

Salton Sea Sink Basin Trough

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ABSTRACT

With its surface 200 feet below sea level, located in the Imperial Valley, the Salton Sink is 400 sq mile endorheic body of water at one of the lowest parts of the country, in Imperial Valley. Accidentally created in 1905, when an ill constructed irrigation system built by a California Development Company spilled out thousands of gallons over several years until the localities stopped the flow. Rising salinity and the vast overflow of agricultural fertilizers and pesticides contamination from the surrounding valley farms flowing into the lake via groundwater, led to the death of the once shiny bustling resorts along its shores.

Recent rejuvenation at the sink has resulted in new emerging wetlands. Also at the south shore existing geothermal plants will be used to extract from a lithium deposit that according to the Department of energy there is enough lithium to create 375 million car batteries, at the least.

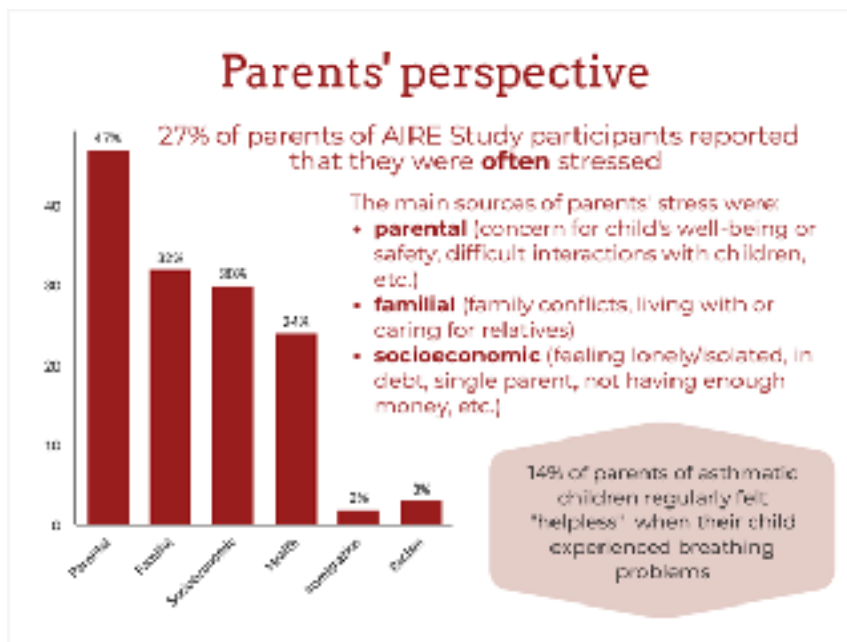
The problem of focus is the Salton Sea. A natural occurring floodplain of the Colorado River, the Salton (sink) Basin was anthropogenically created via failure of man made mechanics which inundated the basin with water and inadvertently concentrated pesticides with fertilizers along with other various runoff that naturally drains to the Salton basin from local agriculture. -([Salton Sea Authority](#)) These components brining with salts concentrated from the upwelling ocean and repeated evaporation, become a dusty many faceted inhalation infection as the sea dries up and blows into towns as a resident illness.

Even with the initial anthropogenic flooding of the basin, it actually may be that the problem would not be so wicked if not for the chemical runoff which has concentrated there. The chemicals and salinity work together in such a manner that poison fish, these fish in turn either become poisonous avian food followed by large number of avian "food poisoning" or die and become chemically concentrated rotting matter in the sun, not fit for any consumption. These dead masses send a stench that batters the senses as far as it can travel, including PM2.5 particulates within this unsightly stench flowing in the wind and possibly into the lungs of local populations. PM2.5 particles are measured at a diameter to that approximately 50 times smaller than a human hair, easily becoming an inhaled agitation, vs buried in the ground held there by vegetation.

First of two groups from the various interested and affected parties are Imperial Valley Local families, advocated by Keck School of Medicine USC and various local health agencies, with Imperial Valley Irrigation District.

With local Tribes represented by the Desert Advisory Council. Second group of IAPs chosen to focus on are the Wildlife of the Salton Sea Pacific Flyway, represented by State of California and Imperial Valley Irrigation District.

Local families and children directly affected drew attention from groups like Keck School of Medicine of USC, as well as local health authorities as asthma with other lung disorders infected local populations with children being the most noticeably affected. Among health services offered were focuses on:



Graph illustration credit: Keck School of Medicine online at USC Today.

Shown from AIRE study, the Parents Perspective. The parental concern being the top stressor with their own health being the last concern. Issues of immigration and racism while being frantic issues elsewhere in the state,

seem barely a thought here. A recent [USC study for child respiratory issues](#) in the AIRE study also illustrates preliminary findings and comparisons of cases in adjoining counties while [Asthma Community Network Assistance](#) offers healthcare and consultation of services in direct result of PM2.5 inhalation problems.



Graph illustration credit: Keck School of Medicine online at USC Today.

The State of California has integrated this information in the Salton Sea Management program being implemented by the California Resources Agency, California Department of Water Resources, & California Department of Fish and Wildlife. The intention is to greatly reduce toxic dust levels and mitigate sustainable ecology actions as the Salton evaporates. [Salton sea Current Efforts 2024](#)

Indirect assistance for residents comes from Imperial valley Irrigation District (IID). Upon signing an agreement with the Bureau of Reclamation, Federal Funds earmarked for management of the Salton were released, further enabling the Air Quality effort via preventative ecological measures.

Another of the IAPs directly affected are the wildlife of the emerging and existing wetlands of the Salton. Transplanted avian species along with the native desert pupfish have flourished and suffered waves of deadly illnesses, (approx. 170,000) due to the volatility of the Sea of Salinity. [According to the Salton Authority 1992-1996](#). Despite it's toxicity factor, the Salton Sea has managed to evolve into a major avian staging stopover destination along the Avian Pacific Flyway. Without human intervention the Salton Basin dries up once again leaving behind a modern day marker of smelly man made concentration of lethally contaminated dust spreading with every new wind gust.

The State of California is implementing sustainable mitigation actions against the Desertification of the Salton Sea, through the perspective of protecting the health of local populations, agriculture and wildlife. One of these proposed actions is the “Salton Sea Species Conservation Habitat Project” (SCH). As the salinity and receding shorelines increase exposing more of the playa (sea bed) the USGS has demonstrated that a created habitat of interconnected pools and pond built into the playa can potentially replace lost habitat to the Salton’s dependent flora and fauna. The minimal moisture available to help sustain vegetation aspect of dust suppressive ecology.

Historically the geological (earth) cycle of the Salton (Sink) Basin has been a floodplain to the Colorado River, ([Salton Sea Authority](#)) beginning approximately 10,000 years ago. The cycle of flooding, then drying up, along with the seawater that seeps in from the bottom of the basin, which the lowest point is 269 feet below sea level. This repeated process of flooding, and seepage along with the salty sediments left behind contribute the 57 Parts Per Thousand per Kg water salinity of today, vs the 35 ppt of seawater (University of Hawaii at Manoa online: [Salinity Of Seawater](#)). Although the Salton Sea at times has been much larger then dried up over a number of years, filling up to dry out, anthropogenic activities are responsible for inundating the basin once and it has been so since 1905. When the flood cycle came, a canal flood gate failed, which again flooded the basin. This continued for approximately 2 years. Runoff from surrounding agriculture drained it’s way down to the basin. In 1924 an executive order issued by President Coolidge sets aside the lands under the Salt Sea as a permanent drainage reservoir. This kept the water level up. Also added over time were various species of fish and birds which seemed to flourish, even though the Salton Sea was expected to be dried up after 25 years. But chemical pollution along with rising salt content was also being added with the incoming water sources, was a poisonous mixture adding more ingredients everyday that would eventually start destroying what the water had built. After a die off of approximately 170,000 birds, as well as 1,000 endangered brown pelican in the 90s, in 1997 congressman Sonny Bono decides to form the Congressional Salton Sea Task Force. ([Salton Sea Authority](#))

Amidst all the Salton issues, the wicked problem that mainly grips public emotions into attention, are the health and environment problems emerging as the anthropogenic wetlands dry up. This combination has equaled to ecological mitigation proposals that include measures to suppress toxic dusts produced by Desertification. In 2016 the [Salton Sea Management Program](#) was initiated. Along with programs from [Asthma Community Network](#) [IVCAProgram](#) to help families affected by the inhaled airborne chemical salted pollutants.

From a nine planetary boundaries perspective, the boundary of Land Use is crossed with the concentration of agriculture assigning the Salton Basin as a permanent drainage reservoir for surrounding agriculture. This allowed the annual accumulation of salts with pollutants to concentrate in the water and its dependent aquatic life. These poisons then spread up the food chain to birds. The intermittent die off of large numbers of birds, but mostly fish leaves large amounts of contaminated rotting matter that does not break down into the soil in a natural time span, nor do the chemical components dissipate so easily. This is the mechanism that crosses the Boundary of Biogeochemical Flow at the Salton. The Fresh Water Use Boundary crossed in 1905 with the a canal that failed against the natural flood habitats of the Colorado River. The Novel Entity additions from newly sprouted local agriculture consisting of nitrates, phosphorus, manure runoff, pesticides crossed this Boundary. The Aerosols Boundary has been crossed at the Salton as waters recede creating chemically salted decomposing rows of fish. A horrendous stench accompanies the countless carcasses a flurry sprinkling of flies until dried to dust, and inhaled as a PM2.5 particulate into the lungs of a down wind populace.



(Graphic/Courtesy of the EPA)

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Salton Sea authority@saltonsea.com. History

The Salton Sea Authority is a Joint Powers Authority (JPA) empowered to revitalize the Salton Sea in consultation and cooperation with state and federal governments.

82500 Hwy 111, Suite 4, Indio, CA 92201.(760) 565-3100. info@saltonsea.com.

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Cal Alumni Quote -

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