DESIGNING FOR MITIGATION
ON THE GREAT SALT LAKE

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The Great Salt Lake has lowered by 11 feet and decreased by 50% in area since the mid-1800’s when European Settlement began.
THE PROBLEM
CAUSES, HAZARDS, AND IDENTITY
3 IDENTITIES OF THE GREAT SALT LAKE

ENVIROMENTAL
- Wetlands
- Migratory Birds
- Invertebrates
- Brine Shrimp

CULTURAL
- Lake Smell
- Recreation
- Education
- Air Quality

ECONOMIC
- Mineral Mining
- Brine Shrimp Farming
- Hunting Permits
- Recreation Revenue
CAUSES

- Water Diversions
- Lack of Water Rights
- Invasive Species
- Encroaching Development
- Agricultural Waste
- Urban Waste
HAZARDS

• Cultural
  • Air Quality/Public Health
  • Public Perception/Education
  • Lake Smell

• Environmental
  • Wetlands
  • Threatened Migratory Birds
  • Increased Predation

• Economic
  • Loss of Industrial Revenue (Minerals and Brine Shrimp)
  • Increased Fire Risk
  • Loss of Recreational Revenue (Hunting and Tourism)
THE PROJECT

PRECEDENTS, PROJECT DESIGN, AND CURRENT PROGRESS
PROJECT DESIGN

Phase 1: Inventory
- Survey and interview participants
- Compile a list of hazards and solutions
- Research existing hazards and potential solutions
- Site visits

Phase 2: Analysis
- Create a matrix to compare hazard and solutions
- Prioritize hazards based on seriousness
- Compile list of potential solution combinations
- Participant feedback

Phase 3: Design Vignettes
- Define design zones
- Create design visualizations of solution combinations
- Site visits
- Participant feedback

Phase 4: Master Plans
- 3 alternative master plans
- 1 final master plan
- Participant feedback

Phase 5: Presentations
- Complete final visualizations
- Present to participants
- Final survey for participants
- Compile research intoa design book
On the border of Kazakhstan and Uzbekistan, the Aral Sea has decreased significantly after water diversions for agricultural irrigation. Once the fourth largest lake in the world, the diversions have left the lake to shrink to 10% of what it was in 1960. Some efforts and funding have helped improve some areas, but there is still a long way to go as agriculture remains a staple of the local economy.
Located outside of Los Angeles, Lake Owens because a hazardous air quality issue as its lakebed dried. Water was diverted to supply the Los Angeles aqueduct, drastically affecting the lake. California has spent billions on dust mitigation, including lakebed terraforming, pipe trenches, and managed vegetation techniques. Improved conditions for dust storms and the local ecosystem have already been reported.
DEAD SEA

Dropping over 1 meter per year, the Dead Sea near Jerusalem is facing significant shoreline recession as river diversions decrease water inflow. This has brought reports of sinkholes and economic impacts. Efforts to improve the lake conditions have included water transfer from the Red Sea and ecotourism.
THE EXPERTS
MATRIX 1: COMPARING HAZARDS TO SOLUTIONS

![Matrix diagram showing correlations between hazards and solutions]
MATRIX 2: COMPARING SOLUTIONS TO SOLUTIONS
SOLUTIONS

Inflowing River Restoration

Terraforming

Wetland Park
NEXT STEPS

• Create a suitability analysis in GIS Modelbuilder to define where solutions will be located
• Visually represent solution ideas through isometric vignettes
• Contact participants for feedback on solution combinations and design vignettes
• Create master plan alternatives that each favor the economic, environmental, and economic identity
THANK YOU

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