



Protecting Farmington Bay

North Davis Sewer District (NDSD) in Utah rerouted its discharge from nutrient-saturated Farmington Bay to hypersaline, nutrient-limited Gilbert Bay by constructing a new pipeline north of the Davis County Causeway. This strategic relocation significantly reduces nutrient loading in Farmington Bay and places the effluent in a part of the Great Salt Lake (GSL) better able to assimilate it, lowering the risk of ecological impairment.

The project helps support the overall health and resilience of the GSL. Rapid urban development in Utah has contributed to declining lake levels, exposing dry lakebed sediments that can generate toxic dust containing potentially harmful metals and increasing salinity to levels that threaten food webs, migratory birds, and local industries. By maintaining discharge to the lake and strategically managing nutrient loads, NDSD's project advances both water quality protection and long-term ecological resilience in the GSL.



SYRACUSE, UTAH, USA



WASTEWATER



CHALLENGES FACED

North Davis Sewer District faced uncertainty around future nutrient limits and wanted a long-term solution that would avoid costly, short-sighted upgrades. North Davis Sewer District partnered with Utah Division of Water Quality to develop collaborative, innovative and practical solution to meet evolving regulatory requirements and maximize the benefits and value to both GSL and the public while protecting the biological and chemical integrity of downstream waters.

TECHNOLOGIES & SOLUTIONS USED

- Installed a 6.2-mile high-density polyethylene pipeline and stainless steel rebar to withstand hypersaline conditions and reduce maintenance needs.
- Built a 34-MGD pump station equipped with modern monitoring tools, including flow meters, automated controls, and real-time sensors, to optimize system performance.
- Incorporated energy-efficient motors and variable-frequency drives to cut electricity use and lower operating costs.

IMPACT & INSIGHTS



- Avoided hundreds of millions of dollars in new treatment costs and prevented rate increases by choosing a lower-cost, regulatory-stable strategy that reused existing infrastructure instead of building new capacity.
- Sustained a US \$57 million brine shrimp industry by maintaining nitrogen-rich flows to nitrogen-limited, hypersaline Gilbert Bay.
- Improved ecological resilience by redirecting nutrients away from saturated Farmington Bay and toward nutrient-limited Gilbert Bay, while also sending more water to the Great Salt Lake—helping reduce dust, protect air quality and drinking water, and supporting migratory bird habitat.

LESSONS LEARNED



- Invest in whole-system analysis: Evaluating financial, regulatory, and ecological dynamics at the basin scale revealed a lower cost, showing the importance of comprehensive upfront planning.
- Maximize value through strategic reuse: Leveraging existing infrastructure rather than building new treatment capacity demonstrated that retrofits and rerouting can reduce costs and extend asset life.
- Prioritize public communication as a core project component: Partnering with a public relations firm can help translate complex projects into public-facing stories, which can serve as an ongoing lesson for the entire wastewater sector.

“This project was a win-win for ratepayers, environmentalists, and industry, because it aligned financial, ecological, and operational benefits rather than forcing trade-offs.”