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On the Spiral Jetty Walk - photo by P. Aigion

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Volume 9 Number 1 Fall 2002

Circumnavigating the Great Salt Lake **by Dale R. Bryner**

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.

Table of Contents

Fall 2002 Calendar of Events

October 19	Saturday	GSL Field Seminar with Dr. Steven Simms
October 22	Tuesday	Board Elections and General Meeting 7pm - Getting to Know the Weber River
November 7	Thursday	Board Meeting 7pm - Alta Club
November 26	Tuesday	General Meeting 7pm - Legacy Parkway Decision and the Next Steps
December	All Month	NO General Meeting . See you in 2003

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 1650 East in Salt Lake City.

What Are the Next Steps in the Legacy Parkway Decision?

On Tuesday, November 26th at 7pm, our general meeting will focus on a discussion about the next steps in the process since the September 16th US 10th Circuit Court of Appeals ruling on the Legacy Parkway.

Members of the coalition and representatives from the legal team for Utahns for Better Transportation will be present to explain what is likely to happen and how the public can and should be involved. Bring your questions!

On the Cover

***Circumnavigating the Great Salt Lake* (ca. 1976) by Dale R. Bryner**

In 1826, James Clyman, Louis Vasquez, Henry Fraeb and Black Harris made the first known 300 mile circumnavigation of the Great Salt Lake. They traveled in two buffalo hide bull boats, looking for streams entering the lake that might contain beaver. The boats were round canoe-like vessels made of buffalo hide stretched across wooden staves.

The late Dale Bryner taught for many years at Weber State College.
This painting was selected as part of the Bicentennial Historical Art Collection.

President's Message: No Tweaking Allowed

"The problems that we have created cannot be solved
at the level of thinking that created them."
Albert Einstein

On Monday, September 16, the US 10th Circuit Court of Appeals ruled in favor of Utahns for Better Transportation, the Sierra Club and Salt Lake City Mayor Rocky Anderson who all questioned the wisdom and the legality of building the Legacy Parkway on the shores of Great Salt Lake. It was a great day for highway opponents and for all Utahns who deserve better transportation solutions for their growing transportation needs.

The unanimous decision handed down by the three-judge panel found that the environmental impact statement (EIS) completed for the Legacy Parkway violated the National Environmental Policy Act (NEPA). And that the U.S. Army Corps of Engineers was "arbitrary and capricious" in issuing a CWA 404 permit for the project.

I think it's fair to say that the basis of these violations was grounded in a deliberate lack of thoroughness. Not only that but there was a hasty analysis of a suite of suitable and practicable alternatives that would not only have addressed the transportation needs in the North Corridor but would have also been far less damaging to the wetlands and wildlife of the Great Salt Lake Ecosystem.

The Legacy EIS improperly eliminated a project alternative based on an inadequate estimate of the alternative's cost. This alternative was the Denver & Rio Grande alignment. And in its zeal to push the Legacy Parkway project through, the Department of Transportation (UDOT) also failed to consider whether mass transit projects should be built in conjunction with the widening of I-15 before beginning construction of Legacy.

So, what's next?

We now have an extraordinary opportunity. The court's ruling provides the opportunity for Utah to move forward with a balanced transportation program that offers more and better choices in the least environmentally damaging way. This balance would maintain not only our quality of life but also protect those special places, like Great Salt Lake

To do that, UDOT and the federal agencies need to engage in a thorough and open, public process. They need to consider new baselines of information and current models to determine how to meet these needs. That means they can't tweak their way to a result. Former Mayor Ted Wilson referred to a "new ethic", a change in practice in the way public works development projects are determined. We should expect nothing less from UDOT and the federal agencies in the process ahead.

In saline,

Lynn de Freitas

P.S. Now is the Time.....

Who: For all good members

What: To come to the aid of their organization and cast your vote for the 2003 Officers & Board of Directors

Where: Sugarhouse Garden Center - 2100 S. 1650 E.

When: 7PM Tuesday, October 22nd

How: Review the slate of officers and directors listed on page 6 and vote so that we can continue to work hard and effectively on behalf of Great Salt Lake.

Lake Fact:

Approximately how many tons of salt and other minerals are estimated to be dissolved in Great Salt Lake?

See page 15 for answer.

FRIENDS OF GREAT SALT LAKE

FRIENDS of Great Salt Lake was founded in 1994 with a guiding mission to preserve and protect the Great Salt Lake Ecosystem and to increase public awareness and appreciation of the lake through education, research, and advocacy.

Led by a highly active Board of Directors and an Advisory Board consisting of professionals in the scientific, political, literary, and broadcast communities, FRIENDS holds monthly meetings that feature guest speakers and presentations focusing on subjects and issues related to the Great Salt Lake. The organization received special recognition for its efforts in 1998, when it was awarded the Conservation Achievement Award by the Utah Chapter of the Wildlife Society.

FRIENDS has organized and sponsored an array of materials, events, and activities in pursuit of its mission. The quarterly newsletter includes information on important meetings and activities, articles pertaining to lake ecology, issues updates, maps, data tables, photographs, and future events notices.

We also sponsor a biennial Great Salt Lake Issues Forum, which provides a gathering for local citizens who care about Great Salt Lake. The goal of the 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, FRIENDS hired its first 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. With that goal, a live-narrative slideshow program, entitled *The Lake Affect: Living Together Along the Shores of Something Great*, was born. Audiences have included Envision Utah, the Utah Department of Natural Resources, and the Salt Lake Olympic Committee's Environmental Advisory Committee, along with numerous school and civic groups.

In an effort to reach even more citizens with its message about Great Salt Lake, FRIENDS has produced a video version of *The Lake Affect*. With this video and the Project SLICE fourth grade Great Salt Lake curriculum, we hope to achieve a positive, long-lasting impact on the future of Great Salt Lake and those who dwell upon its shores.

Getting to Know the Weber River

Join FRIENDS on Tuesday Oct. 22, 2002, starting at 7pm at the Sugarhouse Garden Center, located in the northeast corner of Sugarhouse Park, 2100 S. 1600 E. in SLC.

The Tuesday Oct. 22 general meeting will provide general information about the Weber and Ogden River Watersheds, their value for wildlife, current operations and partnership efforts.

This meeting will provide information about the habitat as well as the fisheries and other wildlife that use the Weber River. Also, presented will be how the river is managed from the perspective of the Weber Basin Water Conservancy District. Partnership efforts addressing the Weber River watershed will be discussed. Similar information will also be provided about the Ogden River watershed.

Presenters will be:
Pam Kramer, Habitat Biologist, and Kent Summers, Aquatic Habitat Biologist, Utah Division of Water Resources;
Mark Anderson, Assistant General Manager, District Engineer, Weber County Water Conservancy District,
Scott Paxman, Assistant General Manager over Drinking Water, Weber Basin Water Conservancy District
as well as Study Chair for the Weber River Watershed Technical Advisory Committee; and,
George Burbidge, Ph.D., Director, Weber County Storm Water Management Division.

Wayne Martinson, National Audubon, will moderate the panel.

Great Salt Lake Field Seminar Series:

Water Quality Sampling & Monitoring of Great Salt Lake with the USGS June 29,2002

by Amy Coombs, FoGSL Intern

Antelope Island. It's Saturday morning at 9:00am. A newspaper reporter, two public radio producers, a couple of college students, a wetlands ecologist, and some FoGSL members stare wistfully at a bucket full of lake sludge and sediment. The sampling device is dropped off the side of the boat, and a hush falls over the crowd. As the container hits the water, the group begins to get excited.

photo by Lynn de Freitas

Microphones are shoved into the faces of the three USGS scientists and the crowd swarms the dock. The newspaper reporter scribbles vigorously trying to keep up with the flurry of questions. In an attempt to record every sound, radio microphones follow the sampling device as it empties a bucket full of mud and organics onto the wooden planks of the dock. The two public radio journalists perch on the side of boat praying out loud that they don't fall in. They hold the microphones just above water level to record the splash of the bucket as it is once again dropped into the water.

This Summer's Field Seminar Series explored water quality sampling and monitoring at the Great Salt Lake. It's a topic that we FoGSL members go crazy about. Dr. David Naftz and his team of USGS scientists demonstrated the methods they use to count brine shrimp, collect cores of lake sediment, and sample nutrient concentrations. We've all read the studies, heard the reports, and discussed the findings. The Summer field seminar series, however, was more than a recap of past work. It was a demonstration of current methodology.

Hydrologists Dr. Naftz, Kimball Goddard (State Director for the USGS Water Programs in Utah), Rob Baskin, and Dave Allen demonstrated the way that each layer of sediment is collected and then analyzed. Sediment can be collected one layer at a time or as core of mud and dirt. Back at the lab, scientists scrape thin layers of sediment from the samples and test for concentrations of organic chemicals and metals. A recent study even found evidence of nuclear fallout in a layer deposited during the 1950s. Layers of decomposing brine shrimp can also be used to measure historical trends in trace metal concentrations. The research is important because brine shrimp, sediment, and algae impact and are impacted by long-term trends in water quality. They are each indicators and predictors of water quality characteristics.

The group ran about the dock asking questions and watching demonstrations like a bunch of kids in a candy store. After the craze died down a bit, we ventured inside for a series of three presentations about water quality sampling at the lake.

Bruce Waddell, with US Fish and Wildlife Service discussed the use of brine shrimp sampling in the measurement of trace metals. Although heavy metal concentrations found in brine shrimp populations are at concern levels, the Fish and Wildlife Service didn't find evidence of toxicity. Waddell collected brine shrimp, bird eggs, and invertebrates from select sites around the lake. He found that eggs collected from Farmington Bay contained elevated levels of mercury.

Another study conducted in part to help determine a discharge permit for Kennecott, collected sediments, brine shrimp and the livers from Eared Grebes. Interestingly, the concentrations of heavy metals varied by season. The preliminary data suggests that during the fall, the livers had low concentrations of heavy metals, but in early December, selenium concentrations had doubled in samples of the Eared Grebe populations. Waddell also presented provisional interpretations of draft data indicating concentrations of organic contaminants in GSL wetlands.

Next in line - Dave Naftz discussed his use of sediment data in the analysis of historic changes in water quality at the GSL. Although present trends in water quality can be determined by regular sampling, it is difficult to demonstrate that current water quality is low or high unless there is a historical basis for comparison. The National Water Quality Assessment Program is currently conducting a reconstructed trends investigation across the United States. The idea is to reconstruct the water quality not only of the lake, but also of the water being dumped into the lake from watershed, runoff, and rivers. Radio chemical dating is used to date the sediment cores, and sensitive lab instruments are used to measure major and minor trace elements and select organics.

The study is important because long-term changes in water can be linked to long-term changes in air quality. Sediments 200 years old were compared to sediments deposited during the 1990s. *(continued on pg. 12)*

2003 FoGSL Officers & Board of Directors

Review the slate of officers and directors. Vote on October 22nd at the Membership Meeting.

Office of President - Lynn de Freitas (term renewal)

As a full time volunteer president for the past 5 years, I have felt a tremendous sense of pride and satisfaction in carrying the flag of FRIENDS and Great Salt Lake into the community. Thanks to a great board of directors and our fabulous Bruce Thompson, we are making positive changes for the lake and achieving our mission.

There is still lots to do for the organization and for Great Salt Lake and I would like to continue working as president to help meet those challenges.

While not attending meetings, public hearings or writing comments on lake related matters, I like spending time with my dear husband Patrick, my horse Promise and trying to remain in the loop of my near 20 year old daughter, Robin. Never a dull moment!

Office of Secretary - Barbara Bentley (term renewal)

I am a retired university professor/plant ecologist, with many years of experience in environmental research, education, and non-profit administration.

I served on the Board of Directors of the Organization for Tropical Studies (a consortium of graduate institutions supporting research and conservation in the tropics), on the Environmental Conservation Board for the Village of Head of the Harbor in New York, and on the Emigration Canyon Community Council where I am currently serving as the Chairperson of the Fire Planning Committee.

In addition to serving as Secretary of the FoGSL Board, I have worked with the teachers and students participating in the Lakeside Learning portion of Project SLICE.

Office of Vice President - Lindsey Oswald (first term)

A fifth-generation Utahn, I spend much of my time and energy working to protect Utah's wilderness lands and open spaces. I graduated from Bowdoin College in 1996 with a dual major in Environmental Studies and Women's Studies.

Since completing an internship with FRIENDS of Great Salt Lake in 1998, I have served on the board of directors, helping to organize the biennial Great Salt Lake Issues Forum and assisting with the organization's public and media outreach efforts. I currently serve as chair of the Education Committee.

I work as the membership director for the Southern Utah Wilderness Alliance. In my free time, I enjoy exploring Utah's mountains and deserts with my husband, Andrew, and chocolate lab, Moxie.

Office of Treasurer - Chris Yoakam (term renewal)

I graduated from Southern Utah University in 1997 with a Masters of Accountancy and have completed my requirements for certification as CPA. I have worked five years with taxation and auditing of non-profit organizations including compliance with laws and regulations. I am currently employed with Foote Passey Griffin & Co.

I am a member of the FoGSL Advocacy Committee and am very interested in Great Salt Lake issues.

Besides learning more about the lake, I enjoy working as a swamper on Grand Canyon river trips and hiking in Southern Utah.

Board of Directors -Tim Brown (first term)

As a member of FoGSL, I'm very familiar with the organization, its mission and the challenges it faces.

I was the Executive Director of Utah Society for Environmental Education (USEE) for the past seven years. In that position, I generated more than $1 million worth of projects and programs, most of which I managed. Under my leadership, USEE has grown into a model organization recognized as one of the premiere environmental education organizations in our country.

My work has amassed a broad network of contacts over the years, with a reputation for thinking outside the box—perhaps in part the result of being a lifelong resident of Utah, apart from college.

My major strengths include environmental education, organizational development and strategic planning.

Board of Directors - Adrienne Cachelin (first term)

I have been working in the field of conservation education for the past fourteen years. Currently, I am the Director of Environmental Education at Red Butte Garden and teach science education courses in conjunction with the Teaching and Learning department at the University of Utah. I am chair of Utah Society for Environmental Education's Program Advisory Committee as well as a member of their board.

I'm very interested in getting students involved in the process of science and equally interested in encouraging teachers to embrace a variety of teaching methods that respect the way people learn. I grew up in the Philadelphia area, did my undergraduate work at the University of Vermont and recently completed my Masters degree in outdoor education at the University of Utah.

I enjoy year-round skiing, good cabernets and early morning runs with my husband and dog.

Board of Directors -Jill Knutson (first term)

In the past few years I have come to appreciate the unique ecosystem of the Great Salt Lake through camping, sailing and walking in its stark beauty.

I became interested in serving on the board because of my involvement as a volunteer for Education Director Bruce Thompson, and with the FoGSL Education Committee. I am a certified teacher in Arizona and Utah, and bring this background to FoGSL. Because of my experience as a teacher, I bring frugality and skills to accomplish a lot with limited funds.

As a board member, I expect my major contributions to continue in education. I also have a BFA degree in graphic design and offer this experience to enhance a visual presence to the public.

I look forward to being a part of this growing organization.

Board of Directors -Sander Lazar (first term)

I'm very interested in the Great Salt Lake, and have been involved in lake issues for the last two years.

As the 2000 recipient of the Barbara L.Tanner Fellowship, I worked full-time for one year with FoGSL, focusing on their educational endeavors. I've continued my involvement in FoGSL's educational programs, delivering the Lake Affect slide presentations and Lakeside Learning field trips.

I have been an active member of Salt Lake's environmental community for several years. I co-chaired the University of Utah's environmental club, Terra Firma, and since my time with FoGSL I have worked full-time as County Issues Coordinator for Save Our Canyons.

I believe my work with both Save Our Canyons and FRIENDS of Great Salt Lake has given me a unique perspective on the Great Salt Lake watershed that would be a benefit to the board.

Board of Directors - Amy Marcarelli (first term)

Since I began working towards my Ph.D. in aquatic ecology at Utah State University two years ago, I have been fascinated by the Great Salt Lake and its associated ecosystem. Although I am studying lakes and streams in the Sawtooth Mountains for my dissertation, Dr. Wayne Wurtsbaugh and I have examined water quality in Farmington Bay with undergraduates for the last two years. This research has resulted in reports to FoGSL and the DWQ.

As a member of the board, I would like to serve on the research committee and use my knowledge of aquatic ecology to help expand our understanding of the unique Great Salt Lake Ecosystem.

I believe that my experience in teaching and research will help me communicate my knowledge to FoGSL members as well as the greater community.

Board of Directors-Eric McCulley (first term)

I am interested in becoming a member of the board of FRIENDS of Great Salt Lake. My expertise is in the processes at the surface of the earth. I have a bachelor's degree in geology and I have done research on geochemistry of natural waters, mineralogy, and wetland restoration. I also have knowledge and experience in land-use planning, environmental policy, and recreation use. I worked as a teacher assistant, a home instructor for disabled people, and I am an Outdoor Emergency Care (OEC) instructor.

I am familiar with the issues and challenges that are faced by those who love the Great Salt Lake Ecosystem. I feel that this broad base of environmental and educational knowledge will help FoGSL by integrating science and policy to influence land managers, private interests, and non-profit organizations.

I presently work as a Hydrology Technician for the Wasatch-Cache National Forest in the summer. I will soon go back to my winter job as a Ski Patroller at Alta.

Board of Directors -Patrick Nelson (first term)

As an employee of the Cottonwood Canyons Foundation, a nonprofit partner of the Wasatch-Cache National Forest, I develop and implement the conservation education and information services for the Salt Lake Ranger District. In addition to maintaining our corporate and agency partnerships, I write grants, raise funds, manage volunteer naturalists, schedule and lead interpretive walks.

Contributing at a board level capacity to FoGSL while learning the workings of halophytic plants, the Latin name for an avocet and the intricacies of the NEPA process are all opportunities that I look forward to.

A position of the FRIENDS Board creates for me the opportunity to better understand a worthy ecosystem while contributing to its long-term health.

Board of Directors -Brian Nicholson (term renewal)

Drawn to the Great Salt Lake Basin in 1997, I recently received a M.S. in Watershed Science from Utah State University. My research examined the human dimension of wetland resources in Utah. In addition to sociological theory and research methods, I bring knowledge of the bio-physical components of watersheds and wetlands to the FoGSL Board of Directors. I currently serve on the FoGSL Research Committee

I currently work for the Utah Division of Wildlife Resources as Wetland Monitoring Coordinator. This position and past professional experiences require the ability to communicate ecological concepts and present natural resource issues to diverse audiences. Specific duties include conducting wetland education sessions and facilitating trainings for high school students and adults.

I'm an avid white-water kayaker often found exploring Great Salt Lake tributaries from my boat.

I am particularly interested in the natural resources issues in Africa, have served as a Peace Corps volunteer in Côte dIvoire, and worked as a consultant for both Peace Corps and USAID.

Great Salt Lake Matters

by Bruce Thompson, Education Director, FRIENDS of Great Salt Lake

Do Citizens Take Great Salt Lake for Granted?

One of the three most pressing threats identified for Great Salt Lake is public ignorance. The most dangerous product of ignorance is the indifference that it breeds. If citizens were aware—through government and civic leadership as well as through formal education—of the treasury of insights, opportunity and information that sits quietly next to them, this peril would be vastly reduced.

The legacy of persistent ignorance is an "unlevel playing field," such as is reflected in lopsided arguments about lake development, water diversions and highway construction. This inequity exists because our "wisdom" thus far consists of boundless knowledge and familiarity about lawns, automobiles, airports and shopping centers, but offers a near vacuum with regard to the air, water and biological systems that sustain and enhance us. Everyone is well versed in the use of motor vehicles and our dependence on them, and in the persistent sprawl of our cities from our own unbridled growth. But when we encounter such familiar elements up against a lake system about which we know practically nothing, how can any fair and reasoned outcome occur?

We cannot make informed decisions if we are not informed. Hence we're threatened with ongoing nonsensical "Lake versus People" conflicts rearing up in the form of Legacy Highways. Any sense of Lake as adversary is the misguided result of knowing too little about anything and nothing about the Lake.

Life Without Great Salt Lake

What if the processes from which Great Salt Lake emerged never existed? What if something happened to Great Salt Lake? What changes might we notice? What difference would it make?

1) A spectrum ranging from increased threats to possible endangerment or extinction for hundreds of migratory bird species, resulting from the absence of suitable nesting sites, adequate food resources or safe stopover locations;

2) Absence of 3/4 (over 400,000 acres) of all wetlands in the entire state of Utah along with their hundreds of associated plant, mammal, reptile, amphibian, insect and microbial lifeforms and all of the associated wetlands services;

3) Absence of a multimillion dollar resource for sand and gravel, brine shrimp eggs for international aquaculture, 32 different mineable chemicals and minerals and duck hunting;

4) Loss of an invaluable resource for biological research and education;

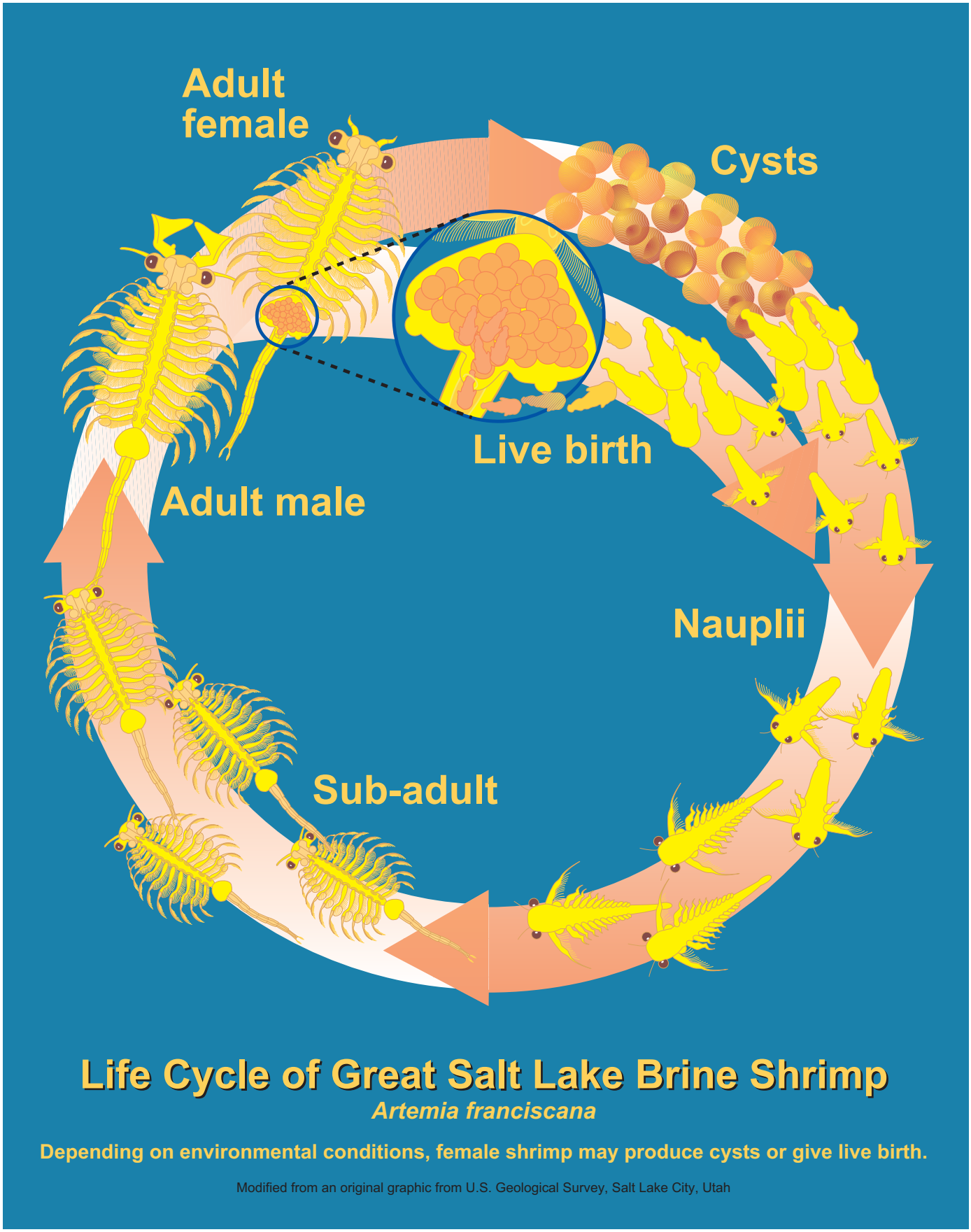
5) Loss of the lake's climate moderating affects upon spring and fall temperatures along the eastern shore, and reduced moisture from precipitation and seasonal runoff, likely resulting in less snow for recreation and less surface water for drinking, irrigation and recreation throughout the year.

6) An immeasurable loss to the universe of mystery, sanctuary and insight that one can uniquely derive from something older, larger and more complex than our minds can fathom.

The pressing threat of ignorance was identified at the first Biennial Great Salt Lake Issues Forum hosted by FRIENDS in 1996. This was the catalyst for hiring an Education Director. My first assignment as Education Director was to create a public information process. The result was a live-narrated slide presentation that would help take the story of Great Salt Lake into the community. Called The Lake Affect: Living Together Along the Shores of Something Great, it has so far been presented to more than 11,000 citizens. Inspired by this ongoing demand, the Education Committee and I are now working on a video format of the program.

Project SLICE-a Salt Lake Initiative for Conservation Education- was the next logical endeavor. This 4th grade standards-based curriculum, is designed to assist teachers with matching the wealth of scientific, cultural and economic attributes of Great Salt Lake to their own standards-based instructional needs. Comprised of a suite of activities and resources such as theLakeside Learning Field Trip, the Speakers Network, and the Teacher Training Institute; we believe the concurrent outcome will be a citizenry that better understands and appreciates the fragile ecosystem with which we are connected.

The possibilities for educating the public about the lake are endless and the challenge of creating new and practical learning opportunities is ongoing. With that, we begin incorporating a new feature in the newsletter called "A Slice of SLICE". A primary goal of the newsletter has always been to engage the reader in learning more about the issues, research, people and activities that surround the lake's shores. A "Slice of SLICE" will provide you with readily available diagrams, activites, information sheets and even some games that are all a part of our SLICE curriculum materials.With this, we hope to help you amass your own personal Great Salt Lake reference collection so you can be better prepared to share the word about Great Salt Lake. Our first installment is The Life Cycle of Great Salt Lake Brine Shrimp (Artemia franciscana).


Adult female
Cysts
Live birth
Adult male
Nauplii
Sub-adult
Life Cycle of Great Salt Lake Brine Shrimp
Artemia franciscana
Depending on environmental conditions, female shrimp may produce cysts or give live birth.
Modified from an original graphic from U.S. Geological Survey, Salt Lake City, Utah

UN Scientists Tour Great Salt Lake

by Dr. Wayne Wurtsbaugh and Dr. Martyn Caldwell

A panel of thirty-four scientists from seventeen different countries toured the Great Salt Lake and Antelope Island in September. The scientists are part of the United Nations Environment Program based in Nairobi. Expertise in the group ranged from those interested in UV effects on aquatic organisms to atmospheric physicists studying chemical reactions in the stratosphere.

photo by Lynn de Freitas

The Great Salt Lake visit provided a welcome break from their eight-day work shop convened to write a report entitled the Effects of Stratospheric Ozone Reduction. The report will include chapters on how ozone losses will influence ground-level UV radiation and how elevated UV levels will affect our world. Dr. Martyn Caldwell of Utah State University hosted the workshop and arranged the tour.

The lake tour on State Park boats captained by Park's manager John Sullivan and Erik Bingham included stops to measure the transparency of Farmington Bay water (only 7" or 18 cm) and then in the cleaner Gilbert Bay (27"or 95 cm). The group noted, however, that a plume of algae-laden water from Farmington Bay extended 1-2 miles out onto the surface of Gilbert Bay. After stopping to take a plankton sample of brine shrimp, the group proceeded to the railway causeway for a view of the striking red halobacteria and the alga Dunaliella salina in Gunnison Bay.

On the causeway, FoGSL members, Wayne Wurtsbaugh and Lynn de Freitas, described some of the geological and ecological characteristics of the lake and talked about environmental issues that FoGSL is addressing. After a speedy boat ride back to Antelope Island, the group was turned over to Dr. Tom Deliberto, who received his doctorate at USU. He showed the visitors the oolitic sand in Bridger Bay and discussed vegetation patterns on the island under grazing pressure by bison. The group enjoyed lunch at Fielding Garr Ranch and finished the day with supper at the Buffalo Point Restaurant.

Fabulous fall weather and a glassy lake contributed to the success of the trip. The visit by these distinguished scientists helped spread the word about the wonders of the Great Salt Lake and the environmental issues challenging the ecosystem.

GREAT SALT LAKE NATURE STUDY SERIES

from the Day-Riverside Library Nature Study Center Lecture Series
1575 West 1000 North, Salt Lake City, UT 841116 524-8200

"Aquatic Stewardship: Great Salt Lakekeepers" An informative presentation by Jeff Salt, from the Great Salt Lake Audubon. Thursday, October 24, 2002 @ 7:00 p.m.

The Great Salt Lakekeeper program advocates for the protection of the lake, it's tributaries and the living resources that depend on the quality of the water environment. The program is part of the international Waterkeeper Alliance headed by Robert F. Kennedy Jr., and provides opportunities for the community to help improve conditions along urban waterways through programs for stewardship, advocacy, education and enforcement.

Jeff Salt is the Director of Education Programs and the Great Salt Lakekeeper Program for the Great Salt Lake chapter of the National Audubon Society. He represents Great Salt Lake Audubon (GSLA) on the Jordan River Natural Areas Forum and is the ad-hoc committee member for GSLA as Jordan River Education Consultant.

Upcoming "Great Salt Lake Nature Study Series" presentations:

"The Lake Affect: Living Together Along the Shores of Something Great"
BRUCE THOMPSON, Education Director, FRIENDS of GSL Thursday, February 27, 2003@7:00 p.m.

"The Great Salt Lake-A Threatened Treasure: Utah Rivers and the Great Salt Lake"
ZACH FRANKEL, Executive Director, Utah Rivers Council Thursday, April 24, 2003@7:00 p.m.

The Jordan River Natural Conservation Corridor
A Link to the Great Salt Lake

by The JRNAF Steering Comitee

If the Great Salt Lake is often maligned and its values forgotten, one of its major tributaries, the Jordan River, has suffered a similar fate. Given the current channelized and polluted nature of much of the river, it is hard to remember the Jordan River of pre-European settlement days – a meandering river, sustaining a mile-wide willow corridor, providing habitat for migratory birds and other wildlife between the Utah and Great Salt Lakes. But not all of the Jordan River is lost. Due to its critical geographic location, sandwiched between the high Wasatch range and the West Desert, migratory birds still use this increasingly rare lowland riparian corridor and find limited areas for resting and breeding. Recognizing its importance to wildlife, a number of groups and individuals have been working over the last few years to maintain and improve wildlife habitat along the Jordan River.

Early on Salt Lake County identified critical wetlands along the 44-mile river corridor and interested the Utah Reclamation, Mitigation and Conservation Commission (Mitigation Commission), a federal agency, in purchasing some of the areas. In one area, the Mitigation Commission partnered with the U.S. Fish and Wildlife Service, TreeUtah and Great Salt Lake Audubon to restore migratory bird habitat at 10600 South. This project highlighted the importance of partnerships – especially since 19 municipalities in three different counties contain a section of the Jordan River.

While the County took the first huge step in identifying the remaining wetlands, it was clear that acquisition would be only a partial solution given the rising cost of land along the river. A collaborative effort in 2000 produced the Jordan River Natural Conservation Corridor Report that provided a history of the river, its pre-settlement and existing condition, and listed preservation, education and restoration strategies to advance the interests of Jordan River natural areas.

To implement the report's strategies, the Jordan River Natural Areas Forum (JRNAF) was created. This group of local, state and federal governments, non-profits, businesses and other interested parties is dedicated to promoting awareness, acquisition, management and restoration of natural areas along the Jordan River balanced with the human uses of the corridor. Forum membership is open and wide participation in the group is welcomed and desired.

Current Forum activities include working with developers, municipalities, agencies, non-profits organizations and others to conserve what remains of wildlife habitat along the river. The Forum is also becoming an information clearinghouse for proposed riverfront development projects, providing guidance on how to maintain the natural features of the river corridor while allowing for the development of homes, parks, and recreational facilities. The Forum is also working on the education front to create a network of nature centers along the river, and in the future will work with golf-courses to help them become more wildlife-friendly.

A little over one year old, the Forum holds great promise. It provides an ecosystem approach to planning that municipal governments often lack the resources to provide. While restoring the Jordan River to its pre-European settlement condition is unlikely, with enough participation it is possible to create a conservation corridor that provides a critical link between the Utah and Great Salt Lakes.

Resources: To get on the mailing list to receive meeting notices contact Kort Utley at the Governor's Office of Planning and Budget 538-1556. The Jordan River Natural Conservation Corridor Report will be on the Mitigation Commission's website in July. Contact Joan Degiorgio at 524-3146 for the web address and an attractive brochure highlighting the areas currently protected along the river.

Get Involved: To participate in a restoration project contact TreeUtah at www.treelink.org/treeutah or volunteer with the Great Salt Lake Audubon Jordan River Environmental Education Program by calling 584-2550.

"Great Salt Lake Field Seminar"
(continued from pg. 5)

Concentrations of PAHs (carcinogenic hydrocarbons from forest fires and automobile exhaust) were compared. In other locations in the west, the concentrations of PAHs are proportionate to the total vehicle miles driven per year in watershed areas. If a community spends a lot of time in the car, the watershed contains a high concentration of PAHs. This same relationship was demonstrated at the GSL. In 1880 the level of PAH was very low, but as the population grew along the Wasatch Front, so did the concentration of PAH in the Great Salt Lake sediments. Samples from the 1980s and 1990s demonstrate that the population growth and PAH concentrations increased at nearly the same rate.

As the GSL is a unique body of saline water, special forms of detection had to be designed. For example, techniques sensitive enough to detect low concentrations of trace metals in highly saline water had to be developed. Arsenic concentrations in the south arm were detected. This was a tremendous feat as previous detection had failed to recognize very low concentrations. According to the USGS, Arsenic concentrations are currently at about 80 parts per billion. Dr. Naftz emphasized the importance of sensitive detection procedures. Even small concentrations may have significant impacts on wildlife. As most standards for toxicity are based on fresh water systems, the historical trends uncovered by Dr. Naftz are vital to our understanding of water quality at the lake.

Next, Kimball Goddard summarized several, ongoing water quality sampling procedures. He discussed how the USGS measures salt loads on each side of the causeway, how the lake's elevation is monitored, and how discharge from the causeway is measured. Perhaps the most interesting technique involved the use of acoustic technology to measure the velocity of water sections and the bi-directional of flow through the causeway. The USGS is also working on a computer based circulation model that will help determine the rate at which water from the Bear River mixes in with the Lake. This model will help scientists study the impacts of nutrient concentrations that result from sewage being dumped at the lake.

Overall, the Summer Field Seminar Series was a blast. The process of water quality sampling received more press than ever before, and the group had a lot of fun. Leave it FoGSL to turn a content-based seminar into a celebration of the GSL and the methods used to study it.

If you are wishing you hadn't missed the outing, Tune in to KRCL 90.9 FM at 6:30 PM on November 7th for Knowledge In a Nutshell's show on water quality at the Lake. The show is based on the field seminar series, and contains live recordings of the seminar.

Special Thanks

Big Thanks to Salt Creek Artemia and the Utah Artemia Association for the donation of brine shrimp cysts and brine shrimp ecosystem packets for our education program.

On the Spiral Jetty Walk - photo by P. Aigion

October 19th Great Salt Lake Field Seminar Series

Ancient Life Along Great Salt Lake • Led by Dr. Steven Simms

Join us for a field trip to an archaeological site near Great Salt Lake.Archaeological materials (chipped stones, potsherds, burned bone) and sometimes evidence of middens and structures along the banks are generally found at the site we will visit. Dr. Steven Simms will lead trip participants in a discussion of the prehistory and paleoecology of the Great Basin; management and human remains issues.

Simms is a professor of anthropology at Utah State University. He teaches courses ranging from introductory archaeolgy, to anthopological theory, and the archaeology and paleoecology of the Desert West.

The trip, on Saturday, October 19th is limited to 15 people. Pre-registration is required. Cost is $15 non-members, $10 members. Van transportation will be provided. A short hike (approximately 2 miles round trip) is involved. Trip time is 8:30am - 1:30pm. Information about this trip is also posted on the website at www.fogsl.org under RESEARCH.

This outing is the start of the second season of the Great Salt Lake Field Seminar Series. This year, seminars will feature the work of scientists that are currently conducting research at the lake. The featured scientists will be leading a guided field trip to their field site(s) to demonstrate their methods and discuss their findings. Participants will have an opportunity to learn about lake related research and discuss its applications towards environmental issues.

Contact Heidi Hoven to register or with questions at hhoven@swca.com or 801-583-5593 Ext.1

Proposals Being Accepted for the Doyle W. Stephens Research Assistance Scholarship

FRIENDS of Great Salt Lake is accepting proposals for the Doyle W. Stephens Research Assistance Scholarship in honor of the renowned, distinguished and dedicated Great Salt Lake scientist, Doyle W. Stephens, who died in May 2000.

Purpose: The Doyle W. Stephens Research Assistance Scholarship celebrates Doyle's scientific contributions towards research of the Great Salt Lake Ecosystem. This scholarship will provide support to an undergraduate or graduate student engaged in research that focuses on the Great Salt Lake Ecosystem.

We invite proposals from any discipline for the following purpose(s)
- any aspect of research: field, laboratory, or literature research
- attendance at conferences
- other activities that further the understanding of the functioning or protection of the Great Salt Lake Ecosystem or some part thereof.

Qualifications:
Applicants must be undergraduate or graduate students currently enrolled in an accredited college or university.

Selection of Award Recipient:
A selection committee will evaluate all proposals and award the scholarship to the selected recipient.

Scholarship Recipient Requirements: The recipient must submit a report summarizing the results of their work. Although it is not necessary that the overall research involved be complete, the selection committee requests that the recipient present the research findings at a FRIENDS meeting and/or in the quarterly newsletter.

Funding: The award is $500.00. Only one scholarship will be awarded annually.

DEADLINE: NOV. 30, 2002 AWARDS WILL BE ANNOUNCED IN JANUARY 2003.

For a copy of the application or more information, please visit our website (www.fogsl.org) or contact:

Brian Nicholson - briannicholson@utah.gov (435) 797-8058

Katrina Moser - katrina.moser@geog.utah.edu (801) 585-5800

Applications should be sent to: FoGSL P.O. Box 2655, Salt Lake City, Utah 84110-2655 Attn: Scholarship

HOW TO REACH US
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www.fogsl.org / mail@fogsl.org

The Utah Society for Environmental Education

13th Annual Conference - Creating Sustainable Communities

November 7-9, 2002 Salt Lake City, Utah

The three day conference will include two complimentary components: Your Role as an Educator (for educators) and From Theory to Action (for the general public). Both components will explore sustainable concepts and the relation to audiences' roles in the community. Key note speakers include Mary Smith, from the National Audubon Society; Paul Loeb, author of Soul of a Citizen; David Sobel, author of Mapmaking for Children; and Margaret Wheatley author of Turning to One Another.

Registration costs:;
members: $100, student or retired $75;
nonmembers: $125, student or retired $100.
Register by October 4th for the Earlybird rate -
save $25 off regular registration costs

For More Information: contact
Heather Scheel, USEE, 350 S. 400 E. Suite G-4,
Salt Lake City, UT 84111, (801) 328-1549,
hscheel@usee.org, or visit www.usee.org

WE want to thank **The Tides Foundation, Xmission.com, Tooele Transcript Bulletin** 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 Legacy highway campaign
- 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, FRIENDS is 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.Consider a new year's gift to FRIENDS - recruit a new member. 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:
4.5-4.9 billion tons

Thank You to Our New and Renewed Members for Your Support

Renewed Members
Gail Blattenberger
Tim Brown
Mark & Cheryl Brunson
Jon Callender
Angela Dean
Sylvia Gray
David Hanscom
George & Gene Hatch
Joyce and Dave Hoggan
Peter & Susan Loffler
Scott Maddox
Dr. Kay Millar
Fred & Linda Oswald
Lindsey Oswald
Ann & Maunsel Pearce
Lorena & Melvin Peterson
Jo & Tom Pratt
Randy Speers
Richard & Carlyn Sweet
Jean-Francois Van Huele
Edward & Marelynn Zipser

New Members
Amy Coombs
William Fowler
Jane Johnson
Eric Mc Culley
Ryan Miller's Environmental Geography Class
Michael Nielson
Clifford W. Sampson
Audrey Walker