likely that land use impacts would extend beyond the reservoir site itself. The actual areas and land uses that would be affected depend on the siting, design, and operation of the reservoir. This information will be developed in subsequent project-specific environmental documents.

The following sites were investigated as examples for preliminary land use change analysis in this document:

- Sites/Colusa and Thomes-Newville Reservoir sites were selected to represent surface water storage on Sacramento River tributaries. Assuming a storage capacity of 3 MAF, the potential land affected by a new reservoir could range from 16,700 acres (Thomes-Newville) to 29,600 acres (Sites/Colusa). This range is included in the Sacramento River Region in Table 4-3.

- The Montgomery Reservoir site was the representative example for surface water storage on San Joaquin River tributaries. Assuming a storage capacity of 500 thousand acre-feet (TAF), the land that would be affected by a new reservoir at this site was estimated at 8,050 acres. This value is included in the San Joaquin River Region in Table 4-3.

- Groundwater storage was estimated at 1,500 acres in both the Sacramento River and San Joaquin River Regions. These values are included in the respective regional areas in Table 4-3.

- The Los Vaqueros Reservoir site was the example for the surface water storage off-aqueduct option. Assuming a storage capacity of 1 MAF, the potential land affected by enlarging the existing reservoir was estimated at 7,000 acres. This value is included in the San Joaquin River Region in Table 4-3.

Unclear if affected acreage includes existing resv. site, or if 7000 acres impacted by expansion

- Victoria, Bacon, Holland, and Woodward Islands were the example sites for the in-Delta storage. The sites occupy an area of 18,000-19,500 acres. These values are included in the Delta Region in Table 4-3.

4.3.5 CONVEYANCE

The estimated amounts of land area (for example, agriculture, and fish and wildlife habitat) that would be affected by conveyance features are shown in Table 4-3.

Table 4-3. Estimates of Land Area Affected by Storage and Conveyance (in acres)

ALTERNATIVE	DELTA REGION STORAGE[1]	DELTA REGION CONVEYANCE	SACRAMENTO RIVER REGION STORAGE[1]	SAN JOAQUIN RIVER REGION STORAGE[1]	ALL REGIONS TOTAL
PPA[2]	0-15,000	100-4,500	0-32,000	0 to16,600	100-68,100
1	0-15,000	100-400	0-32,000	0 to16,600	100-64,000
2	0-15,000	4,000-4,500	0-32,000	0 to16,600	4,000-68,100
3	0-15,000	4,500-6,000	0-32,000	0 to16,600	4,500-69,600

satisfied largely by increased south Delta pumping during August through March in near-normal and wet years, and December through February in dry and critical years.

The following elements of the No Action Alternative are particularly pertinent to water quality:

- Water storage and conveyance facilities currently under construction would be completed. These facilities include the Eastside Reservoir and Inland Feeder; interim reoperation of Folsom Reservoir; levee restoration along selected reaches of the Sacramento River, its tributaries, and flood bypasses; and Stone Lakes NWR.
- Wastewater and water treatment facilities would be expanded to meet the needs of growing populations.
- Treatment levels would remain at current levels, increase if source water becomes more degraded, or improve in response to new regulations.

Under the No Action Alternative, water storage and conveyance facilities currently under construction would be completed.

Other operations and factors that would affect Bay-Delta channel and export water quality conditions include hydrologic and environmental conditions in the watersheds, population and land use, the quality of point and nonpoint source discharges, upstream reservoir releases and diversions, Delta outflows and sea-water intrusion, the provisions of the CVPIA and Bay-Delta Accord, and compliance with the State and Regional Water Quality Control Boards' Basin Plans and the State Board and Delta Water Quality Control Plan standards. Future changes in the Bay-Delta Accord, flow requirements, water quality standards, and water rights decisions could impose additional regulatory controls over SWP and CVP operations and Delta inflows controlled by upstream users. Changes in such regulatory controls could result in proportionately larger effects on water quality during dry and critically dry water-year types.

~~Tables 5.3-3a and 5.3-3b summarize the results of model predictions of salinity changes (expressed as EC) throughout the Delta for the No Action Alternative compared toexisting conditions for the long-term hydrologic sequence and the dry and critical water-year types, respectively. Separate predictions are shown for the water management Criterion A without storage and for water management Criterion B with storage. For each criterion, changes are shown for the annual average value and for the month during which the higher salinities are projected.~~
Tables 5.3.3a and 5.3.3b show predicted changes in salinity that would occur in the Delta under the No Action Alternative compared to existing conditions. Table 5.3.3a shows average changes over a long period that includes a full range of hydrologic conditions (wet, normal, dry and critically dry years). Tables 5.3.3b shows changes for dry and critically-dry years only. Positive values in the tables indicate an increase in salinity relative to the existing condition; negative values indicate a decrease.

No Action Alternative conditions are projected to result in less-than-significant increases in salinity concentrations.

Separate predictions are shown for Water Management Criteria A and B. ~~Criterion B assumes that water is available from new surface or subsurface storage reservoirs; Criterion B does not.~~ For each criterion, changes are shown for average monthly values and for the month during which the highest salinity concentrations are predicted to occur.

Tables 5.3-3a and 5.3-3b indicate that the No Action Alternative is projected to result in less-than-significant changes throughout the Delta Region when compared to modeled existing conditions. For example, during the long-term hydrologic sequence at CCFB, the annual average salinity is projected to increase by 10-40 μmhos/cm (2-8%), and the mean monthly salinity for December is projected to increase by about 40-70 μmhos/cm (4-8%). (A ~~percentage~~ change between ±10 ~~μmhos/cm~~ percent is considered within the margin of error of the model analysis

→ in salinity levels only? clarify

and is defined as less than significant.) During dry and critical years, Table 5.3-3b shows that these ranges increase by 0-60 μmhos/cm (0-10%) for the annual average and by 10-70 μmhos/cm (1-6%) on average for December.

Water quality for other constituents (other than salinity that has been addressed above) would change under the No Action Alternative in response to the effects of population and land use changes, increased export demand, and the effects of future regulatory controls. According to modeling conducted by DWR (1998 DSM model run) the predicted frequency distribution of bromide at the Contra Costa Canal Intake on Rock Slough has a median concentration of about 250 ug/l under existing conditions which would increase to about 300 ug/l under the No Action Alternative. At Clifton Court the modeling indicated a median bromide concentration of 150 ug/l under existing conditions and about 200 ug/l under the No Action Alternative. These changes are primarily the result of increased export demand and associated increased salinity intrusion into the Delta.

Organic carbon concentration in the Delta are assumed to remain essentially unchanged under the No Action Alternative. According to MWD estimates the median organic carbon concentration at the Harvey O. Banks Pumping Plant would be about 3.2 mg/l, and the 90th percentile concentration would be about 3.8 mg/l (WQPP, Section 3.7.2). Under existing conditions the mean concentration of DOC at the Banks Pumping Plant is about 3.7 mg/l (Table 5.3-2).

Project levee maintenance is assumed to continue in accordance with current requirements and practices, but no major rehabilitation efforts would be undertaken. Despite maintenance actions, levees could continue to deteriorate, increasing the risk of their failure due to seismic events, erosion, and overtopping. Such levee failures could threaten water quality at the CVP and SWP pumps, and at other water supply intake locations. The severity and extent of any degradation caused by the potential influx of ocean salinity (including bromide), TOC, soils, and sediment, and by the potential release of a variety of chemicals and wastes used or stored in areas protected by levees would depend on many factors. These factors include the season, hydrology, available reservoir storage, location of the breaks and storage, and extent of any flooding. In the worst case (foreseeable only in the event of a series of earthquake-induced west Delta levee failures that occurred during summer to late fall or during drought periods), water could become temporarily unusable for municipal and agricultural supplies for extended periods until the contam-inants could be flushed from the system. The resultant pooling of ocean salts, including bromide, in the Delta would cause potentially significant adverse impacts on water users and could cause a prolonged interruption of supply from the state's predominant water source.

? unclear

The growing imbalance between Delta-dependent water demands and the available supplies of good-quality water could be exacerbated in some regions. This could occur in the service areas if providers were required to replace good-quality Delta water with poorer quality water obtained from less desirable alternative sources. Regardless of the source of the degradation, resultant water quality impacts also could produce potentially significant adverse impacts on dependent water treatment costs, economic productivity, fish and wildlife habitats, public health, and social well-being.

In some regions, providers would be required to replace good-quality Delta water with poorer quality water obtained from less desirable alternative sources.

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B, respectively. These concentrations represent a 48% and 52% drop, respectively, in bromide compared to Alternative 1.

Concentrations of bromide at CCFB under Alternative 3 would be roughly equivalent to concentrations of bromide in the Sacramento River, assuming very little mixing of Sacramento River water with Delta water near the forebay. Bromide concentrations in the Sacramento River are negligible.

5.3.9 PROGRAM ALTERNATIVES COMPARED TO EXISTING CONDITIONS

5.3.9.1 PREFERRED PROGRAM ALTERNATIVE

This programmatic analysis found that the potentially beneficial and adverse impacts from implementing any of the Program alternatives when compared to existing conditions were generally the same impacts as those identified in Sections 5.3.7 and 5.3.8, which compares the Program alternatives to the No Action Alternative. Additionally, the comparison of the Program alternatives to existing conditions did not identify any additional potentially significant environmental consequences that were not identified in the comparison of Program alternatives to the No Action Alternative.

Table 5.3-8a summarizes the results of model simulations of average annual salinity (expressed as EC) throughout the Delta for the Preferred Program Alternative compared to existing conditions. Table 5.3-8b summarizes the results of model simulations of average annual EC during dry and critical years throughout the Delta for the Preferred Program Alternative compared to existing conditions. ~~The impacts associated with the Preferred Program Alternative, when compared to existing conditions, generally would be similar to those compared to the No Action Alternative, except that the benefits would be less pronounced. In other words, the degree of water quality improvement that would be achieved in the future with the Preferred Program Alternative is projected to almost always be significantly greater than it would be if the facilities were constructed today.~~
The Preferred Program Alternative would lower salinity levels at most locations in the Delta and in most water years as compared to existing conditions.

~~**The degree of water quality improvement achieved in the future under the Preferred Program Alternative is projected to almost always be significantly greater than it would be if the facilities were constructed today.**~~

The effects of the Preferred Program Alternative were compared to both the existing condition and No Action Alternative. They are similar. However, the improvement in salinity concentrations is more pronounced when the comparison is made to the No Action Alternative. This is because under the No Action Alternative water quality will deteriorate relative to the existing condition and thus there is more room for improvement in salinity levels. In other words, the water quality benefits of the Preferred Program Alternative will be more apparent if it is ~~built~~ implemented 20 years hence rather than today.

The overall geographic variations in the improvements and Delta locations where the changes were less than significant may be observed by comparing Table 5.3-8a with Table 5.3-4a. The differences between the comparisons of average annual ECs for the Preferred Program Alternative with average annual existing conditions, and annual ECs for the Preferred Program