

FRIENDS of *Great Salt Lake*

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Yellow-headed Blackbird by Gary Crandall 2010

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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EXECUTIVE DIRECTOR'S MESSAGE

A LAKE ELEVATED IS A GOOD THING BUT

WHAT ABOUT WHEN THE LAKE SHRINKS? COULD WE LOSE OUR LAKE?

"The lake is at risk from population growth and climate change, and a persistent failure to see it as anything other than a source of industrial raw materials at best and a waste of water at worst."

- Professor Daniel Bedford, Weber State University

The May 2011 Utah Climate and Water Report from the Natural Resources Conservation Service confirmed the obvious. It's going to be a record water year across Utah. You know this already, but the details are astounding. Precipitation levels around the state were well above normal for April (132% - 200%), snowpacks are impressive (783 inches at Snowbird), soil moisture is high, reservoir storage is excellent, and the wet and wild spring we experienced provided a perfect catalyst to the mix.

Great Salt Lake is expected to rise to the occasion by at least 5.6' to its average water surface level of 4200' above sea level. That's a sizeable elevation gain for a single water year. And it's good news after an 11 year drought cycle during which the Lake hovered near its record low elevation of 4191.3'. So for now - along with the Lake - we can all breathe a sigh of relief.

Because it's a record water year, it's no surprise that we're comparing it with the 1980's when Great Salt Lake reached its modern day historic high of 4212'. Over the course of 4 years (1983-1987) the weather and the water infrastructure translated into a 2 million acre "Lake-print" on the landscape that threatened properties on and around the Lake. Although fluctuation of the Lake's water surface level is a natural dynamic and ecologically important, because of the interface between the Lake and this development, the State was prompted to take Herculean measures to abate "flooding". The UPRR Causeway was breached to relieve pressure from a swollen Gilbert Bay, and the West Desert Pumping Project (the Bangerter Pumps) were activated to pump the water into the West Desert. This expanded the surface of the Lake, which then increased evaporation that helped to eventually reduce the size of the Lake.

But this isn't the '80's, and unless we continue to have a string of record water years, it's anyone's guess when we can look forward to the Lake reaching that historic high once again. In fact, some authorities in the Division of Water Resources who have been studying the relationship

between population growth, water use and lake elevation have suggested that if settlement in the Salt Lake Valley had not occurred back in 1849, Great Salt Lake would be - on average - almost 8' higher. It's a provocative thought and one worth keeping in mind as we talk about average lake level and impacts on the system over time.

We've learned a lot about working with the high side of the Lake. And although we may not agree with all of the management criteria the State has chosen to implement at these higher elevations, we can remain fairly confident that the Lake will continue to be there (to exist) under those circumstances. However, this recent drought has raised numerous questions and concerns from FRIENDS and the conservation community about whether we could actually lose our Lake. Shrinking and drying up is not an unusual fate for saline systems around the world. They face the same threats as Great Salt Lake.

Weather patterns and climate change aside, there are a number of factors that most certainly will influence Great Salt Lake's ability to sustain and breathe in the future. These include increasing development on and around the Lake (especially mineral extraction which is managed to promote evaporation), upstream water diversions to meet the demands of population growth, and current and future water rights that allow companies and industry to divert water directly from the Lake.

Ironically, the Lake itself does not have any water rights to ensure that water remains in the system. So when the Lake is already low from drought, the additional pressure of drawdown can create cumulative impacts on the physical, chemical, and ecological character of the ecosystem. This affects not only the beneficial uses of the system but the Lake's health and sustainability as well.

A review of the current status of water rights and Great Salt Lake can be found in the May 2011 Draft GSL Comprehensive Management Plan Revision Chapter 2-Water 2.3 on p. 2-25 www.ffsl.utah.gov/sovlands/gsl.php

It's confusing and difficult to decipher especially because the identities of the water right owners and applicants are missing. The numbers provided also don't add up. But the point is that it gives you a snapshot of the additional pressures that are being put upon the system mostly to meet the needs of the mineral extractive industry. It reads –

There are currently 13 perfected water rights to divert water from the lake, all owned by companies or individuals in the mineral extraction industry. The earliest priority date of these rights is 1940; the latest is 2003. Under these rights, if used to their fullest, it is possible for the rights holders to divert 416,776 acre-feet per year from GSL, but only 77,600 – 338,000 af/yr is currently diverted. Most of this water is evaporated, whereas very small amounts return to the lake through pond leakage and flushing.

There are 9 water rights applications that have been approved for development. Seven of these rights, all owned by mineral extraction represent a possible diversion of 377,768 acre-feet per year for mineral exploration. The earliest priority date of these rights is 1962; the latest is 2010. Like the perfected rights, most of the water diverted under these applications would be consumed by evaporation.

There are 7 applications that have not been approved for development. Five of these applications are owned by mineral extractors and one is owned by a quasi-governmental agency to provide cooling water for a proposed nuclear power plant. These applications represent a potential additional diversion of 413,522 acre-feet per year, most of which is for mineral extraction. The earliest priority date is 1966; the latest is 2010.

The State Engineer has on file one unapproved application that does not divert water from the lake, but that would have a large impact on it; this application calls for the diking of Farmington Bay and its use as a freshwater reservoir. Under all nine existing, approved rights, an additional 456,000 to 787,000 acre-feet of water per year could be diverted from GSL and consumed by evaporation. However, unless this diverted water is evaporated in ponds constructed outside the lake area, thereby increasing the effective surface area of the lake, such additional diversions should have no measurable effect on average lake level. Although this quantity is approximately 25% of the total annual inflow to the lake from all sources, the primary limiting factor on greatly increased water diversions from the lake under existing rights and applications is the amount of new land available and suitable for evaporation ponds. The possibility that all the water approved under existing applications will be diverted and consumed at some time in the near future is unlikely. It is, however, likely that existing mineral extraction operations will seek to expand their evaporation ponds and brine diversions.

Without dwelling on the proposed nuclear power plant (who knew?) and the fresh water embayment of Farmington Bay (will this never end?), what is particularly disturbing – if my interpretation is correct – is that a whopping 25% of the total inflow to the Lake from all sources (that's runoff from snowpack, precipitation, groundwater and springs) can be used up by 9 existing approved water rights. If you add in the 13 perfected water rights (currently being used) the worst case scenario

is that approximately 35% of all water flowing into the Lake would be diverted and evaporated. That's well over 1 million acre feet (af) of water annually. However, this doesn't account for any of the applications still pending approval, which includes the 353,000 af of water annually that Great Salt Lake Minerals Corp has requested for its proposed expansion.

There is no statement about a cap on withdrawals from the system or any reference to a particular Lake elevation which could cause decline of the system. It's also troubling to see that as recently as 2010, approval of water right applications for development continued even though the Lake was still under the influence of drought. Remember that for every 100,000 af of water that is diverted from the Lake, the surface elevation drops by .75 ft. Average annual fluctuations of the south arm during one year is 1.48 ft. This is without any additional withdrawals.

Where is the ethic to preserve our Public Trust resource? What if the 2011 record water year didn't happen? And when will the State finally get serious about establishing a conservation pool for Great Salt Lake so we don't end up sucking it dry?

This fall, the last public meeting on the revision process for the 2000 GSL Comprehensive Management Plan and the 1996 Mineral Lease Plan will be held. This will be the final opportunity for the public to weigh in on how our Lake is managed. The development of this draft is promising because the Division of Forestry, Fire and State Lands (responsible for the jurisdictional management of the Lake) has heard – loud and clear – that the public's primary concern is low lake levels. Working with SWCA Environmental Consultants (the Project Managers for the revision process) the joint team has worked to incorporate Lake Level Effects for most every aspect of the GSL Ecosystem Current Conditions. These have been visually consolidated into a GSL Level Matrix.

However, the proof will be in the pudding when we review the final draft later this fall to see whether the Division has addressed the concerns we have raised about how water rights fits into this picture. We don't want to lose our Lake. Nobody does. But we can't afford to wait until the next drought to figure this out. Now is the time to reckon with the impacts of diverting water from Great Salt Lake. - 🐼

In saline,
Lynn

Visit www.fogsl.org for more information..

FRIENDS ORGANIZATIONAL STATEMENT

FRIENDS of Great Salt Lake was founded in 1994. The mission of FRIENDS 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. The long-term vision of FRIENDS is to achieve comprehensive watershed-based restoration and protection for the Great Salt Lake Ecosystem.

FRIENDS has a very active Board of Directors and an Advisory Board consisting of professionals in the scientific, political, literary, education, and broadcast communities. The organization sponsors an array of programs, activities, and materials in pursuit of its mission.

Every two years, FRIENDS hosts the Great Salt Lake Issues Forum to provide a focused discussion about the Lake for policy makers, researchers, planners, industry and other stakeholders. 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.

The Friend of the Lake Award, given at each forum, acknowledges a citizen, business or organization working to promote GSL awareness in the community.

In 1997, Bruce Thompson was hired as Education Director to initiate 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." The program is now available on DVD.

In 2000, Project SLICE, a 4th grade curriculum using Great Salt Lake as a system of study was initiated. It consists of 7 units of study, a Speakers Network, Teacher Training Workshop, and Lakeside Learning Field Trips. Currently work is being done to expand the curriculum into other grades.

Emily Gaines, Education and Outreach Director is working to refine the Project SLICE curriculum and expand education outreach into the Great Salt Lake community.

In 2002, the Doyle W. Stephens Scholarship Award was established. The scholarship provides support to undergraduate and graduate students engaged in new or ongoing research that focuses on Great Salt Lake.

In 2006, FRIENDS was the recipient of the Calvin K. Sudweeks Award by the Utah Water Quality Board for outstanding contributions in the water quality field.

In 2002, President Lynn de Freitas, was awarded the outstanding volunteer educator award by the Utah Society for Environmental Education.

In 1998, FRIENDS was awarded the Conservation Achievement Award by the Utah Chapter of the Wildlife Society. 🦋

On the Cover

Yellow-headed Blackbird by Gary Crandall 2010

This male Yellow-headed Blackbird (*xanthocephalus xanthocephalus*) seen on the Great Salt Lake will spend most of his Spring perched on reed stalks displaying or chasing off rivals defending his breeding and nesting territory.

Mostly found in marshy areas and west of the Great Lakes, this bird winters in Mexico and the South Western parts of the United States. Its diet consists of insects & seeds. Its distinctive call lets you know that the marshes are near.

Contact Gary at 801-296-9393 and see more images at www.wildspiritsparkcity.com





Gulls by Charles Uibel



I WAS A TEENAGE BRINE SHRIMPER

BIRTH OF THE BRINE SHRIMP INDUSTRY

Hip waders. Calf-deep in muck. Child's inflatable wading pool tied to my waist. Long handled fishing net with war surplus parachute fabric seine. Water blood-red with schooled brine shrimp. I was a teenage brine shrimper.

My father and C.C. Sanders were the first to harvest brine shrimp and eggs from the Great Salt Lake. Their brine shrimp market was home tropical fish aquariums. They knew the brine shrimp as a high protein crustacean and a perfect food for small tropical fish. In the early 1950s, brine shrimp schooled in the summer so densely parts of the lake became bright red. Our early techniques were improvised. Large long handled nets came from Indian tribes catching salmon on the Columbia River. Nets were improvised from war surplus parachutes from Buck's War Surplus. Buck's also provided 500 gallon rubber gasoline tanks from B-17 bombers. Two of these with their tops cut off fit in the bed of a pickup truck and transported hundreds of gallons of brine shrimp to the processing plant.

The adult shrimp schooled along the partly washed-out stub of an old road at the site of the present road to Antelope Island. Wearing hip waders, we gathered shrimp with our improvised fishing nets in water one to two feet deep. An inflated child's wading pool trailing behind on a rope was filled with shrimp then towed to the road where salt water pumps lifted the shrimp into the rubber tanks. A crew of four could fill a pickup truck with shrimp in about half a day.

At C.C. Sanders' home, the shrimp were washed with fresh water on improvised wash racks. Trial and error showed soft ice cream dispensers used in Dairy Queens released perfectly measured portions of shrimp. The machine's hopper held several gallons of shrimp; dispensed in measured doses using a foot pedal. Pint and quart ice cream containers were filled with shrimp. Plastic bags with the company logo were used for servings as small as one ounce.

Once the day's catch had been processed and packaged, the packages were laid out in plywood war surplus foot locker trays, stacked on pallets, and delivered to a cold storage plant where they were frozen. The shrimp were shipped to distributors in an insulated railroad container

the size of a large home freezer called a "Church box." When packed with dry ice, the shrimp stayed frozen long enough to be shipped by rail.

Shrimp eggs (cysts) had unique value because newly hatched nauplius larva could dramatically increase the survival rate for newly hatched tropical fish (from as low as 10% to as high as 90%). The cysts are metabolically inactive and can remain in total stasis (diapause) for more than a year even in temperatures below freezing. The cysts are lighter than the lake's salt water and float on the surface all winter. Lake shore exploration showed that, during the winter, the eggs accumulated in deposits several inches deep near Monument Point at the far north end of the lake. Harvesting stayed primitive and improvised. Wheel barrows and wide-mouth snow shovels proved best in combination with improvised paths using abandoned lumber found on the lake shore. Many experiments taught us how best to dry the cysts and the best combinations of salinity, temperature, and chemicals to maximize the hatch.

A bigger fish farming market in Asia would make brine shrimp a multi-million dollar industry with specialized boats and gear, harvest limits, and detailed regulations. That industry developed on our low tech, improvised base - but we had started an industry. I hope the present industry will be as careful with the lake and its shrimp as I think we were. 🦞

Chris Wangsgard

TOWARD A SHARED SOLUTION

FOR WEST DAVIS COUNTY TRANSPORTATION

A new highway in west Davis County has been on some people's minds for a long time and got a particular boost when Utah Governor Michael O. Leavitt in 1996 proposed a 120-mile-long freeway which would be located west of and parallel to I-15 in western Weber, Davis, Salt Lake and Utah counties—the Legacy Highway. The proposal for this western freeway was based on the prediction that vehicle-miles-traveled (VMT) would grow faster than population and that we would need to accommodate that vehicle demand by building more freeways along the Wasatch Front. A number of public interest groups, including Utahns for Better Transportation (UBET), FRIENDS of Great Salt Lake, Sierra Club, League of Women Voters, Salt Lake Audubon and others proposed instead a balanced approach that would lead to shared solutions for our future mobility.

Due to the work of these public interest groups, the first 14-mile segment of the proposed high-speed freeway envisioned by Leavitt turned out to be a more balanced, civilized roadway. The Legacy Parkway in southern Davis County was built as part of an integrated solution that was phased to make transit and bike travel a viable option. The Legacy Parkway and Preserve project coincided with the startup of regional commuter rail—FrontRunner—on an existing rail corridor and included a continuous separated bike trail. The road was built with a parkway configuration and was aligned to avoid as many wetlands as possible. Its features include a 55 mile-per-hour speed limit, a ban on semi-trucks and billboards, and quiet pavement. The Legacy Parkway has been strongly embraced by both drivers and bike riders alike. And those who were on the UDOT construction crew take enormous pride in the work they did on this road.

The second segment of the roadway—the Mountain View Corridor in Salt Lake and Utah Counties—is also being developed as a shared solution with transit and roadway improvements along with bikeways phased to provide more transportation choices for our future. The third segment—West Davis Corridor—which extends north from Farmington, has an Environmental Impact Statement (EIS) now under way to look at alternatives for future growth and travel in west Davis County.

As stakeholders in the EIS process, we have spoken out at public open houses for the West Davis Corridor and urged a balanced approach that will reduce congestion by offering more transportation choices. A balanced approach will improve air quality, preserve wetlands, save energy, and build communities that are walkable, bikeable and transit friendly. The Utah Department of Transportation (UDOT) currently is reviewing several roadway alignments and a transit improvement strategy is being considered.

However, rather than another highway, we believe the need in Davis County should focus first on improving the east/west connections to FrontRunner and I-15, thereby optimizing the use of existing choices. And although no bike trail is planned in conjunction with a new roadway—to the dismay of many who know the community asset the Legacy Bike Trail has become—we will continue to work with UDOT and encourage them to include it.

Our goal to move toward a more balanced transportation system along the Wasatch Front is based on the recognition that we don't want to grow up to be Los Angeles. The transit investments we have made in the past ten years should be optimized by providing connections and convenience for its use, especially at the peak hours of travel.

Many more meetings, public open houses, and hearings will be held over the next year to determine the preferred alignments and types of transportation improvements for West Davis County. All roadway alignments currently under consideration would impact some wetlands and demolish some homes. We believe a balanced solution could avoid both.

And as for the road—if it is to be built—we would like to see the West Davis Highway include the same design features as the highly acclaimed Legacy Parkway—a civilized road, indeed! 🐾

By Roger Borgenicht & Ann Floor, Co-Chairs, Utahns for Better Transportation (UBET)

LINKING HEMISPHERIC PARTNERSHIPS WORK

ADVANCING RANGE WIDE MIGRATORY BIRD SPECIES & HABITAT CONSERVATION



Dr. John Cavitt - Weber State University • Paulina Martinez Sarabia -Pronatura field crew • Carlos Villar - Wildlife biologist

You have probably heard that the Great Salt Lake is unique. While this is true, the Lake also shares things in common with lakes and wetlands across the globe. For example, many of the birds at the Great Salt Lake breed or winter at wetlands in Canada and Mexico. In addition to sharing birds among countries, the long-term sustainability of wetlands throughout the Americas is threatened by human activities such as dams, water diversions, urban development, and some agricultural practices. Many of the threats to wetlands can dramatically impact avian habitat and affect millions of migratory birds. We certainly need to protect the Great Salt Lake, but we also need to consider opportunities in places across the globe if we hope to conserve migratory birds. This is what Linking is about.

The Linking Communities, Wetlands and Migratory Bird Initiative (Linking) is a tri-national partnership between communities in Canada, the United States,

and Mexico, dedicated to the range-wide conservation of migratory birds that are shared by each community as well as the local, endemic birds (i.e., those not found in any other location). The Linking partners work within their respective communities and cooperate internationally to preserve critical wetlands and other habitats for their ecological values, and the economic, educational, social and cultural wellbeing of the people who live near them. Efforts are focused in three areas: environmental education, ecotourism, and conservation. The Linking approach is about communities, and it is about partnerships.

In January of this year, Utah Linking met with our Mexican partners in Mexico during the San Blas Bird Festival. Not only did this trip provide a brief respite from the cold, wet Utah winter, we had several good meetings with our partners to discuss conservation and ecotourism around the Marismas Nacionales. The Marismas Nacionales contains over four hundred square

miles of estuaries and mangroves in the Mexican states of Nayarit and Sinaloa, and hosts more than four hundred and fifty species of birds (WHSRN 2009). While it is an important place for millions of birds—on par with the Great Salt Lake—the Marismas is also threatened by logging, draining, shrimp farming, pesticides, water pollution and dams (National Geographic 2001). The Marismas Nacionales is a worth protecting, and we learned about past, current and future conservation efforts.

One of our Mexican partners is Pronatura, a Mexican non-profit organization that has been in existence for 30 years. They shared data from bird surveys from seventy-nine sites throughout the Marismas. Some of the more recent surveys were made possible by generous funding by Kennecott Utah Copper and its parent company, Rio Tinto, which has been a strong supporter of Linking. Again, one of Linking's paradigms is partnerships and community involvement, so the recent surveys involved students from the University of Nayarit and other members of the community. We learned that twelve duck and twenty-two shorebird species were counted in one survey alone. Another research project funded by Kennecott involved capturing and banding snowy plovers (the Mexican name for snowy plover is *chorlo nevado*). This project showed that the Marismas is an important wintering area for snowy plovers and also showed that some of the plovers breed in Mexico.

Pronatura studies more than birds and has a keen interest in protecting fisheries and in conservation efforts and community outreach. For example, they educate the communities on how important the mangrove forests are to wildlife and people, though many in the communities already recognize this. They are also involved in restoration projects, notably at Poncho Villa.

We visited the small fishing village of Poncho Villa to see firsthand the unintended consequences of “progress” and the community's efforts to address the problem. Travel to Poncho Villa took several hours by car, and then we caught a boat ride out to what was previously a mangrove forest. The mangroves had died across thousands of acres due to a canal, which has allowed in too much salt water from the ocean. When originally constructed, the canal was only about 60 feet across, but erosion and storms widened the canal to more than a mile wide. Now the mangrove forest is dying because the water is too saline. Pronatura showed us the mangroves that they and the local community had planted. The mangrove trees were still alive, but after two years the plants were

only about five feet tall and they looked more like bushes than trees. Normally, mangroves grow much taller and thicker, and the growth is much faster. While the planting effort has met with some success, it also shows how difficult mangrove restoration may prove to be. Hopefully, society can learn from past mistakes and not repeat them, and hopefully we will also be able to learn from successes to benefit future restoration projects.

We also had meetings with the local ecotourism committee as well as upwards of thirty members of the community to discuss the vital role local communities play in conservation. Through these meetings, we learned that: (1) ecotourism is a whole chain of activities; (2) the program has to be community based; (3) it needs to involve numerous communities, not just San Blas; and (4) it needs people to be active participants. We are grateful for people who share our appreciation and concern for the natural world, but not everyone does, so our Mexican partners have considerable work ahead of them.

Because of our success, Birdlife International, another partner, is extending the linking concept into South America into Peru, Chile and Argentina. Stay tuned for future updates. In the meantime, let's do our part here in Utah to conserve and protect the Great Salt Lake. 🌿

Nathan Darnall is the current chair of the Utah Linking Communities group.

For more information:

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WHSRN. 2009. Marismas Nacionales.
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ENVISION GREAT SALT LAKE

BEYOND THE GSL COMPREHENSIVE MANAGEMENT PLAN

When Lynn de Freitas first approached me about writing down a few thoughts about planning and management of Great Salt Lake, I initially thought it would be interesting to look back at the history of planning and trace the evolution of thinking about the Lake and its resources. That trajectory is fairly predictable, however, from planning to develop and allocate the resources the Lake in the 1960's, through identification of management issues that should be addressed and resolved in the 1970's and 1980's, to a more comprehensive approach to planning "...to facilitate and enhance management of GSL and its environs to assure protection of the unique ecosystem of the lake, while promoting balanced multiple-resource uses" as described in the goal statement of the 1995 GSL Comprehensive Management Plan. The evolution of thinking about GSL is encouraging, and the currently-underway revision of the 2000 Comprehensive Management Plan will be informed by a great deal of new scientific data and will, I'm confident, provide a positive next step in that evolutionary process.

There remains, however, a lot of room for advancement in thinking about planning for GSL. In 1997, when I was starting to try to get my arms around my new assignment to update the 1995 GSL Plan, Professor Bob Adler from the U of U law school approached me to say, "You know, this should really be a watershed management plan." Good point! The Division of Forestry, Fire and State Lands (DFFSL) has the responsibility to manage the sovereign lands and resources of GSL, and needs to have a management plan to do that, in the same way the Forest Service needs a management plan for the Wasatch-Cache National Forest. A watershed-wide plan falls outside the Division's purview. However, GSL, and waterbodies in general, are affected as much by what happens upstream and adjacent to them as they are by what happens on and in them.

I recently had the good fortune to be involved in the development of the Utah Lake Master Plan, a project sponsored by the Utah Lake Commission. The Commission is composed of representatives of local governments in Utah County and State agencies, with ex-officio members and a public advisory group. Utah Lake lacks the resource development history of GSL, and so also lacks a number of the issues that competing interests can create, simplifying the planning process to a significant degree. What is interesting, however, is that the planning study area included not only the lake itself, but the lake's shorelands

and the adjacent uplands that were determined to be within the area of the lake's effects. Selection of the study area acknowledged the interactions and relationships between the lake and its surrounding environs.

This relatively small geographic difference in the scope of the planning area altered the dynamics of the Utah Lake planning project dramatically. Now, the communities around Utah Lake are mutually cooperating agencies and equal partners in the planning process, rather than stakeholders in another agency's planning process. By creating a shared vision for the future of Utah Lake, and agreeing to a common set of guiding policies, the state and local members of the Commission have agreed to commit their combined resources to advancing the objectives of the Master Plan.

As an early step in implementing the objectives of the Master Plan, the Commission developed a Utah Lake Model Shoreline Protection Ordinance, designed to be adopted by communities adjacent to the lake to manage development in a way that achieves the objectives of the Master Plan. A version of the model ordinance was adopted by the City of American Fork in April this year, thereby advancing the interests of all the members of the Utah Lake Commission and their shared vision for the future of Utah Lake. Plan implementation is happening now!

So, are we ready to plunge into a management plan for the watershed of Great Salt Lake? Maybe not quite yet. The updated GSL Comprehensive Management Plan will advance the understanding of GSL and will be a step forward in looking at the lake and its resources more holistically. However, as the planner's mantra goes, planning is a living process. Should we take the next step and begin working on a collaborative planning project for Great Salt Lake and its "environs"? I think so. I suggest that the next link in the evolution of planning for Great Salt Lake is a plan for a study area identified by the mutual effects of and to GSL from its shorelines that brings state agencies and local communities into the planning process as full participants. I'd like to think such an effort could result in a shared vision for the future of GSL and agreed upon policies for the planning and decision making of the communities and resource managers around Great Salt Lake. It would require a forum, a sponsor and ultimately a champion, but it's never too early to begin planning! 🦋

Jim Carter, FRIENDS Advisory Board

RAMSAR DESIGNATION FOR THE GREAT SALT LAKE?

THE RODNEY DANGERFIELD OF THE WATER WORLD

The Rodney Dangerfield of the water world, the Great Salt Lake ‘...can’t get no respect.’ Or so it seems to those of us concerned about ongoing Great Salt Lake Ecosystem degradation.

Despite all we do to engender appreciation and respect for the Lake and its watershed, there are ongoing threats: • Selenium discharges from Kennecott • The Jordan Valley Water Conservancy District lake discharges. • Mercury from various sources instate and out creates the highest methylmercury content ever measured in a US waterbody. • Dioxins in the MagCorp/US Magnesium chlorinated hydrocarbon potpourri are poorly understood in Lake waters, but we are sure they’re there in possibly unprecedented quantities.

Might Ramsar recognition of the Great Salt Lake change things? The Ramsar Convention on Wetlands (properly known as the Convention on Wetlands of International Importance especially as Waterfowl Habitat) was initially sponsored by the United Nations Environment Programme in 1971. (But it’s not part of the UN now, so contrary to the apprehensions of some, jack-booted, blue-helmeted thugs will not be dropped from U.N. helicopters to steal your lawn furniture if a waterbody near you becomes designated as Ramsar wetlands.) Administered by the Ramsar Bureau in Switzerland, the Convention’s mission is “the conservation and wise use of all wetlands through local and national actions and international cooperation, as a contribution towards achieving sustainable development throughout the world”. There are now 1,929 Ramsar Sites worldwide, encompassing an incredible 187,989,389 hectares of surface area (~464,531,896 acres, or 725,831 sq.mi.).

To be listed as a Ramsar site, a wetland need meet just one of these four criteria:

1. Criteria for representative or unique wetlands. (GSL is North America’s largest terminal basin.)
2. General criteria based on plants or animals... considered internationally important if a. it supports an appreciable assemblage of rare, vulnerable or endangered species or subspecies of plant or animal, or an appreciable number of individuals of any one or more of these species. (For Great Salt Lake, think Wilson’s Phalarope); or b. it is of special value for maintaining the genetic or ecological diversity of a region because of

the quality and peculiarities of its flora and fauna; or c. it is of special value as the habitat or animals at a critical stage of their biological cycle. (Think Intermountain Flyway); or d. it is of special value for one or more endemic plant or animal species or communities. 3. Criteria based on waterfowl. A wetland should be considered internationally important if: a. it regularly supports 20,000 waterfowl; (Eared Grebe, anyone?) or b. it regularly supports substantial numbers of individuals from particular groups of waterfowl, indicative of wetland values, productivity or diversity; or c. where data on populations are available, it regularly supports 1% of the individuals in a populations of one species or subspecies of waterfowl. 4. Criteria based on fish. (Marginally relevant for Great Salt Lake.)

The literature on the Great Salt Lake resounds with statistical superiorities, far beyond the minimum criteria for designation as a ‘Wetlands of International Importance.’ To many, reducing the Lake to statistics might diminish its values but if that’s what we need to do to nominate the Great Salt Lake for Ramsar designation, then that’s what we have to do.

As in all life’s worthwhile actions, it’s not a simple process. The application requires many formidable assemblages of information. Two are the most difficult: A property map must be submitted in GIS format. Help to accomplish this has been offered by a neighboring university professor, one who knows the Lake intimately and who teaches classes in GIS. The second requirement is that the State agency administering the wetlands must put forth the application.

There’s no time like the present to begin working on Ramsar designation. There’s no time like the present to begin developing the case studies and arguments for economic benefits to accrue from tourism, watchable wildlife, and Lake protection --- instead of watching attrition compounding Lake degradation, year after year after year. ‘Ramsar’ is no proof against ecological abuse but it just might stimulate a little respect. 🐾

Ivan Weber is a former member of the Board of FRIENDS

Western Hemisphere Inland Shorebird Reserve Network
<http://www.whsrn.org/sites/list-sites> “List of Wetlands of International Importance, US FWS, <http://international/fws.gov/>
Ramsar Sites Information Service <http://ramsar.wetlands.org/>.

GREAT SALT LAKE EDUCATION

A VIDEOCONFERENCE WITH SHILOH POINT ELEMENTARY IN CUMMING, GEORGIA

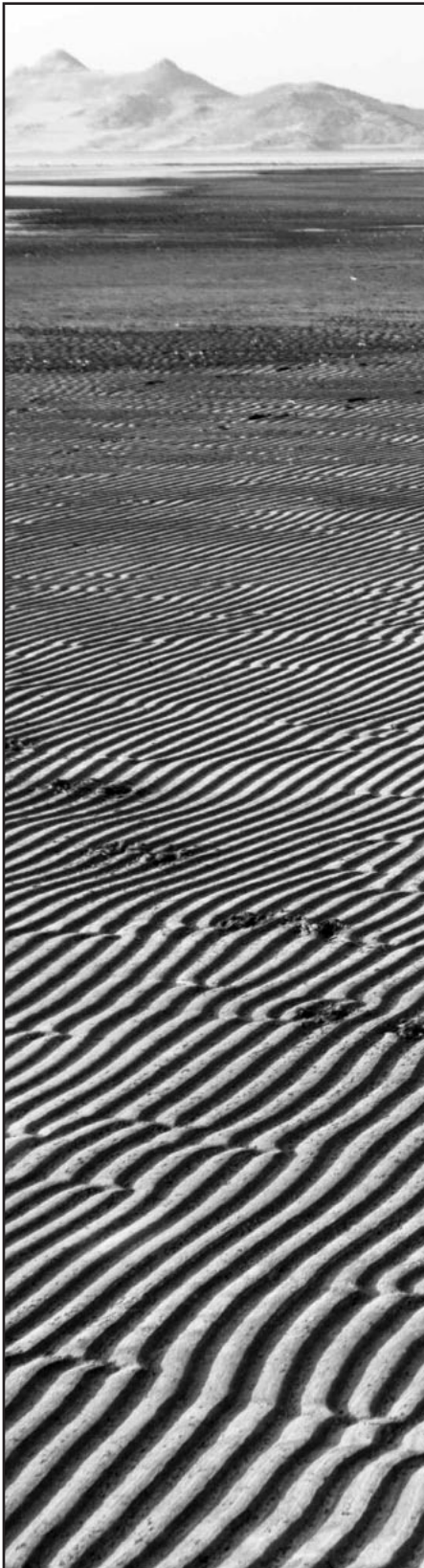


Photo by Charles Uibel

By Elizabeth Stevens

Our class traveled the United States to learn what makes America beautiful and the Great Salt Lake in Utah was one of the places on our trip. At each location, we interviewed experts using video conferencing. We were able to video conference with Emily Gaines from the FRIENDS of Great Salt Lake. Emily answered many of our questions. She shared pictures and interesting information. Here are some comments from our class:

"I found it interesting that the Great Salt Lake had a higher salinity than the ocean." - Vinay, 5th grade

"It was surprising that an organism like the brine shrimp could live in the salty water." - Suchit, 5th grade

"I was grateful that Emily was able to conference with our class. Emily's presentation was very engaging." - Maxton, 5th grade

"I thought it was interesting that the Great Salt Lake has no outlets."
-Abhinav, 5th grade

"Now, I'm glad I know about the environmental threats to Great Salt Lake." -Emma, 5th grade

"I never even knew there was a Great Salt Lake before this video conference. " - William Thomas, 5th grade

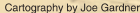
This is a letter written by Sarah, 5th grade from the perspective of a microorganism in the Great Salt Lake.

Dear Diary,

So I am surrounded by these pinkish, squishy walls that move in and out, in and out. I was just serenely eating my lunch when a prodigious, orange spoon dipped into the water and scooped me up! Then I took a ride on a roller coaster and well, here I am in this disturbing abyss. At first, I thought I was in a bouncy house. Then, some other brine shrimp slid down and told me that I have just been swallowed alive! How cruel! To make matters worse, the smell is so malodorous, it makes me melancholy. And so farewell, I shall warn you that this may be my last entry.

Sincerely,
Micro Organ Ism





Courtesy of USGS



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 Lynn de Freitas at ldefreitas@earthlink.net

Brine Shrimp

Brine shrimp monitoring and harvest during low water levels.



Shrimp boats at night by Mike Woodruff

The Great Salt Lake has lingered below the historic average water level for the past nine years, and the fall of 2010 marked the lowest point in that time period. A lackluster winter provided below average precipitation in the Great Salt Lake watershed, and the yearly rise in lake level stalled out at 4195.5 ft in late March. With summer approaching, it was understood that by the end of autumn the Great Salt Lake would once again be flirting with another near-record low.

As the program within the Utah Division of Wildlife Resources charged with monitoring the lake's brine shrimp population, regulating the brine shrimp harvest, monitoring waterfowl populations, and collaboratively conducting ecological research, low lake levels concern us. Lake level can modify the ecology through changes in salinity, and therefore near-record lows create a sense of uncertainty regarding how the brine shrimp will perform. As it turned out, the low lake levels of 2010 were a larger problem for us than for the brine shrimp population itself.



Evidence shows that Great Salt Lake brine shrimp largely shrug off the changes in salinity (9%-16%) that have occurred in the lake since our program began in 1996 (Belovsky et al. 2011), and our field data suggests that the 16% salinity had no detrimental effect on the brine shrimp in 2010. Shrimp densities were relatively high, as was production of cysts harvested by the brine shrimp industry. At 24 million pounds, the total raw weight of harvested brine shrimp cysts was the second highest on record. Brine shrimp can thrive in a wide range of salinities, and while we do not know what the upper salinity tolerance is, it appears that the current lake level is providing suitable conditions for this species and its algal food source.

The brine shrimp may have been content with 2010 lake levels, but biologists, harvesters, and State Park personnel who need access to the lake were beginning to have difficulties. The Great Salt Lake is shallow, and its marinas are even more so. Our 30-foot research vessel needs less than 3 feet of water to float, but by October we had to abandon the Antelope Island marina because it was only 2 feet deep. Prior to this, we had to putter at walking speed nearly a mile into the lake from the marina before the water became deep enough to safely accelerate on plane. It is a bit unnerving to feel the back end of the boat momentarily lift an inch as you slowly brush over a bioherm formation on your way out to deeper water. Fortunately, Great Salt Lake State Marina took us in for the rest of the harvest season. Another few feet of water loss would have rendered that marina unusable as well, at which point our program would be landlocked and unable to collect data. The brine shrimp companies have been able to keep their private marina open through expensive dredging efforts, and this year's low water levels did not prevent them from operating freely on the lake.

As for now, the lake appears to be on course to peak at well over 4197.0 ft this year, which is just fine for shrimp and even better for those of us who need access to the lake to do our work. The cold and rainy spring has been wrecking weekend plans, but is doing a beautiful job providing water for this ecosystem and ensuring access for professionals and recreationists. 🐼

Phil Brown
Aquatic Biologist
Great Salt Lake Ecosystem Program

Reference: Belovsky, G.E., and 13 others. 2011. The Great Salt Lake Ecosystem (Utah, USA): long term data and a structural equation approach. *Ecosphere* 2(3): Article 33. Open access PDF available at: www.esajournals.org/doi/pdf/10.1890/ES10-00091.1



Loading eggs by Mike Woodruff

DISCOVERING OUR LAKE

“The Fastest Lake on Earth”



Halfway To Fremont by Gordon Gridley

In 1919, on a dare, C.S. Leaf swam from Antelope Island to the old Saltair resort, a distance of 6.5 miles. A few years later, that swim became an annual event and was held every year until 1932. Due to the receding lake level, the course evolved and from 1937-1941 the swim went from Antelope Island to Blackrock Beach (8.12 miles). The record time for the Antelope Island to Blackrock Beach swim (3:40:52) was set in 1937 by Orson Spencer.

Because of its high salinity, Great Salt Lake is perfect for marathon swimming. You are higher in the water and

each pull has more power. Great Salt Lake could well be labeled “The Fastest Lake on Earth”.

When I was young, I swam once in the Great Salt Lake. I remember the salty smell, the crusty feeling afterwards, and that there was nobody else there. The lake itself didn't capture my attention then but 30 years later I have fallen in love with the lake, have come to appreciate its beauty, its solitude and uniqueness.

Five years ago, I set a goal to swim the English Channel. I plan to attempt this in August 2012. Due to my lack of

experience in ocean swimming, I started swimming in the Great Salt Lake last year. My first training swim on the Lake was last June. That experience sparked a fire in me. I researched the lake and became interested in Fremont Island because of its unusual history. John Baptiste who was exiled there, the Wenner Family who made a life there, and a recent shipwreck that occurred en route there.

I planned a trip to swim from the Antelope Island Marina to Fremont Island. My son and I received permission to visit Fremont Island and loaded up the two-person kayak with provisions. He paddled next to me while I swam the 6.5 miles to the southern shore. We set camp on the shore and toured the island. That was one of the most exciting and enjoyable days of my life! Even though I was exhausted from swimming more than 3 hours, my son and I hiked several miles looking for various historical monuments and we tried to appreciate those who had once lived and explored there. I wondered how the exiled John Baptiste might have survived alone on this barren, but strangely beautiful place! I felt like I was an explorer, like I was on a different planet. It's very likely more people have been in outer space, than have spent the night and explored Fremont Island

After my Fremont Island visit, I wanted to swim this Antelope Island to Blackrock Beach course to see if I could beat the record Orson Spencer set in 1937. I arranged permission from Antelope Island Rangers to get past Garr Ranch to the south end of the island to start the swim. The day was perfect, sunny with a slight breeze from the north and only small waves pushing me south. I swam as fast as I could while my son again paddled next to me. Every hour I took a quick 15 second break to drink some Gatorade and get back to swimming. While I was swimming I kept envisioning Orson Spencer swimming next to me. I finally reached the beach and ran to dry land where I stopped my watch. I had beaten the record by over 15 minutes! I was thrilled. Both Orson's and my times have been recorded in the International Marathon Swimming Hall of Fame World Records.

After this swim I wanted to share the experience with others. Josh, my training partner, and I have resurrected this race. On Saturday, June 11th, 2011, it was once again held as an official event. In addition to the Antelope Island to Blackrock race, we also opened a one mile event to participants who wanted the experience of swimming in the lake for one mile rather than a marathon swim from Antelope Island. Registration for the 8 mile event filled up within 6 weeks and swimmers came from California, Colorado, New York, Massachusetts, and of course from Utah. More information about this race and the history can be found at <http://greatsalt-lakeopenwater.com>

The reactions I hear about swimming in the Great Salt Lake from locals varies, but most of them don't consider the Great Salt Lake fit to swim in. Either it's too stinky, or too salty to swim in. Both are untrue. I am confident that

the Great Salt Lake has huge potential as a place for swimming marathon distances.

I plan to swim my English Channel qualifier in the Great Salt Lake. To qualify for swimming the English Channel you simply have to swim in open water that is 60°F or colder for 6 hours or more. On June 11, 2011, I swam from White Rock Bay to Black Rock Beach, a distance of over 20 miles. There are marathon swims of note all around the world with the English Channel being the most popular and well known.

It is my hope that the perception of the Great Salt Lake as a place for doing marathon swims gains popularity and as a result earns more respect and attention to its preservation. 🐢

Gordon Gridley

My detailed story with pictures and video can be viewed at: <http://gordsswimlog.blogspot.com/2010/07/fremont-island-swim.html>



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XMission

Submission Deadlines: Sept. 16 (Fall), Dec. 16 (Winter), Mar. 16 (Spring), and June 16 (Summer). Submit articles and images for consideration to Lynn de Freitas ldfreitas@earthlink.net or call 801-583-5593.



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Lake Fact:

What 3 factors affect the dynamics of the Lake's ecosystem?

Answer: lake level fluctuations, salinity, and water quality



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