earthlink.net. Please call 801-583-5593 to confirm receipt of e-mail or with any questions, suggestions, comments, or ideas.

Deadlines: Sept. 16 (Fall), Dec. 16 (Winter), Mar. 16 (Spring), and June 16 (Summer).

The Importance of Your Membership

The strength of FRIENDS comes from its members. All of you, with your individual contributions to Great Salt Lake awareness, help provide this organization with the momentum it needs to carry on its work for the lake. We all know about the tremendous challenges and opportunities for Great Salt Lake. Knowing those challenges and opportunities, FRIENDS' board of directors works hard to identify the best ways to respond to them. Some of our critical activities:

- The Transit First campaign against the Legacy highway
- Commenting on the Great Salt Lake Comprehensive Management Plan
- Educating the public at large about the importance of our big, salty neighbor
- Participating in public hearings and on committees that address development around the lake,

But without the support and participation of the membership, the work of the board is limited. General meetings, field trips, and volunteering are all ways that you can help build public recognition of FRIENDS and its mission. Through these means, you also become more knowledgeable about the lake, its science, its history, and our relationship to it.

One of the goals that the board continues to identify at its annual retreat is building membership. How can we develop a robust and active membership ? We need to develop a critical mass of lake advocates, true friends of Great Salt Lake.

So, we're asking you, our members, to keep active through participation and by keeping your membership current. Check your mailing label for your membership renewal due date. Renew promptly if you have expired.
If you have questions about your membership, please call Lynn at 801-583-5593.

And do what you can to help recruit new members to strengthen our voice for Great Salt Lake protection and preservation. Pass on your newsletter to a friend or neighbor. Spread the news about who we are and how we are working for Great Salt Lake.

Big Thanks!

PS. Does this sound like your mother?

Lake Fact Answer:

6%

Thank You to Our New and Renewed Members for Your Support

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I would also like to make additional donations to:

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Remember, all membership fees and donations are tax deductible to the extent allowed by law.

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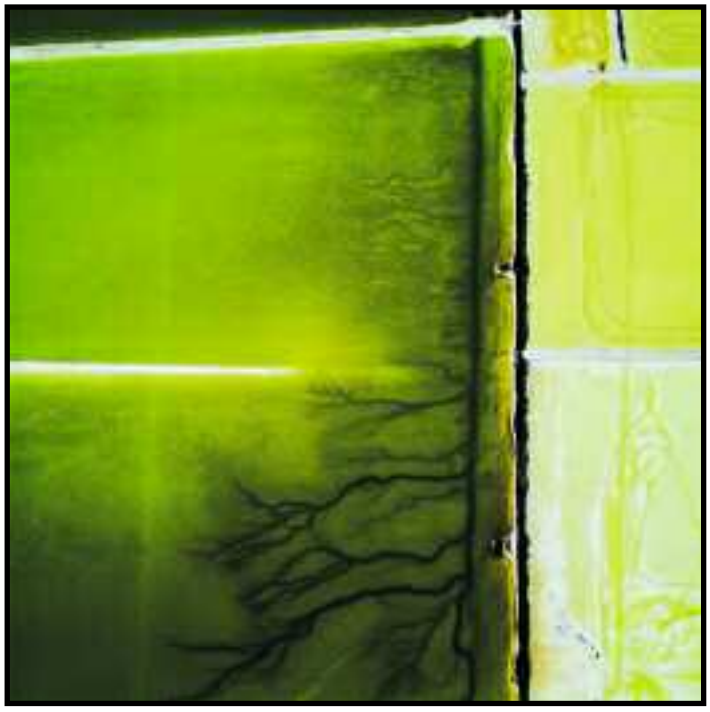

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