This Technical Memorandum (TM) was prepared as part of the Salton Sea Water Importation Proposal Review to provide information to support and reflect the Independent Review Panel’s evaluation of submitted ideas to restore the Salton Sea by water importation and provide the Salton Sea Management Program (SSMP) with approaches that are feasible. Parts of this TM may be used in the Panel’s Screening Report, Fatal Flaw Report, Feasibility Report, and/or Summary Report (Reports). In the event that any discrepancies are found between the Reports and this TM, the Reports shall take precedence.

1.0 Flooded Land & Land Ownership Legal History

During the last 120 years, the Salton Sea region has seen multiple disputes and legal challenges with regards to flooded land. This section reviews this history, noting the complexity of land ownership in the Salton Sea region that is illustrated in the following figure. For detailed land ownership information, see the reference for the map in Figure 1 from Bureau of Reclamation.
Figure 1. Land ownership in the Salton Sea (USBR 2015)

Table 1 provides a list of flood-related legal actions in recent decades brought on by communities (e.g., Salton Bay Marina and the Torres-Martinez Tribe), private citizens (e.g., Elmore and Beaty), and corporations (e.g., Imperial Cattle Co. and Skupen) against IID for the flooding of private land. Private land flooding ruled as IID negligence occurred at -230ft (Salton Bay Marina residents), -227ft (Torres-Martinez Tribe), and -226ft (Elmore). The Elmore case led to Decision 1600 in 1984, resulting in the State requiring IID to conserve water and stabilize the elevation at -227.55 ft (1982 level).
Table 1. Legal cases focused on land flooding relating to Salton Sea elevation.

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<th>Case</th>
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| *Salton Bay Marina, Inc. vs. Imperial Irrigation Dist. (1985)* | IID’s irrigation run-off flooded land, homes, businesses around the Sea owned by Salton Bay Marina, Inc.  
The first suit was filed in 1976 against IID and Coachella Valley Water District.  
After jury deliberations in 1982, flooding was deemed “negligence and constituted a nuisance and taking of property” and Salton Bay Marina Inc was awarded $6,959,336 for damages.  
IID’s delivered water changed elevation from –233 ft in 1967 to –230 ft in 1976 which can be an estimate for the flooding of the properties.  
*(Salton Bay Marina, Inc., et al., v. Imperial Irrigation Dist. 1985)* |
| Dispute Between California Tribe and Water Districts | Involves resolution of a 70-year dispute over an Indian tribe’s loss of land due to repeated flooding from nearby agricultural lands.  
The Torres-Martinez tribe, that lives in the Imperial Valley east of San Diego, receives $14.2 million for long-running flooding of part of its land. The land had been inundated due to irrigation conducted by the Imperial Irrigation District and the Coachella Valley Water District. An estimate for the flooding is that 1982 elevation of –227.4 ft was increased –227.2 ft in 1995.  
Other elements involved in this case:  
• water districts will receive a permanent easement to flood the Salton Sea up to a certain level - “This provision provides that the United States and the Tribe shall convey permanent flowage easements to all Indian trust lands and all Federal lands, located below the minus 220-foot contour of the Salton Sink, to the Coachella Valley Water District and the Imperial Irrigation District.”  
• “For any affected Indian allotment owners, and their successors and assigns, and the Tribe in its own right and that of its successors and assigns, shall convey to the
### Case Description

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<td>Coachella Valley Water District a permanent flowage easement as to all Indian trust lands (approximately 11,800 acres) located within and below the minus 220-foot contour of the Salton Sink.</td>
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<td>• “The United States, in its own right shall, notwithstanding any prior or present reservation or withdrawal of land of any kind, convey to Coachella Valley Water District a permanent flowage easement as to all Federal lands (approximately 110,000 acres) located within and below the minus 220-foot contour of the Salton Sink.”</td>
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<td>• “Any affected Indian allotment owners, and their successors and assigns, and the Tribe in its own right and that of its successors and assigns, shall grant and convey to the Imperial Irrigation District a permanent flowage easement as to all Indian trust lands (approximately 11,800 acres) located within and below the minus 220-foot contour of the Salton Sink.”</td>
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<td>• “The United States, in its own right shall, notwithstanding any prior or present reservation or withdrawal of land of any kind, grant and convey to the Imperial Irrigation District a permanent flowage easement as to all Federal lands (approximately 110,000 acres) located within and below the minus 220-foot contour of the Salton Sink.”</td>
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<td>Elmore v. Imperial Irrigation Dist. (1984)</td>
<td>IID was unreasonable with the amount of freshwater they let flow into the Salton Sea, raising the elevation by 3 ft from −231 ft in 1974 to −227 ft in 1981 with a maximum elevation of −226.2 ft.</td>
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<td>“Thousands of acres of land owned by Imperial County farmers previously suitable for farming, mineral, and steam production have been flooded with salt water. The rising sea has flooded portions of Elmore’s land and threatens the remainder of Elmore’s land. Elmore has been forced to build earth dikes more than three miles long between his land and the sea to keep back the water, thereby removing valuable acreage from agricultural use.”</td>
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<td>production. As a result of the flooding much of Elmore's land is lower than the surface elevation of the sea. The increase in surface level of the sea has effectively destroyed the gravity drainage capacity of Elmore's land, forcing Elmore to install pumps to remove irrigation waters from his land into the sea. Elmore has demanded IID stop its filling of the Salton Sea, but IID continues to cause fresh water to flow into the sea.”</td>
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<td>Elmor v. Imperial Irrigation Dist., 1984; State Water Resources Control Board, 1984; USBR, 1997; UC Davis, 2000)</td>
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<td>Decision 1600 (1984)</td>
<td>Decision 1600 resulted from Elmore v. Imperial Irrigation Dist. (1984). The State Water Resource Control Board determined that IID was misusing water and must reduce inflow by 100,000 acre-feet to stabilize the elevation at –227.55 ft (1982 level) and submit a water conservation plan. After failure to implement suggested measures, the State ordered IID to:</td>
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<td>• Prove the implementation of tailwater discharge monitoring;</td>
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<td>• Repair and maintain tailwater structures (either themselves or requiring water users to do so);</td>
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<td>• Create procedure to monitor water deliveries, tailwater, canal spills and seepages, and leachwater;</td>
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<td>• Submit a water conservation plan that limits, reduces, and measures tailwater, document and limit canal spillage, identify canal seepage improvement points, and detail and assess leachwater practices for each major crop. It must also detail costs, financing, and schedule;</td>
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<td>• Submit plan to resume regulatory reservoir construction program guided by prior IID letter stating to construct at a rate of one reservoir per year.</td>
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<td>(State Water Resources Control Board, 1984)</td>
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<td>Other Constitutional and Legal Code Notes</td>
<td>Although the usefulness of sea water would probably deem the arguments invalid, the use of adding desalinated or distilled water could be subject to the arguments below:</td>
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| **Case Description**                      | • Article X, section 2 of the California Constitution states water be beneficially used and waste/unreasonable use be avoided.  
• Section 100 of the Water Code. fn. 2: beneficial use of water / discourage water waste (City of Pasadena v. City of Alhambra (1948) 33 Cal. 2d 908, 926 [207 P.2d 17].)  
• People of the State of California v. United States (9th Cir. 1956) 235 F.2d 647, 663: “no part of the precious supply should flow uselessly into the sea or otherwise go to waste. This characterization applies to flood waters as well as to the normal flow.”  
• Section 22160 of the Water Code: essentially states district must protect land against flooding/overflow.  
• Section 22877 of Water Code: “district to do all things necessary to insure its canal system and land from any damage by flood or overflow without holding an election to authorize the expenditure.”  
CA Constitution also states the district must provide drainage for their actions.                                                                                                                                                                                                                   |
| Imperial Cattle Co. v. Imperial Irrigation Dist. (1985) | • IID held liable for $192,000 from flooding the cattle feedlot in 1976-77.  
• Tropical storms in ‘76 & ‘77 caused water & sewage to flood surface streets and the Imperial Cattle lot; IID’s drainage not sufficient.  
• Article 1, section 14, California Constitution states that private land owners to be compensated if deliberate design/construction causes property damage, “foreseeable or not”  
(Imperial Cattle Co. v. Imperial Irrigation Dist., 1985)                                                                                                                                                                                                                                             |
| Skupen v. Imperial Irrigation Dist. (1939) | • Loss of income & land from 1928-1930 from IID flooding that destroyed dikes & fresh water ponds Skupen had installed for duck hunting business.                                                                                                                                                                                                 |
2.0 Economics of the Region

This section explores the economic landscape of the Salton Sea region based on available data. A clear and accurate illustration of the economic dimensions involved in the regions, particularly in terms of wealth and income distribution can help identify viable solutions that help address economic concerns in the region. Because the Salton Sea is found partly in Imperial County and partly in Riverside County, with San Diego County nearly reaching the Sea, it is difficult to associate county-level statistics with the actual conditions in the Salton basin. The following information relates to Imperial County, which
includes the southern roughly two-thirds of the Sea. Imperial County, however, is larger than the Salton Basin, so more distant areas such as the city of Blythe influence the data presented here. Riverside County data is not included in this section as the Coachella Valley makes up a small portion of the county and wealthier areas, such as Palm Springs and the city of Riverside, make it difficult to use county-level data for understanding the communities at the Salton Sea.

2.1 Income

Figure 2A illustrates the distribution of income in the U.S. and Imperial County as of 2019 per US Census Bureau. The household income distribution in the Imperial County has a median in the range of $45,000-$50,000 compared with the national average of more than $60,000. Compared to the national distribution of household income, the Imperial County household income data appears to have a two-peak distribution. When comparing the 2019 US Census Data for California County median household income, Imperial County is in the lowest 7 counties (Figure 2B).
Figure 2. A) Income distribution in Imperial County compared to the US (IRS 2019). B) Median household income for all California counties with the State average and Imperial County highlighted in orange (US Census Bureau 2019).
2.2 Property Values

The comparison between the distribution of property values in Imperial County and the US is less uniform (and more complex) compared to the case of household income (Figure 3A). Imperial County has a higher percentage of low-value properties (up to $30K) and properties valued $100K to $300K compared with the national statistics. The median property value in Imperial County remains at about the same level of national median, close to $200K. It is important to remember that California has higher property values than other US states, so comparing Imperial County to other California counties is a more useful comparison. Figure 3B shows Imperial County property values to be much lower than most other counties: about $300K less than the state average and about $900K less than San Francisco County.
Figure 3. A) Property value distribution in Imperial County compared to the US (US Census Bureau 2019). B) Median housing unit value for all California counties with the State average and Imperial County highlighted in orange (US Census Bureau 2019).
Compared with the national income and property statistics, Imperial County has a lower household income median and roughly the same median for property values. In other words, the wealth distribution in Imperial County more closely matches the national distribution of wealth than that of income distribution. However, the 2019 US Census data shows Imperial County is second to last when comparing median home value across all counties in California and is well below the State’s average. Further, there are documented estimates on devaluation of property surrounding Salton Sea. Singh et al., (2018) found that homes located within a kilometer of the Salton Sea were worth $595 less than identical houses found further away, with poor odor being a significant factor in the devaluation. They also found that a 1% increase in PM$_{10}$ led to a decrease in home value of $1,140. They conclude that odor associated with toxic algal and gypsum blooms as well as poor air quality negatively impact home values around the Salton Sea.

### 2.3 Poverty

The poverty rate in Imperial County in 2019 was 24.1%, above the US national average of 12.3% and the State average of 13.4% (Data USA, 2019). Of the 24% of Imperial County residents who fall below the poverty line, 47.6% identify as Hispanic and 34.9% identify as white (Figure 4; Data USA, 2019).

![Figure 4. Percent breakdown of the 24.1% of Imperial County residents that fall below the poverty line in 2019, by race. Figure and Data Source: Data USA (2019).](image)
3.0 Public Health

Public health is a major concern in the region. In public meetings with members of the community, locals have expressed the urgency of addressing adverse impacts from exposed Salton Sea playa, namely poor air quality that causes nose bleeds and asthma, with younger children and the elderly most affected (Independent Review Panel, 2021).

Imperial County ranks lowest of California counties in terms of health rankings (County Health Rankings 2022) as indicated in Figure 5. The County Health Rankings’ Overall Rank of Health Factors is a representation of what impacts the health of county residents and is determined by looking at resident health behaviors, their access to healthcare, environmental factors, and the social and economic factors of their county. This indicates that various factors contribute to residents in the Salton Sea region having the poorest health when compared to other California counties.

Figure 5. Overall health rank of California counties. Health rank is determined by assessing various factors including access to health care, resident health behaviors, and social, economic, and environmental factors (County Health Rankings 2022).
Imperial County also has one of the highest emergency department visits for asthma among counties in California per CDC data (CDC, 2017). Figure 6 depicts the age-adjusted rate of emergency department visits for asthma per 10,000 population, showing Imperial County falling within the highest bracket.

**Figure 6.** Asthma-related emergency department visits per county in 2017. (CDC 2017).

Poor odor caused by high hydrogen sulfide (H$_2$S) concentrations emitted from the Salton Sea is also a concern. Low dissolved oxygen conditions in the Salton Sea (from algal blooms) allow for the formation of hydrogen sulfide. The rotten egg odor is picked up by the winds typically in the summer months (Lyons and Hung, 2021). This lowers the quality of life as it:

- Aesthetically impacts visits to the Salton Sea;
- makes people nauseous (especially immune compromised people) more frequently during summer days;
• discourages children from playing outside;
• possibly lowers property values (Bermuda Dunes property owners have raised this concern at public meetings).

As indicated in Figure 7, this phenomenon has been increasing, with more days each year impacted by the poor odor (Lyons and Hung, 2021).

![Figure 7](image)

**Figure 7.** Number of days per year where H$_2$S concentration was greater than 30 ppb (state ambient air quality standard) at the Near-Shore monitoring site in the northern section of the Salton Sea (Lyons and Hung 2021).

### 4.0 Tourism

Between the 1940s and 1960s, the Salton Sea Recreation Area visitor count exceeded that of Yosemite National Park at about 1.5 million visitors per year (Taylor, 2018). Prior to elevation decline, the Salton Sea attracted tourists for such activities as sport fishing and boating (Taylor, 2018). As the elevation declined, causing poor air quality, poor odor, and an increased salinity leading to mass fish die offs, tourism subsequently declined (Taylor, 2018). Today, the Sonny Bono Wildlife Recreation Area and the
Salton Sea Recreation Area still attract tourists. In 2008, the Recreation Area attracted 30,000 visitors (California State Parks, 2008), however this is likely much higher than the current visitation given the further decline in water quality and elevation that eliminated recreational fishing and restricts access to kayak and boat launches (Lyons and Hung, 2021).

5.0 Tax Information

Imperial County, with a population of over 188,090 people, received 76,366 personal income tax returns (taxable and non-taxable) in 2019, accounting for an adjusted gross income (AGI) of about $3.4 billion dollars (FTB, 2019). Figure 8 illustrates the distribution of tax returns according to each income bracket. In 2018, the most recent available data from the IRS (IRS, 2019).

![Figure 8. Number of tax returns filed per income bracket in Imperial County in 2018. (IRS 2019).](image-url)
References


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*SALTON SEA WATER IMPORTATION*  
*SUBMITTAL REVIEW*


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https://www.census.gov/quickfacts/CA