

FRIENDS of *Great Salt Lake*

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www.fogsl.org

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The Great Salt Lake, watercolor on paper
by Joshi Haskell, submitted for the 2020 Alfred Lambourne Prize

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, advocacy, and the arts.

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EXECUTIVE DIRECTOR'S MESSAGE

TIMELY, GENEROUS AND JUST—

KEEPING WATER IN GREAT SALT LAKE IS THE RIGHT THING TO DO

“Unless people start caring and start acting, the Great Salt Lake will only be in increasing danger of, quite literally, drying up and blowing away.”

—Salt Lake Tribune Editorial, No Lake City (8/28/20).

We live along the shores of something GREAT—Great Salt Lake. Since statehood, Utah has had a legal stewardship responsibility to manage the sovereign lands of Great Salt Lake in perpetuity as a Public Trust resource (Article XX, Section 1 of the Utah Constitution). This mandate requires the state to oversee effective management of this ecologically unique and economically significant saline system. However, it's also a system that, in the peculiar language of Utah's Prior Appropriation Water Law, is not considered a “beneficial use.” That means that any drop of water that sits in Great Salt Lake is considered wasted.

So, what's so special about a terminal lake that has no outflows? A lake that's a remnant of ancient Lake Bonneville, a once deep fresh water system about the size of Lake Michigan. That's about 20,000 sq. mi. of landscape covering most of western Utah and parts of eastern Nevada and southern Idaho. A unique and peculiar system that lies at the bottom of a 21,000 sq. mi. hydrologic drainage basin with a growing population of over 3 million people. A system that has a salinity range from 6%-27% which is between 2-7 times saltier than the ocean. Now a relatively shallow lakescape—33 ft. at its deepest—that in recent history has fluctuated in size by hundreds of square miles and in elevation by 20 ft. A lake that is often characterized as buggy, stinky, and a dead sea.

“Great Salt Lake is unique among the great American lakes, arresting in its name, yet least known...Lake of paradoxes, in a country where water is life itself and land has little value without it, Great Salt Lake is an ironical joke of nature—water that is itself more desert than a desert.”
The Great Salt Lake by Dale L. Morgan. 1947.

And why does this Public Trust resource require a commitment from the state of Utah to manage it *in perpetuity*?

Let's take a closer look at Great Salt Lake. The namesake of Utah's state capital, a rich and integral part of our cultural heritage, an underpinning that has shaped traditions, and an endless source of research, literature, art, and the natural beauty of

this place we call home. The largest salt water lake in the Western Hemisphere and the 8th largest terminal lake in the world. Located in the second most arid state in the nation where only 1% of its total area is wetlands. 75% of those wetlands are located on and around Great Salt Lake. In addition to providing important habitat, wetlands control flooding, reduce erosion, and act as filters that improve water quality. Wetlands in Utah have declined from 1.2 million acres in the 1950's to approximately 400,000 acres today. So, we need to keep what we still have. Thanks to the report by *Bioeconomics, Inc. January 2012. Economic Significance of the Great Salt Lake to the State of Utah. Prepared for the Great Salt Lake Advisory Council* we have a broader understanding about the economic values this Public Trust resource provides.

The economic output of the Great Salt Lake is \$1.32 billion annually, which comes from mineral extraction, brine shrimp harvesting, and recreation (waterfowl hunting, bird watching, boating, swimming, etc.). Income from total labor is \$375.1 million and total employment (full and part-time jobs) from those three sectors is 7,706. In addition, the Lake has a significant “net economic value” between \$46.4 million to \$98.8 million.

There are also important passive use values that are derived from simply knowing that the Lake's natural environment and populations exist in a viable condition. And that the resource will be available for future generations of wildlife and people. We also know that water in the Lake suppresses dust from an otherwise exposed lakebed, as well as enhancing our snowpack in the Wasatch with its “Lake Effect”.

“The Great Salt Lake is ornithologically the most impressive salt lake on the continent.” —Dr. Joseph R. Jehl Jr.

The ecological values of this remarkable system are equally awesome. In addition to resident populations of mammals, reptiles, amphibians, fish and birds, we have an extraordinarily wide embrace of migratory birds that elevate the Lake to a global scale of importance. This is evidenced by 10 million migratory birds—about 3 times the current population of Utah—that rely on Great Salt Lake for food and habitat



critical to the lifeblood and promise of their future. 338 species of birds representing noteworthy avian populations that includes 30% of the Pacific Flyway come here for resting, staging and nesting as they make their migratory journey through the Western Hemisphere. Here's a sample of this impressive flock: Wilson's Phalarope: 340,000—the largest staging concentration in the world, American Avocet: 250,000—many times higher than any other wetland in the Pacific Flyway, Snowy Plover: nearly a quarter of the continental population, millions of the Eared Grebe population depend on GSL, American White Pelican—one of the top five breeding populations in North America, and more than 500 wintering Bald Eagles—one of the top ten winter populations in the lower 48 states.

Feeding and housing these astonishing numbers also requires water. Without water, islands are no longer islands, submerged aquatic vegetation is no longer submerged, and microbialites aka “Great Salt Lake coral” are unable to fulfill an important role in the food web of the system. Microbialites are calcium carbonate structures formed by the hydrogeological connectivity between the landscape and the lakebed. They carpet most of the lakebed, serve as a food source for brine shrimp, and are an integral part of the life cycle of brine flies. Both of these critters are vital food sources for birds because they are very high in protein.

Because of this impressive bird use, all five bays of the Lake have been designated Important Bird Areas by the National Audubon Society. And in 1991, Great Salt Lake was designated a site of “Hemispheric Importance” within the Western Hemisphere Shorebird Reserve Network. But even though the Lake provides this endowment of exceptional beneficial uses, *water, its lifeblood*, is not considered a beneficial use under Utah water law. This confounding disposition severely complicates the mandate that “We the People” have been given to sustain this remarkable place. Compounded by climate change, an average daily per person water consumption of 232 gallons, and a growing population projected to reach 6 million people by 2060, these alarming conditions do not bode well for our Lake's future. Oy!

A timely and insightful white paper, *Impacts of Water Development on Great Salt Lake and the Wasatch Front*, Wayne Wurtsbaugh et al. February 2016, not only gives us a troubling glimpse of the past but serves as a warning about the future. The report found that since the pioneers arrived in 1847, water development and river diversions for consumptive water uses for municipal and industrial purposes, agricultural activities, reservoirs, and evapotranspiration have produced a persistent reduction of flows into Great

Salt Lake by nearly 40%. This reduction has effectively dropped the Lake's average elevation by 11', shrinking it in size by almost 50%.

We've learned from other saline systems that significant water diversions not only impact ecosystem services but public health as well. Exposed lakebeds generate dust that contributes to air pollution. Billions of dollars are required to mitigate these impacts but many of them can never be fully realized. According to Craig Miller, Utah Division of Water Resources and contributor to the aforementioned white paper, “There are always big ups and downs but the long-term trend is down. Based on historical observations, the “average” level of the Lake is said to be 4,200' above sea level. But with all the modern-era water development upstream, the Lake currently hovers between 4,195' and 4,196' above sea level with normal weather.” On November 16th at the Saltair Boat Harbor, the surface elevation of Great Salt Lake was 4,192.2'. This is 1.2' above the 1963 record low of 4,191'.

In 2008, when FRIENDS co-hosted the *Joint Conference of the 10th International Conference on Salt Lake Research and 2008 FRIENDS of Great Salt Lake Issues Forum*, 315 participants from 19 countries attended. The program title was *Saline Systems Around the World: Unique Systems with Unique Values*. Dr. Robert Jellison, limnologist who has done extensive research on Mono Lake, and a research associate with the Marine Science Institute, U. of California, Santa Barbara was one of the plenary speakers. In his presentation, “**The Conservation and Management of Salt Lakes: Past, Present, and Future**,” Jellison noted that conserving these water bodies, agricultural diversions of fresh water in the last several decades have permanently changed these lakes for the worse, while at the same time their ecological importance to migrating and breeding birds has become widely recognized. As for their outlook going forward, he stated that “the future of many saline lakes will be decided over the next several decades as the direct economic value of fresh water inflows are weighted against the less easily measured ecosystem goods and services provided by these unique ecosystems.” So too with Great Salt Lake.

It's imperative that we recognize water for Great Salt Lake as a beneficial use and incorporate measures to support its sustainability. Let's work together to ensure that we have a return on our investment in this phenomenal Public Trust resource. Let's keep the Lake GREAT. Afterall, Great Salt Lake *is* the gift that keeps on giving; just add water.

In saline and optimism,
Lynn



FRIENDS' ORGANIZATIONAL STATEMENT

Founded in 1994, FRIENDS of Great Salt Lake is a membership-based nonprofit 501c3 with the mission to preserve and protect Great Salt Lake ecosystems and increase public awareness and appreciation of the Lake through education, research, advocacy, and the arts. The long-term vision of FRIENDS is to achieve comprehensive watershed-based restoration and protection for the Great Salt Lake ecosystem.

FRIENDS of Great Salt Lake sponsors programs related to our mission statement: Lakeside Learning, the Doyle W. Stephens Scholarship, the Great Salt Lake Issues Forum, and the Alfred Lambourne Prize.

Lakeside Learning Field facilitates 2.5 hour inquiry-based educational field trips for 4th grade students. The trips combine informal environmental education strategies while incorporating science, technology, engineering, art and math (STEAM) to reinforce the Utah Common Core State Science Standards. Lakeside Learning emphasizes learning through participation.

Within the research component of our mission, we sponsor the Doyle W. Stephens Scholarship for undergraduate or graduate research on Great Salt Lake ecosystems. Established in 2002, the scholarship supports students in new or on-going research focused within the Great Salt Lake watershed. Recent project winners span the effects of changing salinity on microbialites to the impacts low water levels in Great Salt Lake have on Utah's air quality.

FRIENDS is actively involved in advocating for Great Salt Lake. Every two years, FRIENDS hosts the Great Salt Lake Issues Forum to provide focused discussions about the Lake for a variety of stakeholders including policy makers, researchers, and industry leaders. Each Forum engages the community in constructive dialogue regarding the future of Great Salt Lake.

In 2014, FRIENDS established the annual Alfred Lambourne Prize for creative expressions of our Inland Sea in the categories of visual art, literary art, sound, and movement. FRIENDS celebrates the relationship between local artists and one of Utah's most precious natural resources, Great Salt Lake. Through artistic expressions, we enhance our capacity to build awareness about the Lake and our need to preserve and protect it for the future.

FRIENDS maintains a Board of Directors and Advisory Board composed of professionals within the scientific, academic, planning, legal, arts, and education communities. Staff members include, Lynn de Freitas, Executive Director; Rob Dubuc, General Counsel; Holly Simonsen, Membership & Programs Director; and Katie Newburn, Education & Outreach Director.



Yellow-headed Blackbird

Photograph by Scott Baxter

See more at scottbaxterphotographer.com

On the Cover

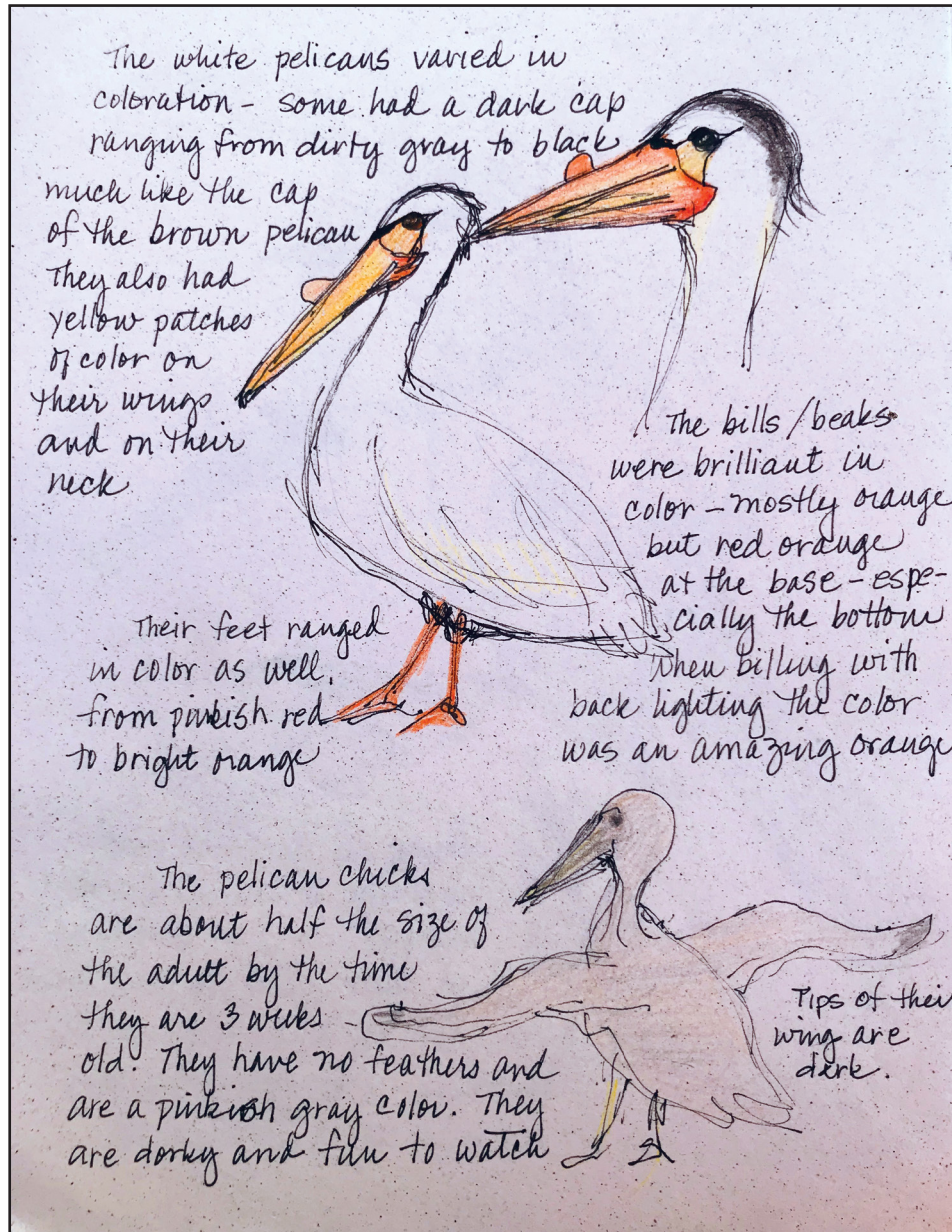
"The serenity of the lake shore is a place of exquisite beauty. This piece depicts a view while on a field trip with students. They had been asked to find a place to sit and observe for 10 minutes—to just take in all that was around them: the sights, smells, and sounds. As they sat, all I could think about was how, for that moment, they seemed to become one with this environment." Watercolor on Paper, 9" x 6"

–Joshi Haskell

Since Joshi (Yoshi) Haskell, a Utah local, was a child, painting and being in nature have given her an escape from the busyness of day-to-day life. She uses oil and watercolor paints to harness nature's beauty to inspire a shared love of Utah's, and the world's, varied and precious environments.

See more at joshihaskell.artcall.org





Sketches from Gunnison Island

In May of 2001, Don Paul, Great Salt Lake avian biologist with the Utah Division of Wildlife Resources invited a small group of GSL advocates to visit Gunnison Island to survey one of the largest nesting colonies of American White Pelicans in North America. We camped overnight on the island and then spent the next day observing and counting pods of young pelicans from an overlook on the island. The experience was a birder and lake lover's dream.

—Yae Bryner

CLIMATE CHANGE AND THE FATE OF GREAT SALT LAKE

The future of the Great Salt Lake is grim. I know that's a tough way to start a newsletter submission, but it's important we understand this.

If we take a look at what's causing the degradation of the lake, all we have to do is look upstream. The hydrology of the Great Basin is changing. We're experiencing drier, hotter conditions, and more stagnant weather patterns. These changes are upon us now, and are projected to become even greater in the not too distant future. As such, do we proceed with past management practices in mind, or take action now to save this dying water body? It is important to understand what we do today will influence the future of our children.

The Great Basin receives the majority of its precipitation in the form of snowfall during the meteorologic winter (Dec., Jan., Feb.). However, what used to be primarily snowfall during the winter, is shifting to increased rainfall during that same time. In essence, we are evolving from primarily a snow driven hydrology to that of a rain driven hydrology. Data have shown that winters are starting later and ending earlier throughout the Great Basin. But why?

The answer comes in two forms. The Great Basin is warming faster than the global average, and is expected to warm an additional 8 to 10 Degrees F° by 2100. As such, we're experiencing more rainfall during the winter months than we used to. The actual window of snow accumulation is shrinking as we warm. Winters start later, and end earlier. Premature melting of our snowpack due to this warming produces inefficient runoff scenarios, where we lose more to evaporation, transportation, and sublimation. Research has shown that our snowpacks through the Western U.S., including the Great Basin will be reduced by 80% by 2100. And with that, the way we receive our precipitation is changing. Storms are less frequent, and more intense, making storage an issue.

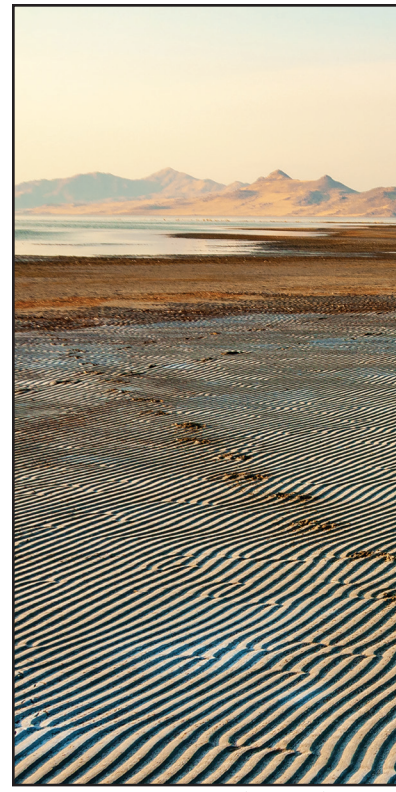
Additionally, the presence of High Pressure is dominating our weather pattern during the winter months. This weather pattern is characterized by the lack of storms, low snowpacks, and inversions. The incidence of High Pressure Ridging over the West has been increasing since about 1980. This is due to the slowing of the Jet Stream, making weather patterns more stagnant across the globe. Research has shown that the increased incidence of High Pressure Ridging is dominating our winters.

With these factors affecting the Great Salt Lake Level, we also must look at Great Salt Lake itself. Essentially, we are dealing with a shallow open pan as opposed to a deep and narrow vase. For instance, the Great Salt Lake's drainage basin is 1730 sq. miles, yet the max depth of the lake is 33 ft.. Conversely, Lake Tahoe's drainage basin is 192 sq. miles, yet its max depth is 1,645 ft. The pan that is Great Salt Lake is highly prone to evaporation. With the hotter temperatures, evaporation is increasing, dramatically reducing the lake level.

To slow the decline of the Great Salt Lake, we need to first look at local effects, then to global effects. First and foremost, we need to increase the inflow to the lake by reducing upstream diversions. This is a start. If we can increase the flow into the lake, we'll raise the lake level, reduce alkaline dust storms, maintain the industries profiting from the lake, and protect the natural habitat. The second is to become part of the solution to slow climate change. If we can reduce the amount of greenhouse gases in our state, we can be a part of the global solution and reduce the amount of heat and hopefully maintain winter snowpack longer than if we did nothing.

If this submission sounds alarming to you, it is. These effects are upon us here and now and impacting the Lake as we speak. It is not something that we can ignore and hope that things will improve. We need political action to slow these effects and hopefully maintain the beauty that is Great Salt Lake. It will not be easy, but we must try.

Brian McNerney recently retired after a 30-year career as the Senior Hydrologist and Climate Change Scientist with the National Weather Services' Weather Forecast Office in Salt Lake City, Utah. He is currently the Co-Director for the Utah Climate Project.



A Measure of Wandering, photograph courtesy of [unclear]



CREATION OF DNR'S INTERNAL WATER COUNCIL HAS ENHANCED COLLABORATION AND SOLUTIONS

As Utah continues to grow and develop economically, it's clear we need to do more with our limited water resources to improve conservation and efficiency. I am excited to share with you how the Department of Natural Resources (DNR) is better coordinating internally regarding water. Over 50 years ago, DNR was restructured to place seven distinct divisions under one umbrella at DNR, including the

as Wildlife Resources, Water Resources, and Water Rights realized that each agency encountered situations which required input from each of their sister agencies. To facilitate this, representatives from these agencies began to meet more regularly to provide each other with updates on water related projects with which they were involved. Through these initial discussions, other divisions were asked to collaborate as further coordination spilled over into their areas of expertise. Within a year, all seven divisions were meeting quarterly to share water related updates or to coordinate on projects.

DNR leadership has fully embraced the importance of these meetings. Water is central to the management of Utah's natural resources, and in turn, water management will be one of the most significant challenges each division faces moving into the future. The internal DNR Water Council, as this effort has been coined, will further enhance coordination allowing each division to provide background on their water mandates and how they work through water related challenges and issues. This has added depth and understanding and provided insight on how we can move forward together on key issues like Great Salt Lake where every division at DNR has interests and responsibilities.

Based on the DNR Water Council's importance to the entire functioning of DNR, we decided that it should be chaired by the Executive Director's office. I am excited to be at the helm of this vital effort. And, although the formal body is still in its infancy, the Council has definitely already enhanced coordination on water issues across divisions. That spirit of cooperation will only get stronger moving forward. I appreciate seeing information frequently shared between Water Council members. The water mandates between DNR divisions remain varied and at times are unaligned, but when you see future DNR directives, positions, and decisions on water, know that these decisions are not being made in division silos. We are working toward making those decisions collectively across the department. The end result is better outcomes and solutions to complex water challenges.

Brian Steed, DNR Executive Director



by of Charles Uibel

divisions of Wildlife Resources; Parks and Recreation; Water Rights; Water Resources; Oil, Gas and Mining; Forestry, Fire and State Lands; and the Utah Geologic Survey. As you can imagine, the mission of these divisions don't always align perfectly. While each division has a specific mission, in the time since they joined in one department, coordination has improved between the different agencies.

DNR employees are extremely passionate about what they do. I have never seen a more dedicated group of professionals who care deeply about the mission and vision of the DNR. I have noticed, however, that it is easy to become focused on each individual's specific area of expertise. This was particularly true regarding water. About two years ago, this began to change



SALT LAKE CITY—ENVIRONMENTAL STEWARDSHIP, PUBLIC SERVICE, AND GREAT SALT LAKE

I am very grateful that Lynn de Freitas asked if I would submit a piece for this newsletter. I have spent my 25-year career involved in complex environmental issues, including: as an environmental consultant working to remediate and prevent environmental contamination throughout the United States; as the director of a small environmental non-profit organization; and in two different municipal governments working primarily on environmental and natural resource issues.

with the last four years as the director of the department. Salt Lake City Department of Public Utilities (SLCDPU) has a more than 170-year legacy of environmental stewardship and public service. These two values are deeply imbedded in the culture of our organization. SLCDPU's long-standing mission statement, "Serving our Community, Protecting our Environment," embodies the work ethic of our employees at all levels—from line staff to leadership. This ethic has withstood the test of time and has been supported by our residents for many decades.



The City and its Lake, photograph courtesy of Charles Uibel

I have great admiration for the advocacy communities in Utah that tirelessly work to protect our natural ecosystems. They understand, as I do, that functional ecosystems are needed to protect our long-term health and prosperity. Conversely, when environments and habitats are degraded by pollution and unsustainable extraction, we have witnessed cascading negative impacts to human health, economies, and overall quality of life.

For the last 12 years I have been fortunate to work for Salt Lake City in its Public Utilities Department,

GENERAL OVERVIEW AND RESPONSIBILITIES

Mission: SLCDPU provides water, sewer, stormwater, and street lighting services. SLCDPU operates each of these services as separate municipal utilities. SLCDPU provides sewer, stormwater, and street lighting to a growing population. Today this includes approximately 200,000 residents of Salt Lake City. The service area for SLCDPU's water utility is much larger and provides drinking water to more than 360,000 people in Salt Lake City and portions of Millcreek, Holladay, Cottonwood Heights, Murray, Midvale, and South Salt Lake.



Regulatory Mandates: Our work is vital to public health, environment, economy, and quality of life. Our employees ensure the environment is protected, and that the public has access to clean, reliable, and affordable water resources. In fulfilling this important responsibility, SLCDPU is regulated by (1) federal and state agencies pursuant to the federal Safe Drinking Water Act and Clean Water Act, and the state's drinking water and water quality statutes and rules; (2) federal and state statutes regarding water resources, water quality, and flood control; and (3) local health department regulations concerning drinking water and wastewater. SLCDPU enforces numerous regulations concerning water, stormwater, and sewer, primarily contained in Chapter 17 of Salt Lake City's ordinances. SLCDPU is also responsible for regulating the Riparian Corridor Overlay Zone found in Chapter 21 of Salt Lake City's ordinances.

Infrastructure and Water Rights: SLCDPU owns, maintains, and operates a vast network of critical public infrastructure that include three drinking water treatment plants, dams, canals, a sewer treatment plant, thousands of miles of pipelines, and the City's public street lights. SLCDPU maintains a detailed capital improvement program and asset management plan. We are responsible to maintain and administer the Salt Lake City's water rights and water supply agreements reflecting more than 100,000 acre-feet of water resources of current and future supplies.

Budget and Finance: SLCDPU manages the four utilities as separate enterprise funds under one administrative management structure. Our team develops and implements fees, rates and rate structures that are approved annually by the Salt Lake City Council. Over the past few years, SLCDPU's total annual budget has been between \$200-\$300 million, with these budgets reflecting large capital infrastructure projects to meet priorities to address aging infrastructure and provide for growth throughout the City's service area.

Workforce: Our more than 430 employees include a diversity of disciplines, such as engineering, environmental science, finance, law, accounting, public policy, public engagement, safety, emergency management, and government administration; and trades such as electricians, welders, and treatment plant operators. Many of our employees maintain certifications pursuant to statutory and professional requirements.

Planning Strategies: SLCDPU is responsible for developing planning strategies and for updating its

plans due to several significant drivers, including population growth, land use changes (especially in the Northwest Quadrant), climate change, environmental regulations, and the desire to continue to innovate in our water management. The following current initiatives that are underway or recently completed:

- Forty-Year Water Supply and Demand Plan
- Water Conservation Plan
- Stormwater Master Plan
- Watershed Management Plan (for the Wasatch Mountain Head Waters)
- Integrated Watershed Management Plan (for the Jordan River Watershed)
- Rate and Fee Studies
- Wire to Water Efficiency Study and Renewable Energy Plan
- Climate Change Vulnerability and Adaptation Planning

Intergovernmental Coordination: SLCDPU maintains critical relationships among numerous government entities. We coordinate with numerous federal, state, and local governmental agencies, including elected and appointed officials and line staff. The following are examples of agencies in which SLCDPU regularly coordinates with:

- Federal – Environmental Protection Agency, U.S. Forest Service, Army Corps of Engineers
- State – Departments of Environmental Quality, Natural Resources, Transportation; various executive and legislative committees
- Local – Central Wasatch Commission, Metropolitan Water District of Salt Lake and Sandy, Jordan Valley Water Conservancy District, Salt Lake County, Millcreek City, Cottonwood Heights, Holladay, Town of Alta, Town of Brighton

SUSTAINABILITY

SLCDPU'S sustainability priorities are captured within three primary categories, including 1) Environment and Public Health; 2) Built Infrastructure; and 3) Justice, Equity, Diversity and Inclusion (JEDI).

Environment and Public Health—Natural Resources and Environmental Quality: Environmental health is the backbone of our ability to provide safe drinking water, protect the streams and lakes where stormwater and wastewater is discharged, and ensure current and future generations can continue to prosper. If we fail to protect the health of the natural environment, our ability to fulfill our mission is degraded,



and increases the risk that our residents cannot rely on clean water.

Key Priorities:

- Salt Lake City's water resources are used wisely and stewarded for current and future generations
- Drinking water, stormwater, and wastewater quality meets or exceeds standards and are protective of public health
- Protect and improve the integrity of the ecosystems in our watershed from the Wasatch headwaters to Great Salt Lake
- Reduce air and greenhouse gas emissions to protect public health and the environment
- Plan for and adapt to a changing climate
- Promote environmental quality through appropriate street lighting

Built Infrastructure: The condition and operation of Salt Lake City's built water, wastewater, stormwater, and street lighting infrastructure is key to the protection of public health and the environment. Our system of water infrastructure facilities (water, wastewater, and stormwater) must continue protect drinking water quality and water quality in our streams and lakes, prevent flooding, and provide for our community's economic vitality. Our infrastructure must also operate efficiently to reduce air and greenhouse gas emissions, and to continue to provide water services at affordable rates.

Our built infrastructure system needs to maintain resiliency to recover from disasters, emergencies, and adapt to a changing climate.

Key Priorities:

- Existing infrastructure is maintained and rehabilitated so that it can be relied upon now and in the future
- New infrastructure is resilient, sustainable, and protects public health and the environment
- Iterative planning and technology inform decisions
- Infrastructure supports our community's economic prosperity and vitality

Justice, Equity, Diversity, and Inclusion (JEDI):

We have a public mandate and moral responsibility to treat people with respect and include in our actions the wide range of diversity of the public we serve. Our work considers the needs of all residents.

Key Priorities:

- Access to clean and reliable water supplies for all residents
- Affordability and the fair distribution of costs in our water, wastewater, stormwater, and street lighting rates
- Equitable provision of water, wastewater, stormwater, and street lighting services for all residents
- Wise and efficient use of public funds
- Transparency and inclusivity in our decision-making
- Our organization and employees reflect the values of justice, equity, diversity, and inclusion
- We consider positive and negative impacts of our decisions on distant communities

CONNECTIONS TO GREAT SALT LAKE

Our community's health, safety, economy, and access to clean and reliable water is interdependent with Great Salt Lake. The mountain snowpack that serves as critical storage for our drinking water supplies is dependent upon the role of Great Salt Lake in our local hydrologic cycle. Salt Lake City's wastewater is treated to protect water quality in Great Salt Lake. Effective stormwater and flood management is dependent upon the buffering effects of the wetlands surrounding Great Salt Lake. Water use and conservation can affect the levels of Great Salt Lake. Great Salt Lake levels are decreasing, causing great concern about air quality, bird habitat, and economic impacts.

In my role with SLCDPU and Salt Lake City, I am working to provide leadership and strategic action to steward and protect Great Salt Lake. This encompasses an integrated and holistic approach that includes environmental stewardship from the headwaters of our Wasatch Mountains, to our local streams and Jordan River, to the ecosystems of Great Salt Lake. SLCDPU is one of many entities with a role in the management of water in this watershed. Therefore, accomplishing meaningful solutions requires significant coordination at all levels of government and non-government organizations, the private sector, and residents. Protecting our precious water resources and environment is the underpinning of a prosperous and healthy society now and in our future.

Laura Briefer
Director, Salt Lake Public Utilities



REFLECTIONS

I started my career with the Utah Division of Wildlife Resources in October of 1989 in the Salt Lake Office as a Wetland Acquisition Biologist. It was a perfect fit, because I love wetlands and waterfowl. Water always fascinated me and ducks, geese, and swans were my connection. As a child raised in Brigham City, I would ride my bike to the Bear River Migratory Bird Refuge to look for ducks. I was drawn to waterfowl for simple reasons: you can collect, analyze, cook and consume them. I didn't understand the value of Great Salt Lake at the time, but I knew I loved wetlands and waterfowl.

In 1989, Great Salt Lake was at an elevation of 4206.1 feet above mean sea level, the recorded high for that year. It had been slowly receding from a historic high of 4211.9 feet above mean sea level in 1987. At the time, my perspective of the Great Salt Lake flood event was negative. It had destroyed all the things I loved along the freshwater shoreline. Little did I know, but over 30 years I would grow to appreciate our wonderful Great Salt Lake for what it is.

After two years working as a Wetland Acquisition Biologist, I was selected to be the manager of Farmington Bay Waterfowl Management Area. Great Salt Lake was at an elevation of 4202.4 feet above mean sea level. It was time to rebuild and rebuild we did. I had a great complement of heavy equipment operators who worked tirelessly to complete the task. I also met a lot of good friends along the way—friends who had a different perspective of Great Salt Lake than I did. I wanted to learn more about their connection and what motivated them. Some I found were connected to birds and boating, others were driven by the science and history, while others were fascinated with the geology and arts. Any way you look at it, we all agreed on one simple point: Great Salt Lake is a valuable resource, and one that needs water to survive.

As I mentioned earlier, my focus was on freshwater marshes. I didn't really get to know Great Salt Lake until I explored it from an airboat. I was accustomed to hunting out of an airboat during the fall, but was never exposed to this resource during spring and summer. It was wonderful and teaming with life—a different life than I had grown to appreciate. Birds, birds, birds of all varieties; they were everywhere! It opened my eyes to a new world. I remember the first time I learned of “bioherms” or later described as stromatolites. It was on the west side of Gilbert Bay and we were collecting Goldeneye ducks for a research project. It reminded me of a scene from the movie “Cocoon”—large growing eggs that gave back life. It was amazing to glide over them in an airboat. Great Salt Lake was at an elevation of 4199.9 feet above mean sea level.

In 2005 I left Farmington Bay Waterfowl Management Area to pursue a position in upper management in the Northern Region Office. I was ready for a new challenge. I was also thinking about my family and their future. I never forgot about Great Salt Lake. In fact, I would check lake elevations often. Great Salt Lake was at an elevation of 4197.4 feet above mean sea level.

My next adventure sent me back to the Salt Lake Office as the Mammals Coordinator. As a wetland and bird guy now dealing with predators, I was kind of like a fish out of water. One of my greatest accomplishments in this position was developing, along with an advisory group, the first Beaver Management Plan for Utah. Soon after, I moved on to become the Waterfowl and Upland Game Coordinator, a role I was more familiar with. I spent four years in our main office from 2008 to 2011. Great Salt Lake was at an elevation of 4195.8 feet above mean sea level.

I finished out my career, a little over eight years until January 2020, as Regional Supervisor in the Northern Region Office. I served in that position for a little over eight years, during which I was able to fully reconnect with Great Salt Lake. During this period, the Great Salt Lake Ecosystem Program was moved to the Northern Region from our Salt Lake Office and we consolidated the shoreline waterfowl management areas; it made sense. The shoreline wetlands are an integral part of the lake's ecosystem, right? They should all be managed as one. It was a positive move and one that continues to direct attention to this valuable resource. Great Salt Lake was at an elevation of 4192.3 feet above mean sea level.

I have watched Great Salt Lake hit its historic high and I have seen it get close, very close, to its historic low. Over the course of my career Great Salt Lake receded almost 14 feet. I understand what caused the decline. We all need water to survive, but do we really need as much as we use? We need to start thinking about this challenge we all face. I believe water conservation, in-stream flows, and water banking are a great start. But we need to start thinking about this challenge we all face.

As I conclude this article (March 2020), Great Salt Lake is at an elevation of 4194.5 feet above mean sea level, a little over two-feet above the level two years ago. Is it on the rebound? I sure hope so, because our quality of life depends on it.

Justin Dolling
Retired Wildlife Biologist



PUZZLING AND BASSOONING IN THE BRINE

*Wonders timed I
O vast salt lasts
A void emits red now.*

I am originally from North Carolina and I moved from Miami Beach to Salt Lake City to join the Utah Symphony as Principal Bassoon in 2005. I also teach bassoon at the University of Utah and Westminster College. I've played the bassoon since I was

sionally be found playing the bassoon on its shores. Most recently, I recorded videos of myself on the south shoreline for the Utah Symphony's 80th Anniversary online gala celebration this spring.

While unable to perform in Abravanel Hall, I could not think of a more spectacular performance setting than Great Salt Lake with the outline of Antelope



Lori Wike, photograph courtesy of Lori Wike

11 years old and knew almost instantly that I wanted to play in an orchestra someday. My hobbies are constructing palindromes and puzzles of all sorts, and spending as much time as humanly possible at the Great Salt Lake. It is probably my favorite place on planet earth.

The Great Salt Lake never fails to amaze. I wrote the above palindrome poem during one of my first visits to the North Arm, while standing in a seemingly endless expanse of crunchy snow-like salt and gazing out in wonder at the reddish-pink waters.

When not constructing palindromes and puzzles by Great Salt Lake or kayaking in its waters, I can occa-

Island in the distance. The upcoming documentary The Palindromists includes footage of me playing solo Bach by Spiral Jetty and reciting palindromes with a backdrop of pink waves and salty foam.

Great Salt Lake is one of Utah's great treasures. It is a source of inspiration and wonder, and an invaluable ecological resource. Thank you, fellow FRIENDS of Great Salt Lake, for all that you do to protect it. Please enjoy a special message hidden in my latest Great Salt Lake-themed puzzle.

Lori Wike, Principal Bassoon Utah Symphony



GREAT SALT LAKE WORD SEARCH

GREAT SALT LAKE WORD SEARCH:

FIND THE ISLANDS, BAYS, FEATURES AND CREATURES BELOW,
THEN EXAMINE THE LEFTOVER LETTERS FOR A SPECIAL MESSAGE!

S O L T
 I G Q B U A Y
 B O U O C S B
 I O I N I A
 S S R K N L
 E R S R I I
 H G P N S N
 N C I D O L P H I N
 E O U T R O N K R A L
 A Y R B Y W A V O C E T
 I G S T A L F T L A S N C
 T L H S H E E P S J S R O F
 E R
 G H B N E E Y
 G C O I A T O
 T N B G K T E
 A N R U N E Y W A T E R F O W L
 S E I L F E N I R B W N A B D B
 A V N L E V O D R B S A R O F I A
 W I E G T R S T I L T W M E A S B
 L S Y R U B S N A T S I T A O A A
 L H P E S A G C N D N A L L N Y
 E R L B T K O N G T T T
 I O L O R M A T B X L E
 M V I N O E S O A O L
 P E G C R C N D F O D
 R K F I N G P E
 H T O E E
 A I C R A
 W L L K
 K O A E
 O F

SALINITY
 ANTELOPE
 STANSBURY
 GUNNISON
 FREMONT
 CARRINGTON
 DOLPHIN
 EGG
 CUB
 HAT
 BADGER
 STRONGS KNOB
 BRINE SHRIMP
 BRINE FLIES
 WETLANDS

SHOREBIRDS
 WATERFOWL
 BLACK ROCK
 BASALT
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TERN
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 PHALAROPE
 AVOCET
 DOVE
 IBIS
 EAGLE
 HAWK
 OWL
 STILT
 LARK
 PLOVER

WRITE THE SPECIAL MESSAGE BELOW:

* THE FIRST THREE PEOPLE TO SUBMIT A PHOTO OF THEIR COMPLETED WORD SEARCH,
INCLUDING THE SPECIAL MESSAGE, TO
SNOWYEGRET@FOGSL.ORG, WILL WIN A PRIZE!



WETLANDS & POLICY:

DYNAMIC NATURAL RESOURCES ENGAGEMENTS

Ducks Unlimited (DU) understands the continental conservation importance of Great Salt Lake. It is the “Bird Crossroads of the Intermountain West,” with its productive wetlands serving as a hub for migratory waterfowl, shorebirds, and waterbirds in both the Pacific and Central Flyways. Over 700,000 waterfowl utilize GSL’s managed wetlands. Experts estimate 3m to 5m waterfowl and 1.5m shorebirds pass through all GSL wetlands and the open lake each year. The lake has seen amazing studies claiming to more bird population superlatives “biggest,” “densest,” and “largest.” Yet, humans played a role in the loss of many

tainable water to the lake and its productive wetlands. The competing demands for water and its allocation in the arid west is the challenge before all of us. The pressures to the ecosystem integrity of GSL and the diminishing ability for its wetlands to sustain robust waterfowl and bird numbers are real and present: dams proposed in the Bear River Project to supply a growing human population, water claims on over-allocated GSL tributary rivers, threats to wildlife-friendly agriculture, impaired quality of wetland water supplies, deficiencies in fish and wildlife-related beneficial uses, and vast areas of dried lake bottom contributing to



Sunset in the Marsh, photograph courtesy of Gary Crandall

of the GSL wetlands; collaborative partnerships will help restore some wetlands and possibly attain more water for GSL. Ducks Unlimited intends to make that happen.

Ducks Unlimited is increasing our presence within the current collaborative policy effort regarding GSL. As many know, DU’s role in the conservation of GSL wetlands has varied. We now begin our next phase of the long-term challenge of “saving Great Salt Lake.” The focus is on GSL water supply—exploring the complicated paths and avenues that might bring sus-

diminished air quality through dust and windborne particulates, are just a few of the many issues developing in the GSL watershed.

In a recent Utah State University Magazine article on the GSL’s water availability, titled “What to Make of a Diminishing Lake,” a prescient point was driven home on the reader: “Untangling competing ideologies about natural resources for policy makers and water managers has been a long-time focus...Policy ultimately drives the decisions surrounding how much water eventually winds up in the lake.” To that



point, DU is certain that water policy, based on sound science and collaborative partnerships (especially with private landowners since 70 percent of emergent wetlands are on private lands) is paramount to provide sustainable water for wetlands in and around GSL and the state of Utah. The privately-owned habitats are typically associated with irrigated agriculture on working ranches and farms in landscapes important to wildlife, native fish, and people.

Ducks Unlimited is increasing our presence within the current collaborative policy effort regarding GSL. We believe this effort should engage (on legislation and regulations) with the Governor, the Legislature, and the Administrative departments with water oversight. To that end, DU sought philanthropic donations to fund a Water Outreach Specialist to engage with like-minded stakeholders helping to work toward a common goal: sustainable water for GSL, its wetlands, and landowners around the lake who recognize and appreciate bird habitat.

As the world's leader in wetlands conservation and restoration, DU is well attuned to the effectiveness of collaborative conservation. With that in mind, we sought out a like-minded individual to provide DU's voice in the Beehive State. In October, DU collaborated with a candidate to be DU's water policy voice in Utah: Casey Snider.

Mr. Snider, of Paradise, is a farmer, a conservationist, a family man, a volunteer firefighter, and a legislator. Snider double-majored in Conservation & Restoration Ecology and Law & Constitutional Studies. He has a Master's in Environmental Science & Policy, and is working toward a Ph.D. in Forestry. Snider's experience at the U.S. Capitol working for a Member of Congress, his current role as a state legislator, his role as a collaborator with the Intermountain West Joint Venture, and his commitment to DU's mission make him the ideal candidate for this role, while positioning him to be a productive voice in designing and executing a campaign to deliver DU's Intermountain West water policy priorities. In addition, Snider bleeds DU green.

Finding and creating solutions that will sustain GSL is a long-term effort and the focus of DU's and Snider's work. Working with multiple stakeholders, DU will:

- Pursue solutions to allow for practical and flexible permanent instream flow water rights for wildlife beneficial uses;
- Explore and develop water banking to improve in stream flows to GSL;



Casey Snider, Ducks Unlimited's Water Outreach Specialist, photograph courtesy of Bella Alder Photography

- Work to preserve agricultural land water rights;
- Work to preserve privately owned wetlands and other landowner water rights;
- Engage atypical partners, such as air quality advocates, mineral extraction companies, and the winter recreation industry as allies to support healthy water supplies and lake levels;
- Work to find win-win solutions amongst diverse and at times competing interests in and around GSL;
- Advance public educational opportunities about the value of a healthy GSL to society.

Ducks Unlimited looks forward to this new chapter in our collaborative efforts to conserve the wetland, waterfowl, and wildlife values of GSL. It will take all of us—both the practitioners and the advocates—to continue working together for a brighter tomorrow.

Gary Link is the Director of Public Policy, and Jeff McCreary the Director of Conservation Programs, both for Ducks Unlimited's western region.



A SEASON DISCOVERING GREAT SALT LAKE

“When the north wind blows bathing in Salt Lake is a glorious baptism, for then it is all wildly awake with waves, blooming like a prairie in snowy crystal foam. Plunging confidently into the midst of the grand uproar you are hugged and welcomed and swim without effort, rocking and whirling up and down and round in delightful rhythm while the wind sings in chorus and the cool, fragrant brine searches every fibre of your body, and at the end of your excursion you are tossed ashore with a glad God-speed, braced and salted and clean as a saint.”—John Muir June 27, 1877*

In April after a month without swimming I was feeling desperate for an outdoor adventure and some exercise. So, on a whim I decided to head out to Great Salt Lake State Park and Marina to attempt to swim in the cool 52 degree salty lake. Although I have lived here 30+ years, I have spent very little time in, on or near the lake, and had no idea what I was missing. The mountains and desert of Utah have captured my attention while Great Salt Lake rarely even registered except for perhaps an occasional glance at a beautiful sunset far away in the distance. What started as a pandemic whim, has turned into an obsession: most weekdays you can find me walking down the marina boat ramp and diving into the salty lake.

My “Hundred Acre Wood”

My perspective and experience swimming this spring and summer has been transformative. Each morning when I enter the Great Salt Lake State Park I leave behind one world for a new one. I feel like Christopher Robin when he travels through a magic portal to the Hundred Acre Wood, an amazing world filled with new friends, discoveries and realizations about life. How is it that I could have missed it for the first 30 years I have lived in this beautiful state? The world I enter has magical sunrises and an incredible, underappreciated ecosystem.

I usually arrive when it's still dark—I'm a little groggy and still sipping my warm coffee. With the morning chill in the air, I might exchange a few words with my swim partners and capture a quick photo of the morning sky before I put on my cap and goggles, and make initial observations about the conditions as I look at the flagpole and walk down the boat ramp. I quickly enter the water where the coldness shocks me awake into a sense of heightened awareness. After the initial shock, I am enveloped by water. I slowly acclimatize to the cool water and shockingly strong salinity as I begin my stroke and settle into a rhythm. After exiting the marina, I swim to the first

red buoy and pause to effortlessly float and take in the exquisite sunrise and morning light. A few inches above lake level, my eyes fight the glare of the rising sun as I sight on the deep buoy line to the east toward Saltair. As I turn the corner to head out the channel towards Antelope Island, I start to realize the vastness of this Great Salt Lake and the surrounding mountain landscape. With few boats, no recreational fishing, and limited mass appeal, the lake becomes a place of great solitude. On some early mornings it is amazing to think that my swimming partner(s) and I might be the only humans out



Date/swim number: July 6th / GSL Swim #54 Swim Log note: “GSL #54 Wow, what a five star morning on the lake. I could have swam forever.” —Seth Horowitz

in this massive body of water. Gone are the popular lakeside resorts of Saltair and Blackrock Beach of the last century. In contrast, the reservoirs in the nearby mountains often feel like Disneyland and are being loved to death by recreationalists hoping to escape reality on these relative pea-sized man-made bodies of water.

The lake itself seems to have emotions and moods; one day it is calm and so glassy you could seemingly cut it with a diamond, while the next day a wind from the north may create angry seas with winds and waves and currents as large as a stormy ocean. I have observed a unique characteristic that I can only describe as heavy and dense water. This “density” combined with the Lake’s size and shallow depth contribute



to unique wave energy quite different from those I have experienced swimming in other bodies of water. The duration, direction, and speed of the wind all contribute to these GSL “moods.”

As my body churns along the surface of the lake, I casually observe the vibrancy of the ecosystem through the lens of my goggles. I have observed the cycles of the brine shrimp—unobserved clear waters one week followed by slicks of orange eggs the next week. Shortly after, the great number of tiny sea creatures obscure the water clarity and view of the lake bed. During the peak of summer, incomprehensible numbers of brine flies feed off the nutrient rich algae and can form clouds



the Salty Lake. Will Reeves captured a swim sequence of yours truly, gliding through the water...

so thick it is hard for the swimmer to avoid inhaling them. Although a great annoyance to us swimmers, it is clear these brine flies provide an endless source of food to the many birds which delight in the morning light and breeze. As we swim further out in the lake mirage-like flocks of seagulls appear bobbing on the water or playfully flying above the lake's surface. Between April and September, I have observed a rather dramatic drop in the water level. As the lake level drops, a favorite offshore swim route that deviates off the deep water boat channel became unswimmable when my stroke was impeded by the shallow reef. I have observed so many things in the 70+ days I have immersed myself in the lake this year. Each and every one of those observations have been a gift.

As I enter into a meditative state during my swims, my mind wanders across thoughts from mundane to profound. My mind escapes reality, but also finds great clarity and creative inspiration as I glide through this vast salty lake. In this meditative state, I came to realize that connecting with Great Salt Lake in such an intimate and whole way is implicitly tied to my earlier experiences when I was coming of age in upstate New York.

While churning through the Lake, especially when the water is cold and when the waves are big, my mind often wanders to memories of my dad jumping into streams, river lakes, and the ocean no matter how cold or rough. While swimming, my mind also wanders to my teenage years when I spent time volunteering with a sloop club that took people out sailing on another underappreciated body of water, the Hudson River. Much like the Great Salt Lake, the Hudson River of my youth in the 70's and 80's was underappreciated and suffered from major human caused ecological duress. Like the GSL, people generally did not swim in the Hudson River. Although a beautiful, natural, and wild estuary, it suffered from a lack of stewardship much like Great Salt Lake.

In 1966, folk music legend and environmental activist Pete Seeger, in despair over the pollution of his beloved Hudson River, announced plans to “build a boat to save the river.” He believed that if you bring people to the river where they could experience its beauty, they would be moved to preserve it. His vision led to the creation of the Clearwater Organization and several grassroots Sloop Clubs which did just that. These childhood experiences clearly were the seeds that germinated in my psyche and eventually led me to my connection with FRIENDS of Great Salt Lake 30+ years late.

When I tell locals that I swim daily in Great Salt Lake the reaction is consistently one of surprise. They can't believe anyone would choose to spend time at the lake and certainly not swim in it. Doesn't it smell? How

can you stand the bugs? Doesn't the salt water burn your throat and skin? It is true that the lake can be a harsh environment; however, I have learned that it is also an incredibly calming and beautiful place. A place with an important and fragile ecosystem vibrant with life.

Seth Horowitz

*John Muir Quote Reference: as recorded in the Salt Lake Herald newspaper of June 27, 1877.

Here is the link to full article on the history of swimming in the GSL: www.deseret.com/2017/7/11/20615570/the-first-pioneers-swim-in-the-great-salt-lake-s-briny-waters





FRIENDS of Great Salt Lake

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Submit articles and
images for consideration
to Lynn de Freitas at
ldefreitas@xmission.com
or call 801-583-5593

LAKE FACT:
Q: How many state-owned
Waterfowl Management Areas
surround Great Salt Lake?

6 :V

THANKS FOR MAKING A DIFFERENCE

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Save the Dates:

2021 Doyle W. Stephens Scholarship Applications will Open January 15-March 15
2021 Alfred Lambourne Arts Program Submissions will Open March 1-May 15



MAKING A DIFFERENCE

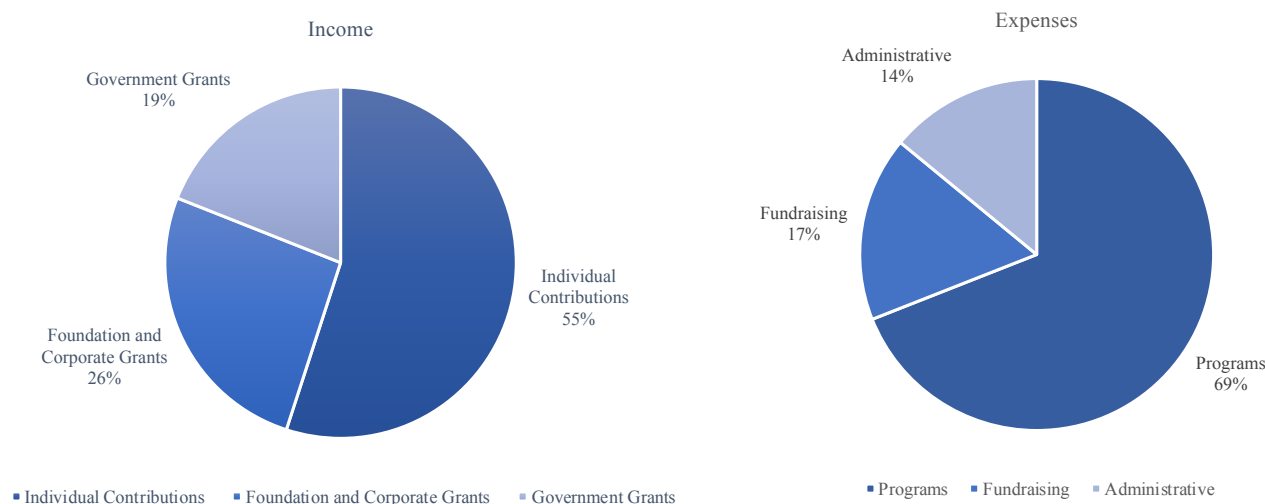
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Our Funding

As a 501(c)(3) nonprofit, FRIENDS of Great Salt Lake relies upon the generosity of our members, individual donations, foundations, and grants. Individual memberships and donations provide the bulk of our funding at approximately 55% of our annual revenue. Foundation donations and corporate grants generate 26%, and government grants generate 19%.

With an annual operating budget of under \$300,000, FRIENDS of Great Salt Lake spends a majority of funds on Programming (69%), including our Education Programs, The Doyle Stephens Research Program, Advocacy Programs, and the Alfred Lambourne Arts Program. We have a goal to increase this percentage to 80% during the 2020-2021 fiscal year. Fundraising costs average 17%, and administrative expenses 14%.

FRIENDS of Great Salt Lake is a member of Utah Nonprofits Association (UNA). We operate with a Donor Bill of Rights, a Conflict of Interest Policy, a Gift Acceptance Policy, and adhere to UNA's Standards of Ethics. Access to our IRS form 990 is on our website.



2020 Fall Fundraiser: The Great Eared Grebe Regatta



We are proud to announce the winners of the first Great Eared Grebe Regatta: 1st Place: Scott Dwire, 2nd Place: Cameron Simonsen, 3rd Place: Bryan Dixon, Boobie Prize: Seth Horowitz. Thank you to our generous sponsors and to everyone who participated in this year's altered yet adequately briny Fall Fundraiser. It was an absolute blast and FRIENDS of Great Salt Lake raised a commensurate amount of donations, which will fund our 2021 programs. We couldn't do it without your generosity!





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Canoeing at a safe distance around Egg Island during avian breeding season is awe inspiring and primal. Egg Island is off the west coast of Antelope Island. When lake levels are below 4,192 ft., a land bridge forms between Egg and Antelope Islands, giving coyotes and other predators access to the nests on Egg that are filled with chicks and eggs. Climate change and the proposed damming of Bear River could one day cause the Great Blue Herons and California Gulls to completely abandon this productive rookery. I trust my image helps one feel the fecundity of bird life there. Then imagine its demise....

Egg Island Rookery, photograph by Rosalie Winard, submitted for the 2020 Alfred Lambourne Prize