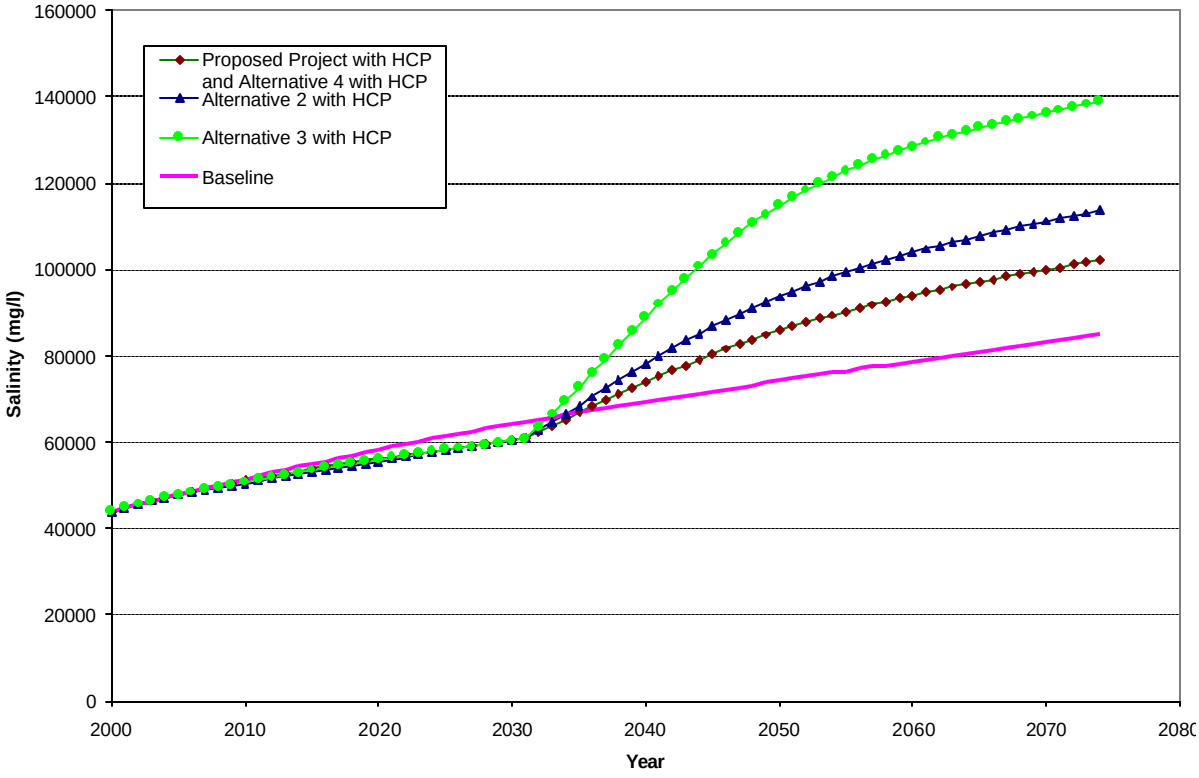



**FIGURE 3.1-29A**

Projected Salinity Under the Baseline and Each Alternative with Implementation of the HCP-SS Component

As discussed in the Existing Setting section (Section 3.1.3.3), herbicides and pesticides tend to concentrate in sediment. Therefore, the amount of TSS in water can be used as a gross indicator for making comparative estimates about herbicide and pesticide concentrations in sediment. In this respect, a reduction in herbicide and pesticide concentrations in sediment is expected because the mass input of TSS to the Sea is expected to decrease relative to the Baseline, along with the total inflow of water. As a result, impacts to sediment quality from the Proposed Project are anticipated to be less than significant. (Less than significant impact.)

It should be noted that the Proposed Project has the potential to decrease selenium concentrations in sediment in the Salton Sea. Selenium concentrations in sediment do not constitute an impact to water quality based on the water quality significance criteria.

However, changes in selenium concentrations have the potential to affect biological resources in the Salton Sea. Further details on these potential impacts are presented in Section 3.2—Biological Resources.

### *Salton Sea Habitat Conservation Strategy (HCP-SS)*

As described in Section 2.2.6.7, the Salton Sea Habitat Conservation Strategy has been evaluated in this Final EIR/EIS with the assumption that mitigation water would be

generated by fallowing within the IID water service area. Other sources of water could be used, but they have not been evaluated in this EIR/EIS.

With implementation of the Salton Sea Portion of the HCP, mitigation water would be provided to the Sea such that the salinity of the Sea would remain below 60 ppt until 2030. For approximately the first 30 years of the Project, inflow to the Sea would be greater than under the Baseline. After this period, inflow to the Sea would be reduced. Provision of water to the Sea would maintain the surface elevation higher than would occur under the Baseline until 2030, after which the surface elevation would decline at a faster rate and to a greater degree than under the Baseline (see Figure 3.2-17b in Section 3.2.4.3).

**Impact HCP-SS-WQ-12: Reduced loading of COC to Salton Sea water and sediment.** The Salton Sea Portion of the HCP is designed to avoid the impacts to biological resources from Project-related reductions in flow to the Sea. If fallowing within the IID water service area is the sole method of providing mitigation water, the quality of the water discharged to the Salton Sea under the Salton Sea Portion of the HCP would be similar to or improved relative to the water that is currently discharged to the Sea. Therefore, implementing this approach would not affect selenium concentrations in the Sea. Further, providing water to the Sea would slow the rate of salinization relative to the Baseline for the first 30 years of the Project. With the Salton Sea Portion of the HCP, the salinity of the Sea would be lower than under the Baseline until about 2030. Once mitigation water is no longer supplied to the Sea, the salinity is projected to increase beyond that expected under the Baseline (Figure 3.1-29a). There are no significance criteria that stipulate a specific federal or state standard for salinity in the Salton Sea. Thus, the changes in salinity are a less than significant water quality impact. Salinity changes are presented here as a basis for evaluating impacts to other resources that could be affected by salinity increases (e.g., biological resources).

### 3.1.4.4 Alternative 1: (No Project)

#### LOWER COLORADO RIVER

**Water Quantity.** Under the No Project Alternative, the hydrology in the LCR would not change dramatically. Therefore, surface water quantities and river elevations in the LCR will be similar to those described in the Existing Setting section (Section 3.1.3.1).

**Water Quality.** Water quality conditions in the LCR would be similar to those described in the Existing Setting (Section 3.1.3.1), with the exception of Reclamation's predicted rise in TDS concentration to 879 mg/L.

**Groundwater.** Because river stages would not be substantially different from existing conditions, groundwater hydrology and chemistry in aquifers that are hydraulically connected to the LCR would remain relatively unchanged under Alternative 1.

#### IID WATER SERVICE AREA AND AAC

***Surface Water Quantity***

**IID Irrigation Water Delivered Through the AAC.** Under the No Project Alternative, the proposed diversion of 130 KAFY to 300 KAFY of IID irrigation water would not occur, and the diversion of Colorado River irrigation delivery water to the AAC at the Imperial Dam would be limited to approximately 3.43 MAFY (3.85 less Priorities 1 and 2- PVID/Yuma Project diversions). After accounting for upstream losses and diversions to CVWD, output from the IIDSS indicates that the predicted mean annual volume of water delivered to the

IID water service area at Mesa Lateral 5 is 2,803 MAFY, which includes adjustments for river administration. A flow diagram showing a water balance for IID under No Project/Baseline conditions is presented in Figure 3.1-30.

**Collective Drains Discharging to the New and Alamo Rivers.** Under the No Project/Baseline, the quantity of water flowing through the surface drains that discharge to the New and Alamo Rivers is expected to be similar to present volumes (see Figure 3.1-30).

**Alamo River.** The quantity of water discharged from the Alamo River to the Salton Sea, under the No Project/Baseline, is predicted at a mean annual volume of 576 KAFY.

**New River.** The average annual flow volume of the New River at the International Boundary is estimated at approximately 165 KAFY. This flow volume may be affected by water demand and discharges in Mexico, and has changed dramatically over the period of record. Future changes in flow volume across the International Boundary could occur; however, these changes are not included in the predicted No Project/Baseline flow. Model results for IID drainage indicate that when combined with the current flow from Mexico, the predicted No Project/Baseline mean annual flow in the New River at the outlet to the Salton Sea would be approximately 431 KAFY.

**Surface Drain Discharge Directly to the Salton Sea.** Model results for IID drainage indicate that the predicted No Project/Baseline mean annual flow in the surface drains that discharge directly to the Salton Sea would be approximately 92 KAFY.

***Surface Water Quality***

**Alamo River Drainage Basin – IID Surface Drain Discharge to the Alamo River.** Model results for the No Project/Baseline indicate that the average concentration of TDS in the surface drain discharge to the Alamo River is 2,492 mg/L, which is below the significance criterion of 4,000 mg/L. However, at 6.32 µg/L, selenium is above its significance criteria of 5 µg/L. No Project/Baseline TSS concentrations are predicted at 252 mg/L (see Table 3.1-15).

**Surface Water Quality – Alamo River Drainage Basin – Alamo River at the Outlet to the Salton Sea.** Model results indicate that the predicted No Project/Baseline average concentration of TDS in the Alamo River at the outlet to the Salton Sea is 2,465 mg/L, which is below its

significance criterion. However, selenium is above its significance criteria at 6.25 µg/L (see Table 3.1-15). No Project/Baseline TDS concentrations are predicted at 264 mg/L, above its significance criteria of 200 mg/L.

**Surface Water Quality – New River Drainage Basin – New River at the International Boundary.** As previously mentioned, model results indicate that the predicted No Project/Baseline average concentrations of TDS, selenium, and TSS at the International Boundary are 2,719 mg/L, 2.3 µg/L, and 50 mg/L, respectively (see Table 3.1-16). All three COCs at this location are below their respective significance criteria.

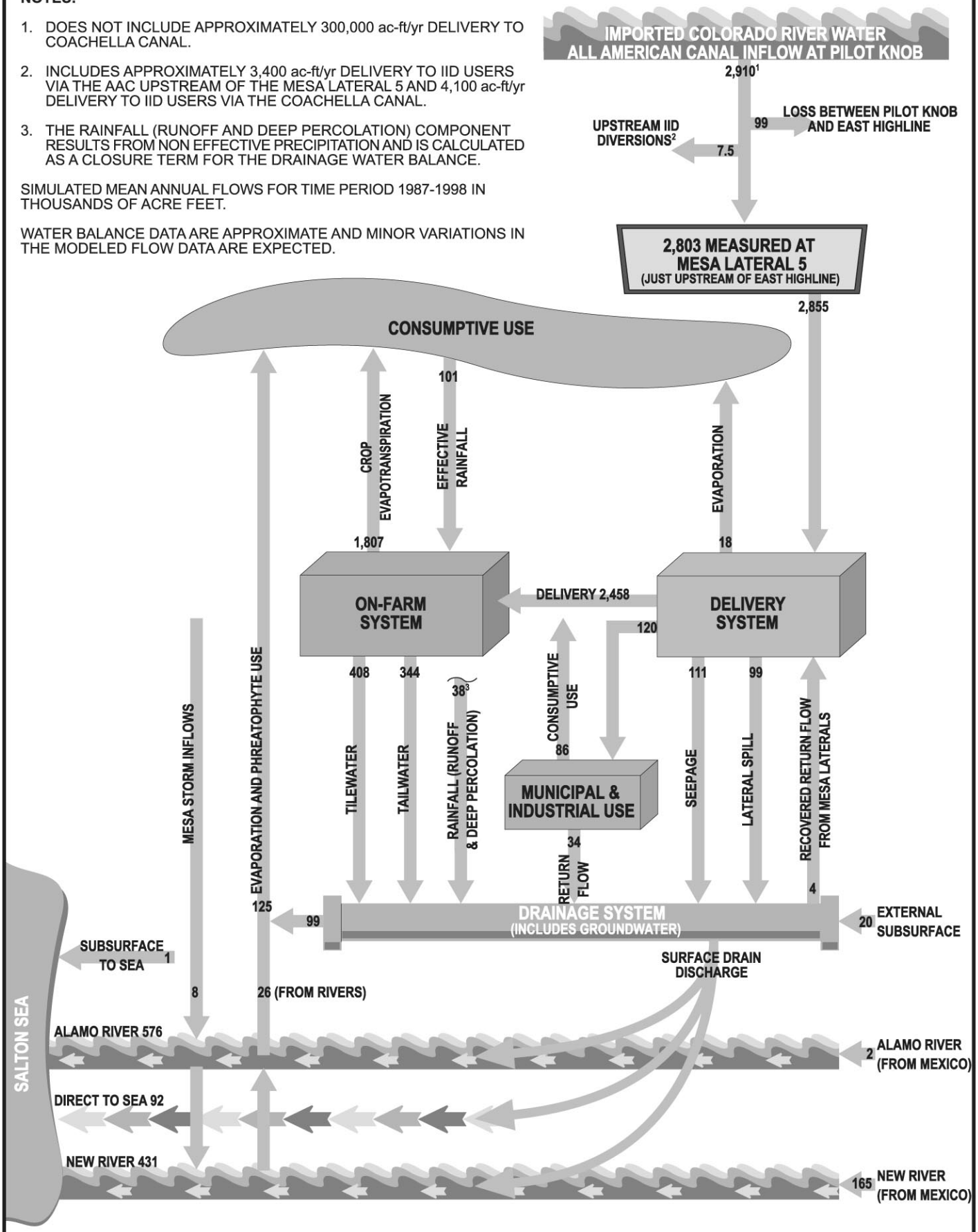
**Surface Water Quality – New River Drainage Basin – IID Surface Drain Discharge to the New River.** Model results for the No Project/Baseline indicate that the average concentrations of TSS and selenium in the New River at the outlet to the Salton Sea are 294 mg/L and 6.51 µg/L, respectively. Both are above their respective significance criteria. The predicted average No Project/Baseline TDS concentration is 2,485 mg/L (see Table 3.1-16).

**NOTES:**

1. DOES NOT INCLUDE APPROXIMATELY 300,000 ac-ft/yr DELIVERY TO COACHELLA CANAL.
2. INCLUDES APPROXIMATELY 3,400 ac-ft/yr DELIVERY TO IID USERS VIA THE AAC UPSTREAM OF THE MESA LATERAL 5 AND 4,100 ac-ft/yr DELIVERY TO IID USERS VIA THE COACHELLA CANAL.
3. THE RAINFALL (RUNOFF AND DEEP PERCOLATION) COMPONENT RESULTS FROM NON EFFECTIVE PRECIPITATION AND IS CALCULATED AS A CLOSURE TERM FOR THE DRAINAGE WATER BALANCE.

SIMULATED MEAN ANNUAL FLOWS FOR TIME PERIOD 1987-1998 IN THOUSANDS OF ACRE FEET.

WATER BALANCE DATA ARE APPROXIMATE AND MINOR VARIATIONS IN THE MODELED FLOW DATA ARE EXPECTED.




The data in this figure does not reflect implementation of the Salton Sea Habitat Conservation Strategy

**Figure 3.1-30**
**Baseline/No Project: Alternative 1**
**Average Overall Water Balance**
**IID Water Conservation and Transfer Project Final EIR/EIS**

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**Surface Water Quality – New River Drainage Basin – New River at the Outlet to the Salton Sea.** The average concentrations of TDS and selenium in the New River at the outlet to the Salton Sea are 2,617 mg/L and 3.30 µg/L, respectively, which are below their respective significance criteria. The predicted average No Project/Baseline TSS concentration is 238 mg/L (see Table 3.1-16).

**Surface Water Quality – IID Surface Drain Discharge to the Salton Sea.** The predicted No Project/Baseline TDS, TSS and selenium concentrations in the surface drain discharge to the Salton Sea are 1,892 mg/L, 136 mg/L and 4.8 µg/L, respectively; all below their respective significance criteria. (See Table 3.1-17).

**Groundwater Hydrology.** Surface flow and seepage, groundwater recharge, and groundwater use in the IID water service area is not expected to be substantially different from existing conditions. Therefore, groundwater hydrology and water chemistry in aquifers that are hydraulically connected to the IID water service area would remain relatively unchanged under the predicted Baseline.

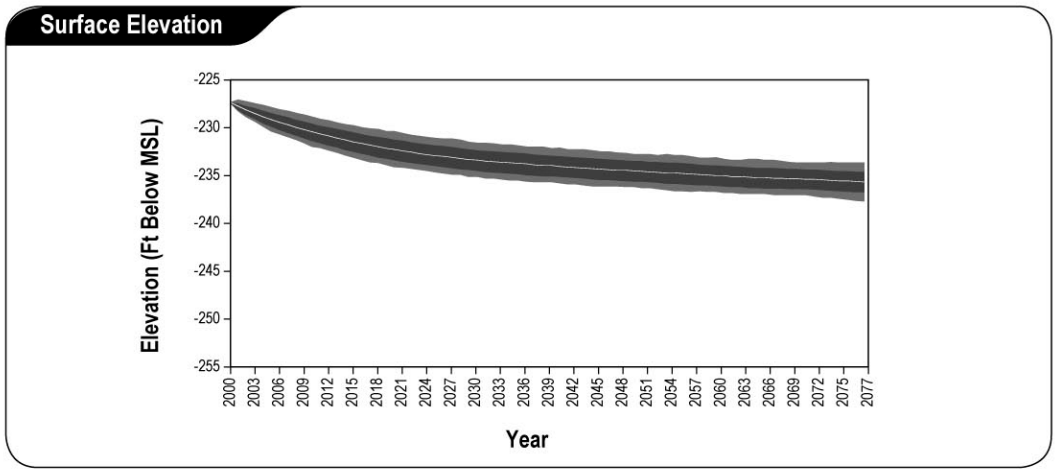
### SALTON SEA

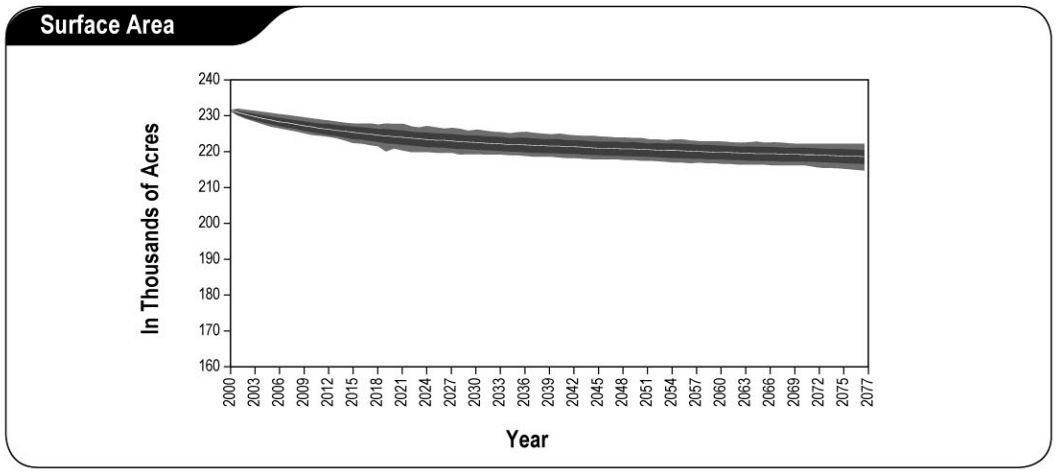
**Water Quantity.** Modeling conducted by Reclamation indicates that under the No Project/Baseline, the mean surface elevation of the Sea is expected to drop approximately 7 feet over the next 75 years, from its current elevation of approximately –228 feet msl to -235 feet msl (Figure 3.1-31). In addition, Reclamation's model predicts that over the life of the project, the surface area of the Sea is expected to decrease approximately 16,000 acres or roughly 25 square miles, from the present area of approximately 233,000 acres to 217,000 acres (see Figure 3.1-31).

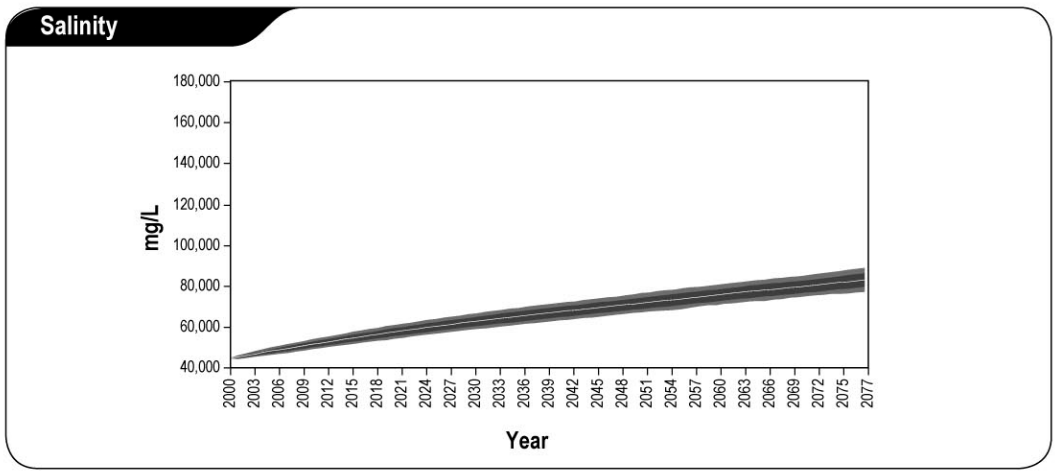
**Water Quality.** The salinity of the Sea is expected to increase over time because dissolved salt loadings continue to be concentrated by evaporation. In addition, the TDS levels in imported Colorado River water are expected to rise to 879 mg/L from present concentrations. Reclamation's Salton Sea Accounting Model predicts that under future No Project/Baseline conditions, the concentration in the salinity of the Sea will reach approximately 60,000 mg/L TDS by 2023, and ultimately will rise as high as 86,000 mg/L TDS by the year 2077 (see Figure 3.1-31). A bar chart comparing TDS concentrations for the Proposed Project and Alternatives is presented in Figure 3.1-29.

**Selenium Concentrations.** As previously mentioned, quantitative predictions on selenium concentrations in the Sea are not available. However, similar to the Proposed Project, it is predicted that under future No Project/Baseline conditions, selenium concentrations in the Sea would remain below the 5-µg/L water quality standard.

**Sediment Quality.** Because both TSS discharges and changes in selenium concentrations in IID water service area discharges to the Salton Sea are not expected to increase under future No Project/Baseline conditions, sediment quality in the Salton Sea is expected to remain constant relative to conditions discussed in the Existing Setting section (Section 3.1.3.3).




**Legend:**

- Mean
- +1 Standard Deviation, -1 Standard Deviation
- +95 Percentile, -5 Percentile

**Notes:**

Mean: Mean of all traces
95 Percentile: 95 percent of all model traces resulted in values less than or equal to the indicated values
5 Percentile: 5 percent of all model traces resulted in values less than or equal to the indicated values
-1 Standard Deviation: Values representing one standard deviation below the mean
+1 Standard Deviation: Values representing one standard deviation above the mean

Source: U.S. Bureau of Reclamation Salton Sea Accounting Model, December 2001.

The data in this figure does not reflect implementation of the Salton Sea Habitat Conservation Strategy

**Figure 3.1-31**
**USBR Model Results:**
**Project Baseline Graphs of the Salton Sea**
**IID Water Conservation and Transfer Project Final EIR/EIS**

### 3.1.4.5 Alternative 2 (A2): Water Conservation and Transfer of Up to 130 KAFY to SDCWA (On-farm Irrigation System Improvements as Exclusive Conservation Measure).

#### LOWER COLORADO RIVER

##### *Water Conservation and Transfer*

Alternative 2 includes the diversion of up to 130 KAFY per year at Parker Dam to the CRA, and the transfer of this water to the SDCWA service area. The reduction in flow in the reach between Parker and Imperial dams of up to 130 KAFY per year has the potential to result in beneficial and less than significant impacts on water quality, as described below.

Similar to the Proposed Project, Alternative 2 does not include construction and operation of new or improvement of existing facilities in the LCR study area; therefore, no impacts to hydrology and water quality due to changes in construction and operations would occur in the LCR.

**Water Quantity.** Although Reclamation has not conducted modeling for a 130 KAFY diversion, it is anticipated that impacts to surface water quantities in the LCR would be proportionally less than those resulting from the Proposed Project. A diversion of up to 130 KAFY is within the historical variation in volume on the LCR.

**Impact A2-WQ-1: Effects on groundwater, LCR flows, and LCR water quality.** Although Reclamation has not conducted modeling for a 130 KAFY diversion, it is anticipated that impacts to river stages in the LCR would be proportionally less than those resulting from the Proposed Project. Under Alternative 2, changes in groundwater hydrology and chemistry in aquifers that are hydraulically connected to the LCR are anticipated to be proportionally less than predicted under the Proposed Project.

Similar to the Proposed Project, the reduction of flow volume during a given season in the reach of the LCR between Parker and Imperial dams could beneficially impact sediment load in the LCR. Relative to the Baseline, salinity concentrations are anticipated to continue to meet mandated objectives through salinity control projects; therefore, no impact to salinity in the LCR is anticipated. In addition, Alternative 2 is not expected to change water quality in the LCR because additional chemical constituents that could affect Baseline conditions are not being introduced to the reach. Therefore, impacts to water quality in the LCR are anticipated to be less than significant. (Less than significant impact.)

#### IID WATER SERVICE AREA AND AAC

##### *Water Conservation and Transfer*

##### *Surface Water Quantity*

**IID Irrigation Water Delivered Through the AAC.** Alternative 2 would reduce water delivery to IID through the AAC by 130 KAFY. The amount of water delivered to IID (as measured at Mesa Lateral 5) would be reduced approximately 5 percent from 2.8 MAFY under the Baseline, to just under 2.67 MAFY (see Figure 3.1-32). Similar to the Proposed Project, there would be little change in water levels in the AAC and main irrigation delivery canal system because current water levels in the AAC, East Highline Canal, and Westside Main Canal are maintained as high as possible to maximize power generation from the hydropower facilities on these canals and to ensure efficient water delivery operations.

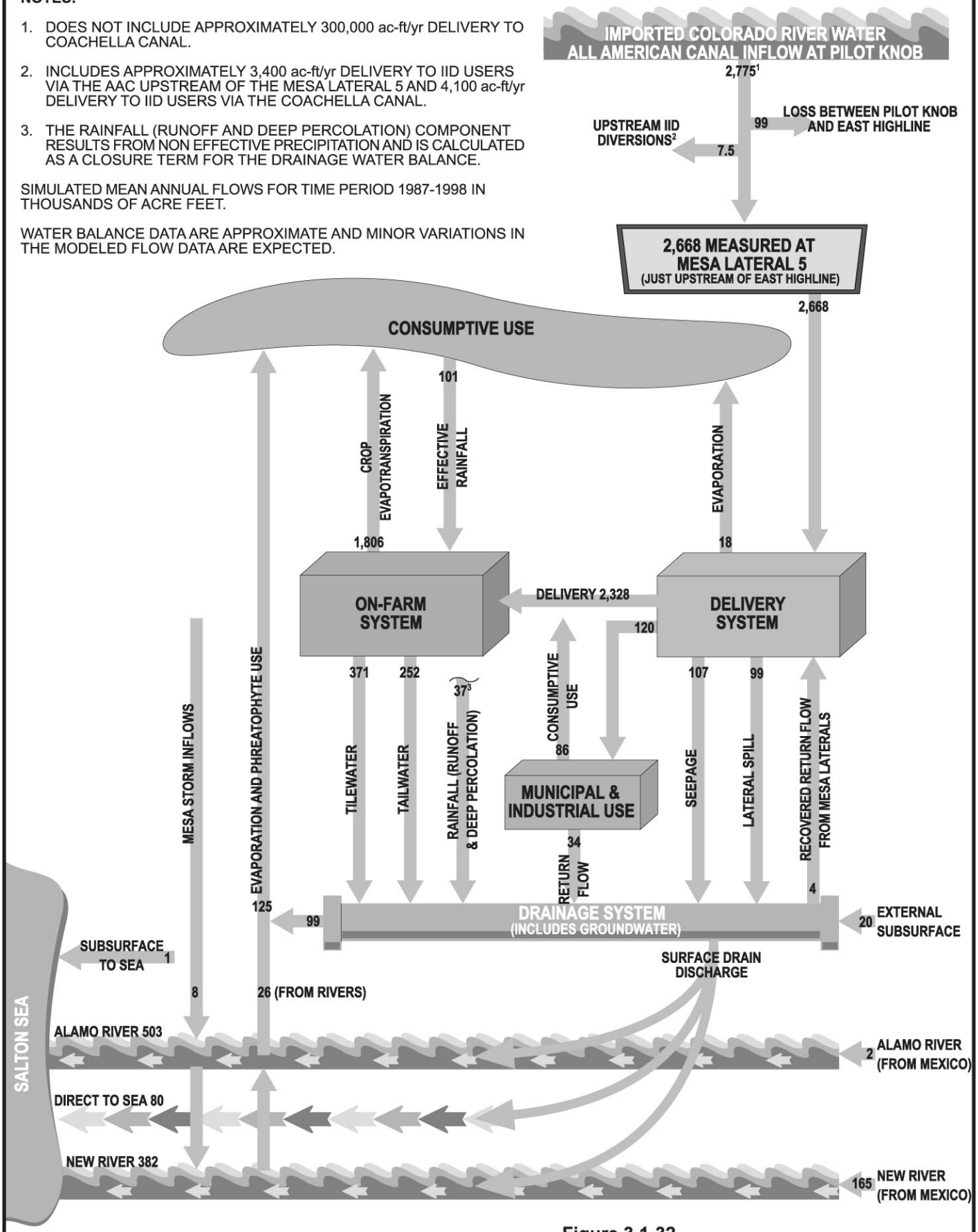
**Collective Drains Discharging to the New and Alamo Rivers.** Under Alternative 2, the amount of drain (tile, tail, seepage and spillage) water that is collected by and discharged from the

**NOTES:**

1. DOES NOT INCLUDE APPROXIMATELY 300,000 ac-ft/yr DELIVERY TO COACHELLA CANAL.
2. INCLUDES APPROXIMATELY 3,400 ac-ft/yr DELIVERY TO IID USERS VIA THE AAC UPSTREAM OF THE MESA LATERAL 5 AND 4,100 ac-ft/yr DELIVERY TO IID USERS VIA THE COACHELLA CANAL.
3. THE RAINFALL (RUNOFF AND DEEP PERCOLATION) COMPONENT RESULTS FROM NON EFFECTIVE PRECIPITATION AND IS CALCULATED AS A CLOSURE TERM FOR THE DRAINAGE WATER BALANCE.

SIMULATED MEAN ANNUAL FLOWS FOR TIME PERIOD 1987-1998 IN THOUSANDS OF ACRE FEET.

WATER BALANCE DATA ARE APPROXIMATE AND MINOR VARIATIONS IN THE MODELED FLOW DATA ARE EXPECTED.




The data in this figure does not reflect implementation of the Salton Sea Habitat Conservation Strategy

**Figure 3.1-32**
**Alternative 2: Water Conservation and Transfer of Up To 130 KAFY On-farm Average Overall Water Balance**

IID drainage system to the New and Alamo Rivers would be reduced approximately 17 percent and 13 percent, respectively, from the mean annual volumes predicted for the Baseline. The primary impacts associated with the reduction of flow in the IID drains that discharge to the New and Alamo Rivers are associated with water quality in the drains. No other impacts to these drains are anticipated.

**Alamo River.** The amount of water discharged from the Alamo River to the Salton Sea would be reduced by approximately 12.7 percent, from a mean annual volume of 576 KAFY predicted under the Baseline, to approximately 503 KAFY. As previously noted, the volume of water within the Alamo River would mainly consist of IID drainage. The primary impacts resulting from the reduction of flow in the Alamo River are related to water quality in the river, and impacts to water quality and quantity in the Salton Sea. No other impacts associated with the decreased flow in the river are anticipated.

**New River.** As previously noted, the average annual flow volume of the New River at the International Boundary is estimated at approximately 165 KAFY. This flow volume may be affected by water demand and discharges in Mexico, which have changed dramatically over the period of record. Future changes in flow volume across the International Boundary could occur; however, this flow would not be affected under Alternative 2. Model results for IID drainage indicate that when combined with the current flow from Mexico, the mean annual flow in the New River at the outlet to the Salton Sea would be approximately 382 KAFY. This represents a reduction of approximately 11 percent from the predicted flow of 431 KAFY under the Baseline. The primary impacts related to the reduction of flow in the New River are associated with water quality in the river, and impacts to water quality and quantity in the Salton Sea. No other impacts associated with the decreased flow in the river are anticipated.

**Surface Drain Discharge Directly to the Salton Sea.** Similar to the reductions to the New and Alamo Rivers, implementation of the Proposed Project would reduce the amount of water discharged directly from IID drains to the Salton Sea approximately 13 percent, from 92 KAFY, predicted under the Baseline, to approximately 80 KAFY. The primary impacts from the reduction of flow in the surface drains are related to water quality in the drains and impacts to water quality and quantity in the Salton Sea.

**Water Quality of New River at the International Boundary.** Model results indicate that water quality in the New River at the International Boundary is unaffected by the Proposed Project and Alternatives, and TDS, TSS, and selenium concentrations are the same for the Baseline, as well as for the Proposed Project and Alternatives (see Table 3.1-16).

### *Surface Water Quality*

**Impact A2-WQ-2: Increased selenium concentrations in IID surface drain discharges to the Alamo River.** Alternative 2 Model results indicate that the annual average concentration of selenium in the surface drain discharge to the Alamo River is 6.91 µg/L, which is an increase compared to the Baseline and is above the significance criterion. However, model results indicate that TDS concentrations under Alternative 2 are 2,723 mg/L, which is below the significance criterion. The average concentration of TSS is 211 mg/L. In comparison to the Baseline, TDS and selenium concentrations are higher under Alternative 2 while TSS concentrations are lower (see Table 3.1-15).

Impacts to the Alamo River associated with selenium under Alternative 2 are similar to those described under the Proposed Project; that is, selenium concentrations in surface drain water at the point of discharge to the Alamo River represent significant and unavoidable impacts on water quality. It should be noted that average Baseline selenium concentrations in the Alamo River drains are also above the significance criterion. (Significant and unavoidable impact.)

**Mitigation A2-WQ-2:** No reasonable mitigation is available to reduce the concentration of selenium in the drains. The HCP IID Water Service Area Portion includes habitat replacement to mitigate the biological impacts resulting from the increased selenium; however, the selenium concentration itself would not be reduced by the HCP. (Significant and unavoidable impact.)

**Impact A2-WQ-3: Reduction in Total Suspended Solids concentrations in IID surface drains discharging to the Alamo River.** Impacts associated with TSS concentrations in the surface drain discharge to the Alamo River are considered beneficial to river water quality because TSS concentrations are lower relative to the Baseline. (Beneficial impact).

**Impact A2-WQ-4: Maintain selenium concentration in the Alamo River at the Outlet to the Salton Sea.** Model results indicate that the average concentration of TDS in the Alamo River at the outlet to the Salton Sea is 2,676 mg/L, which is below the significance criterion. However, the Baseline concentration of selenium is 6.25 µg/L, which is above the significance criteria. Under Alternative 2, the average TSS concentration at this location is 222 mg/L, which is above the significance criterion. In comparison to the Baseline, TDS concentrations are higher, selenium concentrations are similar, and TSS concentrations are lower (see Table 3.1-15).

Although the selenium concentration in the Alamo River under Alternative 2 is above the significance criterion, it does not increase compared to the Baseline; therefore, it is a less than significant impact. (Less than significant impact.)

**Impact A2-WQ-5: Increase in selenium concentration in the IID surface drain discharge to the New River.** Model results indicate that the average concentrations of TDS, selenium, and TSS in the surface drain discharge to the New River are 2,839 mg/L, 7.15 µg/L, and 257 mg/L, respectively. The concentrations of TDS are below the significance criterion, and the concentration of selenium is above the significance criterion. In comparison to the Baseline, TDS and selenium concentrations are higher, and TSS concentrations are lower (see Table 3.1-16).

Impacts associated with TSS in surface drain discharge to the New River are considered beneficial to river water quality because TSS concentrations are lower than under the Baseline. Impacts to the New River associated with selenium are similar to those described under the Proposed Project; that is, selenium concentrations in surface drain discharge to the New River represent significant and unavoidable impacts to water quality. It should be noted that average Baseline selenium concentrations in the New River drains are also above the significance criterion. (Significant and unavoidable impact.)

**Mitigation Measure A2-WQ-5:** See Mitigation A2-WQ-2.

**Impact A2-WQ-6: Change in COC concentrations in the New River at the Outlet to the Salton Sea.** Alternative 2 model results indicate that TDS concentrations are 2,824 mg/L, TSS concentrations are 199 mg/L, and selenium concentrations are 3.50 µg/L. In comparison to the Baseline, TDS and selenium concentrations are higher, and concentrations of TSS are lower (see Table 3.1-16). However, all COC concentrations remain below their respective significance criteria. (Less than significant impact.)

**Impact A2-WQ-7: Increase in selenium concentrations in the IID surface drains discharging directly to the Salton Sea.** Model results indicate that under Alternative 2 the average concentration of selenium in the surface drains that discharge directly to the Sea is 5.09 µg/L. This concentration is slightly above the selenium significance criterion of 5.0 µg/L. The average concentration of TDS is 2,004 mg/L. TSS concentrations are at 121 mg/L. In comparison to the Baseline, concentrations of TDS and selenium are higher, and concentrations of TSS are lower (see Table 3.1-17). (Significant and unavoidable impact.)

**Mitigation A2-WQ-7:** See mitigation A2-WQ-2.

**Impact A2-WQ-8: Potential effects to Imperial Valley groundwater hydrology.** Similar to the Proposed Project, Alternative 2 is not expected to impact groundwater resources in the IID water service area. Therefore, impacts to groundwater resources and the beneficial use of groundwater in the IID water service area are expected to be less than significant. (Less than significant impact.)

***Salton Sea Habitat Conservation Strategy (HCP-SS)***

As described above and in Section 2.2.6.7, the Salton Sea Habitat Conservation Strategy has been evaluated in this Final EIR/EIS with the assumption that mitigation water would be generated by fallowing within the IID water service area. Other sources of water could be used but they have not been evaluated in this EIR/EIS.

Additional details of the Salton Sea Habitat Conservation Strategy can be found in Section 2.2.6.7.

Under the Salton Sea Habitat Conservation Strategy, additional water would be supplied to the Sea to maintain the salinity of the Sea below 60 ppt until 2030. As described in the Project Description, how mitigation water would be conveyed to the Salton Sea has not yet been specified. Potentially, the mitigation water could be transported via drains and rivers in the Imperial Valley. In this case, flows in the rivers and drains used to convey the water could approach levels under the Baseline. Alternatively, mitigation water generated in the Imperial Valley could be conveyed to the Salton Sea through channels other than the drains and rivers in the Imperial Valley. In this case, flows in the drains and rivers in the Imperial Valley would be reduced relative to Alternative 2 without implementation of the HCP-SS component. After cessation of provision of mitigation water to the Salton Sea, flows would be the same as without implementation of the Salton Sea Habitat Conservation Strategy.

Implementation of the Salton Sea Habitat Conservation Strategy could affect water quality in the drains depending on the source of water used to provide mitigation water. If fallowing within the IID water service area is used to generate mitigation water, minor changes in water quality could occur. It is expected that fallowing to generate mitigation water would not change the tail and tile water percentages in the drains, and as a result, water quality would not change appreciably. This expectation was verified by making

additional runs with the IIDSS model. Minor changes to water quality concentrations could occur in the New River because about one-third of the flow comes from Mexico, and fallowing would reduce constituent mass loading. In addition, because of smaller flows in the canal system, there could be minor water quality changes in the canals and rivers because of changes in seepage losses and gains.

## SALTON SEA

### *Water Conservation and Transfer*

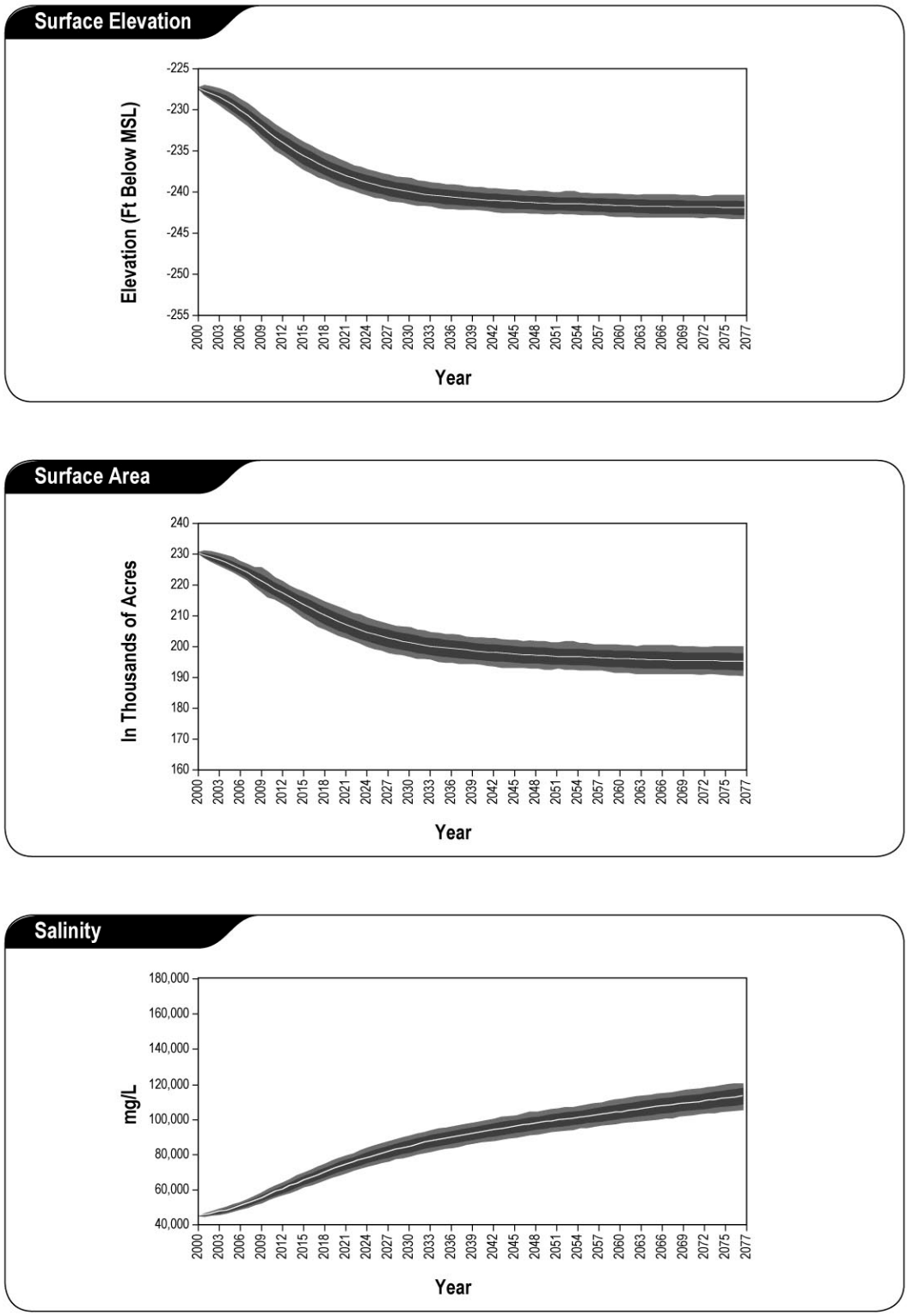
**Water Quantity.** According to model results generated by the IIDSS (see Appendix E), Alternative 2 is expected to reduce IID's discharge to the Salton Sea by approximately 12 percent, from roughly 1.1 MAFY under the Baseline to 966 KAFY (includes flow from Mexico). Modeling conducted by Reclamation indicates that, over a 75-year period, the reduction in flow is expected to result in a drop in the surface of the Sea of roughly 14 feet, from the Baseline elevation of approximately –228 feet msl to –242 feet msl (Salton Sea Accounting Model 2001 data, see Figure 3.1-33). In addition, Reclamation's model predicts that the reduction of flow will reduce the surface area of the Sea by 16 percent (approximately 59 square miles), from the present area of approximately 233,000 acres to 195,000 acres. By far, the greatest reductions are expected to occur between the time of the initiation of transfer and the year 2030 (see Figure 3.1-33). In comparison, under the Baseline the mean elevation of the Sea is expected to drop nearly 7 feet to –235 feet msl over the same 75-year period. However, with implementation of the Salton Sea Habitat Conservation Strategy in concert with Alternative 2, the elevation of the Sea would be maintained at Baseline elevations to the year 2035 and then reach an elevation of about –242 feet msl at the end of the project term (2077).

See also the additional notes under the Proposed Project impact to the Salton Sea regarding impacts to other resources and relationship to the Salton Sea Restoration Project.

**Water Quality.** As previously mentioned, a finding of significant impact to the Sea, based on a regulatory standard for TSS and salinity, cannot be made at this time. However, to provide background for potential secondary impacts to biological resources in the Salton Sea, a discussion of the predicted change in salinity of the Sea is presented below. Further analysis of the impacts that elevated salinity levels could have on the biological resources of the Sea is included in Section 3.2, Biological Resources.

Reclamation's Salton Sea Accounting Model predicts that the reduced inflows under Alternative 2 will ultimately result in the salinity of the Sea rising from its present concentration of approximately 45,000 mg/L TDS to over 60,000 mg/L TDS by the year 2013. And, by the year 2077, the Salton Sea Accounting Model predicts that salinity of the Sea will be as high as 113,000 mg/L TDS. In comparison, Salton Sea Accounting Model results indicate that under future Baseline conditions, the salinity of the Sea will reach 60,000 mg/L TDS by 2023, and ultimately will rise as high as 86,000 mg/L TDS by the year 2077 (see Figure 3.1-33). With implementation of the Salton Sea Habitat Conservation Strategy, the predicted TDS level for Alternative 2 is anticipated to be 114,000 (see Figure 3.1-29a). A bar chart comparing the future Baseline TDS concentration to predicted TDS concentrations for the Proposed Project and Alternatives is presented in Figure 3.1-29.

**Impact A2-WQ-9: Potential change in COC concentrations of the Salton Sea water column.** Similar to the Proposed Project, it is unlikely that the Proposed Project would result in an




Source: U.S. Bureau of Reclamation Salton Sea Accounting Model, December 2001.

The data in this figure does not reflect implementation of the Salton Sea Habitat Conservation Strategy

**Figure 3.1-33**
**USBR Model Results:**
**Alternative 2 Graphs of the Salton Sea**
**IID Water Conservation and Transfer Project Final EIR/EIS**

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increase in selenium concentrations in the Sea to levels equal to or greater than the 5.0 µg/L level stipulated in the significance criteria. (Less than significant impact.)

**Impact A2-WQ-10: Potential change in COC deposition in Salton Sea sediments.** Quantitative data on how reductions in flow affect concentrations of herbicides and pesticides in sediment are not available. However, qualitative assumptions indicate that concentrations of herbicides and pesticides in sediment in the Salton Sea are expected to decrease under Alternative 2.

As discussed in the Existing Setting section (Section 3.1.3.3), herbicides and pesticides tend to concentrate in sediment. Therefore, the amount of TSS in water can be used as a gross indicator for making comparative estimates about herbicide and pesticide concentrations in sediment. In this respect, a reduction in herbicide and pesticide concentrations in sediment under Alternative 2 is expected because the mass input of TSS to the Sea (along with the total inflow of water) is expected to decrease relative to the Baseline. As a result, impacts to sediment quality from Alternative 2 are anticipated to be less than significant. (Less than significant impact.)

As previously noted, the Proposed Project has the potential to affect selenium concentrations in sediment in the Salton Sea. Selenium concentrations in sediment do not constitute an impact to water quality based on the water quality significance criteria. However, changes in selenium concentrations have the potential to affect biological resources in the Salton Sea. Further details on these potential impacts are presented in Section 3.2, Biological Resources.

### *Salton Sea Habitat Conservation Strategy (HCP-SS)*

With implementation of the Salton Sea Portion of the HCP, IID would supply mitigation water to the Sea such that the salinity of the Sea would remain below 60 ppt until 2030. For approximately the first 30 years of the Project, inflow to the Sea would be greater than under the Baseline. After this period, inflow to the Sea would be reduced. Provision of water to the Sea would maintain the surface elevation higher than would occur under the Baseline until 2030, after which the surface elevation would decline at a faster rate and to a greater degree than under the Baseline (see Figure 3.2-17b in Section 3.2.4.3).

**Impact A2-HCP-SS-WQ-11: Reduced loading of COC to Salton Sea water and sediment.** The Salton Sea Portion of the HCP is designed to avoid the impacts to biological resources from Project-related reductions in flow to the Sea. The quality of the water discharged to the Salton Sea under the Salton Sea Portion of the HCP would be similar to or improved relative to the water that is currently discharged to the Sea. Therefore, implementing this approach would not affect selenium concentrations in the Sea. Further, providing water to the Sea would slow the rate of salinization relative to the Baseline for the first 30 years of the Project. With the Salton Sea portion of the HCP, the salinity of the Sea would be lower than under the Baseline until about 2030. Once mitigation water is no longer supplied to the Sea, the salinity is projected to increase beyond that expected under the Baseline (Figure 3.1-29a). There are no significance criteria that stipulate a specific federal or state standard for salinity in the Salton Sea.

Thus, the changes in salinity under Alternative 2 are a less than significant water quality impact.

### 3.1.4.6 Alternative 3 (A3): Water Conservation and Transfer of Up to 230 KAFY to SDCWA, CVWD, and/or MWD (All Conservation Measures)

#### LOWER COLORADO RIVER

##### *Water Conservation and Transfer*

Alternative 3 includes the diversion of up to 230 KAFY at Parker Dam to the CRA, and the transfer of 130 KAFY to the SDCWA service area, with the remaining amount to be transferred to SDCWA, CVWD, or MWD. The reduction in flow in the reach between Parker and Imperial dams of up to 230 KAFY has the potential to result in beneficial and less than significant impacts, as described below. Similar to the Proposed Project, Alternative 3 does not include construction and operation of new or improvement of existing facilities in the LCR study area; therefore, no impacts to hydrology and water quality as a result of changes in construction and operations would occur in the LCR.

**Water Quantity.** Although Reclamation has not conducted Colorado River modeling for a 230 KAFY diversion, it is anticipated that impacts to surface water quantities in the LCR would be proportionally less than those resulting from the Proposed Project. A diversion of up to 230 KAFY is within the historical variation in volume on the LCR.

**Impact A3-WQ-1: Effects on groundwater, LCR flows and LCR water quality.** Although Reclamation has not conducted Colorado River modeling for the diversion of 230 KAFY, it is anticipated that impacts to the surface water elevation of the LCR would be proportionally less than those resulting from the Proposed Project. Under Alternative 3, changes in groundwater hydrology and chemistry in aquifers that are hydraulically connected to the LCR are anticipated to be proportionally less than those predicted under the Proposed Project.

Similar to the Proposed Project, the reduction of flow volume during a given season in the reach of the LCR between Parker and Imperial dams could beneficially impact sediment load in the LCR, thus, providing a beneficial impact.

Relative to Baseline, salinity concentrations are anticipated to continue to meet mandated objectives through salinity control projects; therefore, no impact to salinity in the LCR is anticipated. In addition, Alternative 3 is not expected to change water quality in the LCR because additional chemical constituents that could affect current Baseline conditions are not being introduced to the reach. Therefore, impacts to water quality in the LCR are anticipated to be less than significant. (Less than significant impact.)

#### IID WATER SERVICE AREA AND AAC

##### *Water Conservation and Transfer*

##### *Surface Water Quantity*

IID Irrigation Water Delivered Through the AAC. Alternative 3 would reduce water delivery to IID through the AAC by up to 230 KAFY. The amount of water delivered to IID (as measured at Mesa Lateral 5) would be reduced approximately 8 percent from 2.8 MAFY under the Baseline, to just under 2.57 MAFY (see Figure 3.1-34). Similar to the Proposed Project, there would be little change in water levels in the AAC and main irrigation delivery canal system because current water levels in the AAC, East Highline Canal, and Westside Main Canal are maintained as high as possible to maximize power generation from the hydropower facilities on these canals and to ensure efficient water delivery operations.