



GREAT SALT LAKE MARINA

Dredging Project and Current Issues

THE MARINA HAS BEEN AROUND A LONG TIME

- Records show the marina was around as early as the 1920's
- Through much of the 20th century a mix of motorboats and sailboats called the marina home
- The wooden structure in the background is the United States Coast Guard Station at the County Boat Harbor (Great Salt Lake Marina)



BOATING RECREATION EXPLODED IN THE LATE 1960'S

- With manufacturers switching to fiberglass construction boating recreation became much more affordable.
- Much of the powered boating moved from the Great Salt Lake to many of the mountain reservoirs and parks.



GREAT SALT LAKE A SAILING MECCA

- This led to Great Salt Lake being known as a sailing mecca
- The Marina is home of the Great Salt Lake Yacht Club – the oldest yacht club west of the Mississippi. Its founding in 1877 predates statehood.



GREAT SALT LAKE STATE PARK

- The State of Utah took over the marina in 1979
- In 1980 the State began rebuilding the modern marina



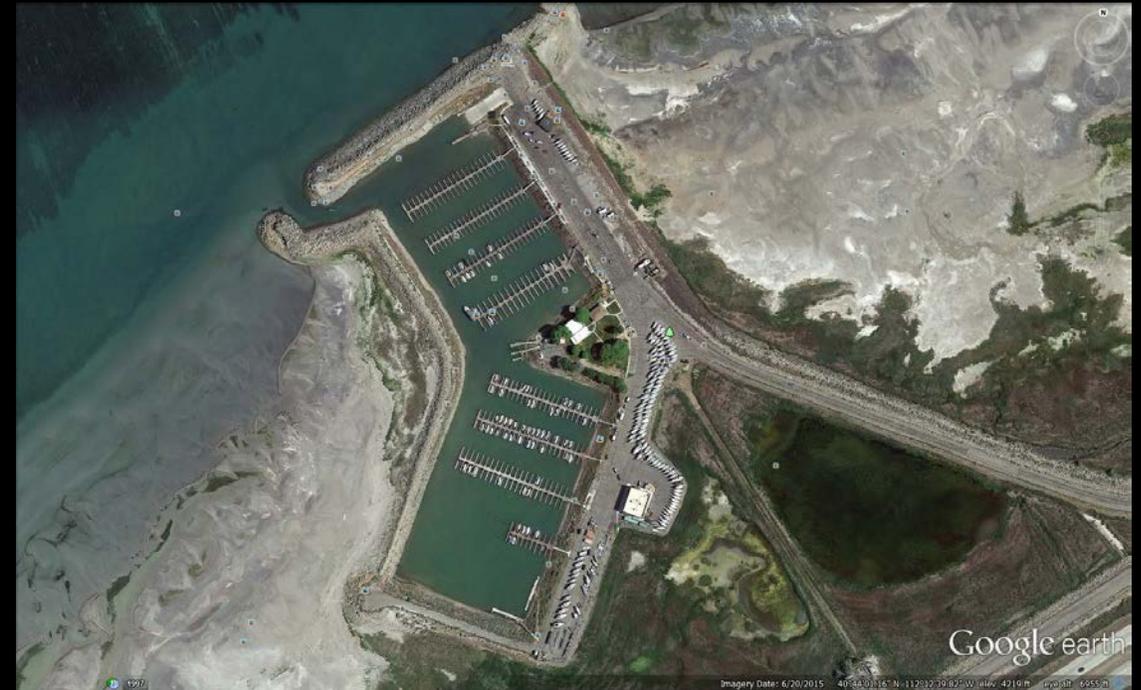
THEN THE FLOODS

- Soon after construction was completed the marina flooded in the mid 1980's.
- The boats relocated to Bear Lake, Strawberry Lake and to the new temporary marina created in Saltair's flooded parking lot



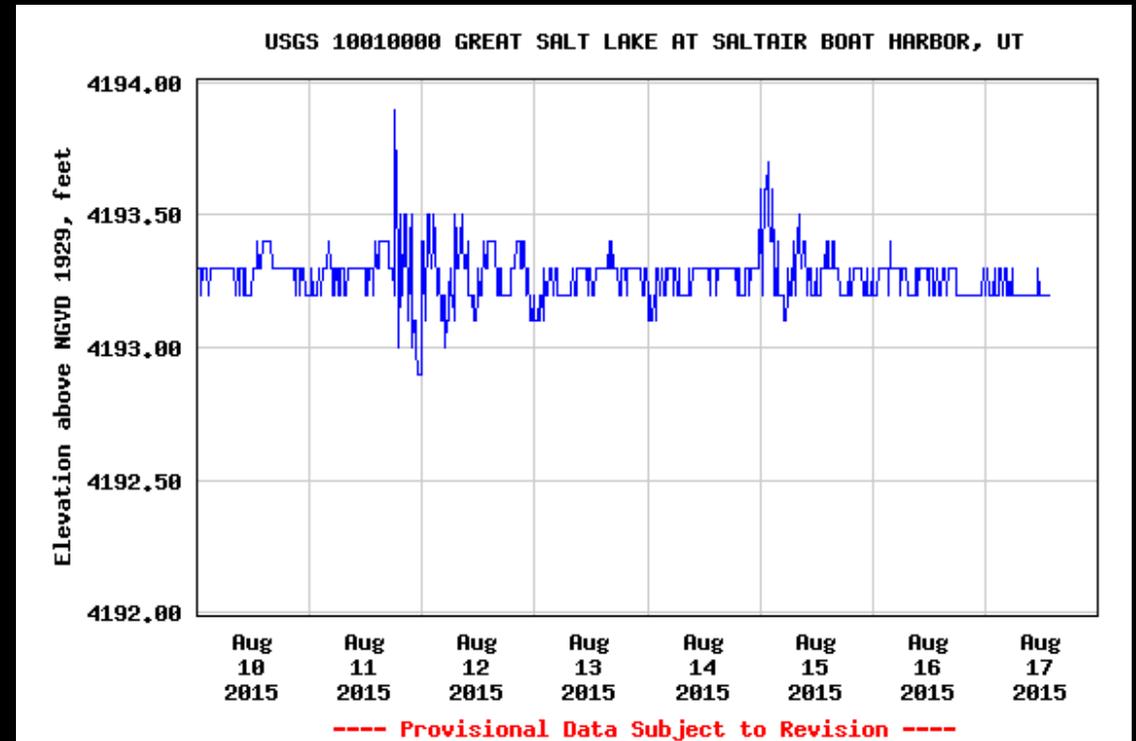
NOW THE MARINA IS TOO SHALLOW

- Although the lake is deep enough to accommodate sailing and boating on the lake the marina itself has become too shallow after a 17 year drought that showed only a few years of relief.
- Our current condition can be attributed to three problems.
 - Cyclic lake levels
 - Sailboat design changes
 - Marina mouth design



LAKE LEVEL CYCLE

- The lake level is cyclic. After an upswing in the 1990's we have been on a down cycle since 2001.
- This cycle has been intensified by a prolonged 17 year drought



SAILBOAT DESIGN

- Sailboat design changed radically in the 1970's towards higher performance boats that were more stable.
- This was done by increasing the draft (depth of keel) of the boat to accommodate more sail area.



THE DESIGN OF THE MARINA MOUTH

- The dog-leg design of the marina mouth is a natural catch and funnel for silting from storm surges. The silt then moves along in the northern basin.
- The Marina was originally dredged to 4188 feet above sea level. At the current level of 4193.2 we should still have 5 feet in the marina.
- But instead we have many areas that are a foot or less with an average depth of 4 feet. And we are still going down this year.



SILTING DUE TO THE DESIGN

- This video shows silt being pushed into the marina from a powerful positive storm surge.



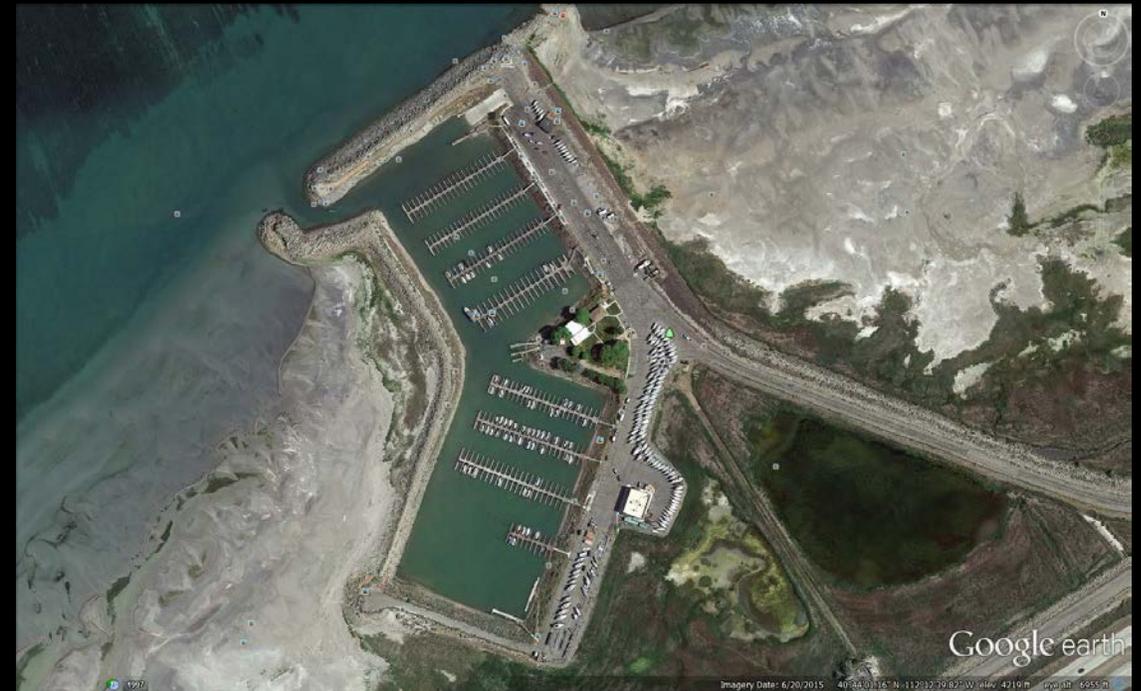
A CURRENT VIEW

- We've all but lost the northwest basin.
- At the beginning of last year's season we had 255 boats in the marina
- This January we had 177 boats in slips
- Now we have 28
- We are losing about \$25,000 a month in lost slip revenues.



THE MARINA IS SHALLOW

- The lake is as low as it has been since the historic low of 4191.35 in 1963
- Current lake level is 4193.2 and is forecasted to reach 4192.1 mid to late November
- That will leave 2.6 feet at the marina mouth and make the launch ramp useless to anything drawing over a foot.



- We were forecasted to me much lower bottoming out at a new historic low of 4191.2 but cooler spring and summer temperatures and above average precipitation these last few months mitigated damage.
- The lower forecast would have trapped both Rescue Boats in the marina not being able to respond to duck hunters, brine shrimpers or other shallow draft vessels needing assistance
- Antelope Island Marina is already too shallow for the rescue boats to respond



WE NEED TO DREDGE MORE THAN JUST THE MARINA

- The dark streaks you see in the upper half of the picture is a large bioherm field. Much of this field will be exposed (above the surface of the lake) this fall.
- The channel between the marina and the bioherm field is becoming very shallow too with depths of 4 feet in many spots.
- Either the current 1.7 mile channel must be dredged or a new shorter .7 mile channel must be created.



1.5 MILLION FOR DREDGING

- In the last legislative session 1.5 million was allocated for dredging Great Salt Lake Marina in Fiscal Year 2016
- JUB Engineering was hired last December to come up with rough costs for dredging.

OPTION 1

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OPTION 2

- Clean out West Bay - \$300,000
- Clean out South Bay - \$180,000
- Cleaning in-harbor channel \$75,000
- Cleaning out existing channel \$1,200,000
- Engineering & permitting \$90,000
- Wetlands Mitigation \$195,000
- Other Costs \$285,000
- Combined Total \$2,040,000

- Clean West Bay - \$300,000
- Clean South Bay - \$180,000
- Clean in-harbor channel \$75,000
- Cutting new approach channel \$350,000
- Engineering & Permitting \$75,000
- Wetlands mitigation \$195,000
- Other Costs \$270,000
- Combined Total \$1,175,000

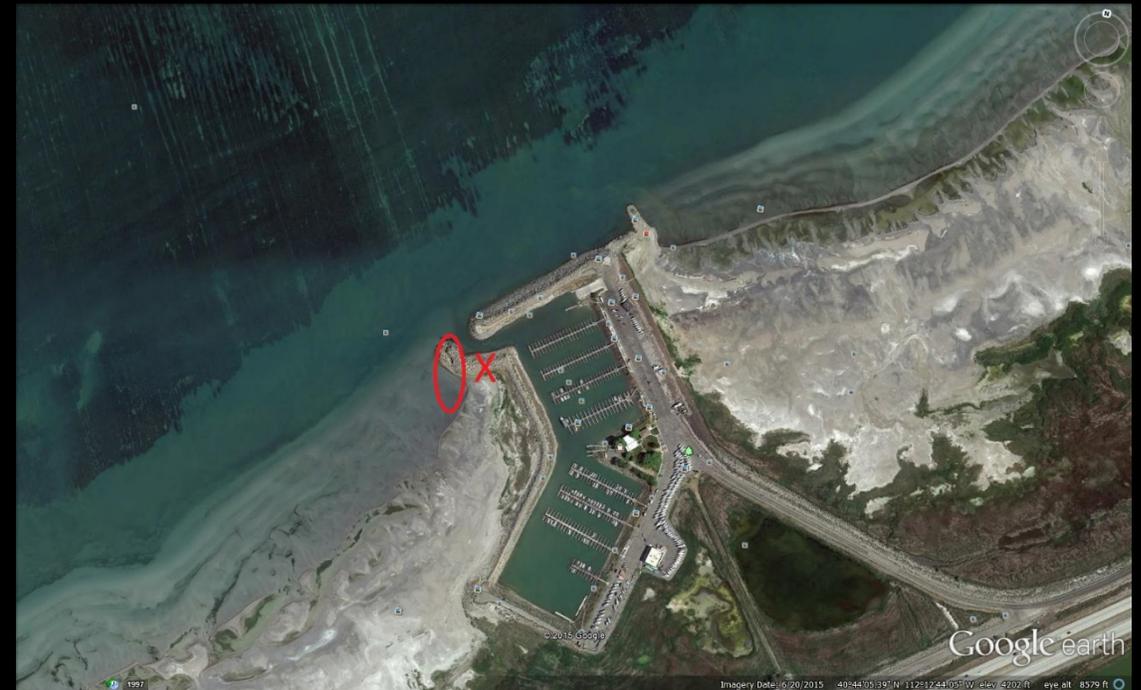
CONTAINMENT OF SPOILS

- Army Corps requires spoils be placed where they cannot enter the water.
- We have an ideal containment area that was created between the marina entrance, frontage road and utility road.
- This may also help us with future expansion of marina facilities



PREVENTION

- It would be desirable to tear out the dog-leg in the marina mouth and create a seawall to minimize future silting.
- JUB estimated the cost of design and construction as follows
- Conceptualizing \$15,000
- Designing preferred alternative \$25,000
- Construction \$400,000
- Total \$440,000



BOATS BEING PULLED

- We have now had 5 Crane Days since April 28th to pull the boats out of the marina at the owner's expense.
- This was done to get boats out before their keels became stuck in the mud in their slips.
- Some boats were already stuck and had to be dragged to the crane out slip using the rescue boats.
- The benefit of this is that it will make dredging easier and more efficient



GREAT SALT LAKE'S UNIQUE DILEMMA

- Because Great Salt Lake doesn't freeze it is a year round marina.
- This means that we do not have a sailing season and almost all the boats stay in year-round.
- This also means that about half the boats do not have trailers since owners didn't anticipate a need for one.
- Crane costs, cradle/boat stand costs were about \$1800 per owner on average



OUR CURRENT SITUATION

- We now have 111 boats in the parking lot with an additional 46 boats in our storage areas.
- We have more boats on the hard than almost any other marina in the United States right now.



WINDY SEASON

- October through April is "Windy Season" at Great Salt Lake Marina.
- The strongest fronts are typically from January through March
- Storm fronts can produce strong gusty winds.
- Top winds this year at the marina were 81mph. That is pretty average for maximum annual winds



WINDY SEASON

- We do have concerns of having so many boats on the hard during windy season.
- It is preferable to get them back in the water as soon as possible where they can ride out wind storms much more safely



WHERE ARE WE NOW ON DREDGING

- It is my understanding that JUB has been hired to do engineering design work and the permitting process.
- We are currently waiting to have our first meeting and hope that happens in the near future
- Once design work and permitting has happened DNR and DFCM can put a request for bids for dredging.
- There are several dredging companies currently on the lake who have expressed interest.



QUESTIONS?