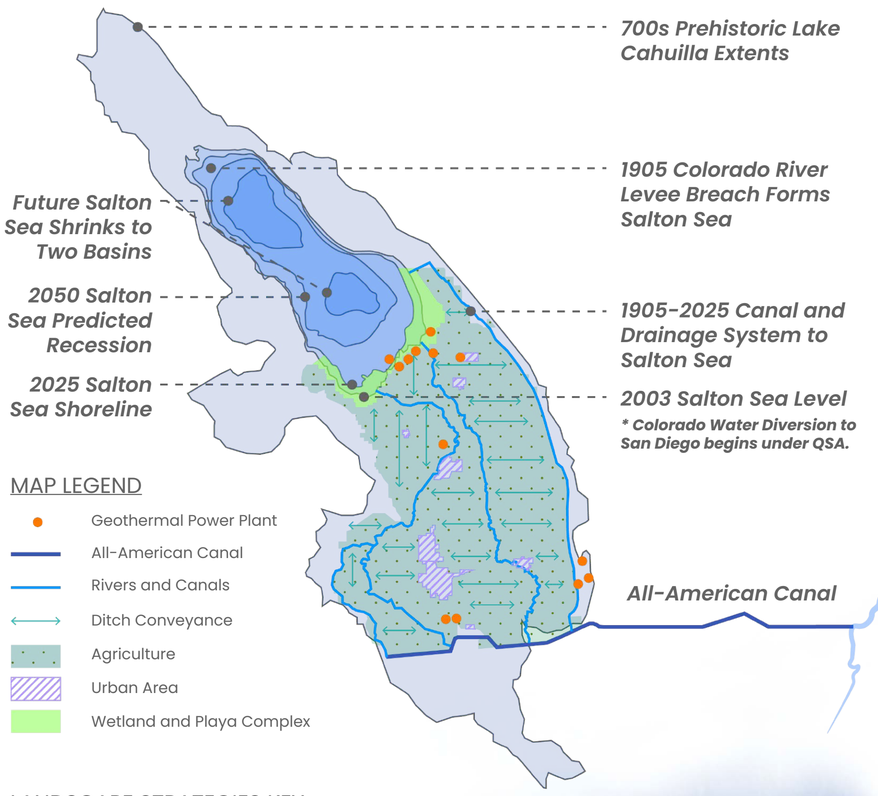
Where Water Meets Dust: Regenerative Landscape Strategies for the Salton Sea

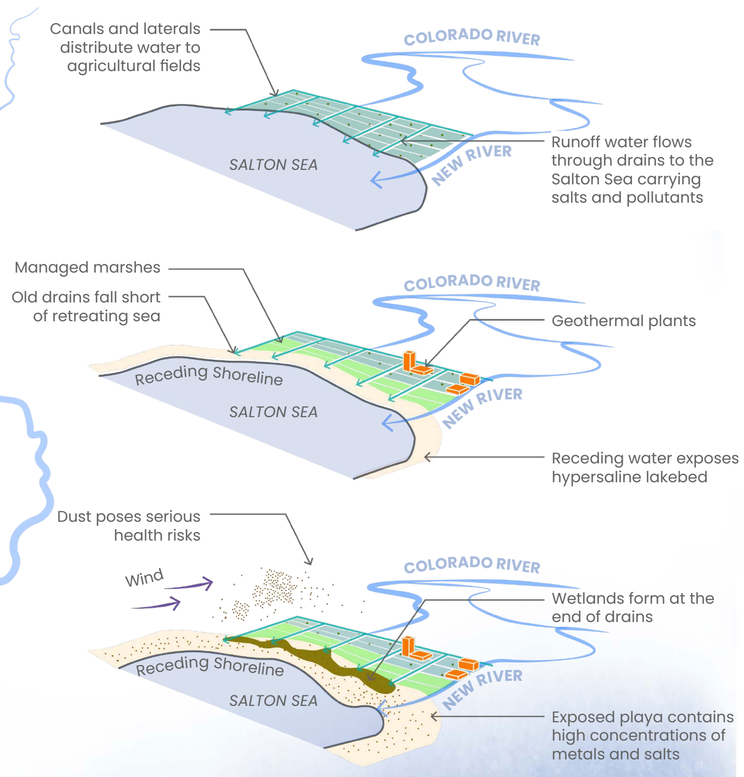
SALTON SEA FORMATION & HYDROLOGY



MAP LEGEND

- Geothermal Power Plant
- All-American Canal
- Rivers and Canals
- Ditch Conveyance
- Agriculture
- Urban Area
- Wetland and Playa Complex

SALTON SEA RECESSION



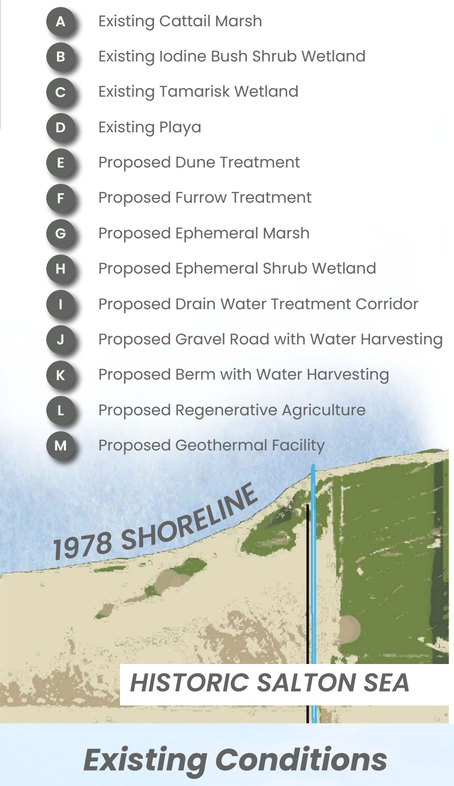
California's largest lake formed by accident in 1905 in the low desert of Imperial Valley. The Salton Sea grew and supported tourism and a massive population of migratory birds until depleting water inputs and high temperatures caused the Sea to recede and its salinity to exceed thresholds for most fish species.

Today, precious water pours out of agricultural drains meant to maintain the Sea's water level. Because they were built before the Sea's decline, the drains fall short of the current shoreline and flow over exposed hypersaline lakebed, forming a complex of unstable wetlands and dry playa. Invasive salt-tolerant tamarisk dominates the wetlands, and the playa, saturated with pollutants from runoff, becomes airborne in windy conditions, posing serious health risks for residents of the Valley. Under the wetlands and exposed lakebed, vast geothermal resources encourage a hopeful economic future.

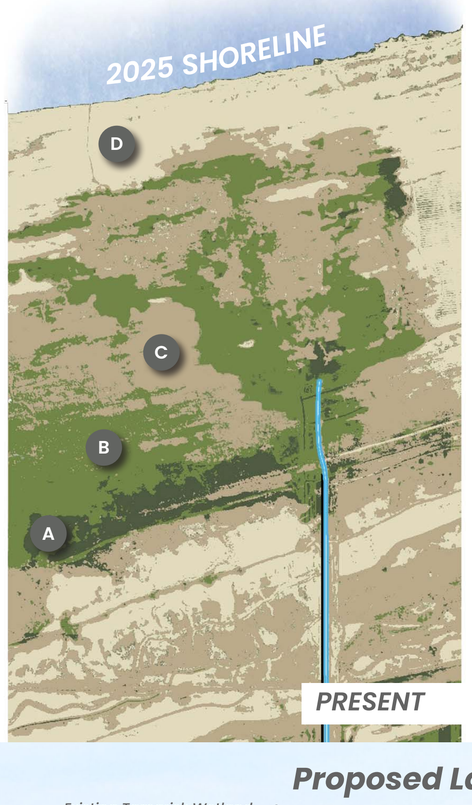
Inspired by dust mitigation and desert water harvesting tactics from across the globe, new land systems might restore native desert habitats, promote environmental justice, and make space for geothermal industry. The proposed landscape strategies seek to conserve water and regenerate healthy soil and native habitats via multi-functional and adaptive networks of land forming, surface roughening, water treatment, and water control.

LANDSCAPE STRATEGIES KEY

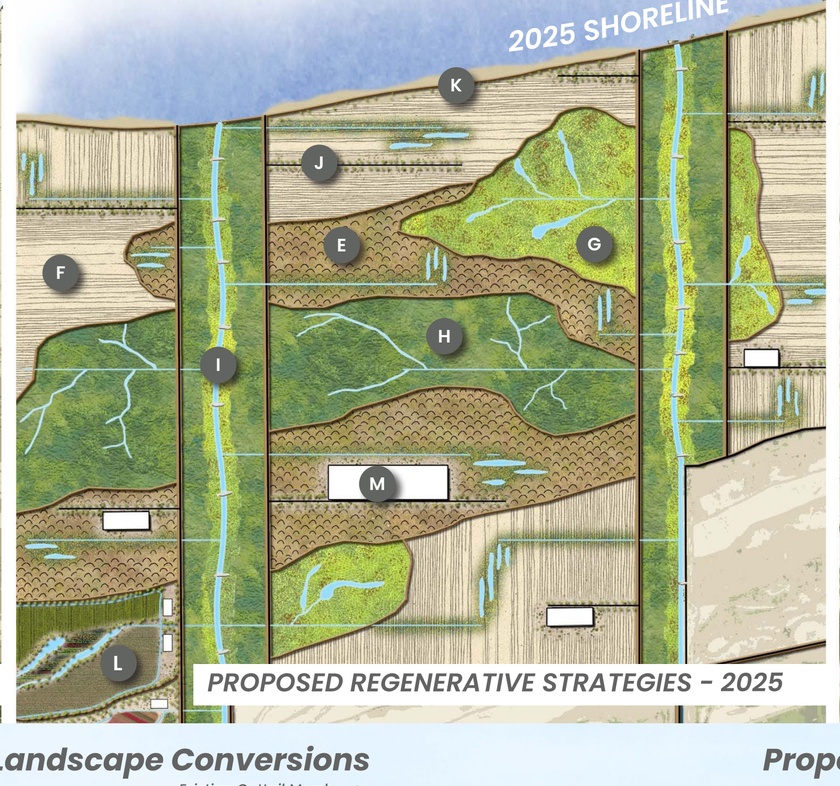
- A Existing Cattail Marsh
- B Existing Iodine Bush Shrub Wetland
- C Existing Tamarisk Wetland
- D Existing Playa
- E Proposed Dune Treatment
- F Proposed Furrow Treatment
- G Proposed Ephemeral Marsh
- H Proposed Ephemeral Shrub Wetland
- I Proposed Drain Water Treatment Corridor
- J Proposed Gravel Road with Water Harvesting
- K Proposed Berm with Water Harvesting
- L Proposed Regenerative Agriculture
- M Proposed Geothermal Facility



HISTORIC SALTON SEA



PRESENT

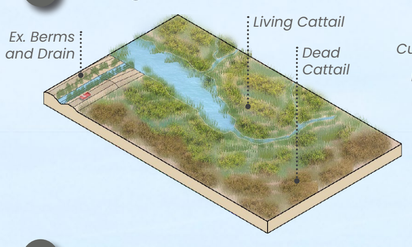


PROPOSED REGENERATIVE STRATEGIES - 2025

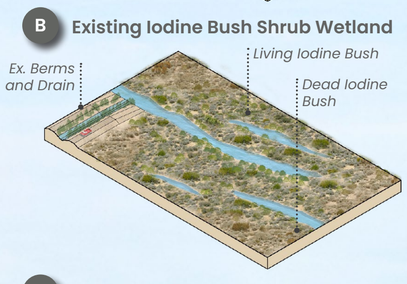
PROPOSED REGENERATIVE STRATEGIES - 2050

Existing Conditions

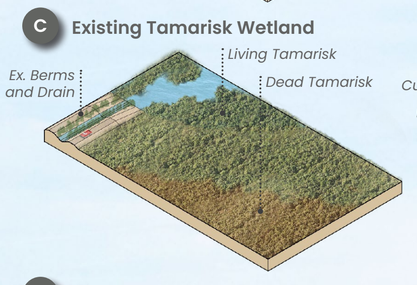
A Existing Cattail Marsh



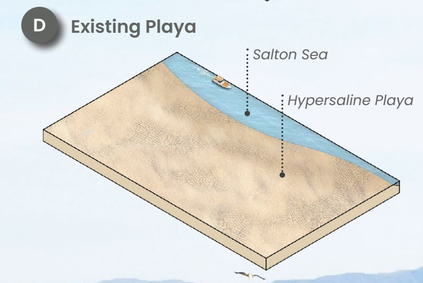
B Existing Iodine Bush Shrub Wetland



C Existing Tamarisk Wetland



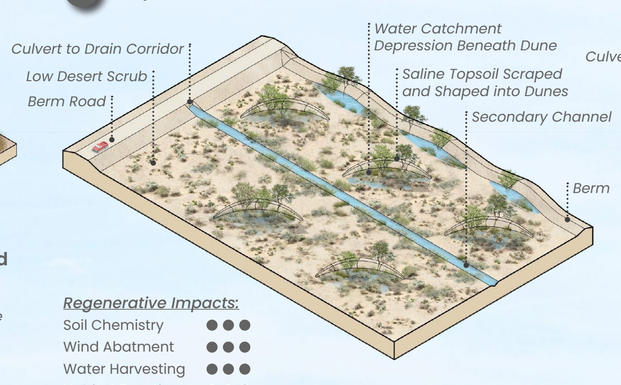
D Existing Playa



Proposed Landscape Conversions

E Proposed Dune Treatment

Existing Tamarisk Wetland -->

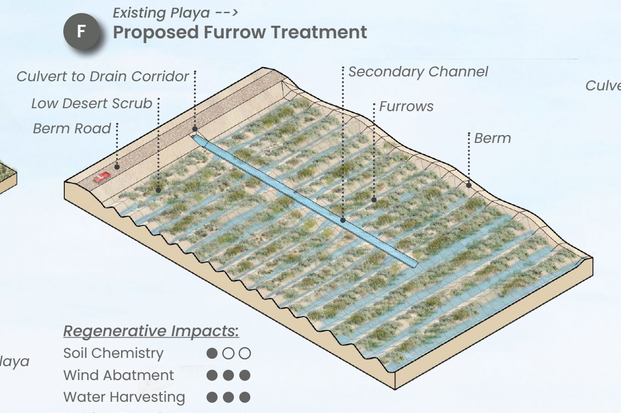


Regenerative Impacts:

Soil Chemistry	●●●
Wind Abatment	●●●
Water Harvesting	●●●
Habitat Function	●●○
Water Treatment	○○○

F Proposed Furrow Treatment

Existing Playa -->

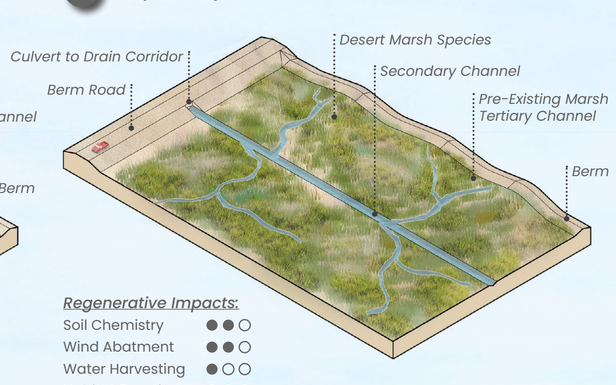


Regenerative Impacts:

Soil Chemistry	●○○
Wind Abatment	●●●
Water Harvesting	●●●
Habitat Function	●●○
Water Treatment	●○○

G Proposed Ephemeral Marsh

Existing Cattail Marsh -->

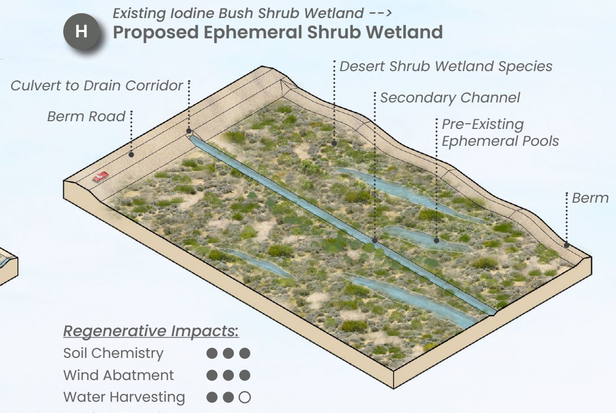


Regenerative Impacts:

Soil Chemistry	●●○
Wind Abatment	●●○
Water Harvesting	●○○
Habitat Function	●●●
Water Treatment	●●○

H Proposed Ephemeral Shrub Wetland

Existing Iodine Bush Shrub Wetland -->

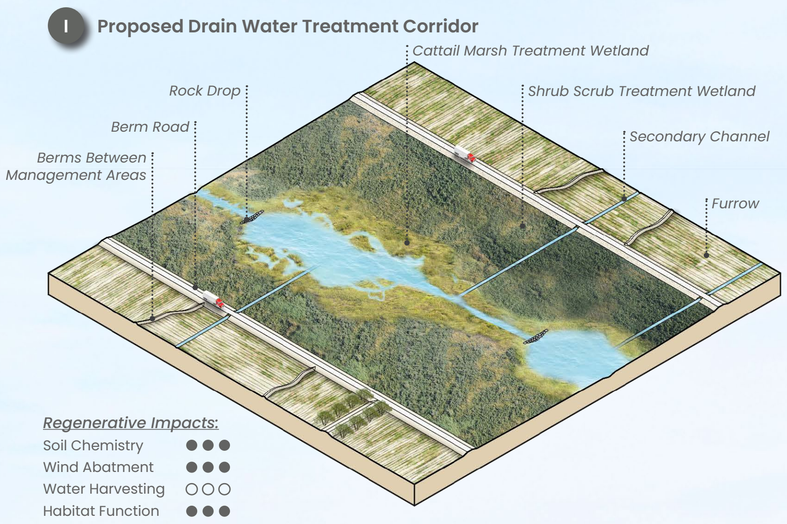


Regenerative Impacts:

Soil Chemistry	●●●
Wind Abatment	●●●
Water Harvesting	●●○
Habitat Function	●●●
Water Treatment	●●○

Proposed Hydrologic and Circulation Framework

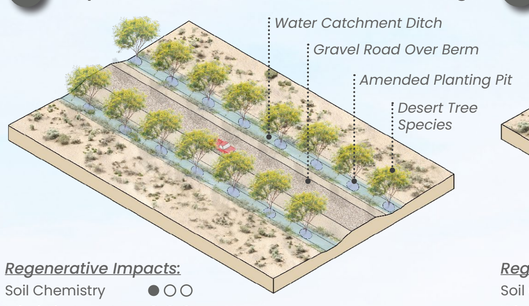
I Proposed Drain Water Treatment Corridor



Regenerative Impacts:

Soil Chemistry	●●●
Wind Abatment	●●●
Water Harvesting	○○○
Habitat Function	●●●
Water Treatment	●●●

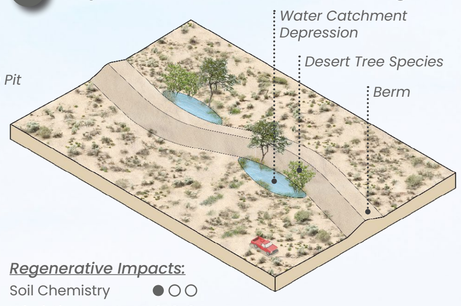
J Proposed Gravel Road with Water Harvesting



Regenerative Impacts:

Soil Chemistry	●○○
Wind Abatment	●●●
Water Harvesting	●●●
Habitat Function	●●○
Water Treatment	○○○

K Proposed Berm with Water Harvesting



Regenerative Impacts:

Soil Chemistry	●○○
Wind Abatment	●●●
Water Harvesting	●●●
Habitat Function	●○○
Water Treatment	○○○

Julie Johnstone, PLA
Katie Haas, PLA
William Stratton, PLA
Yani Pohl
Hilary Mulford
Dongni Ma

GREATecology
a TRUE ENVIRONMENTAL company