

Great Salt Lake Advisory Council

5th Annual Report to the Utah State Legislature
Natural Resources Appropriations Subcommittee
February 2015



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“The Great Salt Lake Advisory Council is playing a vital role in helping to balance the many important uses of the Great Salt Lake. Now is the time to ensure this valuable natural treasure is protected for future generations.”

— Governor Gary Herbert



Great Salt Lake Advisory Council

BACKGROUND

The Great Salt Lake Advisory Council (“Council”) was established by House Bill 343 in the 2010 session of the Utah State Legislature. Council members were appointed by Governor Herbert, with consent of the Utah Senate, in June 2010. Governor Herbert kicked off the initial Council meeting on June 30, 2010.



The Great Salt Lake supports mineral industries which extract salts and metals from heavy brine in evaporation ponds. Overall, the Great Salt Lake contributes \$1.3 billion annually to Utah’s economy. © Morton Salt Corporation

Duties of the Great Salt Lake Advisory Council

Legislation creating the Great Salt Lake Advisory Council identifies five specific “duties” of the Council:

1) ADVISE the governor, the Department of Natural Resources (“DNR”), and the Department of Environmental Quality (“DEQ”) *“on the sustainable use, protection, and development of the Great Salt Lake” (“GSL”) “in terms of balancing: (i) sustainable use; (ii) environmental health; and (iii) reasonable access for existing and future development.”*

2) ASSIST the Division of Forestry, Fire and State Lands (“FFSL”) in its statutory responsibilities for the Great Salt Lake (i.e. to prepare and implement a comprehensive management plan, initiate and publish studies of the lake, coordinate activities of DNR divisions with respect to the lake).

3) RECOMMEND appointments to the GSL technical team and utilize technical support from that team.

4) ASSIST DNR and DEQ and their boards in their responsibilities for the Great Salt Lake.

5) REPORT *“annually”* to the Natural Resources Appropriations Subcommittee *“on the council’s activities.”*

2014 Tasks and Activities of the Great Salt Lake Advisory Council

During 2014, the Great Salt Lake Advisory Council addressed all five of its primary work plan tasks and objectives, as follows:

1) ADVISE — The Great Salt Lake Advisory Council briefed and advised the Executive branch, including meetings with representatives of the Governor’s Office, Agency Directors, and Department and Agency managers.

2) ASSIST — The Council met frequently with officials of the Utah Division of Forestry, Fire and State Lands to assist in and provide support for the Division’s statutory responsibilities and priorities.

3) RECOMMEND — The Council shared its recommendations regarding development of an Integrated Water Resource Management model, conditions for modification of the Union Pacific Railroad causeway, staffing for the Council, the GSL technical team’s research funding, and other priorities.

4) ASSIST — The Council worked with both the Utah Department of Natural Resources and the Utah Division of Water Quality on Great Salt Lake issues ranging from non-native invasive plants to bi-directional flow, from water quality to water management, and on numerous other issues.

5) REPORT — The Council prepared and presented its 4th Annual Report to the Utah State Legislature Natural Resources, Agriculture, and Environmental Quality Appropriations Subcommittee.

The Council further fulfilled its statutory responsibilities to advise, assist, recommend and report by holding five (5) formal meetings in 2014, with briefings, updates, reports, discussions and counsel on topics including water resource modeling, invasive species, water quality standards for Great Salt Lake, cyanobacteria, lake salinity issues, causeway bi-directional flow, Great Salt Lake research, and other GSL-related topics. The major 2014 Council activities are summarized, below.

Great Salt Lake Salinity: Railroad Causeway Modification

In January 2014 the Great Salt Lake Advisory Council (“Council”) established a subcommittee to address the Council’s concern about salt migration from Gilbert Bay (“south arm”) to Gunnison Bay (“north arm”) of Great Salt Lake (“GSL”), which migration has resulted in a significant imbalance of salinity.

During our March meeting, the Council adopted an objective of “no further net migration of salt from the south arm to the north arm of Great Salt Lake.” The pending Union Pacific Railroad (“UPR”) bridge project presents a rare opportunity to work towards our objective.

During our June meeting, the Council recommended support for the Union Pacific Railroad bridge project, provided: the bridge is designed and built with invert elevation of no higher than 4183 feet; the bridge is designed and built to accommodate adaptive management (i.e. control bidirectional flows through addition or removal of fill material); and the bridge is designed and built as soon as possible (hopefully to be completed no later than fall 2015).

Research Priority: Integrated Water Resources Management Model

Understanding changes in future water supply and its relationship to Great Salt Lake (“GSL”) level is central to sustainable economic benefits from the lake and is important to sustain critical habitat and a healthy ecosystem. A model is necessary to characterize the relationship between the flow of water and salt to the lake and economic and ecological viability. It would also provide a decision support tool for the state’s lake managers.

The Council recommended development of an Integrated Water Resource Management (“IWRM”) model for GSL. The Council’s recommendation was summarized in a paper that provided an overview of the topic, reviewed research



The Lake’s brine shrimp industry harvests shrimp eggs or cysts which are used in aquaculture operations worldwide. © Don Leonard



The Council has been working with Union Pacific Railroad to ensure a new causeway bridge optimizes lake flows between the north and south arm. ©Don Leonard

objectives, recommended IWRM as a priority, identified possible research partners, and estimated the cost and timeframe to develop such a model.

In 2014 the Council helped develop specific objectives for the project. It is anticipated that the effort will include: hydrology (to show how upstream and in-lake uses impact lake elevation and hydrology, including flows from tributaries, precipitation and ground water); minerology (to model how extraction operations affect the lake’s elevation and mineral concentration and show impacts to mineral storage of in-lake brine and lake-bed evaporation); and output (provide predictive information on what the lake elevation and salinity would look like with future land use and water development demand).

The proposed IWRM was included in the Governor’s proposed budget and funding at a level of \$400,000 was approved by the Utah State Legislature. The contract for IWRM should be awarded in February 2015. It is expected to be a two-phase, two-year project with the initial phase for information gathering and the second phase to create the model.

New Priority: Impacts of Bear River Diversions

The Council was briefed on proposals to divert water from the Bear River, thereby reducing the volume of water that flows to Great Salt Lake. The Bear River Development Project is in response to the 1991 Bear River Development Act that directed the development of the surface waters of the Bear River. The objective is to deliver 220,000 acre feet of water to Utah’s growing population. The project includes multiple diversions, reservoirs, pumps and pipelines. Design and construction would begin in 2024 with water delivery by 2033. Projected cost of the four-phase project is \$1.5 billion.

The Council will continue its deliberations concerning the proposed Bear River diversions. The Council will discuss necessary additional studies and research, impacts on downstream users and interests, and the ultimate impact on Great Salt Lake elevation, ecology and commercial activities. It is expected this will be an important new priority for consideration by the Council in 2015 and beyond.

Great Salt Lake Advisory Council Summary of 2014 Council Meetings



The Nature Conservancy offers youth programs on wetlands ecology at its 4,400 acre Great Salt Lake Shorelands Preserve. ©Stuart Ruckman

January 8, 2014 — Department of Natural Resources

- Report on Eagle Mortalities by U.S. Fish and Wildlife Service
- Briefing on Union Pacific Railroad (“UPR”) Anticipated Modifications to the Great Salt Lake Causeway by Railroad representatives.
- Discussion of UPR Section 404 Permit by U.S. Army Corps of Engineers
- Presentation on UPR Section 401 Water Quality Certification by Utah Division of Water Quality
- Update on Proposals for Phragmites and for IWRM by Utah Division of Forestry, Fire and State Lands
- Approve Great Salt Lake Advisory Council 2013 Annual Report

March 20, 2014 — Davis County Administration Building

- Presentation on Water Resource Modeling of Farmington Bay by University of Utah
- Briefing on Maximizing GSL Partnerships by Certified Public Managers Project Team Leaders
- Report of Subcommittee on the Railroad Causeway and Salinity Migration by Council Subcommittee
- Status and Next Steps on Building Blocks for IWRM and Phragmites by Utah Division of Forestry, Fire and State Lands
- Great Salt Lake Issues Forum by Friends of Great Salt Lake

June 4, 2014 — Davis County Administration Building

- Recommendation on GSL Causeway Modification by Council Subcommittee
- Farmington Bay Cyanobacteria Report by Council Chair
- Discussion of Council Objectives for IWRM by Council members

August 6, 2014 — Davis County Administration Building

- Presentation of Modeled Changes in Great Salt Lake Salinity from Railroad Causeway Alteration by Utah State University
- Update on IWRM by Utah Division of Forestry, Fire and State Lands (“FFSL”)
- Prioritization of Council Priorities by Members
- Report on Council Staffing Initiative by FFSL

October 10, 2014 — Antelope Island State Park Visitor Center

- Briefing on Bear River Development Project by Utah Division of Water Resources
- Review of Procurement for IWRM by FFSL
- Report on Cyanobacteria in Utah Lake by Utah Division of Water Quality

Great Salt Lake Advisory Council

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Migrating Bird Protection Area
Jeff Richards

Extractive Industry
Todd Bingham

Aquaculture
Don Leonard

Publicly Owned Treatment Works
Leland Myers

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