Utah Lake sits stretched across the Utah Valley floor with the Wasatch Mountains and impressive Mount Timpanogos on one side and the Lake Mountains on the other. It's one of the largest freshwater lakes west of the Mississippi, and spans 24 miles long and 12 miles across.

The lake is one of Utah's largest natural resources and is a major feature of Utah Valley. This impressive lake provides an invaluable ecosystem to the birds, fish and other wildlife and plant species that call it home and to the 35 million migratory birds that take advantage of it every year.

Since people first arrived on its shores, they have enjoyed the bounty Utah Lake has offered. It was a treasured source of food for the area's early residents. For generations, the lake offered a place to swim, fish, boat and soak up the Utah sun. The lake has literally fostered growth in our state and is still a valuable component of our water supply system.
DECADES OF DECLINE

Utah Lake faces frequent and harmful algal blooms, nutrient loaded sediments, and fluctuating levels. It is also filled with invasive plant and animal species that have taken over the lake and altered how it functions, such as Phragmites and carp.

Many native species that were once found at the lake have disappeared or are struggling, such as the June sucker that is found nowhere else in the world. The June sucker was put on the endangered species list in 1986 and, thanks to the recovery efforts of a group of dedicated entities, was recently downlisted.

Although many projects have been undertaken to address the many issues the lake faces and improve individual components of the lake’s ecosystem, Utah Lake is still struggling.
Utah Lake has the potential to become something amazing. The Utah Lake Restoration Project is a comprehensive plan to turn back the clock on 150 years of ecosystem degradation. The top priority of the Utah Lake Restoration Project is to restore and enhance the lake’s ecosystem.

We see the lake as a wonderful natural resource, with incredible ecological potential. Improving the health of the lake requires a multi-faceted, holistic approach. The major parts of which are dredging and containment, wildlife habitat restoration, and water quality improvement and conservation.
RESTORED AND ENHANCED ECOSYSTEM
An interconnected network of issues needs to be addressed if Utah Lake is going to recover and return to a cleaner lake. The project’s comprehensive solution will restore Utah Lake to where it is again clean and healthy and a benefit to the entire ecosystem, including the people who live around and recreate on the lake.

REDUCED WATER LOSS
The project will save billions gallons of water by reducing the lake’s surface area and removing water hungry invasive plants (Phragmites). In the second driest and fastest growing state in the US the importance of these kinds of water savings are critical and can help with future growth.

INCREASE WATER STORAGE
Dredging will allow the lakebed to be reshaped to increase water storage capacity. The project will increase the total water-holding capacity of the lake which will give water managers more flexibility in how water is used in the overall system. This can also help reduce demand on upstream reservoirs.

RESTORED WATER QUALITY
Removing nutrient loaded sediment, removing invasive species, reestablishing aquatic vegetation that filter water, reducing wave forces on the lakebed, funding upgrades to wastewater treatment facilities are just some of the many aspects of the project that will improve the lake’s water quality.

REDUCED ALGAL BLOOMS
Dredging to remove and encapsulate nutrient loaded sediment will reduce nutrients in the lake that feed algal blooms. Upgraded wastewater treatment facilities around the lake will reduce future nutrients entering the lake. Restored vegetation will increase the lake’s filtration capacity.

REDUCED WIND AND WAVE ENERGY
The size, shape, and placement of islands have been designed to reduce wave energy impact across the lakebed. Modeling indicates the wave height to water depth ratio is substantially lower with implementation of the project, due to deeper water combined with the sheltering effect of the islands. This will allow aquatic vegetation to grow and reduce sediment resuspension.
INCREASED ACCESS FOR RECREATION

Much of the land created will be for public benefit including lake access, parks, trails, wildlife sanctuaries, beaches and open space. This will provide amazing quality of life, excellent recreational opportunities, and significant habitat for waterfowl and wildlife. Improved water quality will make Utah Lake a safer place to enjoy.

REESTABLISHED HEALTHY FISHERY

An important objective of the project is recovery of the June sucker and a compatible, healthy fishery in Utah Lake. This requires removal of non-native fish species and augmentation of desirable species in coordination with federal and state wildlife experts. Restored and enhanced habitat for aquatic species is also needed.

INVASIVE SPECIES REMOVAL/CONTROL

Extensive Phragmites removal and reduction of the invasive carp population are cornerstones of the project’s efforts to restore and protect native plants and wildlife in and around the lake and improve water quality and reduce evaporation. The project has already set aside funding for some of these efforts.

RESTORED AND ENHANCED HABITAT

Islands will create nearly 200 miles of new shoreline and littoral zone areas. There will be thousands of acres of new habitat for avian and aquatic species across all three island types. Improvements to water quality will promote healthy and abundant wildlife. Estuary islands are specifically designated for wildlife habitat.

ENSURE ECO-FRIENDLY GROWTH

A healthy Utah Lake depends on a balance between human activity and the natural environment. It is imperative future growth occurs without negative impacts to Utah Lake. When done responsibly and with conservation at its core, development can even be a tool to fix many of the lake’s issues.

FISCALLY RESPONSIBLE

A project of this magnitude will cost billions of dollars. One of the project’s significant benefits is that it doesn’t require a taxpayer burden. The limited development on the islands serves as the funding mechanism for the project. The financial burden on state and local agencies and ultimately the taxpayer is reduced, while still providing a significant benefit to the public trust.
HYDRAULIC DREDGING

1. The “ladder” is lowered into position and the cutter head begins to turn and loosen material

2. Material is pumped to its discharge location

3. The ladder moves in an arc along the planned path until desired depth is achieved

WHY DREDGE?

The primary purpose of dredging is to remove nutrient-polluted sediments that feed toxic algal blooms. Dredging will also deepen the lake, reducing disturbance of the lakebed by wind-driven waves, and facilitating re-establishment of submerged aquatic vegetation.

Dredged material will be beneficially used in containment areas that appear as islands strategically shaped and located to improve circulation, and control wave action on the lake. The dredged material will be sequestered in a way that will prevent the nutrients from reentering the lake. These islands will also expand fish and wildlife habitat, protect shorelines, and reduce evaporation.

HOW IS THIS RESTORATION?

The term restoration is used in reference to the overall health of the lake’s ecosystem. We want to see a clean lake in which native species thrive. Our ultimate goal is to leave the lake much better than it is now.

We seek to fix the damage that has been done to the lake, and that requires a comprehensive solution that addresses each unique challenge. The Utah Lake Restoration Project will restore and improve water quality, a healthy fishery, and native vegetation in and around the lake. The project will also restore confidence in Utah Lake as a safe and enjoyable place to visit, live, and recreate.
WHY ISLANDS?

Constructing islands is integral to the restoration of Utah Lake. Nutrient loaded sediment has to be removed and contained somewhere. Islands, or containment areas, located in the lake were determined to be the most ecologically friendly way to store and sequester the dredged material. In addition, they provide some other key elements for the project.

Islands reduce the lake’s surface area. On a lake as big as Utah Lake even a 20% reduction of surface area results in significant water conservation with billions of gallons saved from reduced evaporation. It also allows the storage capacity of the lake to be increased which will improve the overall system.

The containment areas (Islands) will also be used beneficially and will provide thousands of acres of additional habitat for waterfowl and other birds and terrestrial wildlife. The shorelines create a suitable environment for native vegetation to grow, which will also help secure the lakebed and provide habitat for fish. Islands are also the funding mechanism for the project.

There are many techniques for creating islands. Geotextile tubes are one technique the project is considering. Final island design will be based on detailed engineering data to provide a suitable, sound foundation for the island’s intended use. The renderings above are simplified to illustrate the concept of island creation and do not represent final engineered design.
THREE TYPES OF ISLANDS

ESTUARY/WILDLIFE
Estuary, or wildlife, islands are designed to act as a barrier to wind/wave events and provide protection of the inner shoreline of Utah Lake from annual spring ice floes. They also allow for the restoration of submerged aquatic vegetation in littoral zones positioned between the estuary islands and lake shoreline. Estuary islands provide prime avian and aquatic habitat.

RECREATION
Recreation islands are open to the public and are designed to provide a more diverse lake experience and additional habitat for wildlife. Island design provides protected bays and coves allowing boaters to enjoy the lake for longer periods of time throughout the day. In total, there will be several thousand acres of recreational space to enjoy on Utah Lake’s islands.

COMMUNITY
Community islands are designed for living, working, and recreating in harmony with the surrounding watershed to ensure a clean and healthy Utah Lake. Housing, commercial, and entertainment centers are focused on environmentally-conscious, community-centered engineering and construction solutions. They also serve as the project’s funding mechanism.
This is the current proposed island configuration for the Utah Lake Restoration Project. You may notice it is different than what was first proposed. We have listened to feedback from experts and have completed extensive water circulation modeling and adapted the island configuration for the best environmental outcome.

In this case, the primary reasons for the reconfiguration are to maintain or improve lake circulation, allow for necessary aquatic life movement, and avoid sensitive habitat areas (e.g., Provo Bay, Goshen Bay, and littoral zones around the lake). As the project continues we will continue to apply science-driven solutions because we want to ensure the end result is a fully restored Utah Lake.

LET'S WORK TOGETHER TO SAVE UTAH LAKE.